

REPORTS

DATE: 2003

April 10, 2003

Mr. Stephen Weathers Duke Energy Field Services, LP 310 Seventeenth Street, Suite 900 Denver, Colorado 80202 PO Box 302, Evergreen, Colorado 80437 Telephone: 303.674.4370 Facsimile:720.528.8132

RECEIVED

APR 1 5 2003

ENVIRONMENTAL BUREAU O'L CONSERVATION DIVISION

Re: Report on Groundwater Characterization Activities on the U-Bar Ranch, Lea County New Mexico.

Dear Mr. Weathers:

This letter reports the results of the groundwater characterization activities completed by Remediacon Incorporated (Remediacon) for Duke Energy Field Services, LP (DEFS) at the U-Bar Ranch in Lea County, New Mexico. The work was completed based upon a December 2, 2002 work plan that was approved by Mr. Larry Johnson of the New Mexico Oil Conservation Division. This report includes sections on:

- Relevant background information;
- A description of the field activities completed;
- Presentation and discussion of the investigative results; and
- Conclusions and a recommended remediation plan.

BACKGROUND INFORMATION

The purpose of this program was to assess whether organic and inorganic constituents originating from releases on the DEFS Lovington C-1 pipeline had migrated to the groundwater. Specific objectives included:

- 1. Characterize the lithology and chemical distribution of the unsaturated and uppermost saturated materials beneath the site.
- 2. Verify the depth to the uppermost saturated materials.
- 3. Assess for the presence of constituents potentially released from the Lovington C-1 pipeline on the U-Bar Ranch Property.

The study area is located south of Lovington, New Mexico on land owned by Mr. Darr Angell doing business as the U-Bar Ranch (Figure 1). The approximate coordinates are 32 degrees 50 minutes north and 103 degrees 19 minutes west in Sections 14, 23, and 24, Township 17 South, Range 36 East.

The study area consists of eleven soils remediation sites along the alignment of the DEFS C-1 line (1 through 11, Figure 2). DEFS has abandoned this line. Three additional sites (2-1, 2-2, 2-3, Figure 2) are scheduled for remediation in the near future.

Environmental Plus, Inc. (EPI) remediated the soils at above-referenced eleven sites. Sulfate was the primary constituent of concern within these soils. EPI generally removed the soils within each affected area to an approximate depth of 3 feet. The EPI remediation activities are documented in separate reports.

The site is underlain by the Ogallala Formation so the groundwater is believed to occur under unconfined (water table) conditions. EPI researched the permitted water wells within and adjacent to the study area as part of the original notification effort. The depths to water ranged from approximately 36 to 57 feet below land surface (bls) with an average depth of 46.5 feet. Total well depths ranged from 105 to 120 feet and averaged 112.5 feet bls.

The topography in the area generally falls toward the east-southeast (Figure 2). Groundwater is believed to flow sub-parallel to the topographic gradient because of its relatively shallow depth and unconfined nature.

SCOPE OF WORK

The scope of work used during the field investigation was originally proposed in the December 12, 2002. The activities completed included monitoring well installation, development and sampling. The activities are described below.

Monitoring Well Installation

Three groundwater monitoring wells were installed on December 6, 2002. The wells were installed at remediation sites selected by Mr. Angell. The well locations are shown relative to the remediation sites on both Figures 2 (topographic map) and 3 (aerial photograph). Wells MW-1 and MW-3 were installed outside of and on the southeastern side of their respective excavations based upon an assumed southeasterly groundwater flow direction. Well MW-2 was installed inside the excavation.

The wells were installed by Eades Drilling, a licensed New Mexico water well driller, using air rotary drilling. All activities were supervised by an experienced geologist. Cutting were inspected on a regular basis and split spoon samples were collected every 10 feet and screened for the presence of hydrocarbon constituents using a photoionization detector (PID). Lithologic logs were compiled for each boring and are included in Attachment 1.

Soil samples were collected at 10-foot intervals from 10 to 40 feet in MW-1, 10 to 30 feet in MW-3 and at 20 and 30 feet in MW-2. These samples were collected to quantify

sulfate concentrations in the soil at decreasing depths. The samples were submitted to Environmental Labs of Texas for analyses for the inorganic constituents chlorides, sulfates. The samples were also analyzed for the organic constituents benzene, toluene, ethylbenzene and total xylenes (BTEX) and total petroleum hydrocarbons in the gasoline (GRO) and diesel (DRO) ranges.

Each well was drilled to a depth approximately 10 feet below the first evidence of saturated materials. Two-inch, threaded, factory-slotted Schedule 40 PVC was then placed in the bottom well followed by blank casing to the surface. The annular space was backfilled with artificially-graded sand to a minimum depth of 1 foot above the top of the slotted PVC interval. The remaining annular space was then backfilled with hydrated bentonite. Well completion information is summarized in Table 1. Well completion forms including the approximate coordinates are included in Attachment 1.

Monitoring Well Development, Purging And Sampling,

All three wells were developed using a submersible pump on December 11, 2002. Well development consisted of evacuating a minimum of 10 casing volumes of water and then continuing development until the field parameters temperature, pH and conductivity stabilized. The well development forms are included in Attachment 2.

All three wells were initially sampled on December 13, 2002. A minimum of three casing volumes were removed from each well using a disposable bailer. Bailing continued until the temperature, pH and conductivity stabilized to within 10 percent and pH readings remain within 0.2 pH units for three consecutive readings. Each well was then sampled using a disposable bailer. The stabilized field parameters are included in Table 2.

Unfiltered samples were collected from each well upon stabilization for analysis for BTEX as well as calcium, magnesium, sodium, potassium, bicarbonate alkalinity, chlorides, sulfate and total dissolved solids. A windmill located northwest of MW-1 was also sampled and analyzed for the same constituent suite.

All of samples were placed in an ice-filled chest immediately upon collection. The samples were delivered directly to the analytical laboratory Environmental Labs of Texas in Midland Texas using standard chain-of-custody protocol immediately upon completion of sampling. All development and purge water was disposed of at an approved OCD facility. All cuttings generated during the drilling process were also disposed of in an appropriate fashion. The laboratory analytical reports are included in Attachment 3.

The December 2002 samples from wells MW-1 and MW-2 both contained detectable concentrations of benzene along with other hydrocarbon constituents(Table 3). The benzene concentration in well MW-2 was approximately 10 times higher than the concentration measured in MW-1 (0.02 mg/l in MW-2 verses 0.003 mg/l in MW-1). No

trip blank was included with the sampling episode, so DEFS requested that all of three wells be resampled to verify the origin of the benzene.

Resampling was completed on January 10, 2003 using the well development protocols described above. Field splits of the equilibrated samples were submitted to both Environmental Labs of Texas and Trace Analysis along with the trip blanks that were originally prepared and provided by each lab. The results, summarized in Table 3, again showed detectable concentrations of benzene in wells MW-1 and MW-2; however, the concentrations were reversed from the original sampling episode with MW-1 containing the higher benzene concentration. Examination of Table 3 also indicates that there was good agreement between the analytical results from the two labs. Neither of the trip blanks from the two laboratories for this episode contained any measurable concentration of benzene, toluene, ethylbenzene or total xylenes.

DEFS requested that a third round of sampling be completed to attempt to reconcile the concentration differences. This sampling episode was completed on January 23, 2003. Again the wells were developed and sampled using the same protocols as the previous two episodes. The samples were submitted to Environmental Labs of Texas along with the trip blank that was originally prepared and provided by the lab. These results, included in Table 3, closely matched the results from the January 10, 2003 episode. Remedicon concluded at this point that the data was sufficient to adequately characterize the site and generate a conceptual remediation plan since further monitoring of these wells would be completed.

PROJECT RESULTS

This section summarizes and describes the data collected. Conclusions based upon the data and a conceptual remediation program are presented in the subsequent section. The material properties and affected material distribution (or lack of it) are described first. The groundwater distribution and direction is discussed next. The final subsection summarizes the chemical information.

Material Properties

Examination of the lithologic logs in Attachment 1 shows that two uniform material types are present in the area investigated. The upper materials from the surface to approximate 20 feet below ground surface (bgs) consist of a dense, very pale orange caliche. The remainder of the materials are a well-sorted, very-fine-grained silty sand that grades from grayish orange to brown. The materials are described as becoming saturated between 34 to 37 feet.

There was no evidence of hydrocarbon impacts from the DEFS pipeline releases in the subsurface materials identified during drilling (Attachment 1). No hydrocarbon odors or

staining were noted in either the cuttings or the grab samples. In addition, all of the grab samples were measured at 0.0 parts per million (ppm) with the PID.

Table 4 summarizes the analytical results for the soil samples. The chloride concentrations were all below the 20 mg/kg detection limit. Sulfate concentrations peaked at 168 mg/kg from 20 to 22 feet in MW-1 and 79.5 mg/kg from 10 to 12 feet in MW-3. The chloride concentration was measured at 65 mg/kg in MW-2, the deepest interval from this boring submitted for laboratory analyses.

The organic constituents can be summarized as follows:

- No benzene was detected in any of the samples at a detection limit of 0.025 mg/kg;
- No toluene was detected in any of the samples at a detection limit of 0.025 mg/kg;
- Ethylbenzene was detected at 0.031 mg/kg in the 20-22 foot sample in MW-3 but was not detected at 0.025 mg/kg in any of the samples from any of the three wells.
- Xylenes were detected in samples from all three of the borings (Table 4); however, the concentrations were just slightly elevated relative to the 0.025 mg/kg detection limit.

Groundwater Flow Direction

The depths to groundwater measured in each well during each of the three episodes are summarized in Table 5. The measured depths to water were very consistent for the three monitoring episodes. The average depths to water in each well (Table 5, column 5) were then subtracted from the estimated ground elevation and the resulting approximate water table elevations are summarized in column 6 of Table 5. The shallower measured depth to water in MW-2 results in a higher estimated water table elevation relative to both MW-1 and MW-3. It is important to note that MW-2 is installed inside the excavation while MW-1 and MW-3 were placed outside the remediation footprint.

Groundwater Constituent Distribution

The organic and inorganic groundwater analytical results are summarized in Tables 3 and 6 respectively. Examination of Table 3 indicates the following relative to the organic constituent distribution in groundwater:

- 1. The samples from MW-3 and the windmill did not contain any of the BTEX constituents;
- 2. The initial sample from well MW-2 was elevated relative to the subsequent samples. The samples from January 10 and 23, 2003 contained benzene at the 0.001 mg/l detection limit. The January 23 sample also contained toluene and xylenes at the

0.001 mg/l detection limit. None of these constituents exceed the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards.

3. The January 10 and 23, 2003 samples from well MW-1 contained benzene at concentrations in excess of the NMWQCC groundwater standards. Toluene, ethylbenzene and xylenes were also detected in the January 10 and 23, 2003 samples but at concentrations well below the NMWQCC groundwater standards.

There is no apparent trend in the inorganic constituents as measured in the December 2002 groundwater samples (Table 6). None of the constituents measured exceeded any relevant NMWQCC groundwater standards. The windmill, up gradient from all of the DEFS pipeline leaks, had the highest total dissolved solids concentration. Well MW-1, the well with the measured BTEX constituents had inorganic constituent concentrations that were similar to those measured in well MW-3. Well MW-2 may have an elevated sulfate concentration relative to the other three wells; however, the concentration is only approximately ¹/₄ of the NMWQCC groundwater standard.

CONCLUSIONS AND CONCEPTUAL REMEDIATION PROGRAM

This sections presents the conclusions that are based upon the data collected during the field program. The final subsection presents the proposed remediation program.

Conclusions

Remediacon concludes the following based upon the data presented above:

- 1. EPI has removed the majority of residual mass associated with the DEFS pipeline releases based upon the low inorganic and organic constituent concentrations measured in the soil borings (Table 4) and the visual observations and PID measurements made during the advancement of the borings.
- 2. Dissolved inorganic constituents, specifically sulfates, either did not migrate to the groundwater or the amount of mass that reached the groundwater was so low that it has not substantially affected its potential uses.
- 3. Dissolved organic constituents migrated to the groundwater at one of the three locations evaluated. The relatively low concentrations measured in both the soils and groundwater indicate that a minimal quantity of mass has actually reached the saturated materials.
- 4. The removal of the source materials by EPI should stop or substantially lessen any future hydrocarbon constituent migration to the groundwater. Aerobic digestion should also remove the residual hydrocarbons from the unsaturated soils.

- 5. The relatively low organic constituent concentrations coupled with the high dissolved oxygen readings measured during the groundwater sampling episodes (Table 2) should result in aerobic biodegradation that eliminates the hydrocarbons a short distance down gradient from the source at MW-2, particularly since the source has been removed.
- 6. The hydrocarbon concentrations could impact a well if it was installed at the exact location of the MW-2 release. Natural mechanical and biodegradation process should remove the threat of the hydrocarbons a short distance away from the release point. In addition, the potential threat should disappear over time as the hydrocarbon constituent concentrations decline in the groundwater.

Recommended Remediation Program

Remediacon recommends a program of monitored natural attenuation at this site for the following reasons:

- 1. The majority of the source mass was removed by EPI;
- 2. The hydrocarbon constituents are readily biodegradable their concentrations are sufficiently low to prevent their interference with bacterial digestion; and
- 3. The dissolved oxygen values are at or near natural concentrations so active aerobic biodegradation should proceed at a high rate.

The program should include the following components:

- The water levels in all three wells should be measured in April, July and October 2003 to evaluate changes in the water table elevations.
- Monitor wells MW-1 and MW-2 should be sampled in April, July and October 2003. The samples should be analyzed for BTEX.
- The final April and July 2003 sampling data should be reviewed and transmitted to the OCD in a timely fashion.
- A report should be generated after the receipt and evaluation of the October 2003 groundwater results. The report should specifically address any changes in hydrocarbon concentrations over time and should recommend one of the following:
 - a. Cessation of groundwater monitoring activities if the hydrocarbon constituents have declined to below background concentrations;

- b. Continuation of periodic groundwater monitoring in the well(s) where the concentrations have remained constant or continue to decline; or
- c. Initiation of additional active groundwater remediation measures if the concentrations have significantly increased or the site-specific land uses change.

Do not hesitate to contact me if you have any questions or comments on this work plan.

