



Hazard Ranking System

State Documentation Record

for

**Angus Road Groundwater Site
Odessa, Ector County, Texas**

Volume I of III

Prepared by:

**Texas Commission on Environmental Quality
Superfund Section, Remediation Division
Austin, Texas**

June 2010

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Odessa, Ector County, Texas

SIGNATURE PAGE



Sugam Shrestha, Project Manager
Texas Commission on Environmental Quality
Superfund Section, Remediation Division

06/07/10

Date



Robert Musick, Work Leader
Texas Commission on Environmental Quality
Superfund Section, Remediation Division

06/07/10

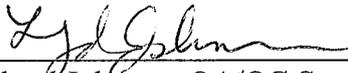
Date



Melissa Cordell, Program Coordinator
Texas Commission on Environmental Quality
Superfund Site Discovery and Assessment Program

6/10/10

Date



Lloyd Johnson, QA/QC Specialist
Texas Commission on Environmental Quality
Technical Support, Remediation Division

6/10/10

Date



Robert E. Patton, Manager
Texas Commission on Environmental Quality
Superfund Section, Remediation Division

6/7/2010

Date

**HAZARD RANKING SYSTEM (HRS)
STATE DOCUMENTATION RECORD**

**Angus Road Groundwater Site
Odessa, Ector County, Texas**

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Notes To The Reader:

The following rules were used when citing references in the Hazard Ranking System (HRS) Documentation Record:

1. Only the cover pages of references 1-3 are included. These documents can be obtained from EPA. All references attached to this report have been stamped with a designated page number (example: Ref. 7, p. 11 = 070011). If the reference being cited is completely paginated, the original page number was cited. If the reference being cited has no pagination or the pagination for the reference is not complete, then the designated page number is cited.
2. The State predecessor agencies: Texas Natural Resource Conservation Commission (TNRCC), Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), and Texas Air Control Board (TACB), referred to throughout this report are now known as the Texas Commission on Environmental Quality (TCEQ). The new agency, TCEQ, became effective September 1, 2002, as mandated under House Bill 2912, Article 18 of the 77th Regular Legislative Session.

HRS STATE DOCUMENTATION RECORD – REVIEW COVER SHEET

SITE NAME:

Angus Road Groundwater Site

CONTACT PERSON:

Sugam Shrestha, TCEQ Project Manager 512/239-4136

PATHWAYS OF CONCERN:

Groundwater Pathway

The release of hazardous substances to the groundwater is the pathway of concern for this Site. The Edwards-Trinity Aquifer is the impacted aquifer. The Groundwater Pathway is being assessed based on potential contamination, because no wells sampled are confirmed to supply drinking or cooking water. The primary chemicals of concern (COCs) evaluated are 1,2-dichloroethane (1,2-DCA), 1,2,3-trichloropropane (1,2,3-TCP), and manganese (Manganese). The source(s) of the COCs at the Site are unknown.

PATHWAYS, COMPONENTS, OR THREATS NOT EVALUATED:

Although the following pathways were not evaluated, all pathways at the Site are of concern to TCEQ.

Surface Water Pathway

The Surface Water Pathway was not evaluated because the inclusion of this pathway would not significantly affect the score.

Soil Exposure Pathway

The Soil Exposure Pathway was not evaluated because the inclusion of this pathway would not significantly affect the score.

Air Migration Pathway

The Air Migration Pathway was not evaluated due to the lack of an observed release and because the inclusion of this pathway would not significantly affect the site score.

HRS STATE DOCUMENTATION RECORD

Date Prepared: May 2010

Name of Site: Angus Road Groundwater Site

Site Owner: Not Applicable (N/A)

Location of Site: 4300 Block of Angus Road

City, County, State: Odessa, Ector County, Texas

General Location in the State: (see Figure 1, Site Location Map)

Topographic Map(s): U.S. Geological Survey 7.5 Minute Topographic Map, Odessa Quadrangle, 1968

Latitude: 31.877911⁰ North

Longitude: 102.416075⁰ West

TCEQ Region: 7 - Midland

Legal Description: Groundwater plume with unknown source

Physical Description: Residential and commercial properties along West 42nd Street bounded by West 47th Street on the north, Johnson Street on the west, Kermit Highway on the south, and Cessna Avenue and Brahma Road on the East.

Congressional District: Texas, Congressional District Number 11

Site Scoring Summary:

Groundwater Migration Pathway – 70.91

Surface Water Migration Pathway – NS

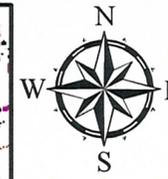
Soil Exposure Pathway – NS

Air Migration Pathway – NS

(NS – Not Scored)

HRS Site Score: 35.46

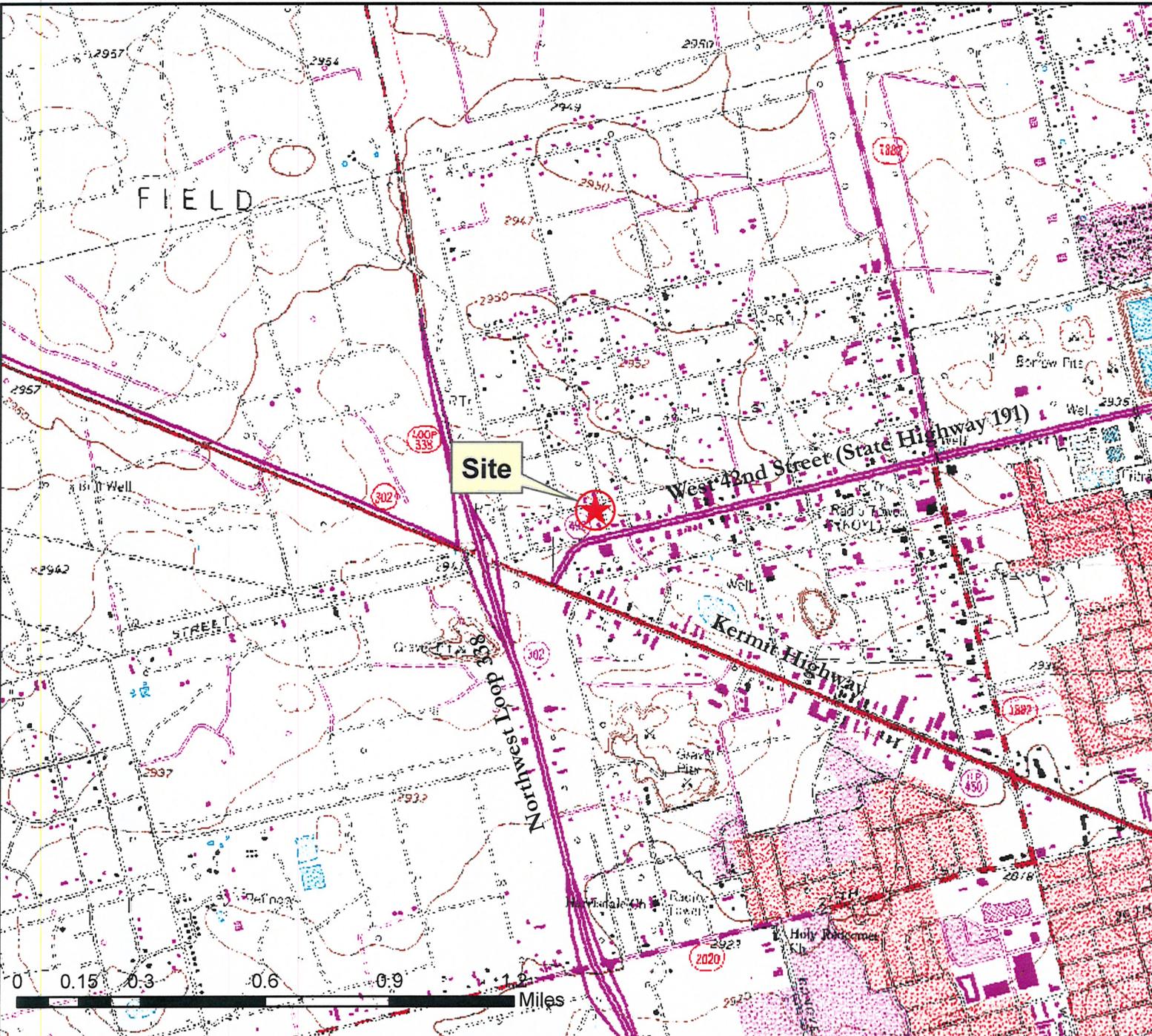
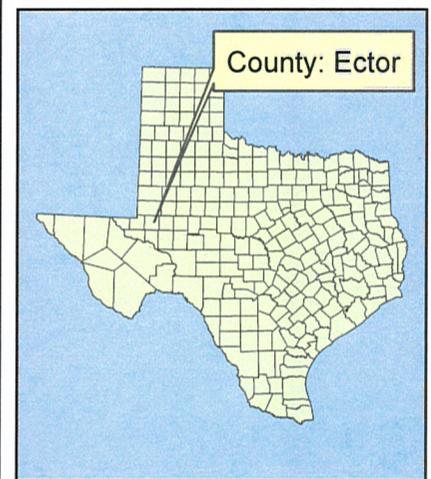
Figure 1: Site Location Map



This map was generated by the Remediation Division of the Texas Commission on Environmental Quality. It is intended for illustrative or informational purposes only, and is not suitable for legal, engineering, or survey purposes. This map does not represent an on-the-ground survey conducted by or under the supervision of a registered professional land surveyor. In cases where property boundaries are shown, it only represents their approximate relative location. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information concerning this map, contact the Remediation Division at 800-633-9363.

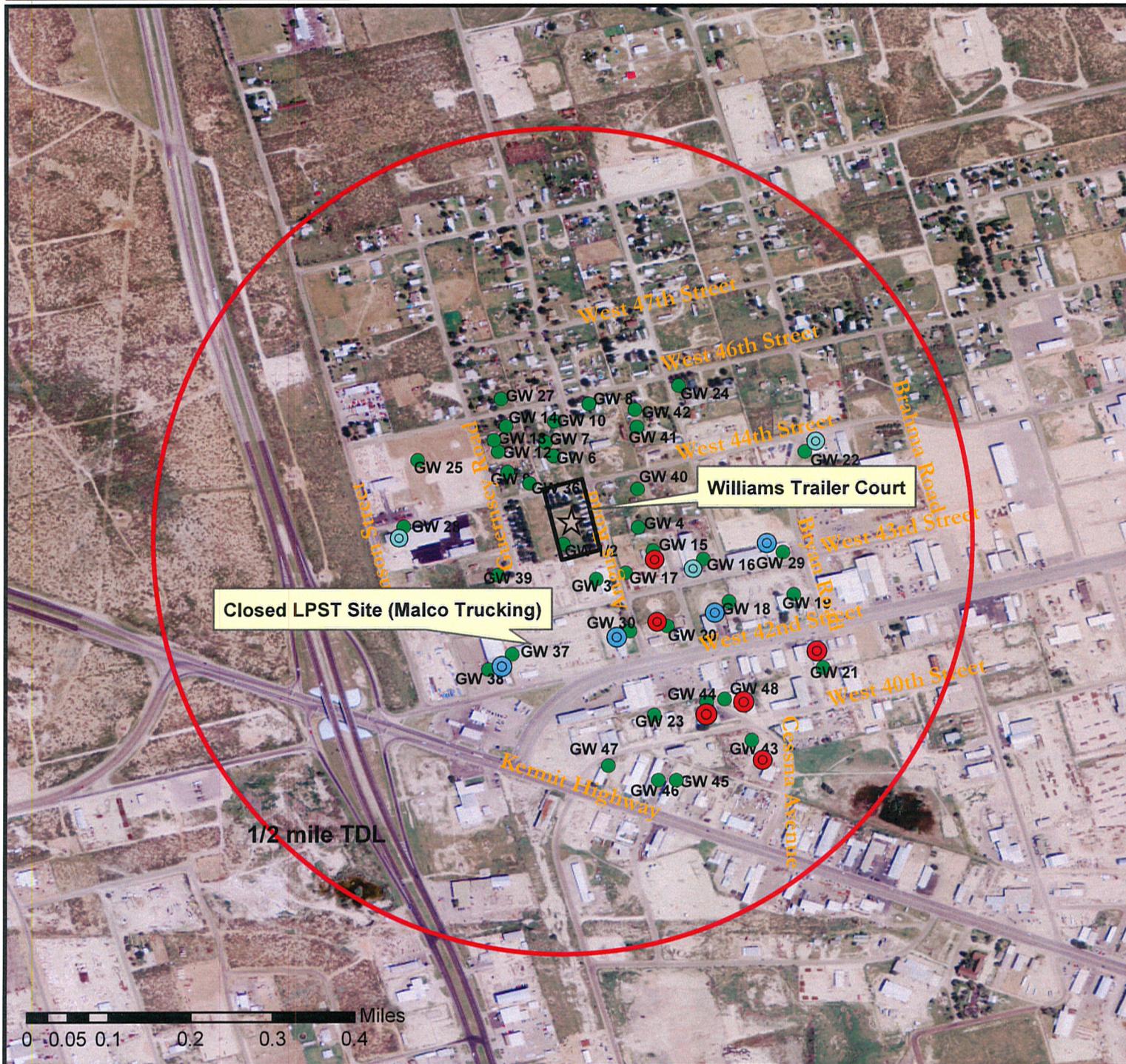
Legend

- Site: Angus Road Groundwater, Odessa
- : Site Location



Source: The base data used is Odessa NE, SE, NW, and SW US Geological Survey 7.5 Minute Topographic Map available from Texas Natural Resources Information System (TNRIS), data search and download.