Respectfully Submitted, REMEDIACOM INCORPORATED

Mul H. Atto

Michael H. Stewart, P.E. Principal Engineer

TABLES

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Well	Date Installed	Approximate Casing Elevation	Approximate Ground Elevation	Total Well Depth	Screen Interval	Sand Interval	Bentonite Chips
MW-1	12/6/2002	3823.4	3820.5	50.5	30-50.5	28-50.5	0-28
MW-2	12/6/2002	3820.5	3818.0	47.0	27-42.5	24-40	0-24
MW-3	12/6/2002	3817.2	3814.5	52.0	32-47.5	30-52	0-30

Table 1 – Well Completion Information

Notes: All units in feet

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MW-2 contained natural sand from 47 to 40 feet below ground surface.

Well	Sampling Date	TEMP. (° C)	COND. (<i>m</i> S/cm)	pH (units)	DO mg/L	Turbidity (ntu)
MW-1	12/13/2002	18.5	0.509	7.81	8.58	999
MW-1	1/10/2003	18.3	0.369	6.68	8.50	999
MW-1	1/23/2003	18.1	0.351	7.23	9.75	999
MW-2	12/13/2002	18.9	0.680	7.79	9.66	742
MW-2	1/10/2003	18.5	0.441	6.99	9.33	645
MW-2	1/23/2003	18.2	0.414	7.24	10.18	0
MW-3	12/13/2002	18.1	0.443	7.95	10.66	880
MW-3	1/10/2003	17.5	0.305	7.72	10.53	999
MW-3	1/23/2003	17.4	0.283	7.39	12.40	393
Windmill	12/13/2002	17.2	0.683	7.35	9.16	0

Table 2 – Equilibrated Field Parameters

Table 3 - Organic Constituent Results

		Benzene	Toluene	Ethylbenzene	Xylenes
NMWQC	CGWS	0.01	0.75	0.75	0.62
MW-1	12/13/2002	0.003	< 0.001	< 0.001	< 0.001
MW-1	1/10/2003	0.041	0.004	0.006	0.003
MW-1T	1/10/2003	0.050	0.0043	0.005	0.0034
MW-1	1/23/2003	0.033	0.004	0.006	0.005
MW-2	12/13/2002	0.02	< 0.001	0.002	0.002
MW-2	1/10/2003	0.001	< 0.001	< 0.001	< 0.001
MW-2T	1/10/2003	< 0.001	< 0.001	< 0.001	< 0.001
MW-2	1/23/2003	0.001	0.001	< 0.001	0.001
MW-3	12/13/2002	< 0.001	< 0.001	< 0.001	< 0.001
MW-3	1/10/2003	< 0.001	< 0.001	< 0.001	< 0.001
MW-3T	1/10/2003	< 0.005	< 0.005	< 0.005	< 0.005
MW-3	1/23/2003	< 0.001	< 0.001	< 0.001	< 0.001
Windmill	12/12/2002	< 0.001	< 0.001	< 0.001	< 0.001

Notes: All units mg/l

Samples with T were analyzed by Trace Anaytical, All other analyzed by Environmental Labs of Texas.

Two trip blanks for 1/10/03 sampling episode were <0.001 for BTEX NMWQCCGWS: New Mexico Water Quality Control Commission Groundwater Standards. Samples that exceed standards are bolded. Table 4 - U-Bar Ranch Soil Sampling Results

Well	Sample Depth	Chloride	Sulfate
MW-1	10-12	<20	73
MW-1	20-22	<20	168
MW-1	30-32	<20	56
MW-1	40-42	<20	6.5
MW-2	20-22	<20	37
MW-2	30-32	<20	65
MW-3	10-12	<20	79.5
MW-3	20-22	<20	3
MW-3	30-32	<20	5

U-Bar Ranch Inorganic Soil Sampling Results

All units mg/kg

U-Bar Ranch Organic Soil Sampling Results

Well	Sample Depth	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	10-12	< 0.025	< 0.025	< 0.025	< 0.025
MW-1	20-22	< 0.025	< 0.025	< 0.025	< 0.025
MW-1	30-32	< 0.025	< 0.025	< 0.025	0.053
MW-1	40-42	< 0.025	< 0.025	< 0.025	0.053
MW-2	20-22	< 0.025	< 0.025	< 0.025	0.074
MW-2	30-32	< 0.025	< 0.025	<0.025	< 0.025
MW-3	10-12	< 0.025	< 0.025	< 0.025	< 0.025
MW-3	20-22	< 0.025	< 0.025	0.031	0.069
MW-3	30-32	< 0.025	< 0.025	< 0.025	0.028

All units mg/kg

DRO and GRO not detected in any samples at 10 mg/kg

Well	12/13/02 Depth to Water	1/10/03 Depth to Water	1/23/03 Depth to Water	Average Depth to Water	Estimated Water Table Elevation
MW-1	41.14	41.18	41.19	41.17	3782.2
MW-2	34.79	34.82	34.82	34.81	3785.7
MW-3	39.78	39.81	39.81	39.8	3777.4

Table 5 – Water Table Measurements and Estimated Elevations

All units in feet

Table 6 – Inorganic Constituent Results

	Calcium	Magnesium	Sodium	Potassium	Bicarbonate	Chloride	Sulfate	TDS
NMWQCCGWS						250	600	1000
				_				
MW-1	61.5	8	42.6	4.86	166	33.7	87.0	351
MW-2	72.0	9.98	72.9	4.66	168	48.7	167	535
MW-3	45.6	7.61	48.0	3.39	162	19.5	67.6	339
Windmill	83.6	16.2	52.1	8.78	206	48.7	104	658

Notes: All units mg/l NMWQCCGWS: New Mexico Water Quality Control Commission Groundwater Standards. No standards exceeded

FIGURES







ATTACHMENT 1

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WELL BORING LOGS

						LIT	THOL	OGIC	LOG	(MONI	TORING WELL)
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- L.	22000200000	accordes	8	A428.049404000.2010							

									MW-3	TOTAL DEPTH:	52 Feet
T			LITH.	USCS	FROM	SAMPLI TO		PID	DEPTH	LITHOLOGIC DESCRIPTION: LITHOLO	DGY, COLOR, GRAIN
F		Sand		SM		<u>`</u>				TD Borina @ 52 Fe	et
F											
									55		
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									65		
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ATTACHMENT 2

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WELL DEVELOPMENT FORMS

WELL DEVELOPMENT DATA FORM

	CLIENT:	Duke E	nergy Field S	ervices		WELL ID	: MW-1					
SI		U-Ba	Ranch (C-1-	Line)		DATE	12/11/2002					
PRC	JECT NO.		F-108		DE	/ELOPER	Littlejohn					
PURGING	PURGING METHOD: □ Hand Bailed ☑ Pump If Pump, Type: 2-Stage Purge Pump											
SAMPLING METHOD: Disposable Bailer Direct from Discharge Hose Other:												
DESCRIB	E EQUIPMI	ENT DECO	NTAMINATI	ON METH	OD BEFC	RE DEVE	LOPING THE WELL:					
Glove:	s 🗹 Alcono	x 🗹 Distill	ed Water Ri	nse 🗆 C	Other:		· · · · · · · · · · · · · · · · · · ·					
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	je 🗆 Dru	ıms 🗹 Disposal Facility					
TOTAL DI	EPTH OF V	VELL:	53.38	Feet								
DEPTH TO	DEPTH TO WATER: 41.12 Feet											
WELL DIA	METER:	2.0	Inch	1 661			purge 10 well volumes					
		темр	COND				(Water Column Height x 1.63)					
TIME	PURGED	°C	<i>m</i> S/cm	рН	mg/L	Turb	REMARKS					
12:59							Begin Hand Bailing					
13:03	3	18.3	0.498	7.58	7.40	754	Sal = 0.02%					
13:07	6	18.6	0.493	7.60	8.59	306	Sal = 0.02%					
13:10	9	18.7	0.489	7.60	8.77	63	Sal = 0.02%					
13:14	12	18.7	0.488	7.61	8.67	0	Sal = 0.02%					
13:18	15	18.8	0.487	7.60	8.80	0	Sal = 0.02%					
13:22	18	18.8	0.487	7.60	8.81	0	Sal = 0.02%					
13:25	21	18.8	0.487	7.61	8.89	0	Sal = 0.02%					
13:29	24	18.8	0.491	7.59	9.35	111	Sal = 0.02% *Raised pump 3 ft					
13:33	27	18.8	0.488	7.61	8.8	0	Sal = 0.02%					
13:37	30	18.7	0.486	7.61	8.76	0	Sal = 0.02%					
0:38	:Total Time	e (hr:min)	30	:Total Vol	(gal)	0.79	:Flow Rate (gal/min)					
SAMP	LE NO.:	Collected S	ample No.:									
ANAL	ANALYSES:											

COMMENTS: Moving the pump in the well affected only DO and Turbidity

C:\Duke\C-1-Line\12-02 WSDF (Develop)

WELL DEVELOPING DATA FORM

CLIENT: Duke En			nergy Field Services		WELL ID:		MW-2				
SITE NAME:U-Bar I			Ranch (C-1-Line)		DATE:		12/11/2002				
PROJECT NO			F-108	F-108 DEV		/ELOPER:	Littlejohn				
PURGING	B METHOD:		🗆 Hand Bai	mp If Pur	np, Type:	2-Stage Purge Pump					
SAMPLIN):	🗆 Disposab	le Bailer 🛛	Direct f	rom Disch	arge Hose 🛛 Other:				
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE DEVELOPING THE WELL:											
Gloves Z Alconox Z Distilled Water Rinse C Other:											
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	je 🗆 Dru	ms 🗹 Disposal Facility				
TOTAL DI DEPTH T HEIGHT (WELL DIA	EPTH OF W O WATER: OF WATER METER:	/ELL: COLUMN: 2.0	44.97 34.76 10.21 Inch	Feet Feet Feet		16.7	Minimum Gallons to purge 10 well volumes				
TIME	VOLUME PURGED	TEMP. ° C	COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS				
11:46							Begin Hand Bailing				
11:49	3	18.1	0.609	7.72	9.62	212	Sal = 0.02%				
11:53	6	18.6	0.594	7.63	9.95	22	Sal = 0.02%				
11:56	9	18.8	0.615	7.59	10.04	0	Sal = 0.02%				
11:59	12	18.8	0.626	7.59	9.95	0	Sal = 0.02%				
12:02	15	18.9	0.632	7.58	10.15	0	Sal = 0.02%				
12:07	18	18.8	0.641	7.57	10.09	0	Sal = 0.02% Raised pump 3 ft				
12:12	21	18.8	0.611	7.60	10.09	297	Sal = 0.02% Lowered pump 3 ft				
12:15	24	18.9	0.641	7.58	10.06	0	Sal = 0.02%				
12:18	27	18.9	0.646	7.56	10.06	0	Sal = 0.02%				
							· · · · · · · · · · · · · · · · · · ·				
0:32	:Total Time (hr:min) 27 :Total Vol (0.84	:Flow Rate (gal/min)				
SAMP	LE NO.:										
ANAL	YSES:										

COMMENTS: Moving the pump in the well affected only Turbidity

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C:\Duke\C-1-Line\12-02 WSDF (Develop)

WELL DEVELOPMENT DATA FORM

CLIENT: Duke			Duke Energy Field Services			WELL ID	: MW-3			
SITE NAME: U-Bar			r Ranch (C-1-Line)			DATE	:12/11/2002			
PROJECT NO.			F-108	_ DE\	/ELOPER	: Littlejohn				
PURGING METHOD:										
SAMPLIN	G METHOD	narge Hose 📋 Other:								
DESCRIB		ENT DECO	NTAMINATI	ON METH	OD BEFO	RE DEVE	LOPING THE WELL:			
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse □ Other:										
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	e Discharg	je 🗌 Dru	ıms 🗵 Disposal Facility			
TOTAL D	EPTH OF W	VELL:	50.20	Feet						
DEPTH T	O WATER:		39.75	Feet		17 1	Minimum Gallons to			
WELL DIA	METER:	2.0	Inch	1 661			purge 10 well volumes			
· · · ·		TEMP					(Water Column Height x 1.63)			
TIME	PURGED	°C	m S/cm	рН	mg/L	Turb	REMARKS			
10:34							Begin Hand Bailing			
10:37	3	16.9	0.480	7.78	8.40	855	Sal = 0.01%			
10:41	6	17.7	0.440	7.68	10.04	215	Sal = 0.01%			
10:45	9	18.0	0.431	7.67	10.10	6	Sal = 0.01%			
10:48	12	17.9	0.429	7.68	10.73	0	Sal = 0.01%			
10:52	15	18.0	0.428	7.67	10.76	0	Sal = 0.01%			
10:55	18	17. <u>9</u>	0.429	7.67	10.88	0	Sal = 0.01%			
10:59	21	18.1	0.429	7.67	11.00	145	Sal = 0.01% *Raised pump 3 ft			
11:05	23	17.8	0.427	7.67	11.05	0	Sal = 0.01% *Well pumped off			
11:09	26	18.1	0.428	7.66	11.08	179	Sal = 0.01% *Lowered pump 3 ft			
11:13	29	18.1	0.429	7.67	11.15	0	Sal = 0.01%			
	39 :Total Time (hr:min) 29 :Total				<i>i</i>	A = 4				

COMMENTS: Moving the pump in the well affected only Turbidity

C:\Duke\C-1-Line\12-02 WSDF (Develop)

	CLIENT:	Duke E	Energy Field Services			WELL ID	MW-1
SITE NAME: U-Bar F			r Ranch (C-1-Line)			DATE	12/13/2002
PROJECT NO.			F-108 S			SAMPLER	: Littlejohn
		<u>.</u>	☑ Hand Bailed ☐ Pump If Pur			mp, Type:	
SAMPLIN							
						RE SAMP	'LING THE WELL:
⊡ Giove	s 🗹 Alcono		ed water Ri	nse 🗆 C	uner:		·····
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	je 🗋 Dru	ms 🗹 Disposal Facility
TOTAL D DEPTH T HEIGHT (EPTH OF W O WATER: OF WATER	VELL: COLUMN:	53.38 41.14 12.24	Feet Feet Feet		6.0	_Minimum Gallons to
WELL DIA	AMETER:	2.0	Inch				purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED	TEMP. °C	COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
8:06							Begin Hand Bailing
8:09	2	18.3	0.509	7.77	8.22	999	Sal = 0.02%
8:15	4	18.3	0.508	7.80	8.37	999	Sal = 0.02%
8:20	6	18.2	0.506	7.81	8.50	999	Sal = 0.02%
8:28	8	18.5	0.509	7.81	8.58	999	Sal = 0.02%
0:22 :Total Time (hr:min)			8 :Total Vol (gal)			0.36	:Flow Rate (gal/min)
SAMPLE NO.: Collected S			ample No.:	021213	0835		···· <u>··</u> ···· <u>·</u> ·····
ANAL	YSES:	BTEX (802	1-B), Ca, Mg	<u>,</u> Na, K, H(CO3, CI, S	<u>504, & TD</u>	S
COMN	IENTS:						