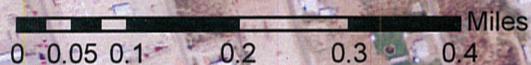
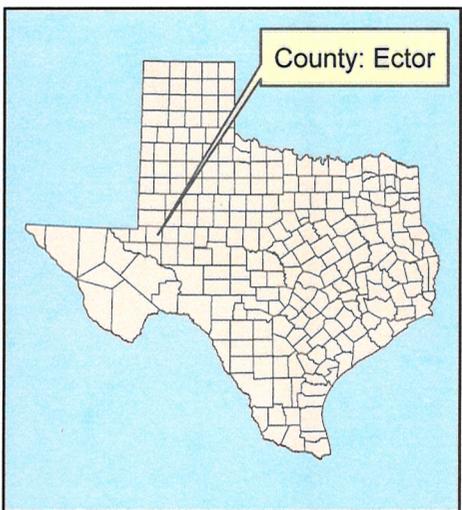
Figure 2: Site Feature Map



This map was generated by the Remediation Division of the Texas Commission on Environmental Quality. It is intended for illustrative or informational purposes only, and is not suitable for legal, engineering, or survey purposes. This map does not represent an on-the-ground survey conducted by or under the supervision of a registered professional land surveyor. In cases where property boundaries are shown, it only represents their approximate relative location. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information concerning this map, contact the Remediation Division at 800-633-9363.

Legend
 Site: Angus Road Groundwater, Odessa, TX

-  Workshop (Metal/Rubber)
-  Workshop (Metal/Engine Parts)
-  Warehouse (Parts/Supplies)
-  GW Sample Location



SITE SUMMARY

General Description of the Site:

The Angus Road Groundwater (Site) is located beneath the 4300 block of Angus Road in Odessa, Ector County, Texas (Figure 1). The approximate geographic coordinates of the Site are latitude 31.877911⁰ North and longitude 102.416075⁰ West. The Site is a groundwater plume underlying an area approximately bounded by West 47th Street on the north, Johnson Street on the west, Kermit Highway on the south, and Cessna Avenue and Brahma Road on the East. The area overlying the Site consists of mixed commercial and residential properties, including a mobile home park. A variety of businesses operate in the area, including, light industrial fabrication, warehouses, storage facilities, and oil and gas production wells. The area within a half-mile radius to the south of the Site consists of industrial and commercial businesses. The area to the west consists of ranch land with oil and gas production. To the east and southeast are residences with water wells, warehouses, storage facilities, welding shops, engine repair shops, supply stores, and other businesses. The area to the north is mostly residential (Figure 2).

Site History:

A March 5, 2004 letter from TCEQ to Williams Trailer Court stated that in August 30, 2002 the TCEQ notified Williams Trailer Court of suspected groundwater contamination of their public water system (PWS) (Ref. 5, pp. 1-2). To confirm the contamination, the TCEQ Public Drinking Water Section collected groundwater samples in March 1, 2004 (Ref. 5, pp. 1-8). The sampled groundwater wells were Williams Trailer Court PWS wells No. 1 (G060126A) and No. 2 (G060126B). The results confirmed the presence of the regulated chemical 1,2-Dichloroethane (1,2-DCA) in the groundwater. The concentration of 1,2-DCA measured in those wells were 0.9 µg/L and 0.5 µg/L, respectively. These results for samples collected in March 2004 were below the United States Environmental Protection Agency (US EPA) maximum contaminant level (MCL) of 5 µg/L for 1,2-DCA (Ref. 5, pp. 1-8).

Due to the detection of 1,2-DCA, the TCEQ Region 7 Office began investigating the Site to identify potential sources. On July 20, 2004, the regional office sampled seven groundwater

monitoring wells at an LPST site, Malco Trucking, located at 2800 West 42nd Street, and one private groundwater well. The laboratory reported that 1,2-DCA was not detected in any of the samples and the reporting limit was 5 µg/L (Ref. 6, pp. 1-8).

On September 9, 2004, the TCEQ Region 7 office sampled 15 private groundwater wells in and around Williams Trailer Court (Ref. 7, p. 4). The concentration of 1,2-DCA and other volatile organic constituents did not exceed their respective MCLs in any of the groundwater wells (Ref. 7, p. 11). The concentration of 1,2-DCA ranged from 0.41 µg/L to 3.24 µg/L (Ref. 7, p. 10).

On June 5, 2006, the TCEQ Superfund Site Discovery and Assessment Program (SSDAP) conducted a sampling event. During the event, 17 wells were sampled (Ref. 8, pp. 4-7) including the two PWS wells at Williams Trailer Court and some of the wells sampled in September 2004. The analytical results indicated 1,2-DCA was detected at 6.4 µg/L and 45 µg/L for two wells at two properties operating metal workshops (Ref. 10, pp. 24, 26, respectively). These reported concentrations of 1,2-DCA exceed the MCL of 5 µg/L. Manganese was detected in one residential well at 1,900 µg/L which is above the Tier I residential protective concentration level (PCL) for groundwater ingestion. The PCL for Manganese is 1,100 µg/L. The results also indicated 1,2,3-TCP was detected in one well at 0.75 µg/L (Ref. 10, p. 27). The PCL for 1,2,3-TCP is 0.03 µg/L. The results indicated arsenic was detected in one residential groundwater well above the PCL of 10 µg/L (Ref. 10, p. 98). However, arsenic was present in most of the wells sampled and was suspected to be naturally occurring. Mercury was present in one sample above its specific PCL but was suspected to be a laboratory contaminant (Ref. 10, p. 94). In January 25, 2007, the TCEQ SSDAP resampled the residential well where mercury was detected; the analytical result indicated Mercury was not detected in the groundwater (Ref. 11, p. 26).

The TCEQ SSDAP conducted another sampling in April 2007. During the event, 32 wells were sampled (Ref. 12, pp. 1-19). These 32 wells included all of the wells with detections of 1,2-DCA reported from the June 2006 sampling event. The two wells reported to have 1,2-DCA concentrations above the MCL in June 2006 were again found to contain 1,2-DCA

above the MCL (Ref. 13, p. 104; Ref. 14, p. 74). One additional well was found to contain 120 µg/L 1,2-DCA (Ref. 15, p. 93). Manganese was found above the PCL in one residential well while 1,2,3-TCP was found above the PCL in two wells (Ref. 13, p. 104; Ref. 14, p. 5).

In July 2007, the TCEQ provided all the residents and business owners with analytical results of the April 2007 sampling event. The residents and business owners with COC contaminations above the protective levels were notified by the TCEQ that a filtration system could be installed in their groundwater wells. Only the resident with the well containing Manganese above the PCL contacted TCEQ and requested the installation of a filtration system (Ref. 16, p. 1). The filtration system was installed in August 2007 (Ref. 17, p. 2).

In July 2007, the TCEQ SSDAP conducted another sampling event. Thirty-three groundwater wells were sampled (Ref. 18, pp. 1-12). During the event, the business owner with the well containing 1,2-DCA above the MCL, who was notified earlier of the contamination in his well, requested the installation of a filtration system. It was installed in August 2007 (Ref. 17, p. 1). The wells that were found to be contaminated in previous sampling events were again found to be contaminated during this event (Ref. 19, pp. 59, 67, 68, 77, 85; Ref. 20, pp. 44, 62, 73, 75, 93; Ref. 21, pp. 5, 11, 28, 29, 35, 55, 60, 67, 68, 74, 108, 117).

The analytical results from all the sampling events indicated that the 1,2-DCA and 1,2,3-TCP plumes were concentrated in an area bounded by West 44th Street on the north, Guernsey Road on the west, Hereford Road on the east, and West 40th Street on the south. The Manganese plume extended further north of West 44th Street (Figure 3).

A State Screening was completed for the Site in February 2008 (Ref. 22, pp. 1-23). At the time, only 1,2-DCA was evaluated. However, due to the detection of 1,2,3-TCP and Manganese in 2006 and 2007 monitoring events, an addendum to the Field Sampling Plan (FSP) was completed to include those COCs and additional groundwater wells to evaluate the Site (Ref. 23, pp. 1-15).

On completing the FSP addendum, a sampling event was conducted in April 2008 (Ref. 24, pp. 1-13). Six additional groundwater wells were sampled, of which four were located to the south of West 40th Street and two located on Cessna Avenue (Figure 2). The sampling results indicated that the Site COCs were not detected in the additional wells, and the wells with reported concentrations of the COCs in the July 2007 sampling were again found to contain the COCs (Ref. 25, pp. 5, 8, 9, 12, 13, 20, 25, 28, 29, 32, 42, 47; Ref. 26, pp. 33, 40, 43, 47, 68, 69). Based on these data, the COC plume distributions as illustrated in Figure 3 remained unchanged. During the sampling event, the business owner of the well containing 1,2-DCA and Manganese above the PCLs, who was notified earlier of the contamination, requested the installation of a filtration system (Ref. 24, p.2). The system was installed in May 2008 (Ref. 28, p. 1).

A groundwater monitoring sampling event was conducted at the Site on December 2-3, 2008. Twenty-four wells were sampled during the event (Ref. 33, pp. 1-13). The results of the sampling largely indicated similar distributions and concentration levels of contaminants compared to the analytical results from the previous sampling events (Ref. 34, pp. 8, 10, 13, 14, 16, 17, 22, 23, 28, 45, 48, 51; Ref. 35, pp. 21, 22). The Manganese concentrations at two locations exceeded the PCL (Ref. 34, pp. 10, 13), but in previous sampling events, the concentration was below the PCL at both the locations. A new property owner at the Site with 1,2-DCA contamination above MCL requested the installation of a filtration system (Ref. 33, p. 1). The filter system was installed in January 2009 (Ref. 36, p. 1).

GROUNDWATER PATHWAY

The groundwater migration pathway for 1,2-DCA, 1,2,3-TCP, and Manganese was evaluated for the Site. A release to the groundwater was established by chemical analysis. The Level I, which is the concentration above a benchmark, the Level II, which is the concentration above background but below the benchmark, and potential contamination were evaluated within a 4-mile radius of the Site. None of the sampled wells were used for drinking water or cooking water, so the groundwater pathway was scored on potential contamination only.

Observed Release to Groundwater:

An observed release was documented to the groundwater pathway for the Site by chemical analysis. To establish an observed release by chemical analysis, it requires analytical evidence of a hazardous substance in the medium significantly above the background level. If the background concentration is not detected, or is less than the detection limit, an observed release is established when the sample concentration equals or exceeds its own sample quantitation limit and that of the background (Ref. 1, Table 2-3). Attribution to the site is not required for a groundwater plume with unknown source.

The three background samples and sample locations for the COCs (1,2-DCA, 1,2,3-TCP, and Manganese) are provided in Tables 1, 2, and 3, respectively. The source(s) of contamination at the Site is unknown at this time.

Table 1: Background Groundwater Samples for 1,2-Dichloroethane

Sample ID	Sample Location	Date Collected	1,2-DCA µg/L	SQL of Background µg/L	Reference
GW-27	4600 Guernsey	04/17/07	U	0.19	Ref. 15, p. 70
		07/24/07	U	0.19	Ref. 20, p. 5
GW-22	2417 West 44 th Street	04/17/07	U	0.20	Ref. 15, p. 136
		07/24/07	U	0.19	Ref. 20, p. 35
		04/08/08	U	0.19	Ref. 25, p. 70
		12/02/08	U	0.19	Ref. 34, p. 34
GW-47	3920 Kermit Highway	04/10/08	U	0.19	Ref. 27, p. 39
		12/03/08	U	0.19	Ref. 35, p. 36

Table 2: Background Groundwater Samples for 1,2,3-Trichloropropane

Sample ID	Sample Location	Date Collected	1,2,3-TCP $\mu\text{g/L}$	SQL of Background $\mu\text{g/L}$	Reference
GW-27	4600 Guernsey	04/17/07	U	0.25	Ref. 15, p. 70
		07/24/07	U	0.22	Ref. 20, p. 5
GW-22	2417 West 44 th Street	04/17/07	U	0.25	Ref. 15, p. 136
		07/24/07	U	0.22	Ref. 20, p. 35
		04/08/08	U	0.22	Ref. 25, p. 70
		12/02/08	U	0.22	Ref. 34, p. 33
GW-47	3920 Kermit Highway	04/10/08	U	0.22	Ref. 27, p. 39
		12/03/08	U	0.22	Ref. 35, p. 35

Table 3: Background Groundwater Samples for Manganese

Sample ID	Sample Location	Date Collected	Manganese $\mu\text{g/L}$	SQL of Background $\mu\text{g/L}$	Reference
GW-27	4600 Guernsey	07/24/07	U	7.8	Ref. 20, p. 4
GW-22	2417 West 44 th Street	07/24/07	U	7.8	Ref. 20, p. 34
		04/08/08	U	7.8	Ref. 25, p. 69
		12/02/08	U	7.8	Ref. 34, p. 33
GW-47	3920 Kermit Highway	04/10/08	U	7.8	Ref. 27, p. 38
		12/03/08	U	7.8	Ref. 35, p. 35

Note: U = Undetected

SQL = Sample Quantitation Limit

For the Site, an observed release has been documented to the groundwater pathway by chemical analysis. The rationale for the observed release of 1,2-DCA is based on 1,2-DCA being reported as not detected in the background samples and 1,2-DCA being reported in the wells at quantified concentrations exceeding the sample quantitation limit of 0.2 $\mu\text{g/L}$ for the background. Table 4 summarizes the samples meeting the observed release criteria for 1,2-DCA. All samples meeting observed release criteria were evaluated as having potential contamination, because the residents and business owners of the wells confirmed that the groundwater was not used for drinking or cooking purposes (Ref. 12, pp. 1-19; Ref. 18, pp. 1-12; Ref. 24, pp. 1-13; Ref. 33, pp. 1-13). Although the groundwater pathway is scored on potential contamination only, the samples meeting the Level I and Level II criteria and the samples exceeding the MCL of 5 $\mu\text{g/L}$ for 1,2-DCA are also noted in Table 4. The Level I concentration, 0.94 $\mu\text{g/L}$ for 1,2-DCA, was found in nine locations (GW-01/02, GW-3, GW-4, GW-15, GW-16, GW-17, GW-20, GW-23, and GW-30). The Level II concentration was found in one location (GW-18).

Table 4: Observed Release for 1,2-Dichloroethane

Sample ID	Sample Location	Date Collected	1,2-DCA $\mu\text{g/L}$	SQL $\mu\text{g/L}$	Level	Exceeds MCL	Reference
GW-01	4307 Angus Road	09/09/04	1.31		I	No	Ref. 7, p. 117
		06/05/06	0.71	0.24			Ref. 9, p. 6
GW-02	4307 Angus Road	09/09/04	0.81 (J)		I	No	Ref. 7, p. 118
		06/05/06	1.2	0.24			Ref. 9, p. 4
GW-01/02	4307 Angus Road	04/16/07	0.79	0.20	I	No	Ref. 13, p. 60
		07/23/07	0.81	0.19			Ref. 19, p. 59
		04/08/08	1.3	0.19			Ref. 25, p. 5
GW-3	4301 Angus Road	09/10/04	3.24		I	No	Ref. 7, p. 130
		06/05/06	2.0	0.24			Ref. 9, p. 8
		04/17/07	2.3	0.20			Ref. 9, p. 8
		07/23/07	2.0	0.19			Ref. 19, p. 77
		04/08/08	1.6	0.19			Ref. 25 p. 25
		12/02/08	1.8	0.19			Ref. 34, p. 8
GW-4	4320 Angus Road	09/09/04	1.04		I	No	Ref. 7, p. 110
		06/05/06	1.4	0.24			Ref. 9, p. 10
		04/17/07	0.83	0.20			Ref. 15, p. 15
		07/23/07	0.67	0.19			Ref. 19, p. 68
		04/08/08	1.6	0.19			Ref. 25 p. 25
		12/02/08	0.40 (J)	0.19			Ref. 34, p. 17
GW-15	4311 Churchill Road	12/02/08	1.8	0.19	I	No	Ref. 34, p. 14
GW-16	2600 West 43 rd Street	06/06/06	6.4	0.24	I	Yes	Ref. 10, p. 24
		04/18/07	6.1	.020			Ref. 14, p. 74
		07/24/07	4.9	0.19			Ref. 20, p. 44
		04/08/08	0.69	0.19			Ref. 25, p. 47
		12/02/08	0.69	0.19			Ref. 34, p. 48
GW-17	2700 West 43 rd Street	04/18/07	3.1	0.20	I	No	Ref. 14, p. 5
		07/25/07	2.6	0.19			Ref. 21, p. 68
		04/08/08	2.2	0.19			Ref. 25, p. 9
GW-18	2600 West 42 nd Street	04/18/07	0.73	0.20	II	No	Ref. 14, p. 27
		07/24/07	0.59	0.19			Ref. 20, p. 62
		04/09/08	0.36 (J)	0.19			Ref. 26, p. 33
		12/02/08	0.39 (J)	0.19			Ref. 9, p. 8
GW-20	2606 West 42 nd Street	04/16/07	120	0.80	I	Yes	Ref. 9, p. 8
		07/24/07	77	0.19			Ref. 9, p. 8
		04/09/08	32	0.19			Ref. 26 p. 40
		12/02/08	54	0.19			Ref. 34, p. 51
GW-23	2714 West 40 th Street	07/25/07	27	0.19	I	Yes	Ref. 21, p. 5
		04/09/08	30	0.19			Ref. 26, p. 69
		12/03/08	13	0.19			Ref. 35, p. 22
GW-30	2700 West 42 nd Street	06/06/06	45	0.24	I	Yes	Ref. 10, p. 26
		04/16/07	27	0.20			Ref. 13, p. 104
		07/25/07	39	0.19			Ref. 21, p. 29
		04/08/08	55	0.38			Ref. 25, p. 32

Note: J = Estimated Value

SQL = Sample Quantitation Limit

* Site scored on potential contamination. Level I and II status provided for informational purposes only.

The sample locations and concentrations for the three samples meeting the observed release criteria for 1,2,3-TCP, when compared to the sample quantitation limit of 0.25 µg/L in the background, are presented in Table 5. All the samples were evaluated as potential contamination only for scoring purpose due to the confirmation that the groundwater was not used for drinking or cooking purposes (Ref. 12, pp. 1-19; Ref. 18, pp. 1-12; Ref. 24, pp. 1-13; Ref. 33, p. 1-13). The cancer risk benchmark, or the Level I concentration, for 1,2,3-TCP in groundwater is 0.012 µg/L, and the wells meeting the Level I or Level II criteria are presented in Table 5.

Table 5: Observed Release for 1,2,3-Trichloropropane

Sample ID	Sample Location	Date Collected	1,2,3-Trichloropropane µg/L	SQL µg/L	Level*	Reference
GW01/02	4307 Angus Road	04/08/08	0.32 (J)	0.22	I	Ref. 25, p. 5
GW-17	2700 West 43 rd Street	04/18/07	0.53	0.25	I	Ref. 14, p. 5
		07/25/07	0.42 (J)	0.22		Ref. 21, p. 67
		04/08/08	0.38 (J)	0.22		Ref. 25, p. 9
GW-30	2700 West 42 nd Street	06/06/06	0.75	0.20	I	Ref. 10, p. 27
		04/16/07	0.64	0.25		Ref. 13, p. 104
		07/25/07	0.60	0.22		Ref. 21, p. 28
		04/08/08	0.71	0.22		Ref. 25, p. 29

Note: J = Estimated Value

SQL = Sample Quantitation Limit

* Site scored on potential contamination. Level I and II status provided for informational purposes only.

The sample locations and concentrations for the 11 locations meeting the observed release criteria for Manganese, when compared to the Manganese sample quantitation limit of 7.8 µg/L in the background, are presented in Table 6. All of the samples were evaluated as potential contamination only for scoring purposes due to the confirmation that the groundwater was not used for drinking or cooking (Ref. 12, pp. 1-19; Ref. 18, pp. 1-12; Ref. 24, pp. 1-13; Ref. 33, p. 1-13). The samples meeting Level I and Level II criteria, as compared to the benchmark non-cancer risk concentration of 5,100 µg/L, are also presented in Table 6.

Table 6: Observed Release for Manganese

Sample ID	Sample Location	Date Collected	Manganese $\mu\text{g/L}$	SQL $\mu\text{g/L}$	Level	Reference
GW-4	4320 Angus Road	06/05/06	1,900	3.0	II	Ref. 9, p. 48
		04/17/07	1,900	1.7		Ref. 15, p. 14
		07/23/07	2,100	7.8		Ref. 19, p. 67
		04/08/08	2,100	7.8		Ref. 25, p. 12
		12/02/08	1,400	7.8		Ref. 34, p. 16
GW-06	4403 Angus Road	06/06/06	4.1 (J)	3.0	II	Ref. 10, p. 92
		04/17/07	4.0 (J)	1.7		Ref. 15, p. 91
		07/24/07	7.9 (J)	7.8		Ref. 20, p. 93
		04/06/07	2.7 (J)	1.7		Ref. 15, p. 102
		04/16/07	3.9 (J)	1.7		Ref. 13, p. 26
		04/16/07	5.7 (J)	1.7		Ref. 13, p. 48
GW-15	4311 Churchill Road	06/06/06	830	3.0	II	Ref. 10, p. 100
		04/16/07	370	1.7		Ref. 13, p. 70
		07/25/07	20	7.8		Ref. 21, p. 55
		04/08/08	120	7.8		Ref. 25, p. 120
		12/02/08	2,800	7.8		Ref. 34, p. 13
GW-17	2700 West 43 rd Street	04/18/07	910	1.7	I	Ref. 14, p. 4
		07/25/07	980	7.8		Ref. 21, p. 74
		04/08/08	130	7.8		Ref. 25, p. 8
		12/02/08	6,300	7.8		Ref. 34, p. 10
GW-20	2606 West 42 nd Street	04/16/07	100	1.7	II	Ref. 13, p. 92
		07/24/07	130	7.8		Ref. 20, p. 73
GW-23	2714 West 40 th Street	07/25/07	2,400	7.8	II	Ref. 21, p. 11
		04/09/08	2,100	7.8		Ref. 26, p. 68
		12/03/08	2,300	7.8		Ref. 35, p. 21
GW-30	2700 West 42 nd Street	06/06/06	22	3.0	II	Ref. 10, p. 102
		04/16/07	30	1.7		Ref. 13, p. 103
		07/25/07	15 (J)	7.8		Ref. 21, p. 35
		04/08/08	50	7.8		Ref. 25, p. 28
GW-39	4313 Guernsey	04/18/07	7.2 (J)	1.7	II	Ref. 14, p. 109
		04/08/08	10 (J)	7.8		Ref. 25, p. 73
		12/02/08	12 (J)	7.8		Ref. 34, p. 28
GW-40	4361 Churchill	04/18/07	750	1.7	II	Ref. 14, p. 120
		07/23/07	580	7.8		Ref. 19, p. 85
		04/08/08	700	7.8		Ref. 25, p. 42
		12/02/08	720	7.8		Ref. 34, p. 22
GW-41	4411 Hereford	04/18/07	310	1.7	II	Ref. 14, p. 37
		07/25/07	250	7.8		Ref. 21, p. 108
GW-42	4411 Hereford	07/25/07	100	7.8	II	Ref. 21, p. 117

Note: J = Estimated Value

SQL = Sample Quantitation Limit

* Site scored on potential contamination. Level I and II status provided for informational purposes only.

Potential to Release and Population Affected:

The affected residents and business owners confirmed that the groundwater was not used for drinking and cooking purposes (Ref. 12, pp. 1-19; Ref. 18, pp. 1-12; Ref. 24, pp. 1-13; Ref. 33, pp. 1-13). Therefore, only potential contamination was considered within a four-mile radius from the contaminated plume of the Site. No Level I or Level II concentrations were considered.

In addition to the sampled groundwater wells, existing groundwater wells were identified in a four-mile radius from the plume of the Site using information from the Texas Water Development Board (TWDB) and the well database in TCEQ GIS servers (Ref. 29, pp. 1-7). The identified wells, including the sampled groundwater wells, are listed in Reference 29 according to the distance from the Site and the population served.