SITE NAME: U-Bar Ranch (C-1-Line) DATE: 12/13/2002											
PROJECT NO F-108 SAMPLER: Littlejohn											
PURGING METHOD:											
SAMPLING METHOD: 🛛 Disposable Bailer 🗆 Direct from Discharge Hose 🗌 Other:											
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:											
☑ Gloves ☑ Alconox ☑ Distilled Water Rinse □ Other:											
DISPOSAL METHOD OF PURGE WATER: 🔲 Surface Discharge 🔲 Drums 🗹 Disposal Facility											
TOTAL DEPTH OF WELL: 44.97 Feet DEPTH TO WATER: 34.79 Feet HEIGHT OF WATER COLUMN: 10.18 Feet WELL DIAMETER: 2.0 Inch Minimum Gallons to purge 3 well volumes (Water Column Height x 0	.49)										
TIME VOLUME TEMP. COND. DO PHYSICAL APPEARANC PURGED °C mS/cm PH mg/L Turb PHYSICAL APPEARANC	E AND										
9:09 Begin Hand Bailir	ıg										
9:13 2 18.8 0.661 7.79 9.63 999 Sal = 0.02%											
9:20 4 18.9 0.676 7.79 9.69 999 Sal = 0.02%											
9:28 6 18.9 0.680 7.79 9.66 742 Sal = 0.02%											
	<u> </u>										
U:19 : I otal Time (hr:min) 6 : I otal Vol (gal) 0.31 : Flow Rate (gal/min)											
ANALISES. $\square I = A (002 I - D), Ca, Mig, Na, A, HCO3, Ci, SO4, & IDS$											

CLIENT: Duke			uke Energy Field Services			WELL ID	: MW-3	
SI	TE NAME:	U-Bai	U-Bar Ranch (C-1-Line)			DATE	: 12/13/2002	
PROJECT NO		. F-108			. 5	AMPLER	: Littlejohn	
PURGING	METHOD	:	🗹 Hand Bai	led 🗌 Pu	mp If Pur	np, Type:		
SAMPLIN	G METHO	D:	Disposab	le Bailer	Direct f	rom Disch	arge Hose 🛛 Other:	
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	OD BEFO	RE SAMP	PLING THE WELL:	
Glove:	s 🗹 Alcond	ox 🗹 Distill	ed Water Ri	nse 🗆 C	Other:	· •		
DISPOSA		OF PURG	E WATER:	Surface	Discharg	e 🗆 Dru	ıms 🗵 Disposal Facility	
TOTAL DI	EPTH OF V	VELL:	50.20	Feet				
DEPTH TO	O WATER:		39.78	Feet Feet		51	Minimum Gallons to	
WELL DIA	METER:	2.0	Inch	reel	-		purge 3 well volumes	
		TEMP.	COND				(Water Column Height x 0.49)	
TIME	PURGED	°C	<i>m</i> S/cm	pH	mg/L	Turb	REMARKS	
10:08							Begin Hand Bailing	
10:13	2	18.1	0.443	7.94	10.47	999	Sal = 0.01%	
10:20	4	18.1	0.444	7.95	10.54	999	Sal = 0.01%	
10:26	6	18.1	0.443	7.95	10.66	880	Sal = 0.01%	
<u> </u>								
0:18	0:18 :Total Time (hr:min) 6 :Total Vol (0.33	:Flow Rate (gal/min)	
SAMP	LE NO.:	Collected S						
ANAL	YSES:	BTEX (802	1-B), Ca, Mo	, Na, K, H	504, & TD	S		
COMN	IENTS:							

	CLIENT: Duke Energy Field Services			WELL ID:		Windmill					
SI	SITE NAME: U-Bar Ranch (C-1-Line)			Line)	DATE:		12/12/2002				
PROJECT NO.			F-108			SAMPLER:	Littlejohn				
PURGING		:	□ Hand Bai	led 🗹 Pu	mp If Pur	тр, Туре:	Windmill Operation				
SAMPLING METHOD: Disposable Bailer Direct from Discharge Hose Other:											
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:											
Glove:	☑ Gloves □ Alconox □ Distilled Water Rinse □ Other:										
DISPOSA	L METHOD) OF PURG	E WATER:	Surface	Discharg	ge 🗌 Dru	ms 🛛 Disposal Facility				
TOTAL DI DEPTH TO HEIGHT (WELL DIA	EPTH OF V O WATER: DF WATER METER:	VELL: COLUMN: 5.0	Unknown Unknown Unknown Inch	10wn Feet 10wn Feet 10wn Feet			NA Minimum Gallons to purge 3 well volumes (Water Column Height x 1.96)				
TIME	VOLUME PURGED	TEMP. ° C	COND. mS/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS				
14:15	0	17.2	0.683	7.35	9.16	0	Sal = 0.02%				
						<u></u>					
				•							
0:00	:Total Time	e (hr:min)	0	:Total Vol ((gal)	NA	:Flow Rate (gal/min)				
SAMPI	LE NO.:	Collected Sample No.: 021212 1415									
ANAL	YSES:	BTEX (802	1-B), Ca, Mg	, Na, K, H(CO3, CI, S	604, & TD	S				
COMM	IENTS:										
	CLIENT:	Duke E	nergy Field S	ervices		WELL ID:	MW-1				
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SI	TE NAME:	U-Bai	Ranch (C-1-	Line)		DATE:	1/10/2003				
PRO	JECT NO.		F-108		5	SAMPLER:	Littlejohn				
PURGING	METHOD:	:	☑ Hand Bai	led 🗆 Pu	mp If Pur	np, Type:					
SAMPLIN	G METHOD	D :	🗵 Disposab	le Bailer	Direct f	rom Disch	arge Hose 🛛 Other:				
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	DD BEFO	RE SAMP	LING THE WELL:				
Gloves	s 🗹 Alcono	x 🗹 Distill	ed Water Ri	nse 🗆 C)ther:						
DISPOSA		OF PURG	E WATER:	Surface	Discharg	e 🗆 Dru	ms 🗵 Disposal Facility				
TOTAL DI	EPTH OF V	VELL:	53.38	Feet							
DEPTH T	O WATER:		41.18	Feet		••					
	METER:	COLUMN: 2.0	12.20 Inch	Feet		6.0	_Minimum Gallons to purge 3 well volumes				
							(Water Column Height x 0.49)				
TIME	VOLUME PURGED	темр. ° с	COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS				
12:00							Begin Hand Bailing				
12:07	2	18.0	0.366	6.47	8.93	999	Sal = 0.01 %				
12:15	4	18.2	0.368	6.54	8.74	999	Sal = 0.01 %				
12:25	6	18.3	0.368	6.62	8.62	999	Sal = 0.01 %				
12:34	8	18.3	0.369	6.68	8.50	999	Sal = 0.01 %				
			_								
			_								
0:34	:Total Time	e (hr:min)	8	:Total Vol ((gal)	0.23	:Flow Rate (gal/min)				
SAMPI	E NO.:	Collected S	ample No.:	030110	1250						
ANAL	YSES:	BTEX (802	1-B)								
COMM	IENTS:					<u> </u>					

C:\Duke\C-1-Line\1-03 WSDF

	CLIENT:	Duke El	Duke Energy Field Services			WELL ID	MW-2
SI		U-Bar	Ranch (C-1-	Line)		DATE	: 1/10/2003
PRO	JECT NO.		F-108			SAMPLER	: Littlejohn
PURGING	S METHOD: G METHOE):):	☑ Hand Bai ☑ Disposab	iled 🛛 Pu ble Bailer [mp If Pur] Direct f	np, Type: rom Disch	arge Hose 🔲 Other:
DESCRIB	E EQUIPMI	ENT DECO	NTAMINATI	ON METH	DD BEFO	RE SAMP	LING THE WELL:
Gloves	s 🗹 Alcono	x 🗹 Distill	ed Water Ri	nse 🗆 C)ther:		
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	ie 🗌 Dru	ıms 🗵 Disposal Facility
TOTAL DI DEPTH TO HEIGHT O WELL DIA	EPTH OF W O WATER: OF WATER METER:	VELL: COLUMN: 2.0	44.97 34.82 10.15 Inch	Feet Feet Feet		5.0	_Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED	TEMP. ° C	COND. mS/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
10:52							Begin Hand Bailing
10:58	2	18.3	0.412	7.41	9.39	474	Sal = 0.01%
11:07	4	18.5	0.424	7.17	9.34	637	Sal = 0.01%
<u>11:15</u>	6	18.3	0.441	7.03	9.25	836	Sal = 0.01%
11:23	8	18.5	0.441	6.99	9.33	645	Sal = 0.01%
						····	
0:31	:Total Time	e (hr:min)	8	:Total Vol	(gal)	0.26	:Flow Rate (gal/min)
SAMP	LE NO.:	Collected S	ample No.:	030110	1130		·····
ANAL	YSES:	BTEX (802	1 - B)				
COMM	IENTS:						

C:\Duke\C-1-Line\1-03 WSDF

	CLIENT:	Duke E	nergy Field S	ervices		WELL ID	MW-3
SI	TE NAME:	U-Bai	Ranch (C-1-	Line)	-	DATE	: 1/10/2003
PRO	JECT NO.		F-108		SAMPLER: Littlejohn		
PURGING). 	☑ Hand Bai ☑ Disposab	led □ Pu le Bailer Γ	mp If Pur ∃ Direct f	np, Type: rom Disch	arge Hose
			od Wator Pi		Ob BLI O		
Gioves							
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	je 🗆 Dru	ıms 🗵 Disposal Facility
TOTAL DE DEPTH TO HEIGHT (WELL DIA	EPTH OF W O WATER: DF WATER METER:	VELL: COLUMN: 2.0	50.20 39.81 10.39 Inch	Feet Feet Feet		5.1	Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED	TEMP. °C	COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
9:40							Begin Hand Bailing
9:49	2	17.5	0.305	7.73	10.33	999	Sal = 0.01%
10:00	4	17.5	0.305	7.71	10.51	999	Sal = 0.01%
10:11	6	17.5	0.305	7.72	10.53	999	Sal <u>= 0.01%</u>
0:31	:Total Time	e (hr:min)	6	:Total Vol	(gal)	0.19	:Flow Rate (gal/min)
SAMPI	LE NO.:	Collected S	ample No.:	030110	1035	1025	
ANAL	YSES:	BTEX (802	1-B)				
COMM	IENTS:						

C:\Duke\C-1-Line\1-03 WSDF

	ike Energy Field S	ervices		WELL ID	. MW-1
	J-Bar Ranch (C-1-	Line)		DATE	: 1/23/2003
PROJECT NO.	F-108			SAMPLER	: Littlejohn
PURGING METHOD:	⊡ Hand Bai	iled 🗆 Pu	mp If Pui	mp, Type:	
SAMPLING METHOD:	Disposab	le Bailer 🛛	Direct 1	from Disch	arge Hose 🛛 Other:
DESCRIBE EQUIPMENT DE	ECONTAMINATI	ON METHO	DD BEFO	RE SAMP	LING THE WELL:
Gloves 🗹 Alconox 🗹 🕻	Distilled Water Ri	nse 🗆 C	Other:		
DISPOSAL METHOD OF PL	JRGE WATER:	Surface	Discharg	je 🗆 Dru	ms 🗵 Disposal Facility
TOTAL DEPTH OF WELL: DEPTH TO WATER: HEIGHT OF WATER COLUI WELL DIAMETER:	53.38 41.19 MN: 12.19 2.0 Inch	Feet Feet Feet		6.0	_Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME VOLUME TEM	P. COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
10:17		-			Begin Hand Bailing
10:24 2 18.	1 0.353	7.24	9.73	999	Sal = 0.01%
10:32 4 18.2	2 0.354	7.15	9.86	999	Sal = 0.01%
10:41 6 17.9	9 0.352	7.25	9.78	999	Sal = 0.01%
10:50 8 18.	1 0.351	7.23	9.75	999	Sal = 0.01%
0:33 :Total Time (hr:mi	n) 8	:Total Vol (gal)	0.24	:Flow Rate (gal/min)
SAMPLE NO.: Collect	ed Sample No.:	030123	1055		
ANALYSES: BTEX	(8021-B)				
COMMENTS:					

C:\Duke\C-1-Line\1-03(2) WSDF

	CLIENT:	Duke E	nergy Field S	ervices		WELL ID:	MW-2
SI	TE NAME:	U-Bai	r Ranch (C-1-	Line)		DATE:	1/23/2003
PRC	JECT NO.		F-108		. 8	SAMPLER:	Littlejohn
PURGING	METHOD:	:	🖸 Hand Bai	led 🗆 Pu	mp If Pu	np, Type:	
SAMPLIN	G METHOD	D:	🖸 Disposab	le Bailer] Direct f	rom Disch	arge Hose 🛛 Other:
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	DD BEFO	RE SAMP	LING THE WELL:
Glove:	s 🗹 Alcono	x 🗹 Distill	ed Water Ri	nse 🗆 C	Other:		
DISPOSA	L METHOD	OF PURG	E WATER:	Surface	Discharg	je 🗌 Dru	ms 🗵 Disposal Facility
TOTAL DI DEPTH T HEIGHT (WELL DIA	EPTH OF W O WATER: DF WATER METER:	VELL: COLUMN: 2.0	44.97 34.82 10.15 Inch	Feet Feet Feet		5.0	Minimum Gallons to purge 3 well volumes (Water Column Height x 0.49)
TIME	VOLUME PURGED	TEMP. °C	COND. <i>m</i> S/cm	pН	DO mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
9:24							Begin Hand Bailing
9:29	2	18.2	0.382	7.29	10.39	88	Sal = 0.01%
9:37	4	18.2	0.395	7.27	10.31	77	Sal = 0.01%
9:44	6	18.2	0.411	7.28	10.21	12	Sal = 0.01%
9:51	8	18.2	0.414	7.24	10.18	0	Sal = 0.01%
0:27	:Total Time	e (hr:min)	8	:Total Vol ((gal)	0.30	:Flow Rate (gal/min)
SAMPI	_E NO.:	Collected S	ample No.:	030123	1000		
ANAL	YSES:	BTEX (802	1-B)				
COMM	IENTS:					=	