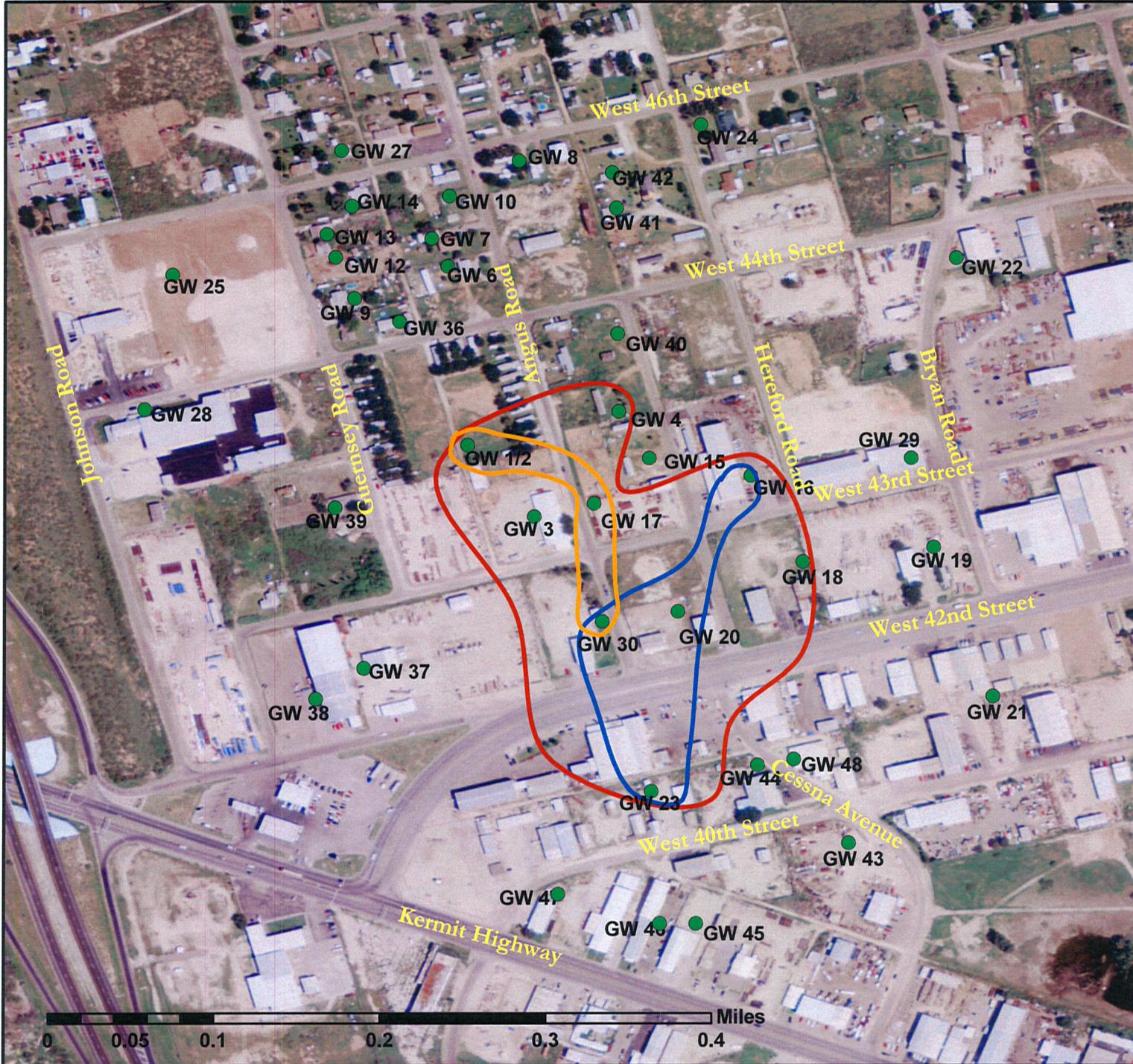
The population per individual residence is 2.65 for Odessa based on 2008 US Census Bureau estimates (Ref. 30, p. 1). Williams Trailer Court lies within one-quarter mile of the Site; it has a PWS serving a population of 50 (Ref. 31, p. 1). Within a two-mile radius from the groundwater plume, the Colorado River Municipal Water District Ector County Well Field PWS, with identification number 0680203, supplies a population of 23,094 (Ref. 32, p. 1). The Colorado River Municipal Water District Ector County Well Field operates 24 wells, of which 21 wells are located within a two-mile to four-mile radius of the plume. Therefore, a target population of 23,094 was evaluated in the one-mile to two-mile distance from the site center using distance-weighted population values for potential contamination.

Table 7 below presents the distance-weighted population values for potential contamination.

Distance (Miles)	Domestic Wells	PWS (actual population served)	Population Served	Weighted Population
0 to 0.25	19	Williams Trailer Court (50)	100.35	53
0.25 to 0.5	0	NA	0	0
0.5 to 1	2	NA	5.3	1
1 to 2	7	Colorado River MWD (23,094)	23,335.55	2,939
		Orchard Water Supply (123)		
		Depot Water Store (100)		
2 to 3	18	Huber Garden Estates (150)	326.7	68
		Northgate Mobile Home Park (129)		
3 to 4	27	Canyon Dam Mobile Home Park (75)	146.55	13
Total			23,914.45	3,074

As specified in the HRS Final Rule (Ref. 1, p. 51604), the number of people served by drinking water wells were determined within each 'Other Than Karst' distance category and a distance-weighted population value for each distance category was assigned. The population served for each distance is the number of domestic wells times the household population size of 2.65 for Odessa, plus the actual population for each PWS. The distance-weighted population values were determined from Reference 1, Section 3.3.2.4. The weighted population values were summed for a total of 3,074, and that sum was divided by 10 for a quotient of 307.4.

Figure 3: GW Well Location and Preliminary Plume Map



This map was generated by the Remediation Division of the Texas Commission on Environmental Quality. It is intended for illustrative or informational purposes only, and is not suitable for legal, engineering, or survey purposes. This map does not represent an on-the-ground survey conducted by or under the supervision of a registered professional land surveyor. In cases where property boundaries are shown, it only represents their approximate relative location. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information concerning this map, contact the Remediation Division at 800-633-9363.

Legend

- Site: Angus Road Groundwater, Odessa, TX
- GW Sample Location
- 1,2-DCA Plume
- 1,2-DCA Plume Exceeding PCL
- 1,2,3-Trichloropropane Plume

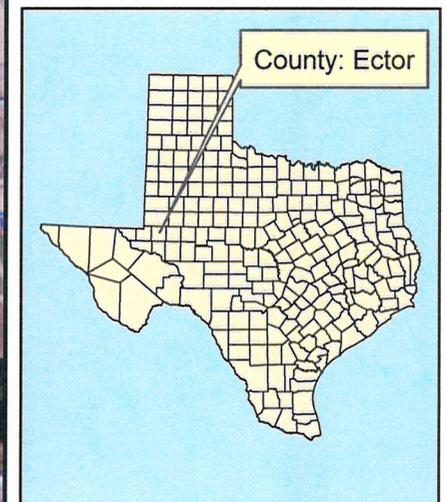
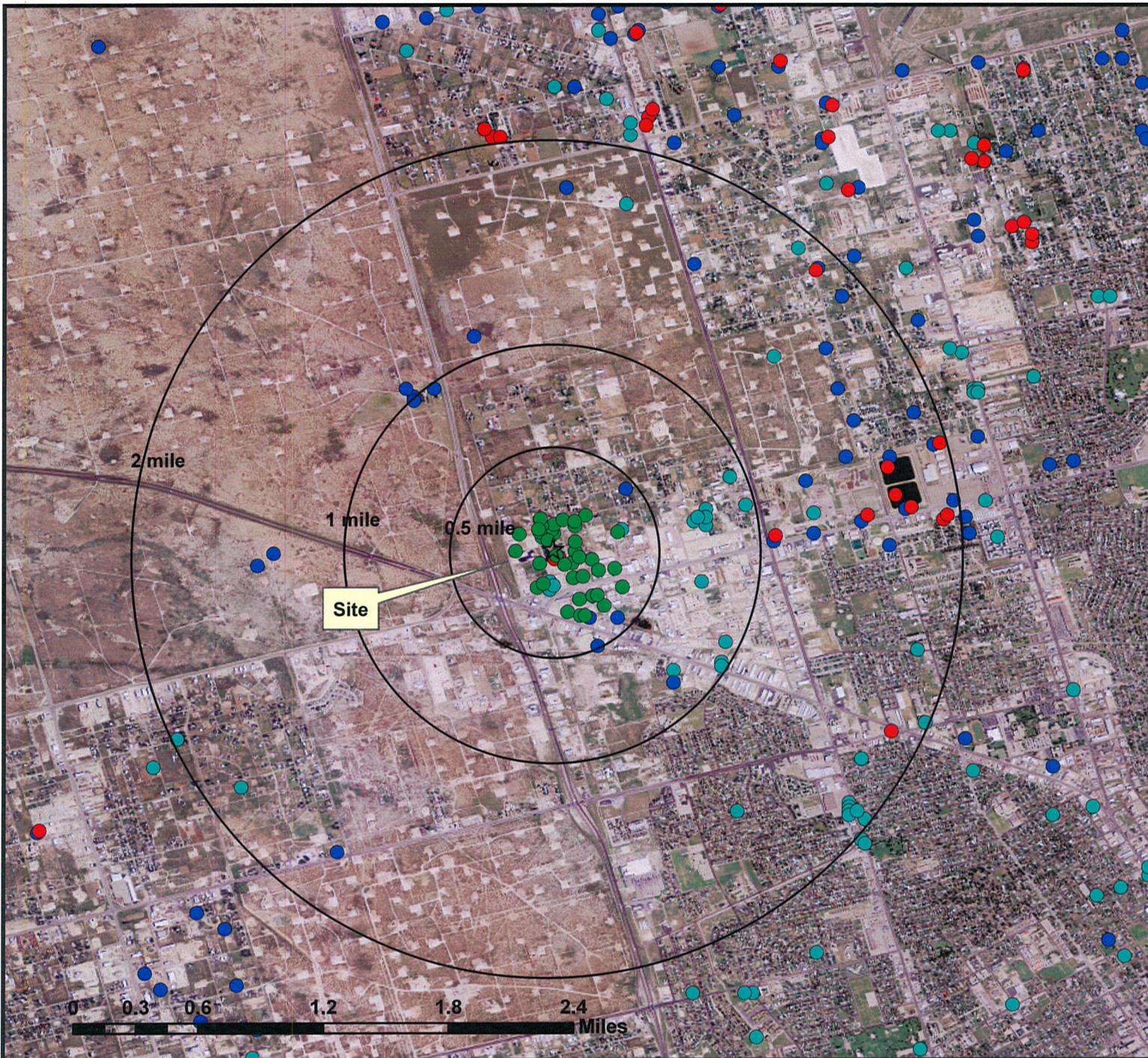


Figure 4: Distance Rings and Groundwater Well Locations

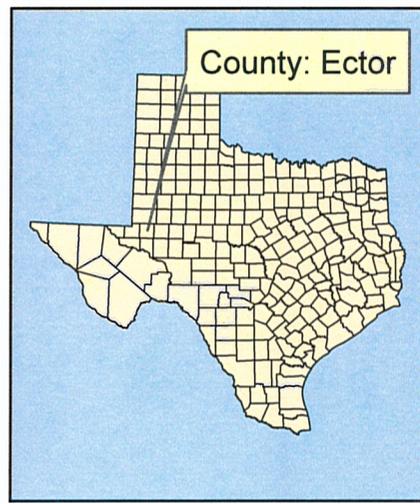


This map was generated by the Remediation Division of the Texas Commission on Environmental Quality. It is intended for illustrative or informational purposes only, and is not suitable for legal, engineering, or survey purposes. This map does not represent an on-the-ground survey conducted by or under the supervision of a registered professional land surveyor. In cases where property boundaries are shown, it only represents their approximate relative location. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For more information concerning this map, contact the Remediation Division at 800-633-9363.

Legend

Site: Angus Road Groundwater, Odessa, TX

- Sampled GW Well
- PWS Well
- Private GW Well
- Domestic/Monitor Well



WORKSHEET FOR HRS SITE SCORE

Site Name: Angus Road Groundwater Plume

City, County, State: Odessa, Ector, TX

EPA ID#: NA

Description: For this Site, an observed release was documented to the groundwater pathway by chemical analysis. The owners of the groundwater wells sampled confirmed the wells were not used for drinking or cooking purposes. Twelve samples for 1,2-DCA, three samples for 1,2,3-TCP, and 11 samples for Manganese met the observed release criteria for the respective chemical. Although there were samples meeting Level I and Level II criteria for 1,2-DCA, all the samples were evaluated as potential contamination, because owners of the groundwater wells at the Site confirmed the groundwater was not used for drinking or cooking purposes. Level I concentrations of 1,2-DCA were found in six samples; Level II concentrations were found in three samples. In addition to the sampled groundwater wells, existing groundwater wells were identified in a four-mile radius of the plume from the Texas Water Development Board and well database in TCEQ GIS servers. The population per individual residence is 2.65 for Odessa, based on 2008 US Census Bureau estimates. Williams Trailer Court lies within a quarter mile of the Site. It has a PWS serving a population of 50. Within a two-mile radius from the groundwater plume, the Colorado River Municipal Water District Ector County Well Field PWS, with identification number 0680203, supplies a population of 23,094. The Colorado River Municipal Water District Ector County Well Field operates 24 supply wells, of which 21 wells are located within a two to four-mile radius of the plume. Therefore, with respect to distance-weighted population values for potential contamination, the target population of 23,094 was evaluated in one to two miles of the plume.

	S pathway	S ² pathway
Ground Water Migration Pathway Score (S _{gw})	70.91	5,028.2281
Surface Water Migration Pathway Score (S _{sw})	NS	
Soil Exposure Pathway Score (S _s)	NS	
Air Migration Score (S _a)	NS	
$S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$		5,028.2281
$(S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2)/4$		1,257.057025
$\sqrt{(S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2)/4}$		35.46

Note: NS = Not Scored
S = Numerical Value

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Likelihood of Release to an Aquifer:		
1. Observed Release (Ref.1, Section 3.1.1; Tables 1 and 2)	550	550
2. Potential to Release:		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550	550
Waste Characteristics:		
4. Toxicity/Mobility (Ref. 1, Table 3-9, Ref. 3, p. 1; COC = 1,2,3-TCP)	(a)	10,000
5. Hazardous Waste Quantity (Ref. 1, Table 2-6)	(a)	100
6. Waste Characteristics (Ref. 1, Table 2-7)	100	32
Targets:		
7. Nearest Well (Ref. 1, Table 3-11)	(b)	20
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination (Ref. 1, Table 3-12)	(b)	307.4
8d. Population (lines 8a + 8b + 8c)	(b)	307.4
9. Resources (Ref. 1, Section 3.3.3)	5	5
10. Wellhead Protection Area	20	
11. Targets (lines 7 + 8d + 9 + 10)	(b)	332.4
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,500] ^c	100	70.912
Ground Water Migration Pathway Score:		
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated) ^c	100	70.912

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

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Federal Register**

Friday
December 14, 1990

Part II

**Environmental
Protection Agency**

**40 CFR Part 300
Hazard Ranking System; Final Rule**

01 001

Reference 2

United States
Environmental Protection
Agency

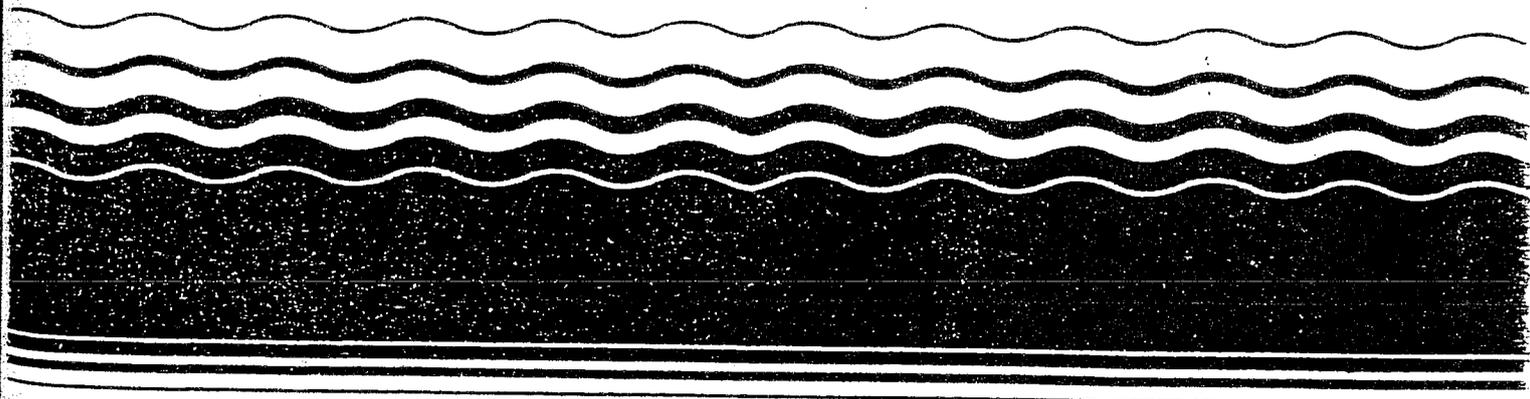
Office of Solid Waste
and Emergency
Response

Publication 9345.1-07
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EPA 540-R-92-026
November 1992

Superfund



Hazard Ranking System Guidance Manual



02 001

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PB96-963509
~~June 1996~~
Jan. 28, 2004

Superfund Chemical Data Matrix

ASSIGNED FACTOR VALUES and BENCHMARKS

Office of Emergency and Remedial Response
U.S. Environmental Protection Agency
Washington, DC 20460

030001

Reference 4

Photographic Documentation
Angus Road Groundwater Plume, 4300 Block of Angus Road, Odessa, Texas



Photograph 1 (Date – NA; Time – NA; Photographer – NA): Aerial picture of the Site provided by property owner at 4301 Angus Road. The foreground intersection is Angus Road and 43rd Street.



Photograph 2 (Date – 04/18/2006; Time – 09:33 AM; Photographer – Sugam Shrestha, TCEQ; Facing North): Oil pump at 2600 West 42nd Street, location of GW 18.

G40001

Photographic Documentation
Angus Road Groundwater Plume, 4300 Block of Angus Road, Odessa, Texas



Photograph 3 (Date – 04/08/2008; Time – 2:15 PM; Photographer – Sugam Shrestha, TCEQ; Facing West): Fenced well work south of 4313 Guernsey, location of GW 39.



Photograph 4 (Date – 04/09/2008; Time – 01:30 PM; Photographer – Sugam Shrestha, TCEQ; North): GW-44 location at 2700 West 40th Street amidst corroded metal parts from engines and other metal works. The street on the right side is Cessna Avenue.

040002

Photographic Documentation
Angus Road Groundwater Plume, 4300 Block of Angus Road, Odessa, Texas



Photograph 5 (Date – 07/23/2007; Time – 01:07 PM; Photographer – John Flores, TCEQ; Facing East):
Collecting sample from a private groundwater well (GW-10) at 4411 Angus Road. The samples were collected for VOC, SVOC, and metal analysis during the event.



Photograph 6 (Date – 07/23/2007; Time – 09:17 AM; Photographer – John Flores, TCEQ; Facing West):
Collecting sample from a private groundwater well GW-04 located at 4320 Angus Road. The property owner requested installation of a filtration system to treat manganese which exceeded health based level. The system was installed in August 2007.

Photographic Documentation
Angus Road Groundwater Plume, 4300 Block of Angus Road, Odessa, Texas



Photograph 7 (Date – 04/18/2006; Time – 08:52 AM; Photographer – Sugam Shrestha, TCEQ; Facing South): GPS coordinates being collected at GW-17 located at 2700 West 43rd Street which was found to be contaminated with 1,2,3-Trichloropropane. The street on the upper right corner is Angus Road.



Photograph 8 (Date – 07/23/2007; Time – 10:30 AM; Photographer – John Flores, TCEQ; Facing West): Collecting a sample from GW 01/02 where 1,2-DCA was first reported in 2002.

G40004

Reference 5

Kathleen Harnett White, *Chairman*
 R.B. "Ralph" Marquez, *Commissioner*
 Larry R. Soward, *Commissioner*
 Margaret Hoffman, *Executive Director*



RN 101212421
 CN 600655351

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Protecting Texas by Reducing and Preventing Pollution

March 5, 2004

Williams Trailer Court
 Attn: Water System Official
 4307 Angus Rd
 Odessa, TX 79764

Subject: **GROUND WATER CONTAMINATION CONFIRMED: 1,2 Dichloroethane**
 Williams Trailer Court - PWS ID# 0680126
 Ector County, Texas

RECEIVED

MAR 08 2004

TCEQ
 TIONS

Dear Water System Official:

In a letter dated August 30, 2002, we notified you of a suspected ground water contamination at your water system, and that well samples would be required to confirm the contamination. We attempted to collect these samples in October 2002 and again in February 2003 but were unable to do so because of issues at your system. Our latest attempt to collect well samples on March 1, 2004 was successful. We appreciate your cooperation in facilitating the collection of these samples. Results of these samples collected from wells 1 and 2 at your water system confirm ground water contamination with the regulated chemical 1,2-Dichloroethane. See the enclosed fact sheet for more information on this chemical. The sample result history is listed below.

In cases of groundwater contamination we usually recommend seeking alternative sources of water, but realize for a system of your size, that this may not be feasible. Though this contamination exists, your water system is **not currently in violation** of drinking water standards due to these detections. Please note that the water is considered safe to drink, as long as the detected levels at the entry point remain below the MCL.

MCL 5 ppb

Chemical	Detected Level (µg/L)	MCL (µg/L)	Site	Sample Date	Lab ID#
1,2-Dichloroethane	0.9	5	Well 1 (G060126A)	03/01/2004	EP404705
1,2-Dichloroethane	0.5	5	Well 2 (G060126B)	03/01/2004	EP404707
1,2-Dichloroethane	0.9	5	Entry Point 001	02/16/2004	EP403370
1,2-Dichloroethane	ND	5	Entry Point 001	10/29/2002	EP217047
1,2-Dichloroethane	3.5	5	Entry Point 001	06/25/2002	EP210525
1,2-Dichloroethane	3.0	5	Entry Point 001	03/26/2002	EP205968
1,2-Dichloroethane	3.7	5	Entry Point 001	09/24/2001	EP114643

ND = Non Detect

Because of the detections, the entry point served by the contaminated wells will be considered vulnerable. State and federal regulations require that we continue to sample your entry point annually for VOCs because of this contamination. This sampling is in order to ensure that levels of this regulated chemical do not exceed the maximum contaminant level (MCL), so that public health is protected. Failure to submit to sampling will result in a monitoring and reporting violation, and may result in enforcement action.

050001

We recommend you contact the Source Water Assessment and Protection team to investigate the source of this contamination and its potential impact on other wells in the area.

If you have any questions or need further information, please contact me at (512) 239-4528 or gregner@tceq.state.tx.us. If I am unavailable you may contact Marie Knipfer at (512) 239-6040, or any member of the Drinking Water Quality Team at (512) 239-4691.

Sincerely,



Gary Regner, Drinking Water Quality Specialist
Public Drinking Water Section, MC155

Enclosures

cc: Hon. Jerry Caddel, Ector County Judge, 300 N Grant, Rm 227, Odessa, TX 79761
Dr. Nathan Galloway, Ector County Health Official, 221 N Texas, Odessa, TX 79761
Richard E. Greene, EPA Region 6, Regional Administrator, 1445 Ross Ave., Suite 1200, Dallas, TX 75202
TCEQ Region 7
Greg Rogers, Source Water Assessment and Protection Team, TCEQ
Steve Musick, Groundwater Planning & Assessment Team, TCEQ
TCEQ, SSDAT, MC142
TCEQ, VCP, MC221
Tom Weber, Chief Engineer, Office of the Executive Director, MC 109
Pat Fontenot, Waste Manager, Field Operations Division, MC 174

650002



Consumer Factsheet on: 1,2-DICHLOROETHANE

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:
National Primary Drinking Water Regulations

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

What is 1,2-DCA and how is it used?

1,2-Dichloroethane (1,2-DCA) is a colorless, oily, organic liquid with a sweet, chloroform-like odor. The greatest use of 1,2-dichloroethane is in making chemicals involved in plastics, rubber and synthetic textile fibers. Other uses include: as a solvent for resins and fats, photography, photocopying, cosmetics, drugs; and as a fumigant for grains and orchards.

The list of trade names given below may help you find out whether you are using this chemical at home or work.

Trade Names and Synonyms:

1,2-Ethylene dichloride
Glycol dichloride
Freon 150
Borer sol
Brocide
Destruxol borer-sol
Dichlor-mulsion
Dutch oil
Granosan

Why is 1,2-DCA being Regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for 1,2-dichloroethane has been set at zero because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has been set at 5 parts per billion (ppb) because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

C50003

What are the Health Effects?

Short-term: EPA has found 1,2-dichloroethane to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: central nervous system disorders, and adverse lung, kidney, liver circulatory and gastrointestinal effects.

Long-term: 1,2-Dichloroethane has the potential to cause the following effects from a lifetime exposure at levels above the MCL: cancer.

How much 1,2-DCA is produced and released to the environment?

Production of 1,2-dichloroethane was 18 billion lbs. in 1993. It is released in waste water, spills, and/or improper disposal primarily from its use as a cleaning solvent, in making other organics, and in pesticides.

From 1987 to 1993, according to the Toxics Release Inventory, releases to water and land totalled over 455,000 lbs. These releases were primarily from facilities which make industrial organic chemicals, alkalis and chlorine. The largest releases occurred in New Jersey and Louisiana.

What happens to 1,2-DCA when it is released to the environment?

While releases to water or soil will evaporate quickly, 1,2-dichloroethane will also leach into groundwater rapidly where it is likely to persist for a very long time. There is little degradation by microbes. 1,2-Dichloroethane is not expected to accumulate in fish.

How will 1,2-DCA be Detected in and Removed from My Drinking Water?

The regulation for 1,2-dichloroethane became effective in 1989. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if 1,2-dichloroethane is present above 0.5 ppb ($\mu\text{g/L}$). If it is present above this level, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of 1,2-dichloroethane so that it is consistently below that level. The following treatment methods have been approved by EPA for removing 1,2-dichloroethane: Granular activated charcoal in combination with Packed Tower Aeration.

How will I know if 1,2-DCA is in my drinking water?

If the levels of 1,2-dichloroethane exceed the MCL, 5 ppb ($\mu\text{g/L}$), the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

Drinking Water Standards:

Mclg: zero

Mcl: 5 ppb ($\mu\text{g/L}$)



TCEQ SAMPLE ID#

VOC

Public Water System Water Analysis



03731911

PRIORITY RUSH

REPORT TO: [] Check if New Address
WILLIAMS TRAILER COURT

WATER SYSTEM ID NO: 0680126
NAME OF WATER SYSTEM: WILLIAMS TRAILER COURT
DATE/TIME COLLECTED: 03 01 04 11:40

Address 1 4307 ANGUS RD

SAMPLE: [] Routine [] Quarterly (detect) [X] Priority (2-WK) [] Emergency (24HR)

Address 2 ODESSA, TX 79764

SOURCE: [X] Ground [] Surface [] GUI [] Blended [] New Source

City, State, Zip

SAMPLING LOCATION: DRAW: 0680126 A
Site: WELL 1

BILL TO: (If other than above)

[] DISTRIBUTION: Location:

Name

[] ENTRY POINT(S): Tap Location:

Address 1

Plant:

Address 2

City, State, Zip

Table with 5 columns for POE and TCEQ SAMPLE ID #

Water analyses are required by law (30 TAC 290). I acknowledge that this Water System will be billed for the testing performed per this request...