C:\Duke\C-1-Line\1-03(2) WSDF

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	CLIENT:	Duke E	nergy Field S	ervices			MW-3
SI	TE NAME:	U-Bar	Ranch (C-1-	Line)	_	DATE	1/23/2003
PRO	JECT NO.		F-108			SAMPLER	Littlejohn
PURGING		: I	☑ Hand Bai	led 🗆 Pu	mp If Pur	np, Type:	
SAMPLIN	G METHOD):	Disposab	le Bailer	Direct f	rom Disch	arge Hose 🛛 Other:
DESCRIB	E EQUIPM	ENT DECO	NTAMINATI	ON METHO	OD BEFO	RE SAMP	LING THE WELL:
Glove:	s 🗹 Alcono	x 🗹 Distill	ed Water Ri	nse 🗆 C	Other:		
DISPOSA		OF PURG	E WATER:	Surface	Discharg	je 🗌 Dru	ms 🗹 Disposal Facility
TOTAL DI	EPTH OF V	VELL:	50.20	Feet			
DEPTH TO	O WATER:	COLUMNI	39.81	Feet		E 4	Minimum Collong to
WELL DIA	METER:	2.0	Inch	reel		5.1	purge 3 well volumes
		TEMD			DO		(Water Column Height x 0.49)
TIME	PURGED	° C	m S/cm	рН	mg/L	Turb	PHYSICAL APPEARANCE AND REMARKS
8:31			-				Begin Hand Bailing
8:38	2	17.6	0.291	7.28	11.88	439	Sal = 0.01%
8:45	4	17.6	0.286	7.37	12.36	519	Sal = 0.01%
8:52	6	17.4	0.283	7.39	12.40	393	Sal = 0.01%
0:21	:Total Time	e (hr:min)	6	:Total Vol ((gal)	0.28	:Flow Rate (gal/min)
SAMPI	LE NO.:	Collected S	ample No.:	030123	0900		
ANAL	YSES:	BTEX (802	1-B)				
COMM	IENTS:						

C:\Duke\C-1-Line\1-03(2) WSDF

ATTACHMENT 3

LABORATORY ANALYTICAL REPORTS

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ANALYTICAL REPORT

Prepared for:

DALE LITTLEJOHN TRIDENT ENVIRONMENTAL P.O. BOX 7624 MIDLAND, TX 79708

Project: DEFS: C-1-Line

PO#:

Order#: G0205254

Report Date: 12/19/2002

<u>Certificates</u> US EPA Laboratory Code TX00158 . · .

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ENVIRONMENTAL LAB OF TEXAS SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL P.O. BOX 7624 MIDLAND, TX 79708 689-4578 Order#:G0205254Project:F-108Project Name:DEFS: C-1-LineLocation:U-Bar Ranch

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

				Date / Time	e D	Date / Time		
Lab ID:	Sample :	<u>Matrix:</u>		Collected		Received	Container	Preservative
0205254-01	Windmill	WATER		12/12/02 14:15		12/13/02 16:11	See COC	Ice
<u>La</u>	ib Testing:	Rejected:	No	1	Temp:	-3 C		
	8021B/5030 BTEX							
	Anions							
	Cations							
	Total Dissolved Solids	(TDS)						
0205254-02	MW-1	WATER		12/13/02 8:35		12/13/02 16:11	See COC	Ice
La	<u>ıb Testing:</u>	Rejected:	No	1	emp:	-3 C		
	8021B/5030 BTEX							
	Anions							
	Cations							
	Total Dissolved Solids	(TDS)						
0205254-03	MW-2	WATER		12/13/02 9:35		12/13/02 16:11	See COC	Ice
La	b Testing:	Rejected:	No	T	'emp:	-3 C		
	8021B/5030 BTEX							
	Anions							
	Cations							
	Total Dissolved Solids	(TDS)						
0205254-04	MW-3	WATER		12/13/02 10:35		12/13/02 16:11	See COC	lce
<u>La</u>	b Testing:	Rejected:	No	т	`emp:	-3 C		
	8021B/5030 BTEX							
	Anions							
	Cations							
	Total Dissolved Solids	(TDS)						

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

ALE LITTLEJO RIDENT ENVIR O. BOX 7624 IDLAND, TX 7	HN ONMENTAL 9708			Order#: Project: Project Name Location:	G020 F-108 e: DEF8 U-Ba	5254 } 5: C-1-Line r Ranch	
Lab ID: Sample ID:	0205254-01 Windmill						
			8021B/	5030 BTEX	-		
	Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Anaivst	Method
	0004088-02		12/15/02 17:95	1	1	СК	8021B
		Parameter		Resul mg/L	t	RL	
		Benzene	-	<0.001		0.001	
		Toluene		<0.001		0.001	
		Ethylbenzene		<0.001		0.001	
		p/m-Xylene		<0.001		0.001	
b ID: npic ID:	0205254-02 MW-1	aaa-Toluer Bromofluor	e obenzene	83% 91%	80 80	120 120	
			8021B/	5030 BTEX			
	Method	Date Prenared	Date Analyzed	Sample Amount	Dilution Eactor	Analyst	Method
	0004088-02	Teparca	12/17/02 0:27	1	1	CK	8021B
		Parameter		Result mg/L	-	RL	
		Benzene		0.003		100.0	
		Toluene		<0.001		0.001	
		Ethylbenzene		<0.001		0.001	
		p/m-Aylene		<0,001		0.001	
			·····]	
		Surrog		% Recovered	OC Lim	its (%)	
		aaa-Toluer	e	103%	80	120	

105%

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

Bromofluorobenzene

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

DALE LITTLE. TRIDENT ENV P.O. BOX 7624 MIDLAND, TX	JOHN IRONMENTAL 79708			Order#: Project: Project N: Location:	G Ime: D L	:0205254 -108 PEFS: C-1-Line I-Bar Ranch	
Lab ID: Sample ID:	0205254-03 MW-2						
			8071 R	/5020 RTE	v		
	Method	Date	Date	Sample	ZA Dilu	tion	
	Blank	Prepared	Analyzed	Amount	Fac	tor <u>Analyst</u>	Method
	0004088-02		12/17/02 0:47	I	1	СК	8021B
	-	Parameter	· · · · · · · · · · · ·	Res	ult /L	RL.	
		Benzene		0.0	20	0.001	
		Tolucne		<0.)01	0.001	4
		Ethylbenzene		0.0	02	0.001	-
		o-X viene		<0.0	02	0.001	-
	i						
		Surrog	ates	% Recovere	I QC	Limits (%)	
		aaa-Toluer	e	103%	80	120	
		Bromofluor	obenzene	103%	80	120	
Lab ID: Sample ID:	0205254-04 MW-3		8021B)	/5030 BTE	x		
	Method	Date	Date	Sample	Dilu	tion	
	<u>_Blank</u> 0004088-02	Prepared	<u>Analyzed</u> 12/15/02 18:21	<u>Amount</u> 1	<u>Fac</u> 1	tor <u>Analyst</u> CK	<u>Method</u> 8021B
		Parameter		Res mg	ult /L	RL	
		Benzene		<0.0	01	0.001]
		Toluene		<0.0	01	0.001	4
		Ethylbenzene		<0.0	101	0.001	-
		p/m-Ayiene			101 101	0.001	4
	l						1
		Surrog	ates	% Recovere	I QC	Limits (%)	
		aaa-Toluer	e	89%	80	120	
		Bromofluor	obenzene	97%	80	120	

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

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ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

DALE LITTLEJOHN TRIDENT ENVIRONMENTAL P.O. BOX 7624	Order#: Project: Project Name:	G0205254 F-108 DEFS: C-1-Line
MIDLAND, TX 79708	Location:	U-Bar Ranch
		\bigcirc

Approval: Kaland H. J. J. Raland K. Tuttle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

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12-20-02 Date ł

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	ENV	IRONM	ENTA	AL LA AL RE	AB POR	OF TEX	XAS		
DALE LITTLEJOHN TRIDENT ENVIRONMENTAL P.O. BOX 7624 MIDLAND, TX 79708				Order#: Project: Project Na Location:	(H me: I L	G0205254 F-108 DEFS: C-1-Line U-Bar Ranch			···· . #•
Lab ID: Sample ID:	0205254-01 Windmill								
Cations Parameter		<u>Result</u>	Units	Dilution <u>Factor</u>	<u>RL</u>	Method	Date <u>Prepared</u>	Date <u>Analyzed</u>	Analys
Calcium		83.6	mg/L	100	1.0	6010B	12/19/2002	12/19/02	SM
Magnesium		18.2	mg/L	10	0.010	6010B	12/19/2002	12/19/02	SM
Potassium		8.7 8	mg/L	l	0.050	6010B	12/19/2002	12/19/02	SM
Sodium		52.1	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Lab ID: Sample ID:	0205254-02 MW-1	1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			ala di Falika kina di Amer				
<i>Cations</i> Parameter		Result	Units	Dilution Factor	RL	Method	Date Prepared	Date Analyzed	Analysi
Calcium		61.5	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Magnesium		8.00	mg/L	1	0.001	6010B	12/19/2002	12/19/02	SM
Potassium		4.86	mg/L	1	0.050	6010B	12/19/2002	12/19/02	SM
Sodium		42.6	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Lab ID;	0205254-03								
Sample ID:	MW-2								
<i>Cations</i> Parameter		Result	Units	Dilution Factor	RL	Method	Date Prepared	Date Analyzed	Analyst
Calcium		72.0	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Magnesium		9.98	mg/L	I	0.001	6010B	12/19/2002	12/19/02	SM
Potassium		4.66	mg/L	1	0.050	6010B	12/19/2002	12/19/02	SM
Sodium		72.9	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Lab ID: Sample ID:	0205254-04 MW-3								<u></u>
<i>Cations</i> Parameter		Result	Units	Dilution Factor	RL.	Method	Date Prepared	Date Analyzed	Analyst
Calcium		45.6	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM
Magnesium		7.61	mg/L,	1	0.001	6010B	12/19/2002	12/19/02	SM
Potassium		3.39	_ mg/L	i	0.050	6010B	12/19/2002	12/19/02	SM
Sodium		48.0	mg/L	10	0.10	6010B	12/19/2002	12/19/02	SM

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DALE LITTLEJOHN	Order#:	G0205254
TRIDENT ENVIRONMENTAL	Project:	F-108
P.O. BOX 7624	Project Name:	DEFS: C-1-Line
MIDLAND, TX 79708	Location:	U-Bar Ranch

Approvai: <u>Kaland L J.S.</u> Raland K. Tuttle, Lab Director, QA Officer 12-20-02 Date

Raland K. Tuttle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

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ANALYTICAL REPORT

DALE LITTLEJOHN TRIDENT ENVIRONMENTAL P.O. BOX 7624 MIDLAND, TX 79708		Order Projec Projec Locati	#: t: t Name: on:	G0205254 F-108 DEFS: C-1- U-Bar Ranc	Line h		
Lab ID: 0205254-01 Sample ID: Windmill							
Anions Parameter	Result	Units	Dilutio Factor	n r RL	Method	Date Analyzed	Analyst
Bicarbonate Alkalinity	206	mg/L	1	2.00	310.1	12/13/02	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	SB
Chloride	48.7	mg/L	1	5.00	9253	12/14/02	SB
Hydroxide Alkalinity	<0.10	mg/L	l	0.10	310.1	12/13/02	SB
SULFATE, 375.4	104	mg/L	2	1.0	375.4	12/15/02	SB
<i>Test Parameters</i> Parameter	Result	Units	Dilution Factor	n r RL	Method	Date Analyzed	Analyst
Total Dissolved Solids (TDS)	658	mg/L	1	5.0	160.1	12/15/02	SB
Lab 1D: 0205254-02 Sample ID: MW-1							
Anions	1 1	** 1.	Dilution	n		Date	
Parameter	Result	Units	Factor		Method	Analyzed	Analyst
Bicarbonate Alkalinity	166	mg/L	1	2.00	310.1	12/13/02	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	SB
Chloride	33.7 -0.10	mg/L 	1	5.00	9253	12/14/02	28
Hydroxide Alkalinity SULFATE, 375.4	87.0	mg/L	2	1.0	375.4	12/15/02	SB
Test Parameters	Rosnit	Linite	Dilution	n • Pri.	Method	Date	Analyst
Total Dissolved Solids (TDS)	<u>351</u>	mg/L	l	5.0	160.1	12/15/02	SB
Lab ID: 0205254-03 Sample ID: MW-2				•			
Anions Parameter	Result	<u>Units</u>	Dilution <u>Factor</u>	n <u>RL</u>	Method	Date <u>Analyzed</u>	<u>Analyst</u>
Bicarbonate Alkalinity	168	mg/L	1	2.00	310.1	12/13/02	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	SB
Chloride	48.7	mg/L	1	5.00	9253	12/14/02	SB
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	SB
SULFATE, 375.4	167	mg/L	2.5	1.25	375.4	12/15/02	SB
Test Parameters	Danila	Flaida	Dilution	n 4 DI	Mathad	Date	A m n l
	<u>Kesun</u>	Units	<u>ractor</u>		<u>Method</u>	Analyzed	Analyst
1 otal Dissolved Solids (1DS)	232	mg/L	Ţ	5.0	100.1	12/10/02	2B

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ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

DALE LITTLEJOHN TRIDENT ENVIRONMENTAL P.O. BOX 7624 MIDLAND, TX 79708	LE LITTLEJOHN IDENT ENVIRONMENTAL). BOX 7624 DLAND, TX 79708			G0205254 F-108 DEFS: C-1-I U-Bar Rancl	Line h		
Lab ID: 0205254-04 Sample ID: MW-3							
Anions	Devite	WT	Dilution			Date	
Parameter	Keşult	Units	Factor	<u>KL</u>	Method	Analyzed	Analyst
Bicarbonate Alkalinity	102	mg/L	1	2.00	310.1	12/13/02	SB
Carbonate Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	. SB
Chloride	19.5	mg/L	1	5.00	9253	12/14/02	\$B
Hydroxide Alkalinity	<0.10	mg/L	1	0.10	310.1	12/13/02	SB
SULFATE, 375.4	67.6	mg/L	2	1.0	375.4	12/15/02	SB
Test Parameters			Dilution			Date	
Parameter	Result	Units	Factor	<u>RL</u>	Method	Analyzed	Analyst
Total Dissolved Solids (TDS)	339	mg/L	1	5.0	160.1	12/15/02	SB

Approval: Calabor K Jus Raland K. Tuttle, Lab Director, QA Officer 12-20-02 Date

Raland K. Tuttle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0205254

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004088-02			<0.001		
Toluene-mg/L	0004088-02			<0.001		
Ethylbenzene-mg/L	0004088-02			< 0.001	1	
p/m-Xylene-mg/L	0004088-02	, <u></u> ,084-		<0.001		······································
o-Xylene-mg/L	0004088-02			<0.001		
CONTROL WATER	LAB-ID #	Sampl e Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004088-03		0.1	0.107	107.%	
Toluene-mg/L	0004088-03		0.1	0.109	109.%	
Ethylbenzene-mg/L	0004088-03		0.1	0.106	106.%	
p/m-Xylene-mg/L	0004088-03		0.2	0.224	112.%	
o-Xylenc-mg/L	0004088-03		0.1	0.110	110.%	
CONTROL DUP WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004088-04		0.1	0.110	110.%	2.8%
Toluene-mg/L	0004088-04		0.1	0.112	112.%	2.7%
Ethylbenzene-mg/L	0004088-04		0.1	0.110	110.%	3.7%
p/m-Xylene-mg/L	0004088-04		0.2	0.230	115.%	2.6%
o-Xylene-mg/L	0004088-04		0.1	0.113	113.%	2.7%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004088-05		0.1	0.104	104.%	
Toluene-mg/L	0004088-05		0.1	0.106	106.%	
Ethylbenzene-mg/L	0004088-05		0.1	0.103	103.%	
p/m-Xylene-mg/L	0004088-05		0.2	0.218	109.%	
o-Xylene-mg/L	0004088-05		0.1	0.108	108.%	

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

Anions

Order#: G0205254

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0004068-01			<2.00	·	
Carbonate Alkalinity-mg/L	0004070-01	·····		<0.10	1	·
Chloride-mg/L	0004067-01			<5.0		
Hydroxide Alkalinity-mg/L	0004072-01			<0.10		
SULFATE, 375.4-mg/L	0004076-01			<0.50		
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0205254-01	206		205		0.5%
Carbonate Alkalinity-mg/L	0205254-01	0		<0.10		0.%
Hydroxide Alkalinity-mg/L	0205254-01	0		<0.10		0.%
SULFATE, 375.4-mg/L	0205254-01	104	· · · · · · · · · · · · · · · · · · ·	103		1.%
MS water	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0205235-01	88.6	250	337	99.4%	
MSD water	LAB-ID #	Sample Concentr.	Spik e Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0205235-01	88.6	250	341	101.%	1.2%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Bicarbonate Alkalinity-mg/L	0004068-04	······································	0.05	0.0496	99.2%	<u></u>
Carbonate Alkalinity-mg/L	0004070-04		0.05	0.0496	99.2%	
Chloride-mg/L	0004067-04		5000	4960	99.2%	
Hydroxide Alkalinity-mg/L	0004072-04		0.05	0.0496	99.2%	<u>.</u>
SULFATE, 375.4-mg/L	0004076-04	<u>,,,,_,,,_</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,	50	51.0	102.%	

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Cations

Order#: G0205254

BLANK	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0004113-02			<0.010	1 1	
Magnesium-mg/L	·	0004113-02			<0.001		
Potassium-mg/L		0004113-02			<0.050		
Sodium-mg/L		0004113-02			<0.010		
DUPLICATE	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0205254-01	83.6		85.4	i	2.1%
Magnesium-mg/L		0205254-01	18.2		17.8	1	2.2%
Potassium-mg/L	- <u>.</u>	0205254-01	8.78		8.71		0.8%
Sodium-mg/L		0205254-01	52.1		51.5		1.2%
SRM	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Calcium-mg/L		0004113-05		2	2.02	101.%	······
Magnesium-mg/L	······································	0004113-05		2	2.19	109.5%	
Potassium-mg/L		0004113-05		2	1.90	95.%	··
Sodium-mg/L		0004113-05	·····	2	1.95	97.5%	

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

Test Parameters

Order#: G0205254

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0004094-01			<5.0		
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0205249-01	649		640		1.4%

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ANALYTICAL REPORT

Prepared for:

JOHN FERGERSON TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708

 Project:
 DEFS: C-1-Line

 PO#:
 F-108

 Order#:
 G0305438

 Report Date:
 01/13/2003

<u>Certificates</u> US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708 262-5216 Order#:G0305438Project:F-108Project Name:DEFS: C-1-LineLocation:U-Bar Ranch

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

				Date / Time	Dat	te / Time		
Lab ID:	Sample :	<u>Matrix:</u>		<u>Collected</u>	<u></u> R	eceived	Container	Preservative
0305438-01	MW-3	WATER		1/10/03 10:25		1/10/03 16:50	40 ml glass	lce, HCl
La	ib Testing:	Rejected:	No	Т	emp:	1.0 C		
	8021B/5030 BTEX							
0305438-02	MW-2	WATER		1/10/03	:	1/10/03	40 mi glass	Ice, HCI
				11:30		16:50		
<u>La</u>	ub Testing:	Rejected:	No	Te	emp:	1.0 C		
	8021B/5030 BTEX							
0305438-03	MW-I	WATER		1/10/03 12:50	1	1/10/03 16:50	40 mi glass	Ice, HCl
La	<u>ıb Testing:</u>	Rejected:	No	Te	emp;	1.0 C		
	8021B/5030 BTEX	···· - ·						
0305438-04	Trip Blank	WATER		1/10/03	1	/10/03 16:50	40 mi glass	lce, HCi
La	i <u>b Testing:</u>	Rejected:	No	Te	emp:	1.0 C		
	8021B/5030 BTEX							
- ·								

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

P.O BOX 7624 Project Name: DEFS: C-1-Line MIDLAND, TX 79708 Location: U-Bar Ranch	JOHN FERGERSON TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708	Order#: Project: Project Name: Location:	G0305438 F-108 DEFS: C-1-Line U-Bar Ranch
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Lab ID: 0305438-01 Sample ID;

MW-3

		8021E	8/5030 BTEX			
Method <u>Blank</u> 0004331-02	Date <u>Prepared</u>	Date <u>Analyzed</u> 1/13/03 13:57	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8021B
	Parameter		Result mg/L		RL.	
	Benzene		<0.001		0.001	
	Toluene		<0.001		0.001	
	Ethylbenzene		<0.001		0.001	
	p/m-Xylene		<0.001		0.001	
	o-Xylene		<0.001		0.001	

Surrogates	% Recovered	QC Li	mits (%)
aaa-Toluene	115%	80	120
Bromofluorobenzene	100%	80	120

Lab ID: Sample ID:

MW-2

0305438-02

8021B/5030 BTEX

Metbod <u>Blank</u> 0004331-02	Date <u>Prepared</u>	Date <u>Analyzed</u> 1/13/03 14:18	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8021B
i	Parameter		Resi mg/	ılt L	RL	
	Benzene	· • · · · · · · · · · · · · · · · · · ·	0.00	1	0.001	
	Toluene		<0.0	01	0.001	

Ethylbenzene	< 0.001	0.001
p/m-Xylene	<0.001	0.001
o-Xylene	<0.001	0.001

Surrogates	% Recovered	QC Li	nits (%)
aaa-Toluene	108%	80	120
Bromofluorobenzene	102%	80	120

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800 Jan 14 03 09:57a

ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

			ANALYI	ICAL RE	POR	Ľ	
OHN FERGERS RIDENT ENVIL O BOX 7624 AIDLAND, TX	ON RONMENTAL 79708			Order#: Project: Project Nam Location:	G0 F-1 e: DE U-1	305438 08 FS: C-I-Line Bar Ranch	
ab ID:	0305438-03						
Sample ID:	MW-1						
			80211	3/5030 BTEX	7		
	Method Blank	Date Prepared	Date <u>Analyzed</u>	Sample Amount	Dilutio Facto	n r Analyst	Method
	0004331-02	2	1/13/03 14:39	1	1	СК	8021B
		Parameter		Resul mg/L	t	RL	
		Benzene		0.041		0.001	
		Toluene		0.004		0.001	
		Ethylbenzene		0.006		0.001	
		p/m-Xylene		0.003		0.001	
		o-Xylene		<0.00		0.001	
		Surroga	ates	% Recovered	QC LI	mits (%)	
		aaa-Toluen	9	117%	80	120	
		Bromofluor	obenzene	103%	80	120	
ıb ID: mple ID:	0305438-04 Trip Blank		8021B	7/5030 BTEX			
	Method	Date	Date	Sample	Dilutio	n	
	Blank	Prepared	Analyzed	Amount	<u>Factor</u>	Analyst	Method
	0004331-02		1/13/03 15:00	I	ι	СК	8021B
		Parameter		Resul	t	RL	
		Benzene		<0.001		0.001	
		Toluene		<0.001		0.001	
		Ethylbenzene		<0.001		0.001	
		p/m-Xylene		<0.001		0.001	
		o-Xylene		<0.001		0.001	
		Surroga	tes	% Recovered	QC Li	nits (%)	

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

aaa-Toluene

Bromofluorobenzene

Page 2 of 3

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West 1-20 East, Odessa, TX 79765 Ph: 915-563-1800

104%

101%

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120

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Jan 14 03 09:57a

ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

JOHN FERGERSON	Order#:	G0305438
TRIDENT ENVIRONMENTAL	Project:	F-108
P.O BOX 7624	Project Name:	DEFS: C-1-Line
MIDLAND, TX 79708	Location:	U-Bar Ranch

Approval: <u>Calam Lk Jusu</u>) <u>1-13-03</u> Raland K. Tuttle, Lab Director, QA Officer Date Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

Page 3 of 3

ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0305438

BLANK	WATER	LAB-1D#	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004331-02			<0.001		
Toluene-mg/L		0004331-02			<0.001		·
Ethylbenzene-mg/L		0004331-02			<0.001		
p/m-Xylene-mg/L		0004331-02			<0.001		
o-Xylene-mg/L		0004331-02		1	<0.001		
MS	WATER	LAB-1D #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0305438-04	0	0.1	0.100	100.%	······································
Toluene-mg/L		0305438-04	0	0.1	0.102	102.%	
Ethylbenzene-mg/L		0305438-04	0	0.1	0.102	102.%	
p/in-Xylene-mg/L		0305438-04	0	0.2	0.217	108.5%	
o-Xylene-mg/L		0305438-04	0	0.1	0.105	105.%	·····
MSD	WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0305438-04	0	0.1	0.107	107.%	6.8%
Toluene-mg/L	······································	0305438-04	0	0.1	0.109	109.%	6.6%
Ethylbenzene-mg/L		0305438-04	0	0.1	0.109	109.%	6.6%
p/m-Xylene-mg/L		0305438-04	0	0.2	0.231	115.5%	6.3%
o-Xylene-mg/L		0305438-04	Q	0.1	0.112	112.%	6.5%
SRM	WATER	LAB-1D #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L		0004331-05		0.1	0.098	98.%	
Toluene-mg/L		0004331-05		0.1	0.101	101.%	
Ethylbenzene-mg/L		0004331-05		0.1	0.100	100.%	
p/m-Xylene-mg/L		0004331-05		0.2	0.213	106.5%	
o-Xylene-mg/L	······································	0004331-05		0.1	0.102	102.%	

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Analytical and Quality Control Report

Dale Littlejohn Trident Environmental P.O. Box 7624 Midland, Tx. 79708 Report Date:

January 14, 2003

Order ID Number: A03011316

Project Number:DEFS-C-1 LineProject Name:N/AProject Location:U-Bar Ranch

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

			Date	\mathbf{Time}	Date
Sample	Description	Matrix	Taken	Taken	Received
218384	MW-3	Water	1/10/03	10:25	1/11/03
218385	MW-2	Water	1/10/03	11:30	1/11/03
218386	MW-1	Water	1/10/03	12:50	1/11/03
218387	Trip Blank	Water	1/10/03	:	1/11/03

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. Note: the RDL is equal to MQL for all organic analytes including TPH.

The test results contained within this report meet all requirements of LAC 33:I unless otherwise noted.

This report consists of a total of 6 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Note: Samples will be disposed of 30 days from the report date unless the lab is contacted before the 30 days has past.