REGION NO: 7 CHLORINE RESIDUAL 3.8 T

Signature (System Official) Esther Boroff

Signature (TRWA Sampling Technician) Connie Montenegro

Print Name Esther Boroff

Instructions for sample collection and submission are available on request from the Public Drinking Water Section of the Texas Commission on Environmental Quality

LABORATORY MAR 2 2004 DATE RECEIVED: MAR 2 2004 DATE REPORTED: MAR 4 2004

EACH BLOCK REQUIRES SEPARATE CONTAINERS AND FORM

1. [] ALL MINERALS 1 QT PLASTIC 150.1, 300.0
2A [] METALS 14 GROUP (ICP) 1 QT PLASTIC 200.8, 200.7

13 [X] VOC 2-40 mL GLASS 524.2
Acetic Acid, HCl, Iodine, 14 Day Hold Time

14 [] TRIHALOMETHANES 2-40 mL GLASS 502.2
Sodium Thiosulfate, Iodine, 14 Day Hold Time

18 [] HALOACETIC ACIDS (HAA) 2-80 mL GLASS 592.2
Ammonium Chloride, Iodine, 14 Day Hold Time

2 [] ALL METALS 1 QT PLASTIC 200.8, 200.7, 248.1
[] SINGLE METAL 1 QT PLASTIC 200.8, 200.7, 245.1

15 [] RADIOCHEMICAL GRAB 1 GAL PLASTIC 900.0, 904.0, 905.0
No Field Preservation, 3 Day Hold Time

16 [] RADIOCHEMICAL COMPOSITE 900.0, 904.0, 905.0
[] 1 OF 4 [] 2 OF 4 [] 3 OF 4 [] 4 OF 4
1 QT PLASTIC 1 QT PLASTIC 1 QT PLASTIC 1 QT PLASTIC

8 [] SEMIVOLATILES (BOOB) 1 QT GLASS 528.2
Sodium Sulfite, HCl, Iodine, 14 day Hold Time

[] OTHER
[] None [] Sodium Sulfite [] Sodium Thiosulfate [] Other

WHITE - Lab

YELLOW - Sampler

TEXAS DEPARTMENT OF HEALTH
VOLATILE ORGANIC COMPOUNDS by GC/MS

Contact: Gary Post
(512) 458-7557

Submitter Number: TX0680126
TDH Sample Number: EP04-04705
Method: EPA 524.2 rev. 4.1
Data File Number: 03MAR-05.D
Q.C. File: OV040303.S
Sample Type: Water

Date Collected: 03/01/2004
Date Extracted: 03/03/2004
Date Analyzed: 03/03/2004
Analyst: csherman
Dilution Factor: 1
Concentration Units: µg/l

Regulated Compds. [40 CFR §141.61(a)]	Result
Benzene	<0.5
Carbon tetrachloride	<0.5
Chlorobenzene	<0.5
1,2-Dichlorobenzene	<0.5
1,4-Dichlorobenzene	<0.5
1,2-Dichloroethane	0.9
1,1-Dichloroethane	<0.5
cis-1,2-dichloroethane	<0.5
trans-1,2-Dichloroethane	<0.5
1,2-Dichloropropane	<0.5
Methylene chloride (DCM)	<0.5
Ethyl benzene	<0.5
Styrene	<0.5
Tetrachloroethene	<0.5
Toluene	<0.5
1,2,4-Trichlorobenzene	<0.5
1,1,1-Trichloroethane	<0.5
1,1,2-Trichloroethane	<0.5
Trichloroethene	<0.5
Vinyl chloride	<0.5
m&p-Xylene	<1.0
o-Xylene	<0.5

Monitored Compds. [40 CFR §141.40(j)]	Result
1,2,4-Trimethylbenzene	<1.0
1,2,3-Trichlorobenzene	<1.0
n-Propylbenzene	<1.0
n-Butylbenzene	<1.0
Naphthalene	<1.0
Hexachlorobutadiene	<1.0
1,3,5-Trimethylbenzene	<1.0
4-Isopropyltoluene	<1.0
Isopropylbenzene	<1.0
t-Butylbenzene	<1.0
s-Butylbenzene	<1.0
Trichlorofluoromethane	<2.0
Dichlorodifluoromethane	<2.0
Bromochloromethane	<1.0

Other Compounds	Result
Acetone	<10
Acrylonitrile	<10
2-Butanone (MEK)	<10
Carbon disulfide	<1.0
Ethyl methacrylate	<1.0
2-Hexanone	<1.0
Iodomethane	<2.0
Methyl methacrylate	<1.0
4-Methyl-2-pentanone (MIBK)	<2.0
Methyl-t-butyl ether (MTBE)	<2.0
Tetrahydrofuran	<2.0
Vinyl acetate	<10

Monitored Compds. [40 CFR §141.40(e)]	Result
Chloroform	2.6
Bromodichloromethane	1.1
Dibromochloromethane	1.8
Bromoform	4.4
Dibromomethane	<1.0
1,3-Dichlorobenzene	<1.0
1,1-Dichloropropene	<1.0
1,1-Dichloroethane	<1.0
1,1,2,2-Tetrachloroethane	<1.0
1,3-Dichloropropane	<1.0
Chloromethane	<2.0
Bromomethane	<2.0
1,2,3-Trichloropropane	<1.0
1,1,1,2-Tetrachloroethane	<1.0
Chloroethane	<2.0
2,2-Dichloropropane	<1.0
2-Chlorotoluene	<1.0
4-Chlorotoluene	<1.0
Bromobenzene	<1.0
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0

Tentative identification of the largest non-priority pollutant peaks is provided by comparison with the EPA/NIH mass spectral library. Approximate quantitation is performed using internal standards and an assumed response factor of one.

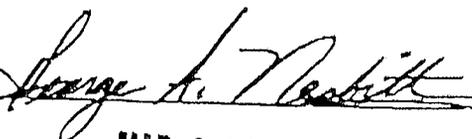
Tentative Compound ID	Result
None	

* Screened Compounds	Result
1,2-Dibromo-3-chloropropane	<1.0
1,2-Dibromoethane	<1.0

* EPA 524.2 is not the approved method for analysis of these compounds. Compounds are listed per TCEQ request.

Comments:

650006

Approval: 

MAR 04 2004



VOC

Public Water System Water Analysis PRIORITY

RLSH



TCEQ SAMPLE ID#

0373193

REPORT TO: [] Check If New Address

WILLIAMS TRAILER COURT

WATER SYSTEM ID NO:

0680126

NAME OF WATER SYSTEM:

WILLIAMS TRAILER COURT

DATE/TIME COLLECTED:

03 01 04 11:25
Month Day Year Military Time

Address 1
7307 ANGUS RD.

Address 2
ODESSA, TX 79764

SAMPLE: [] Routine [] Quarterly (detect) Priority (2-WK) [] Emergency (24/7-HR)

SOURCE: Ground [] Surface [] GUI [] Blended [] New Source

SAMPLING LOCATION: RAW:

0680126 B

BILL TO: (If other than above)

Site: WELL 2

[] DISTRIBUTION: Location

[] ENTRY POINT(S): Tap Location:

Plant:

Name
Address 1
Address 2
City, State, Zip

POE	POE	POE	POE	POE
0373193				
TCEQ SAMPLE ID #				

(Composite Samples: List each P.P. & corresponding TCEQ SAMPLE ID # in this sample in the box above)

Water analyses are required by law (30 TAC 290). I acknowledge that this Water System will be billed for the testing performed per this request and that the water system is liable for all charges associated with this request.

REGION NO 7

CHLORINE RESIDUAL 2.8 T

Signature (System Official)
Esther Bonoff

Signature (TRWA Sampling Technician)
Connie Martin

Print Name
Esther Bonoff

Instructions for sample collection and submission are available on request from the Public Drinking Water Section of the Texas Commission on Environmental Quality.

LABORATORY: [REDACTED] LAB NAME: _____
 LAB No. 4707 DATE RECEIVED: MAR 2 2004 DATE REPORTED: MAR - 4 2004

EACH BLOCK REQUIRES SEPARATE CONTAINERS AND FORM

1	[] ALL MINERALS - Cl ⁻ , F ⁻ , NO ₃ ⁻ , SO ₄ ⁻² , pH, Cond., T-P Alk, HCO ₃ ⁻ , CO ₂ , TDS lead, 7 Day Hold Time	1 QT PLASTIC 150.0, 300.0 SM 2501B, SM 2520B
1A	[] NITRATE/NITRITE lead, 48 Hour Hold Time, = 0.2 mg/L chlorine	100 mL PLASTIC 363.2, 300.0
1C	[] NITRATE lead, 14 Day Hold Time, = 0.2 mg/L chlorine	100 mL PLASTIC 300.0

2	[] ALL METALS No Field Preservation, 14 Day Hold Time	1 QT PLASTIC 200.8, 200.7, 245.1
2A	[] METALS 14 GROUP (ICP) Al, Be, Ba, Cr, Cu, Fe, Pb, Mn, Ni, Na, Ag, Zn, Cd, Mg No Field Preservation, 14 Day Hold Time	1 QT PLASTIC 200.8, 200.7
	[] SINGLE METAL Al, Bi, As, Ba, Be, Br, Cd, Cr, Cu, Fe, Pb, Mn, Mg, Ni, Ag, Ti, Zn, Sr, Mo, (Mercurous Co, Mg) No Field Preservation, 14 Day Hold Time	1 QT PLASTIC 200.8, 200.7, 245.1

8	[] SEMIVOLATILES (BOCS) Sodium Sulfite, HCl, lead, 14 day Hold Time	1 QT GLASS 525.2
---	---	---------------------

13	<input checked="" type="checkbox"/> VOC Acetic Acid, HCl, lead, 14 Day Hold Time	2-40 mL GLASS 524.2
14	[] TRIHALOMETHANES Sodium Thiosulfate, lead, 14 Day Hold Time	2-40 mL GLASS 502.2
18	[] HALOACETIC ACIDS (HAA) Ammonium Chloride, lead, 14 Day Hold Time	2-60 mL GLASS 552.2
16	[] RADIOCHEMICAL GRAB No Field Preservation, 5 Day Hold Time	1 GAL PLASTIC 900.0, 904.0, 905.0 903.1, 901.1, 906.0 SM 7500-LIC
16	[] RADIOCHEMICAL COMPOSITE No Field Preservation, 8 Day Hold Time	1 GAL PLASTIC 900.0, 904.0, 905.0 903.1, 901.1, 906.0 SM 7500-LIC
	[] OF 4 1 GAL PLASTIC	[] OF 4 1 QT PLASTIC
	[] OF 4 1 QT PLASTIC	[] OF 4 1 QT PLASTIC
	[] OTHER [] None [] Sodium Sulfite [] Sodium Thiosulfate [] Other	650007

TEXAS DEPARTMENT OF HEALTH
VOLATILE ORGANIC COMPOUNDS by GC/MS

Contact Gary Faust
(512) 458-7552

Submitter Number: TX0680126
TDH Sample Number: EP04-04707
Method: EPA 524.2 rev. 4.1
Data File Number: 03MAR-07.D
Q.C. File: OV040303.S
Sample Type: Water

Date Collected: 03/01/2004
Date Extracted: 03/03/2004
Date Analyzed: 03/03/2004
Analyst: caherman
Dilution Factor: 1
Concentration Units: µg/l

Regulated Compds. [40 CFR §141.61(a)]	Result
Benzene	<0.5
Carbon tetrachloride	<0.5
Chlorobenzene	<0.5
1,2-Dichlorobenzene	<0.5
1,4-Dichlorobenzene	<0.5
1,2-Dichloroethane	0.5
1,1-Dichloroethane	<0.5
cis-1,2-dichloroethane	<0.5
trans-1,2-Dichloroethane	<0.5
1,2-Dichloropropane	<0.5
Methylene chloride (DCM)	<0.5
Ethyl benzene	<0.5
Styrene	<0.5
Tetrachloroethane	<0.5
Toluene	<0.5
1,2,4-Trichlorobenzene	<0.5
1,1,1-Trichloroethane	<0.5
1,1,2-Trichloroethane	<0.5
Trichloroethene	<0.5
Vinyl chloride	<0.5
m&p-Xylene	<1.0
o-Xylene	<0.5

Monitored Compds. [40 CFR §141.40(i)]	Result
1,2,4-Trimethylbenzene	<1.0
1,2,3-Trichlorobenzene	<1.0
n-Propylbenzene	<1.0
n-Butylbenzene	<1.0
Naphthalene	<1.0
Hexachlorobutadiene	<1.0
1,3,5-Trimethylbenzene	<1.0
4-Isopropyltoluene	<1.0
Isopropylbenzene	<1.0
t-Butylbenzene	<1.0
s-Butylbenzene	<1.0
Trichlorofluoromethane	<2.0
Dichlorodifluoromethane	<2.0
Bromoachloromethane	<1.0

Other Compounds

Acetone	<10
Acrylonitrile	<10
2-Butanone (MEK)	<10
Carbon disulfide	<1.0
Ethyl methacrylate	<1.0
2-Hexanone	<1.0
Iodomethane	<2.0
Methyl methacrylate	<1.0
4-Methyl-2-pentanone (MIBK)	<2.0
Methyl-t-butyl ether (MTBE)	<2.0
Tetrahydrofuran	<2.0
Vinyl acetate	<10

Monitored Compds. [40 CFR §141.40(e)]

Chloroform	1.2
Bromodichloromethane	1.1
Dibromochloromethane	3.0
Bromoform	9.5
Dibromomethane	<1.0
1,3-Dichlorobenzene	<1.0
1,1-Dichloropropene	<1.0
1,1-Dichloroethane	<1.0
1,1,2,2-Tetrachloroethane	<1.0
1,3-Dichloropropane	<1.0
Chloromethane	<2.0
Bromomethane	<2.0
1,2,3-Trichloropropane	<1.0
1,1,1,2-Tetrachloroethane	<1.0
Chloroethane	<2.0
2,2-Dichloropropane	<1.0
2-Chlorotoluene	<1.0
4-Chlorotoluene	<1.0
Bromobenzene	<1.0
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0

* Screened Compounds

1,2-Dibromo-3-chloropropane	<1.0
1,2-Dibromoethane	<1.0

* EPA 524.2 is not the approved method for analysis of these compounds. Compounds are listed per TCEQ request.

Tentative identification of the largest non-priority pollutant peaks is provided by comparison with the EPA/NIH mass spectral library. Approximate quantitation is performed using internal standards and an assumed response factor of one.

Tentative Compound ID Result

None

Comments:

C50008

Approval: 

MAR 04 2004

Reference 6

Analytical Report 244510

for

Llano-Permian Environmental

Project Manager: Imants Pone

Malco Trucking

MAL.001.SM1

20-JUL-04



11381 Meadowglen, Suite L Houston, TX 77082 Ph:(281) 589-0692 Fax:(281) 589-0695

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America



20-JUL-04

Project Manager: **Imants Pone**
Llano-Permian Environmental
13009 Dessau Road
Suite A
Austin, TX 78754

Reference: XENCO Report No: **244510**
Malco Trucking
Project Address: Odessa, TX

Imants Pone:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Chain of Custody Numbered 244510. All results being reported under this Chain of Custody apply to the samples analyzed and properly identified with a Laboratory ID number.

The results for the quality control samples were reviewed. All parameters for data reduction and validation were reviewed. Estimation of Data uncertainty for this report is found in the quality control section of this report unless otherwise noted. In view of this, we are able to release the analytical data for this report within acceptance criteria for accuracy, precision, completeness or properly flagged. Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 244510 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron

Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America



Certificate of Analysis Summary 244510

Llano-Permian Environmental, Austin, TX



Project Name: Malco Trucking

Project Id: MAL.001.SM1

Date Received in Lab: Jul-20-04 08:00 am

Contact: Imants Pone

Report Date: 20-JUL-04

Project Location: Odessa, TX

Project Manager: Cori Dehmer

Analysis Requested	Lab Id:	244510-001	244510-002	244510-003	244510-004	
	Field Id:	MW-1	MW-5	MW-6	MW-7	
	Depth:					
	Matrix:	WATER	WATER	WATER	WATER	
	Sampled:	Jul-19-04 14:35	Jul-19-04 14:41	Jul-19-04 14:44	Jul-19-04 14:50	
VOAs by SW-846 8260B	Extracted:	Jul-20-04 10:59	Jul-20-04 11:01	Jul-20-04 11:03	Jul-20-04 13:08	
	Analyzed:	Jul-20-04 11:56	Jul-20-04 12:39	Jul-20-04 13:00	Jul-20-04 13:35	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Benzene	BRL	0.005	BRL	0.005	BRL	0.005
Bromobenzene	BRL	0.005	BRL	0.005	BRL	0.005
Bromochloromethane	BRL	0.005	BRL	0.005	BRL	0.005
Bromodichloromethane	BRL	0.005	BRL	0.005	BRL	0.005
Bromoform	BRL	0.005	BRL	0.005	BRL	0.005
Methyl bromide	BRL	0.005	BRL	0.005	BRL	0.005
MTBE	BRL	0.005	BRL	0.005	BRL	0.005
tert-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
Sec-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
n-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
Carbon Tetrachloride	BRL	0.005	BRL	0.005	BRL	0.005
Chlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
Chloroethane	BRL	0.010	BRL	0.010	BRL	0.010
Chloroform	BRL	0.005	BRL	0.005	BRL	0.005
Methyl Chloride	BRL	0.010	BRL	0.010	BRL	0.010
2-Chlorotoluene	BRL	0.005	BRL	0.005	BRL	0.005
4-Chlorotoluene	BRL	0.005	BRL	0.005	BRL	0.005
p-Cymene (p-Isopropyltoluene)	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dibromo-3-Chloropropane	BRL	0.005	BRL	0.005	BRL	0.005
Dibromochloromethane	BRL	0.005	BRL	0.005	BRL	0.005
Methylene bromide	BRL	0.005	BRL	0.005	BRL	0.005
o-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
1,3-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
p-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
Dichlorodifluoromethane	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dichloroethane	BRL	0.005	BRL	0.005	BRL	0.005
1,1-Dichloroethane	BRL	0.005	BRL	0.005	BRL	0.005
trans-1,2-dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005
cis-1,2-Dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005
1,1-Dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005
2,2-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005
1,3-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005
trans-1,3-dichloropropene	BRL	0.005	BRL	0.005	BRL	0.005

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

Since 1990 Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America


Brent Barron

Laboratory Manager



Certificate of Analysis Summary 244510

Llano-Permian Environmental, Austin, TX



Project Name: Malco Trucking

Project Id: MAL.001.SM1

Date Received in Lab: Jul-20-04 08:00 am

Contact: Imants Pone

Report Date: 20-JUL-04

Project Location: Odessa, TX

Project Manager: Cori Dehmer

Analysis Requested	Lab Id:	244510-001	244510-002	244510-003	244510-004	
	Field Id:	MW-1	MW-5	MW-6	MW-7	
	Depth:					
	Matrix:	WATER	WATER	WATER	WATER	
	Sampled:	Jul-19-04 14:35	Jul-19-04 14:41	Jul-19-04 14:44	Jul-19-04 14:50	
VOAs by SW-846 8260B	Extracted:	Jul-20-04 10:59	Jul-20-04 11:01	Jul-20-04 11:03	Jul-20-04 13:08	
	Analyzed:	Jul-20-04 11:56	Jul-20-04 12:39	Jul-20-04 13:00	Jul-20-04 13:35	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
1,1-Dichloropropene	BRL	0.005	BRL	0.005	BRL	0.005
cis-1,3-Dichloropropene	BRL	0.005	BRL	0.005	BRL	0.005
Ethylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
Hexachlorobutadiene	BRL	0.005	BRL	0.005	BRL	0.005
isopropylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
Naphthalene	BRL	0.010	BRL	0.010	BRL	0.010
n-Propylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
Styrene	BRL	0.005	BRL	0.005	BRL	0.005
1,1,1,2-Tetrachloroethane	BRL	0.005	BRL	0.005	BRL	0.005
1,1,2,2-Tetrachloroethane	BRL	0.005	BRL	0.005	BRL	0.005
Toluene	BRL	0.005	BRL	0.005	BRL	0.005
1,2,4-Trichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
1,2,3-Trichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005
1,1,2-Trichloroethane	BRL	0.005	BRL	0.005	BRL	0.005
1,1,1-Trichloroethane	BRL	0.005	BRL	0.005	BRL	0.005
Trichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005
Trichlorofluoromethane	BRL	0.005	BRL	0.005	BRL	0.005
1,2,3-Trichloropropane	BRL	0.005	BRL	0.005	BRL	0.005
1,2,4-Trimethylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
1,3,5-Trimethylbenzene	BRL	0.005	BRL	0.005	BRL	0.005
o-Xylene	BRL	0.005	BRL	0.005	BRL	0.005
m,p-Xylenes	BRL	0.010	BRL	0.010	BRL	0.010
Methylene Chloride	BRL	0.005	BRL	0.005	BRL	0.005
Tetrachloroethylene	BRL	0.005	BRL	0.005	BRL	0.005
Vinyl Chloride	BRL	0.002	BRL	0.002	BRL	0.002

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Brent Barron

Laboratory Manager



Certificate of Analysis Summary 244510

Llano-Permian Environmental, Austin, TX



Project Name: Malco Trucking

Project Id: MAL.001.SM1

Date Received in Lab: Jul-20-04 08:00 am

Contact: Imants Pone

Report Date: 20-JUL-04

Project Location: Odessa, TX

Project Manager: Cori Dehmer

Analysis Requested	Lab Id:	244510-005	244510-006	244510-007	244510-008			
	Field Id:	MW-3	MW-4	MW-2	Water Well			
	Depth:							
	Matrix:	WATER	WATER	WATER	WATER			
	Sampled:	Jul-19-04 14:56	Jul-19-04 15:00	Jul-19-04 15:05	Jul-19-04 15:27			
VOAs by SW-846 8260B	Extracted:	Jul-20-04 13:15	Jul-20-04 13:17	Jul-20-04 13:19	Jul-20-04 13:21			
	Analyzed:	Jul-20-04 14:12	Jul-20-04 15:13	Jul-20-04 15:35	Jul-20-04 15:56			
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL			
Benzene	BRL	0.005	0.020	0.005	0.061	0.005	BRL	0.005
Bromobenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Bromochloromethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Bromodichloromethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Bromoform	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Methyl bromide	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
MTBE	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
tert-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Sec-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
n-Butylbenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Carbon Tetrachloride	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Chlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Chloroethane	BRL	0.010	BRL	0.010	BRL	0.010	BRL	0.010
Chloroform	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Methyl Chloride	BRL	0.010	BRL	0.010	BRL	0.010	BRL	0.010
2-Chlorotoluene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
4-Chlorotoluene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
p-Cymene (p-Isopropyltoluene)	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dibromo-3-Chloropropane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Dibromochloromethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Methylene bromide	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
o-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,3-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
p-Dichlorobenzene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
Dichlorodifluoromethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dichloroethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,1-Dichloroethane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
trans-1,2-dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
cis-1,2-Dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,1-Dichloroethylene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
2,2-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,3-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
1,2-Dichloropropane	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005
trans-1,3-dichloropropene	BRL	0.005	BRL	0.005	BRL	0.005	BRL	0.005

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Brent Barron

Laboratory Manager



Certificate of Analysis Summary 244510

Llano-Permian Environmental, Austin, TX



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	Matrix:	WATER	WATER	WATER	WATER
	Sampled:	Jul-19-04 14:56	Jul-19-04 15:00	Jul-19-04 15:05	Jul-19-04 15:27
VOAs by SW-846 8260B	Extracted:	Jul-20-04 13:15	Jul-20-04 13:17	Jul-20-04 13:19	Jul-20-04 13:21
	Analyzed:	Jul-20-04 14:12	Jul-20-04 15:13	Jul-20-04 15:35	Jul-20-04 15:56
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL
1,1-Dichloropropene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
cis-1,3-Dichloropropene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Ethylbenzene		BRL 0.005	BRL 0.005	0.012 0.005	BRL 0.005
Hexachlorobutadiene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
isopropylbenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Naphthalene		BRL 0.010	BRL 0.010	BRL 0.010	BRL 0.010
n-Propylbenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Styrene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,1,1,2-Tetrachloroethane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,1,1,2-Tetrachloroethane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Toluene		BRL 0.005	0.025 0.005	0.119 0.005	BRL 0.005
1,2,4-Trichlorobenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,2,3-Trichlorobenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,1,2-Trichloroethane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,1,1-Trichloroethane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Trichloroethylene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Trichlorofluoromethane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,2,3-Trichloropropane		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,2,4-Trimethylbenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
1,3,5-Trimethylbenzene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
o-Xylene		BRL 0.005	0.007 0.005	0.021 0.005	BRL 0.005
m,p-Xylenes		BRL 0.010	BRL 0.010	0.038 0.010	BRL 0.010
Methylene Chloride		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Tetrachloroethylene		BRL 0.005	BRL 0.005	BRL 0.005	BRL 0.005
Vinyl Chloride		BRL 0.002	BRL 0.002	BRL 0.002	BRL 0.002

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Brent Barron

Laboratory Manager



Blank Spike Recovery



Project Name: Malco Trucking

Work Order #: 244510

Project ID:

MAL.001.SM1

Lab Batch #: 652919

Sample: 469022-1-BKS

Matrix: Water

Date Analyzed: 07/20/2004

Date Prepared: 07/20/2004

Analyst: CYE

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

VOAs by SW-846 8260B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Benzene	<0.005	0.050	0.048	96	66-142	
Chlorobenzene	<0.005	0.050	0.050	100	60-133	
1,1-Dichloroethylene	<0.005	0.050	0.051	102	59-172	
Toluene	<0.005	0.050	0.051	102	59-139	
Trichloroethylene	<0.005	0.050	0.047	94	62-137	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.



- 11381 Meadowglen, Suite L, Houston TX 77082 281-589-0692
- 5309 Wurzbach, Suite 104, San Antonio, TX 78238 210-509-3334
- 11078 Morrison Lane, Suite D, Dallas, TX 75229 972-481-9999

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

LAB ONLY:

244510-H

- 5757 N.W. 158th Street, Miami Lakes, FL 33014 305-823-8500
- 2618 South Falkenburg Rd, Riverview, FL 33569 813-620-2000

Serial #: 168975 Page 1 of 1

Company-City Llano - Permian Environmental Phone 512-989-3487 TAT: 5h 12h (24h) 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
 It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Project Name Previously performed at XENCO Site Odessa, TX Project ID MAL .001 . SM 1

Proj. Manager (PM) Imants Pone

Fax Results to PM or e-mail to: 512-989-3487 Fax No: 512-989-3487

Invoice to Accounting Inc. Invoice with Final Report Invoice must have a P.O. Bill to:

Quote No: P.O No: Call for a P.O.