Dr. Blair Leftwich, Director

Report Date: January 14, 2003 DEFS-C-1 Line Order Number: A03011316 N/A

Analytical Report

Sample:	21838	4 - MW-3					
Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC26180	Date Analyzed:	1/13/03
Analyst:	\mathbf{CG}	Preparation Method	l: S 5030B	Prep Batch:	PB24203	Date Prepared:	1/13/03
Param		Flag	Result	Units	Dil	ution	RDL
Benzene			< 0.005	mg/L		5	0.001
Toluene			< 0.005	$\mathrm{mg/L}$		5	0.001
Ethylbenze	ne		< 0.005	m mg/L		5	0.001
M,P,O-Xyle	ene		< 0.005	$\mathrm{mg/L}$		5	0.001
Total BTE	X		< 0.005	mg/L		5	0.001
					Spike	Percent	Recovery
Surrogato	Flac	r Besult	Units	Dilution	Amount	Recovery	Limits

Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
TFT		0.090	mg/L	5	0.10	90	70 - 130
4-BFB		0.093	$\mathrm{mg/L}$	5	0.10	93	70 - 130

Sample: 218385 - MW-2

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC26180	Date Analyzed:	1/13/03
Analyst:	\mathbf{CG}	Preparation Method:	S 5030B	Prep Batch:	PB24203	Date Prepared:	1/13/03
Param		Flag	Result	Units	Dilu	tion	RDL
Benzene		•	< 0.001	m mg/L	1		0.001
Toluene			< 0.001	m mg/L	1		0.001
Ethylbenze	ne	•	< 0.001	m mg/L	1		0.001
M,P,O-Xyle	ene	•	< 0.001	m mg/L	1		0.001
Total BTE	X	•	< 0.001	mg/L	1		0.001

					Spike	Percent	Recovery
Surrogate	Flag	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
TFT		0.0948	mg/L	1	0.10	95	70 - 130
4-BFB		0.0726	m mg/L	1	0.10	73	70 - 130

Sample:	218386 -	MW-1
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Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC26180	Date Analyzed:	1/13/03
Analyst:	CG	Preparation Method:	S 5030B	Prep Batch:	PB24203	Date Prepared:	1/13/03
Param		Flag I	Result	Units	Dilut	ion	RDL
Benzene		(.0497	mg/L	1		0.001
Toluene		(0.0043	$\mathrm{mg/L}$	1		0.001
Ethylbenze	ne		0.005	$\mathrm{mg/L}$	1		0.001
M,P,O-Xyl	ene	(.0034	mg/L	1		0.001
Total BTE	Х	(.0624	mg/L	1		0.001

Report Dat DEFS-C-1	te: January Line	14, 2003	Order	Number: A0301 N/A	Page Number: 3 of 6 U-Bar Ranch		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.096	mg/L	1	0.10	96	70 - 130
4-BFB		0.0778	mg/L	11	0.10	78	70 - 130
Sample: Analysis: Analyst:	218387 BTEX CG	- Trip Blank Analytical Method: Preparation Method	S 8021B : S 5030B	QC Batch: Prep Batch:	QC26179 PB24202	Date Analyzed: Date Prepared:	1/13/03 1/13/03
Param		Flag	Result	Units	Dil	ution	RDL
Benzene			< 0.001	mg/L		1	0.001
Toluene			< 0.001	mg/L		1	0.001
Ethylbenze	ne		< 0.001	mg/L		1	0.001
M,P,O-Xyle	ene		< 0.001	mg/L		1	0.001
Total BTE	X		< 0.001	mg/L		1	0.001
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.0969	mg/L	1	0.10	97	70 - 130
4-BFB		0.0826	$\mathrm{mg/L}$	1	0.10	83	70 - 130

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Report Date: January 14, 2003 DEFS-C-1 Line

Quality Control Report Method Blank

QCBatch:	QC26179		
Flag	Results	Units	$\begin{array}{c} \text{Reporting} \\ \text{Limit} \end{array}$
	< 0.001	mg/L	0.001
	< 0.001	m mg/L	0.001
	< 0.001	m mg/L	0.001
	< 0.001	m mg/L	0.001
	< 0.001	mg/L	0.001
	QCBatch: Flag	QCBatch: QC26179 Flag Results <0.001 <0.001 <0.001 <0.001 <0.001 <0.001	QCBatch: QC26179 Flag Results Units <0.001 mg/L

					Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
$\overline{\mathrm{TFT}}$		0.095	mg/L	1	0.10	95	70 - 130
4-BFB		0.076	mg/L	1	0.10	76	70 - 130

Method Blank QCBatch: QC26180

				Reporting
Param	Flag	Results	Units	\mathbf{Limit}
Benzene		<0.001	mg/L	0.001
Toluene		< 0.001	mg/L	0.001
Ethylbenzene		< 0.001	m mg/L	0.001
M,P,O-Xylene		< 0.001	mg/L	0.001
Total BTEX		< 0.001	mg/L	0.001

					Spike	Percent	Recovery
Surrogate	Flag	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
TFT		0.0904	-mg/L	1	0.10	90	70 - 130
4-BFB	1	0.068	$\mathrm{mg/L}$	1	0.10	68	70 - 130

Quality Control Report Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: (

QC26179

					Spike					
	LCS	LCSD			Amount	Matrix			% Rec	RPD
Param	Result	\mathbf{Result}	Units	Dil.	Added	\mathbf{Result}	% Rec	RPD	Limit	Limit
MTBE	0.0971	0.0972	mg/L	1	0.10	< 0.001	97	0	70 - 130	20
Benzene	0.0936	0.094	mg/L	1	0.10	< 0.001	94	0	70 - 130	20
Toluene	0.0939	0.0942	mg/L	1	0.10	< 0.001	94	0	70 - 130	20
Ethylbenzene	0.0943	0.0949	mg/L	1	0.10	< 0.001	94	1	70 - 130	20
M,P,O-Xylene	0.282	0.284	mg/L	1	0.30	< 0.001	94	1	70 - 130	20

¹Low surrogate recovery due to prep. ICV, CCV show the method to be in control.

Report Date: January 14, 2003	Order Number: A03011316	Page Number: 5 of 6
DEFS-C-1 Line	N/A	U-Bar Ranch

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

Surrogate	$\begin{array}{c} \mathrm{LCS} \\ \mathrm{Result} \end{array}$	$\begin{array}{c} \mathrm{LCSD} \\ \mathrm{Result} \end{array}$	Units	Dilution	Spike Amount	$\begin{array}{c} \mathrm{LCS} \\ \% \end{array}$ Rec	LCSD % Rec	Recovery Limits
TFT	0.092	0.0953	mg/L	1	0.10	92	95	70 - 130
4-BFB	0.0964	0.0986	mg/L	1	0.10	96	99	70 - 130

Laboratory Control Spikes

QCBatch: QC26180

					Spike					
	LCS	LCSD			Amount	Matrix			$\% { m Rec}$	RPD
Param	Result	Result	Units	Dil.	Added	Result	% Rec	RPD	Limit	\mathbf{Limit}
MTBE	0.0948	0.0972	mg/L	1	0.10	< 0.001	95	2	70 - 130	20
Benzene	0.091	0.0936	mg/L	1	0.10	< 0.001	91	3	70 - 130	20
Toluene	0.0916	0.0942	mg/L	1	0.10	< 0.001	92	3	70 - 130	20
Ethylbenzene	0.0912	0.0932	mg/L	1	0.10	< 0.001	91	2	70 - 130	20
M,P,O-Xylene	0.272	0.278	mg/L	1	0.30	< 0.001	91	2	70 - 130	20

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

	\mathbf{LCS}	LCSD			Spike	LCS	LCSD	Recovery
Surrogate	\mathbf{Result}	\mathbf{Result}	\mathbf{Units}	Dilution	Amount	$\% { m Rec}$	$\% { m Rec}$	Limits
TFT	0.0877	0.0899	mg/L	1	0.10	88	90	70 - 130
4-BFB	0.0907	0.0926	mg/L	1	0.10	91	93	70 - 130

Quality Control Report Continuing Calibration Verification Standards

CCV(1)

QCBatch: QC26179

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		mg/L	0.10	0.103	103	85 - 115	1/13/03
Benzene		m mg/L	0.10	0.0926	93	85 - 115	1/13/03
Toluene		m mg/L	0.10	0.0942	94	85 - 115	1/13/03
Ethylbenzene		m mg/L	0.10	0.0937	94	85 - 115	1/13/03
M,P,O-Xylene		$\mathrm{mg/L}$	0.30	0.281	94	85 - 115	1/13/03

CCV(2)

QCBatch: QC26179

			$\begin{array}{c} \mathrm{CCVs} \\ \mathrm{True} \end{array}$	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		$\mathrm{mg/L}$	0.10	0.099	99	85 - 115	1/13/03
Benzene		$\mathrm{mg/L}$	0.10	0.095	95	85 - 115	1/13/03
Toluene		$\mathrm{mg/L}$	0.10	0.096	96	85 - 115	1/13/03
Ethylbenzene		m mg/L	0.10	0.095	95	85 - 115	1/13/03
							Continued

Continued ...

Report Date: January 14, 2003 DEFS-C-1 Line			Order	Order Number: A03011316 N/A			Page Number: 6 of 6 U-Bar Ranch		
Continued			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Data		
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
M,P,O-Xylene		m mg/L	0.30	0.283	94	85 - 115	1/13/03		

ICV (1) QCBatch: QC26179

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE	2	mg/L	0.10	0.080	80	85 - 115	1/13/03
Benzene		m mg/L	0.10	0.099	99	85 - 115	1/13/03
Toluene		m mg/L	0.10	0.1	100	85 - 115	1/13/03
Ethylbenzene		$\mathrm{mg/L}$	0.10	0.099	99	85 - 115	1/13/03
M,P,O-Xylene		$\mathrm{mg/L}$	0.30	0.298	99	85 - 115	1/13/03

CCV (1) QCBatch: QC26180

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		mg/L	0.10	0.0973	97	85 - 115	1/13/03
Benzene		m mg/L	0.10	0.0938	94	85 - 115	1/13/03
Toluene		m mg/L	0.10	0.0939	94	85 - 115	1/13/03
Ethylbenzene		m mg/L	0.10	0.0929	93	85 - 115	1/13/03
M,P,O-Xylene		mg/L	0.30	0.277	92	85 - 115	1/13/03

ICV (1) QCBatch: QC26180

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		mg/L	0.10	0.0973	97	85 - 115	1/13/03
Benzene		m mg/L	0.10	0.0931	93	85 - 115	1/13/03
Toluene		$\mathrm{mg/L}$	0.10	0.0936	94	85 - 115	1/13/03
Ethylbenzene		$\mathrm{mg/L}$	0.10	0.0928	93	85 - 115	1/13/03
M,P,O-Xylene		$\mathrm{mg/L}$	0.30	0.278	93	85 - 115	1/13/03

 $^{2}\mathrm{MTBE}$ outside normal limits. Average of ICV components within acceptable range.

ANALYTICAL REPORT

Prepared for:

JOHN FERGERSON TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708

 Project:
 DEFS: C-1 Line

 PO#:
 F-108

 Order#:
 G0305528

 Report Date:
 01/24/2003

<u>Certificates</u> US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708 262-5216 Order#:G0305528Project:F-108Project Name:DEFS: C-1 LineLocation:U-Bar Ranch

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

				Date / Time	Date / Time		
<u>Lab ID:</u>	Sample ;	Matrix:		Collected	Received	<u>Container</u>	Preservative
0305528-01	MW-3	WATER		1/23/03 9:00	1/23/03 15:02	40 mL glass	Ice, HCl
La	<u>ab Testing:</u>	Rejected:	No	Те	mp: 2.5 C		
	8021B/5030 BTEX						
0305528-02	MW-2	WATER		1/23/03	1/23/03	40 mL glass	Ice, HCl
				10:00	15:02		
<u>La</u>	ub Testing:	Rejected:	No	Te	mp: 2.5 C		
·····	8021B/5030 BTEX						······
0305528-03	MW-1	WATER		1/23/03	1/23/03	40 mL glass	Ice, HCl
				10:55	15:02		
La	<u>b Testing:</u>	Rejected:	No	Ter	np: 2.5 C		
	8021B/5030 BTEX					. <u></u>	
0305528-04	Trip Blank	WATER		1/23/03	1/23/03	40 mL glass	Ice, HCl
0000020 01					15:02		
La	ib Testing:	Rejected:	No	Tei	mp: 2.5 C		
	8021B/5030 BTEX						
ANALYTICAL REPORT

JOHN FERGERSON TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708				Order#: Project: Project Name Location:	G0305 F-108 : DEFS U-Bar	528 : C-1 Line Ranch		
Lab ID: Sample ID:	0305528-01 MNV 3							
Saupie iD.	M # -3		8021B	/5030 BTEX				
	Method <u>Blank</u> 0004437-02	Date <u>Prepared</u>	Date <u>Analyzed</u> 1/23/03 18:44	Sample <u>Amount</u> J	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8021 B	
		Parameter		Result mg/L		RL		
		Benzene	······	<0.001		0.001		
		Toluene		<0.001		0.001		
		Ethylbenzene		< 0.001		0.001		
		p/m-Xylene		<0.001		0.001		
		o-Xylene		<0.001		0.001		
		Parameter Benzene Toluene Ethylbenzene p/m-Xylene o-Xylene		Result mg/L <0.001 <0.001 <0.001 <0.001 <0.001		RL 0.001 0.001 0.001 0.001 0.001		

Surrogates	% Recovered	QC Li	mits (%)
aaa-Toluene	102%	80	120
Bromofluorobenzene	101%	80	120

Lab ID:	030552
Sample ID:	MW-2

28-02

8021B/5030 BTEX Sample Method Date Date Dilution **Analyzed** Amount Factor <u>Analyst</u> Prepared Method Blank 1/24/03 1 1 СК 8021B 0004437-02 10:45

Parameter	Result mg/L	RL
Benzene	0.001	0.001
Tolucne	0.001	0.001
Ethylbenzene	<0.001	0.001
p/m-Xylene	0.001	0.001
o-Xylene	<0.001	0.001

Surrogates	% Recovered	QC Li	mits (%)
aaa-Toluene	100%	80	120
Bromofluorobenzene	95%	80	120

DL = Diluted out N/A = Not Applicable RL = Reporting Limit ENVIRONMENTAL LAB OF TEXAS I, LTD.

Page 1 of 3

ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	SON RONMENTAL 79708				Order#: Project: Project Name Location:	C0 F-1 :: DE U-1	305528 08 FS: C-1 Line 3ar Ranch		
Lab ID: Sample ID:	0305528-03 MW-1								
Sample 121			80211	R/50	A RTFX				
	Method	Date	Date	97.50. !	Somnle	Dibutic	'n		
	Blank	Prepared	Analyzed	4	Amount	Facto	r <u>Analyst</u>	Method	
	0004437-02		1/23/03 19:28		I	1	СК	8021B	
		Parameter			Result mg/L		RL.		
		Benzene			0.033		0.001		
		Toluene			0.004		0.001		
		Ethylbenzene			0.006		0.001		
		p/m-Xylene			0.004		0.001		
	l	o-Xylene			0.001		0.001		
		Surrog	ates	%	Recovered	QC Li	mits (%)		
		aaa-Toluer	le	-	116%	80	120		
		Bromofluor	obenzene		101%	80	120		
Lab ID: Sample ID:	0305528-04 Trip Blank		90711	0/50:	OA DTEV				
	Method	Date	0021E Date	202 X	Sample	Dilutio	n		
	<u>Blank</u> 0004437-02	<u>Prepared</u>	<u>Analyzed</u> 1/24/03 11:07	A	Amount 1	<u>Facto</u> 1	<u>Analyst</u> CK	Method 8021B	
		Parameter		-	Result mg/L		RL		
	-	Benzene	······		<0.001		0.001		
	-	Toluene			<0.001		0.001		
	Į	Ethylbenzene			<0.001		0.001		
	1	p/m-Xylene			<0.001		0.001		
	ļ	o-Xylene			<0.001		0.001		
		Surrog	atcs	%	Recovered	OC Li	mits (%)		
		aaa-Toluer	ie	+	102%	80	120		
		Bromofluor	obenzene		95%	80	120		

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS I, LTD.

Jan 28 03 02:43p

ENVIRONMENTAL LAB OF TEXAS ANALYTICAL REPORT

JOHN FERGERSON	Order#:	G0305528
TRIDENT ENVIRONMENTAL	Project:	F-108
P.O BOX 7624	Project Name:	DEFS: C-1 Line
MIDLAND, TX 79708	Location:	U-Bar Ranch

1-24-03 Approval: Kaland K. Jun Date

Raland K. Tuttle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS I, LTD.

ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0305528

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004437-02			<0.001		······································
Toluene-mg/L	0004437-02			<0.001		
Ethylbenzene-mg/L	0004437-02			<0.001		
p/m-Xylene-mg/L	0004437-02			<0.001		
o-Xylene-mg/L	0004437-02			<0.001		*i
CONTROL WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004437-03		0.1	0.094	94.%	
Toluene-mg/L	0004437-03		0.1	0.097	97.%	
Ethylbenzene-mg/L	0004437-03		0.1	0.098	98.%	
p/m-Xylene-mg/L	0004437-03		0.2	0.204	102.%	
o-Xylene-mg/L	0004437-03		0.1	0.094	94.%	
CONTROL DUP WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004437-04		0.1	0.098	98.%	4.2%
Toluene-mg/L	0004437-04		0.1	0.099	99.%	2.%
Ethylbenzene-mg/L	0004437-04		0.1	0.099	99.%	1.%
p/m-Xylene-mg/L	0004437-04		0.2	0.209	104.5%	2.4%
o-Xylene-mg/L	0004437-04		0.1	0.095	95.%	1.1%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/L	0004437-05		0.1	0.096	96.%	
Toluene-mg/L	0004437-05		0.1	0.101	101.%	
Ethylbenzene-mg/L	0004437-05	//** = /	0.1	0.102	102.%	
p/m-Xylene-mg/L	0004437-05		0.2	0.218	109.%	
o-Xylene-mg/L	0004437-05		0.1	0.096	96.%	

RUSH Results Original Results to: Steave Weathers (DEFS)	Fax Copies to: Mike Stewart (Remediacon) and John Fergerson (Trident) Date 1/23/03 Page 1 of 1	Analysis Request		1 [] 1 []	Pile Type: Typ	558m 558m 558m 5504 7грн 7грн 7грн 7гоц 7гоц 7гоц 7гоц 7гоц 7гоц 7гоц 7гоц)t reamplasment by: Reinquismed by: Reinquismed by: (1) (Company) (3) (Company)	Trident Environmental	(Printed Name) (Printed Name) (Printed Name)	(Sprouve) (Signature) (Signature)	(Date) (Date) (Time) /5 0 2 (Date) (Time) (Date) (Time)	Received By: ENV LAST CKL Secreted By: (1) (Company) D, P, P, C, C) (2) (Company)	ient: (Printed Name) (Printed Name) (Printed Name)	afhers (Signature) (Signature) (Signature)
nmental s 79708	8 6 (Fax)			563-1713	adur .	Date Time	0040000	4 1000	11 1055	1			Sample Receipt	lal Containers:	ic Seals:	c'd Good Cand/Cald:	nforms to Records:	No.:	voice direct to clien	ention: Steve Weath
Trident Enviro P.O. Box 7624 Midland, Texas	(915) 682-000 (915) 262-521	Labs of TX	20 East	0 Fax: (915) (1 Junei	Matrix	Water 15	11	11	water				Line Tol	o v	ion Rei	ð	re la Lat	Please send in	1 Services, Atte
	ENVIRONMENTAL	Lab Name: Environmental	Address: 12600 West I-2	Udessa, 1 A Telephone: (505) 563-1800	ers (SIGNATURES)	Sample Identification	<u>1-3</u>	м -3	w-1	ip Blank.			Project Information	Name: DEFS: C-1-L	Location: U-Bar Ranch	Manager: John Fergerso	anter No.: F~108	gIDNO: Hand Deliver	Instructions/Comments:	Duke Energy Field

Jan 28 03 02:43p

Jan 30 03 09:59a

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ANALYTICAL REPORT

Prepared for:

JOHN FERGERSON TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708

Project: DEFS (C-1 Line)

PO#:

Order#: G0205207

Report Date: 12/17/2002

<u>Certificates</u> US EPA Laboratory Code TX00158 2

ENVIRONMENTAL LAB OF TEXAS SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708 262-5216

Order#: G0205207 F-108 Project: Project Name: DEFS (C-1 Line) Location: U-Bar Ranch

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

				Date / Ti	me l	Date / Time		
Lab ID:	Sample :	<u>Matríx:</u>		Collecte	<u>d</u> .	Received	Container	Preservative
0205207-01	0212060830 (MW-1/10'-12')	SOIL		12/6/02 8:30		12/10/02 14:10	4 oz Glass	lce
<u>L</u> a	ub Testing:	Rejected:	No		Temp:	-2 C		
	8015M							
	8021B/5030 BTEX							
	Chloride							
·····	Sulfate							
0205207-02	0212060844 (MW-1/20'-22')	SOIL		12/6/02 8:44		12/10/02 14:10	4 oz Glass	Ice
<u>La</u>	<u>ıb Testing:</u>	Rejected:	No		Temp:	-2 C		
	8015M							
	8021B/5030 BTEX							
	Chloride							
	Sulfate				•••••			······································
0205207-03	0212060857 (MW-1/30'32')	SOIL		12/6/02		12/10/02	4 oz Glass	Ice
Ĭa	h Testina:	Rejected:	No	5:57	Temn	-14:1V -2 C	,	
<u>154</u>	9015M	,			remp.	20		
	8071B/5030 BTEX							
	Chloride							
	Sulfate							
······							· · · · · · · · · · · · · · · · · · ·	
0205207-04	0212060910 (MW-1/40'-42')	SOIL		12/6/02 0-1/)		12/10/02 14·10	4 oz Glass	Ice
La	b Testing:	Rejected:	No	9,10	Temp:	-2 C		
	8015M	-			•		·	
	8021B/5030 BTEX							
	Chloride							
	Sulfate							
0205207.05	0212061025	SOIL		12/6/02		12/10/02	4 oz Glass	Ice
0203207-03	(MW-3/10'-12')			10:25		14:10		
La	b Testing:	Rejected:	No		Тетр:	-2 C		
	8015M							
	8021B/5030 BTEX							
	Chloride							

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ENVIRONMENTAL LAB OF TEXAS SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL P.O BOX 7624 MIDLAND, TX 79708 262-5216 Order#:G0205207Project:F-108Project Name:DEFS (C-1 Line)Location:U-Bar Ranch

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	<u>Sample :</u> Sulfate	<u>Matrix:</u>		Date / Tir <u>Collecte</u>	ne l d	Date / Time _ <u>Received</u>	Container	Preservative
0205207-06	0212061045 (MW-3/20'-22')	SOIL		12/6/02 10:45		12/10/02 14:10	4 oz Glass	Ice
<u>L</u>	<u>ab Testing:</u> 8015M 8021B/5030 BTEX Chloride Sulfate	Rejected:	No		Temp:	-2 C		
0205207-07	0212061107 (MW-3/30'-32')	SOIL		12/6/02 11:0 7		12/10/02 14:10	4 oz Glass	Ice
<u>La</u>	ab <u>Testing:</u> 8015M 8021B/5030 BTEX Chloride Sulfate	Rejected:	No		Temp:	-2 C		
0205207-08	0212061332 (MW-2/20'-22')	SOIL		12/6/02		12/10/02	4 oz Glass	Ice
La	<u>ab Testing:</u> 8015M 8021B/5030 BTEX Chloride Sulfate	Rejected:	No		Temp:	-2 C		
0205207-09	0212061348 (MW-2/30'-32')	SOIL		12/6/02 13:48		12/10/02 14:10	4 oz Giass	Ice
<u>La</u>	<u>b Testing:</u> 8015M 8021B/5030 BTEX Chloride Sulfate	Rejected:	No		Temp:	-2 C		

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

Jan 30 03 10:00a

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	SON RONMENTAL 79708			Order#: Project: Project Nam Location:	G02 F-10 e: DEF U-B	05207 8 S (C-1 Line) ar Ranch	
Lab ID: Sample ID:	0205207-01 0212060830	(MW-1/10'-12')					
				8015M			
	Method	Date	Date	Sample	Dilution	t A malunt	Mathod
	Black	rrepared	Analyzed 12/10/02	1	ractor 1	<u>Analysi</u> CK	8015M
		Parameter		Resul	lt	RL	
		GRO. C6-C12		<10.0	· ·	10.0	
		DRO. >C12-C35	······	<10.0	-+-	10.0	
		TOTAL, C6-C35		<10.0		10.0	
		Surroga	'es	% Recovered	QC Lin	iits (%)	
		1-Chloroocta	ine	89%	70	130	
		1-Chloroocta	idecane	96%	70	130	
		_	80211	3/5030 BTEX	•		
	Method Blank	Date Prenared	Date Analyzeri	Sample Amount	Dilution Factor	Analyst	Method
	0004063-02	<u></u>	12/13/02 10:43	1	25	СК	8021B
		Parameter		Resul mg/kg	t	RL	
		Benzene		<0.025	5	0.025	
		Ethylbenzene		<0.02	5	0.025	
		Toluene		<0.02	5	0.025	
		p/m-Xylene		<0.025	5	0.025	
		o-Xylene	<u> </u>	<0.02	5	0.025	
		Surrogat		% Recovered	QC Lim	its (%)	
		aaa-Toluene		118%	80	120	
		Bromofluoro	Denzene	119%	80	120	

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DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ANALYTICAL REPORT

JOHN FERGERS TRIDENT ENVIE P.O BOX 7624 MIDLAND, TX	SON RONMENTAL 79708			Order#: Project: Project Name Location:	G02 F-10 :: DE1 U-B	05207 18 18 (C-1 Line) ar Ranch	
Lab ID: Sample ID:	0205207-02 0212060844	(MW-1/20'-22')					
				8015M			
	Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 12/10/02	Sample <u>Amount</u> 1	Dilution <u>Factor</u> 1	n <u>Analvst</u> CK	<u>Method</u> 8015M
		Parameter		Result mg/kg	:	RL	
		GRO, C6-C12		<10.0		10.0	
		DRO, >C12-C35		<10.0		10.0	
	ł	TOTAL, C6-C35		<10.0		10.0	
			<u> </u>				
		Surrogat	es	% Recovered	QC Lin	nits (%)	
		1-Chloroocta	ne	85%	70	130	
		L-Ctiloroocta	DAG 1) /= 010 D/237		130	
	Ba ak a d	Data	80211	5/3030 BIEX	B -11 -11		
	Riank	Prepared	Analyzed	Amount	Factor	ı Analvst	Method
	0004063-02	<u></u>	12/13/02 11:03	1	25	СК	8021B
		Parameter		Result mg/kg		RL	
		Benzene		<0.025		0.025	
		Ethylbenzene		<0.025		0.025	
		Toluene		<0.025		0.025	
		p/m-Xylene		<0.025		0.025	
	L.	o-Xylene		<0.025	<u> </u>	0.025	
		Surrogate	<u></u>	% Recovered	QC Lin	1)15 (%)	
		aaa-10luene		119%	οU	120	

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	SON IRONMENTAL 79708			Order#: Project: Project Nam Location:	G F- 10: D U-	0205207 108 EFS (C-1 Line) Bar Ranch		
Lab ID: Sample ID:	0205207-03 0212060857	(MW-1/30'32')						
			8	8015M				
	Method <u>Blank</u>	Date Prepared	Date <u>Analyzed</u> 12/10/02	Sample <u>Amount</u> 1	Dilut <u>Fact</u> 1	ion <u>or Analyst</u> CK	Method 8015M	
		Parameter		Resul mg/kg	t	RL		
		GRO, C6-C12		<10.0		10.0	-	
		DRO, >C12-C35		<10.0		10.0	1	
		TOTAL, C6-C35		<10.0		10.0	1	
		Surrogat		% Recovered		imite (%)		
		1-Chloroocta	ne	87%	70	130		
		1-Chlcroocta	decane	94%	70	130		
		L	8021B/	5030 BTEX				
	Method	Date	Date	Sample	Diluti	on		
	<u>Blank</u> 0004063-02	<u>Prepared</u>	<u>Analyzed</u> 12/13/02 11:22	Amount 1	Facto 25	ir <u>Analyst</u> CK	Method 8021B	
		Parameter		Resul	t	RL		
		Benzene		<0.025	5	0.025		
		Ethylbenzene		<0.025	; +	0.025		
		Toluene		<0.025	;	0.025		
		p/m-Xylene		0.053		0.025		
	i	o-Xylene		<0.025		0.025		
		Surrogate		% Recovered		imite (%)		
		aaa-Toluene		120%	80	120		
		Bromofluorob	enzene	119%	80	120		

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENV P.O BOX 7624 MIDLAND, TX	ISON IRONMENTAL 79708			Order#; Project: Project Nam Location:	G F- c: D) U-	0205207 108 EFS (C-1 -Bar Ranc	Line) :h	
Lab ID: Sample ID:	0205207-04 0212060910	(MW-1/40'-42')						
				8015M				
	Method	Date	Date	Sample	Dilut	ion		
	Blank	Prepared	Analyzed	Amount	Fact	or <u>A</u>	nalyst	Method
			12/10/02	1	1		СК	8015M
		Parameter		Resul mg/kg	t	 KL		
		GRO, C6-C12		<10.0		10.0	>	
		DRO, >C12-C35		<10.0		10.0)	
		TOTAL, C6-C35		<10.0		10.0)	
		Surrogal	·06	% Becovered		imite (%)]	
		1-Chlomocta		82%	70	130	4	
		1-Chloroocta	idecane	88%	70	130	ĺ	
			8021B	/5030 BTEX	<u>. </u>		L	
	Method	Date	Date	Sample	Diluti	on		
	Blank	Prepared	Analyzed	Amount	Facto	<u>)r A</u>	nalyst	Method
	0004063-02		12/13/02 11:42	1	25		СК	8021B
		Parameter		Result mg/kg	t	RL		
		Benzene		<0.024	5	0.02	5.	
		Ethylbenzene		<0.025	5	0.02	5	
		Toluene		<0.025	5	0.02	5	
		p/m-Xylene		0.053		0.02	5	
		o-Xylene		<0.025	;[0.02	5	
		Surrogat	es	% Recovered	QC L	imits (%)	1	
		aaa-Toluene		120%	80	120	1	
		Bromofluorot	benzene	120%	80	120	1	

ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	SON IRONMENTAL 79708			Order#: Project: Project Name Location:	G020 F-108 :: DEFS U-Bai	5207 ; ; (C-1 Line) ; Ranch	
Lab ID: Sample ID:	0205207-05 0212061025	(MW-3/10'-12')					
	Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 12/10/02	8015M Sample <u>Amount</u> I	Dilution <u>Factor</u> 1	<u>Analyst</u> CK	<u>Method</u> 8015M
		Parameter		Result mg/kg	:	RL	
		GRO, C6-C12		<10.0		10.0	
		DKU, 2012-035		<10.0		10.0	
		101AL, CO-C35]		
		Surrogat	es	% Recovered	QC Limi	ts (%)	
		1-Chloroocta	ine	95%	70	130	
		1-Chloroocta	decane	106%	70	130	
			80211	B/5030 BTEX			
	Method	Date	Date	Sample	Dilution		
	<u>Blank</u> 0004063-02	Prepared	<u>Analyzed</u> 12/13/02 12:01	<u>Amgunt</u> 1	<u>Factor</u> 25	<u>Analyst</u> CK	Method 8021B
		Parameter		Result mg/kg		RL	
		Benzene		<0.025		0.025	
		Ethylbenzene		<0.025		0.025	
		Toluene		<0.025	·	0.025	
		p/m-Xylene		<0.025		0.025	
		0-Aylene		<0.025		0.025	·
		Surrogat	es	% Recovered	QC Limi	ts (%)	
		aaa-Toluene		118%	80	120	
		Bromofluoro	penzene	120%	80	120	

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	ISON IRONMENTAL 79708			Order#: Project: Project Nam Location:	G(F-) e: D¥ U-)	205207 108 2FS (C-1 Line) Bar Ranch	
Lab ID: Sample ID:	0205207-06 0212061045	(MW-3/20'-22')					
	Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 12/10/02	8015M Sample <u>Amount</u> 1	Diluti <u>Facto</u> 1	on o <u>r Analyst</u> CK	Method 8015M
		Parameter		Resul mg/kg	t s	RL	
		GRO, C6-C12		<10.0		10.0	
		DRO, >C12-C35		<10.0		10.0	
		TOTAL, C6-C35		<10.0		10.0	
		Surrogat		% Recovered	OC L	imits (%)	
		1-Chloroocta	ine	85%	70	130	
		1-Chloroocta	idecane	91%	70	130	
			80211	3/5030 BTEX	•		
	Method	Date	Date	Sample	Diluti	n	
	Blank	Prepared	Analyzed	Amount	Facto	<u>r Analyst</u>	Method
	0004063-02		12/13/02 12:21	1	25	СК	8021B
	:	Parameter		Resul mg/kg	t	RL	
		Benzene		<0.02	5	0.025	
		Ethylbenzene		0.031		0.025	
		Toluene		<0.02	5	0.025	
		p/m-Xylene		0.069		0.025	
		o-Xylene		<0.02	5	0.025	
		Surrogat	es	% Recovered	OC L	mits (%)	
		aaa-Toluene		115%	80	120	
		Bromofiliare		4008/	00	400	

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENV P.O BOX 7624 MIDLAND, TX	ISON IRONMENTAL 79708			Order#: Project: Project Nam Location:	G(F- e: DI U-	205207 108 CFS (C-1 Line) Bar Ranch		
Lab ID: Sample ID:	0205207-07 0212061107	(MW-3/30'-32')						
				8015M				
	Method Blank	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample Amount	Diluti <u>Facto</u>	on Ir <u>Analyst</u>	Method	
			12/10/02	1	1	СК	8015M	
		Parameter		Resul mg/kg	t	RL		
		GRO, C6-C12		<10.0		10.0		
		DRO, >C12-C35		<10.0		10.0		
		TOTAL, C6-C35		<10.0		10.0		
		Surrogat 1-Chloroocta 1-Chloroocta	cs Ne decane	% Recovered 86% 92%	QC L 70 70	imits (%) 130 130		
			8021B	/5030 BTEX				
	Method	Date	Date	Sample	Diluti	on tert t		
	Blank	Prepareo	ABBJYZCO 11/12/02	Amount	Facto	r <u>Analyst</u>	Method 9021D	
	0004063-02		12:40	L	23		8V21B	
		Parameter		Result mg/kg	:	RL		
		Benzene		<0.025	1	0.025		
		Ethylbenzene		< 0.025	;	0.025		
		Toluene		<0.025	5	0.025		
		p/m-Xylene		0.028		0.025		
		0-Xylene		<0.025	- -	0.025		
		Surrogat	es	% Recovered	QC L	mits (%)		
		aaa-Toluene	······································	80%	80	120	·	
		Bromofluorot	enzene	83%	80	120		

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENVI P.O BOX 7624 MIDLAND, TX	ISON IRONMENTAL 79708			C P P L	Order#: Project: Project Name Location:	G0: F-1 : DE U-H	205207 08 FS (C-1 Line) 3ar Ranch		
Lab ID: Sample ID:	0205207-08 0212061332	(MW-2/20'-22')		0.016					
	Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u> 12/10/02	8015 S <u>A</u>	M Sample <u>.mount</u> 1	Dilutio <u>Facto</u> 1	on <u>r Analyst</u> CK	<u>Method</u> 8015M	
		Parameter			Result mg/kg		RL		
		GRO, C6-C12			<10.0		10.0		
		DRO, >C12-C35			<10.0		10.0		
		TOTAL, C6-C35			<10.0		10.0		
		Surrogat 1-Chioroocta 1-Chioroocta	es ine decane 8021	% B/503	Recovered 85% 91% 20 BTEX	QC Li 70 70	mits (%) 130 130		
	Method	Date	Date	S	ample	Dilutio	n		
	Blank	Prepared	Analyzed	<u>A</u>	mount	Facto	Analyst	Method	
	0004063-02		12/13/02 13:00		1	25	СК	8021B	
		Parameter			Result mg/kg		RL		
		Benzene			< 0.025		0.025		
		Ethylbenzene			< 0.025		0.025		
		Toluene			<0.025		0.025		
		p/m-Xylene			0.074		0.025		
		o-Xylene			<0.025		0.025		
		Surrogat	es	%	Recovered	0C 14	mits (%)		
		aaa-Toluene			117%	80	120		
		Bromofluorol	penzene		119%	80	120		

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ANALYTICAL REPORT

JOHN FERGER TRIDENT ENV P.O BOX 7624 MIDLAND, TX	ISON IRONMENTAL 79708			Order#: Project: Project Name Location:	G02 F-10 e: DEF U-B	05207 8 'S (C-I Line) ar Ranch	
Lab ID: Sample ID:	0205207-09 0212061348	(MW-2/30'-32')					
	Method <u>Blank</u>	Date Prepared	Date <u>Analyzed</u>	8015M Sample <u>Amount</u>	Dilutio <u>Factor</u>	a Analyst	Method
			12/10/02	1	I	СК	8015M
		Parameter		Result mg/kg	t	RL	
		GRO, C6-C12		<10.0		10.0	
		DRO, >C12-C35		<10.0		10.0	
		TOTAL, C6-C35		<10.0		10.0	
		Surroga	····	% Recovered	OC Lir	nits (%)	
		1-Chloroocta	ne	81%	70	130	
		1-Chloroocta	decane	86%	70	130	
			8021F	R/5030 BTEX			
	Method	Date	Date	Sample	Dilution	L	
	Blank	Prepared	Analyzed	Amount	Factor	Analyst	Method
	0004063-02		12/13/02 14:25	1	25	СК	8021B
		Parameter		Result mg/kg		RL	
		Benzene		<0.025		0.025	
		Ethylbenzene		< 0.025		0.025	
		Toluene		<0.025		0.025	
		p/m-Xylene		<0.025		0.025	
		o-Xylene		<0.025	·	0.025	
					OC L	140 (0())	
		Surrogan	es	% Recovered		110 (%)	
		Bromofluoro	oenzene	120%	80	120	
				Appro Ralan Celau	oval: d K. Tuttl	e, Lab Director,	QA Officer Date

Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

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ANALYTICAL REPORT

JOHN FERGE TRIDENT EN P.O BOX 7624 MIDLAND, T	ERSON VIRONMENTAL X 79708			Order Projec Projec Locati	#: :t: t Name: on:	G0205207 F-108 DEFS (C-1 U-Bar Ranc	Líne) h		
Lab ID: Sample ID:	0205207-01 0212060830	(MW-1/10'-12')							
Test Paran Parameter	meters		<u>Result</u>	Units	Dilutio Facto	n r <u>RL</u>	Method	Date Analyzed	Analyst
Chloride Sulfate			<20 73	mg/kg mg/kg	l 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-02 0212060844	(MW-1/20'-22')							
Test Paran Parameter	meters		<u>Result</u>	Units	Dilutio <u>Factor</u>	n <u>RL</u>	Method	Date Analyzed	Analyst
Chioride Sulfate			<20 168	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID;	0205207-03 0212060857	(MW-1/30'32')							- · · · · · · · · · · · · · · · · · · ·
Test Paral Parameter	meters		<u>Result</u>	Units	Dilution <u>Factor</u>	n : <u>RL</u>	Method	Date Analyzed	<u>Analyst</u>
Chloride Sulfate			<20 56.0	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-04 0212060910	(MW-1/40'-42')							
Test Paran Parameter	meters		Result	Units	Dilution <u>Factor</u>	RL	Method	Date Analyzed	<u>Analyst</u>
Chloride Sulfate			<20 6.50	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-05 0212061025	(MW-3/10'-12')							
Test Paran Parameter	neters		Result	Units	Dilution <u>Factor</u>	RL	Method	Date Analyzed	<u>Analyst</u>
Chloride Sulfate			<20 79.5	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

JOHN FERGE TRIDENT EN P.O BOX 7624 MIDLAND, T	URSON VIRONMENTAL X 79708			Ordera Projec Projec Locati	#: t: t Name: on:	G0205207 F-108 DEFS (C-1 I U-Bar Ranc	Line) h		<u> </u>
Lab ID: Sample ID:	0205207-06 0212061045	(MW-3/20'-22')							
<i>Test Parai</i> Parameter	meters		Result	Units	Dilutio Facto	n r RL	Method	Date Analyzed	Analyst
Chloride Sulfate			<20 3.00	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-07 0212061107	(MW-3/30'-32')							
Test Paran Parameter	neters		<u>Result</u>	Units	Dilutio Factor	n <u>r RL</u>	Method	Date Analyzed	<u>Analyst</u>
Chloride Sulfate			<20 5.00	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-08 0212061332	(MW-2/20'-22')					· · · · · · · · · · · · · · · · · · ·		
Test Paran	neters		Result	Units	Dilutio	n r Rí.	Method	Date Analyzed	Anglyet
Chloride Sulfate			<20 37.0	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB
Lab ID: Sample ID:	0205207-09 0212061348	(MW-2/30'-32')				44 ¶a ^π			
Test Paran Parameter	neters		Result	Units	Dilution Factor	n r <u>R</u> L	Method	Date Analyzed	Analyst
Chloride Sulfate	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<20 65.0	mg/kg mg/kg	1 5	20 2.5	9253 375.4	12/11/02 12/12/02	SB SB

Approval: Kalandk Ju Raland K. Tuttle, Lab Director, QA Officer 12-17-02 Date

Raland K. Tuttle, Lab Director, QA Officer Celey D. Keene, Org. Tech. Director Jeanne McMurrey, Inorg. Tech. Director Sandra Biezugbe, Lab Tech. Sara Molina, Lab Tech.

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

8015M

Order#: G0205207

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Rcsult	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0004032-02			<10.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0004032-03	····	952	1040	109.2%	
CONTROL DUP	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0004032-04		952	894	93.9%	15.1%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0004032-05		1000	1010	101.%	

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0205207

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0004063-02			<0.025		
Ethylbenzene-mg/kg		0004063-02			<0.025		
Toluene-mg/kg	· · · · · · · · · · · · · · · · · · ·	0004063-02			<0.025		
p/m-Xylene-mg/kg		0004063-02			<0.025		······
o-Xylene-mg/kg		0004063-02			<0.025		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0205200-24	0	2.5	2.64	105.6%	
Ethylbenzene-mg/kg		0205200-24	0.306	2.5	3.01	108.2%	
Toluene-mg/kg		0205200-24	0.076	2.5	2.80	109.%	
p/m-Xylene-mg/kg		0205200-24	1.06	5	6.61	111.%	<u> </u>
o-Xylene-mg/kg		0205200-24	0.244	2.5	3.02	111.%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	······	0205200-24	0	2.5	2.46	98.4%	7.1%
Ethylbenzene-mg/kg		0205200-24	0.306	2.5	2.86	102.2%	5.1%
Toluene-mg/kg		0205200-24	0.076	2.5	2.65	103.%	5.5%
p/m-Xylene-mg/kg		0205200-24	1.06	5	6.30	104.8%	4.8%
o-Xylene-mg/kg		0205200-24	0.244	2.5	2.82	103.%	6.8%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	кри
Benzene-mg/kg		0004063-05		0.1	0.108	108.%	
Ethylbenzene-mg/kg		0004063-05		0.1	0.112	112.%	
Toluene-mg/kg		0004063-05		0.1	0.111	111.%	
				0.2	0.000	114 59/	
p/m-Xylene-mg/kg		0004063-05		0.2	0.229	114,270	

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ENVIRONMENTAL LAB OF TEXAS QUALITY CONTROL REPORT

Test Parameters Order#: G0205207 QC Test Sample Spike Pct (%) BLANK RPD LAB-ID # Concentr. Concentr. Result SOIL Recovery <20 Chloride-mg/kg 0004040-01 <2.5 Sulfate-mg/kg 0004052-01 QC Test Spike DUPLICATE Sample Pct (%) RPD LAB-ID # SOIL Concentr. Concentr. Result Recovery Sulfate-mg/kg 3 3.00 0.% 0205207-06 QC Test Sample Spike Pct (%) RPD MS LAB-ID # Concentr. Concentr. Result SOIL Recovery 1000 0 1010 101.% Chloride-mg/kg 0205207-01 Sample Spike OC Test Pct (%) RPD MSD LAB-ID # Concentr. Concentr. Result SOIL Recovery Chloride-mg/kg 0205207-01 0 1000 1010 101.% 0.% Sample Spike QC Test Pct (%) RPD SRM LAB-ID # Concentr. Concentr. Result SOIL Recovery 5000 4960 99.2% Chloride-mg/kg 0004040-04 50 Sulfate-mg/kg 0004052-04 49.0 98.%





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