Reg Program: CLP AFCEE TRRP DW UST State Other:

Target DLs (DW CRDL TRRP QAPP MDLs See Lab PM Attached Call)

TRRP PCLs: Tier 1 Tier 2 Residential Industrial

LPST No.:(Required) 101970 Event 1

Sampler Name JAY FULTON Signature Jay D Fulton

Sample ID	Sampling Date	Time	Depth ft in m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives	BTEX by 8021 8260 602 624 Other	BTEX-MTBE by 8021 <u>(8260)</u> Other	TPH by TX1005 FL-Pro 1664 8016GRO 8015DRO 418.1	PAHs by 8270 8310	Metals by 6020 200.8 8RCRA Tot Pb TCLP8 13PP 23TAL	VOCs by 8021 8260 624 VOA VOH PPs TCL	SVOCs by 8270 625 PAHs BN&A TCL PPs	FL Preburn - Revised: Virgin Non-Virgin	TAT 5h 12h 24h 48h 3d 5d 7d 10d 21d	Add: PAH above mg/L W, mg/Kg S Highest Hit	Hold Disposal Hold Analysis (Surcharges will apply)	Sample Clean-ups are pre-approved	Remarks		
											X	X	X	X	X	X	X	X	X	X	X				
1 MW-1	7/19/04	1435		W	X	X	2	✓		H _c	X														
2 MW-5	7/19/04	1441		W	X	X	2	✓		H _c	X														
3 MW-6	7/19/04	1444		W	X	X	2	✓		H _c	X														
4 MW-7	7/19/04	1450		W	X	X	2	✓		H _c	X														
5 MW-3	7/19/04	1456		W	X	X	2	✓		H _c	X														
6 MW-4	7/19/04	1500		W	X	X	2	✓		H _c	X														
7 MW-2	7/19/04	1505		W	X	X	2	✓		H _c	X														
8 Water Well	7/19/04	1527		W	X	X	2	✓		H _c	X														
9																									
10																									

Relinquished by (Initials and Sign) Date & Time Relinquished to (Initials and Sign) Date & Time Rush Charges are Pre-Approved upon requesting them.

1 Jay D Fulton JDF 7-19-04 1830 Instructions:

2 Low Star Lab: Low Star 7/20/04 0800 All XENCO Standard Terms and Conditions Apply.

3 Containers Received: 16 Cooler Temperature: 4-5°C

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Asbc Acid&NaOH (A), ZnAc&NaOH (Z), (Cool,<4C) (C), None (NA), See Label (L), Other (O)
 Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (V), 1L (1), 500ml (5), Tedlar Bag (B), Wipe (W), Other _____ Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Other (O)

Matrix: Air (A), Product (P), Solid(S), Water (W) SDBE Committed to Excellence in Service and Quality since 1990 www.xenco.com

Reference 7

WATER WELL SAMPLING
WILLIAMS TRAILER PARK AREA
RANCLAND ESTATES
ODESSA, TEXAS

Prepared For:

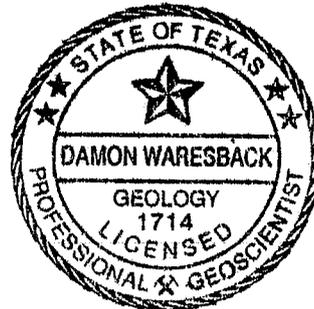
Field Operations Division
Texas Commission on Environmental Quality

Prepared By:

Eagle Construction and
Environmental Services, L.P.



Damon Waresback, CAPM, PG
Director of Technical Services



OCTOBER 6, 2004

07.0001

WATER WELL SAMPLING

WILLIAMS TRAILER PARK AREA

RANGLAND ESTATES

ODESSA, TEXAS

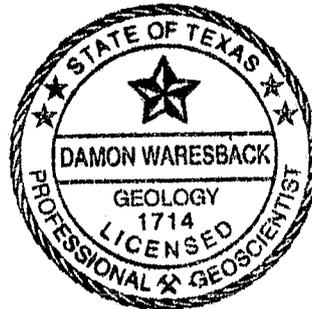
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Damon Waresback, CAPM, PG
Director of Technical Services



OCTOBER 6, 2004

RECEIVED
OCT 14 2004
TCEQ
FIELD OPERATIONS

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3.0 LABORATORY ANALYTICAL RESULTS.....	3
4.0 CONCLUSIONS.....	5

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- Appendix A: Photographic Documentation
- Appendix B: Access Agreement Forms
- Appendix C: TCEQ Forms for Contact Information for Water Wells Being Sampled/Groundwater Sampling Forms
- Appendix D: Quality Assurance Project Plan
- Appendix E: Laboratory Analytical Data

1.0 INTRODUCTION

In accordance with the work plan submitted to the Texas Commission on Environmental Quality's (TCEQ) Field Operation Division, Eagle Construction and Environmental Services, L.P. (Eagle) mobilized to the Williams Trailer Park Area (Ranchland Estates) site in Odessa, Texas on September 8, 2004 to initiate sampling of select private water wells. A site vicinity map of the Williams Trailer Park area and wells sampled is shown on Figure 1. The purpose of the sampling event was to characterize the nature (type of chemical contaminants) and severity (concentration level) of chemical contaminants in the upper water bearing zone in the area as well as the distribution of the constituents of concern. Previous sampling conducted in the area indicated low levels of the chemical 1,2-dichloroethane in groundwater from several water supply wells and one entry point of the Odessa public water supply system near the corner of Angus Road and West 43rd Street. The maximum detected levels of 1,2-dichloroethane ranged between 0.9 parts per billion (ppb) and 3.7 ppb. Based on these results, Eagle was retained by TCEQ to conduct a water well field survey in the Williams Trailer Park area in mid July 2004. The purpose of the survey was to identify the locations of domestic private water wells and wells located at commercial/industrial facilities in the business sector located south of the Williams Trailer Park area and to obtain access agreements for potential sampling purposes. The results of the water well field survey were summarized in a report dated August 12, 2004 previously submitted to TCEQ. Based on the field survey, a sampling work plan was developed and submitted to TCEQ for review. On August 31, 2004, Eagle was authorized by TCEQ to proceed with sampling of select wells identified during the field survey. The access agreements for all wells sampled are included in Appendix B. The following report summarizes the results of the water well sampling event.

2.0 FIELD ACTIVITIES

Eagle mobilized to Odessa on September 8, 2004 to initiate the water well sampling activities. Prior to mobilizing to the site, an attempt to contact each well owner was made via telephone to let the owners know of our schedule. A total of fifteen (15) wells were sampled on September 9-11, 2004. The wells sampled along with the well owners and

C70004

addresses are summarized in Table 1.0. The locations of the sampled wells are shown in Figure 1 and on the aerial photograph of the site (Figure 2). Photographic documentation of the sampling event is included in Appendix A.

Prior to initiating the sampling of each well, the pump was turned on and the well was purged for a few minutes prior to routing the purge water through a calibrated multi-parameter water quality meter (YSI 556 MPS) equipped with a flow-through cell. Field parameter measurements including pH, temperature, conductivity and oxidation/reduction potential (ORP) were documented at five (5) minute intervals until the readings stabilized to within 10 percent of previous readings in accordance with the Quality Assurance Project Plan (QAPP) developed for this event (see QAPP Appendix D). The measurements of the field parameters were logged and are included on the groundwater sampling forms included in Appendix C. Purge water removed from the wells was routed through a 55-gallon carbon canister before being discharged to the surface. Once the readings of the water quality parameters stabilized, Eagle collected water samples directly from the sampling port/faucet at the wellhead. In instances where a sample could not be collected directly at the wellhead but had to be collected after the pressure tank, a minimum volume of purge water/equivalent to the pressure tank volume was removed from the well prior to sampling. The water sampled from each well was not routed through the flow-through cell to avoid the potential of cross-contamination between sampling events. The water samples were collected in specially prepared, clean glass vials (40 ml) preserved with hydrochloric acid and preserved on ice. The samples were collected in such a manner as to completely remove the headspace in each vial. Four (4) 40-ml vials for each well were collected utilizing these procedures. The samples were immediately placed on ice to await transportation to the laboratory. A completed chain-of-custody document was prepared to accompany the samples at all times during transport. A temperature blank and duplicates were also collected in accordance with the QAPP and were placed in the ice chest for transportation to the laboratory. The samples were prepared for shipping and were overnighted to Ana-Lab Corp. in Kilgore, Texas for analytical testing. The samples were shipped on Friday, September 10, 2004. The samples were analyzed for concentrations of volatile organic compounds as specified in

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the QAPP. The primary target compound tested for was 1,2-dichloroethane utilizing EPA Method 8260B. The data quality objectives and acceptance criteria for the water sampling is presented in the QAPP (Appendix D). Copies of the signed laboratory analytical reports are included in Appendix E along with the Laboratory Review Checklist, the Exception Reports and the QC reports.

3.0 LABORATORY ANALYTICAL RESULTS

A review of the laboratory analytical results indicated that the principal target compound 1,2-dichloroethane was detected in several of the groundwater samples collected from the water wells with concentrations ranging from 0.410J ug/L (estimated-flagged with a J to indicate below the practical quantitation limit (PQL) but above the method detection limit (MDL) to 3.24 ug/L. Tetrachloroethylene (TCE) was detected in four (4) wells at concentrations ranging between 0.320J ug/L and 0.770J ug/L. These values were estimated (below the practical quantitation limit (PQL) but above the method detection limit (MDL). Two wells (Brown and Erwin) had reported concentrations of 1,1-dichloroethane of 0.840J ug/L and 0.490J ug/L respectively. Other volatile organic compounds detected in water well samples, included methyl tertiary butyl ether (MTBE) at concentrations ranging from below the laboratory detection limits (1.00 ug/L) to 9.35 ug/L, chloroform (<1.00 ug/L- 4.38 ug/L), benzene (<1.00 ug/L-0.940J ug/L), isopropylbenzene (<1.00 ug/L-0.560J ug/L), methylene chloride (0.340J ug/L-0.370 ug/L), 1,2,3-trichlorobenzene (<1.00-0.350JB ug/L. The two wells located at the Williams Trailer Park exhibited low levels of other chemicals including bromoform (4.95 ug/L-7.40 ug/L), dibromochloromethane (0.540J ug/L-0.800J ug/L). A summary of the laboratory analytical results for the water well samples is included in Table 2.0. The signed laboratory analytical reports and completed chain-of-custody documents are included in Appendix E.

070006

4.0 CONCLUSIONS

A review of the laboratory analytical results and comparison of these results with the Texas Risk Reduction Program Tier 1 Groundwater Protective Concentration Levels (PCLs) indicated that 1,2-dichloroethane and other volatile organic constituent concentrations did not exceed the residential PCL criteria. The distribution of the constituents indicates a source south of the Williams Trailer Park site in the industrial/commercial sector. The constituents of concern identified during this investigation were not detected in water wells located on the northern portion of the investigation area. No VOCs were detected in the samples collected from the Halligan well (used as drinking water source) located to the northwest of the Williams Trailer Park site.

67 0007

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In accordance with the work plan submitted to the Texas Commission on Environmental Quality's (TCEQ) Field Operation Division, Eagle Construction and Environmental Services, L.P. (Eagle) mobilized to the Williams Trailer Park Area (Ranchland Estates) site in Odessa, Texas on September 8, 2004 to initiate sampling of select private water wells. A site vicinity map of the Williams Trailer Park area and wells sampled is shown on Figure 1. The purpose of the sampling event was to characterize the nature (type of chemical contaminants) and severity (concentration level) of chemical contaminants in the upper water bearing zone in the area as well as the distribution of the constituents of concern. Previous sampling conducted in the area indicated low levels of the chemical 1,2-dichloroethane in groundwater from several water supply wells and one entry point of the Odessa public water supply system near the corner of Angus Road and West 43rd Street. The maximum detected levels of 1,2-dichloroethane ranged between 0.9 parts per billion (ppb) and 3.7 ppb. Based on these results, Eagle was retained by TCEQ to conduct a water well field survey in the Williams Trailer Park area in mid July 2004. The purpose of the survey was to identify the locations of domestic private water wells and wells located at commercial/industrial facilities in the business sector located south of the Williams Trailer Park area and to obtain access agreements for potential sampling purposes. The results of the water well field survey were summarized in a report dated August 12, 2004 previously submitted to TCEQ. Based on the field survey, a sampling work plan was developed and submitted to TCEQ for review. On August 31, 2004, Eagle was authorized by TCEQ to proceed with sampling of select wells identified during the field survey. The access agreements for all wells sampled are included in Appendix B. The following report summarizes the results of the water well sampling event.

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Eagle mobilized to Odessa on September 8, 2004 to initiate the water well sampling activities. Prior to mobilizing to the site, an attempt to contact each well owner was made via telephone to let the owners know of our schedule. A total of fifteen (15) wells were sampled on September 9-11, 2004. The wells sampled along with the well owners and

addresses are summarized in Table 1.0. The locations of the sampled wells are shown in Figure 1 and on the aerial photograph of the site (Figure 2). Photographic documentation of the sampling event is included in Appendix A.

Prior to initiating the sampling of each well, the pump was turned on and the well was purged for a few minutes prior to routing the purge water through a calibrated multi-parameter water quality meter (YSI 556 MPS) equipped with a flow-through cell. Field parameter measurements including pH, temperature, conductivity and oxidation/reduction potential (ORP) were documented at five (5) minute intervals until the readings stabilized to within 10 percent of previous readings in accordance with the Quality Assurance Project Plan (QAPP) developed for this event (see QAPP Appendix D). The measurements of the field parameters were logged and are included on the groundwater sampling forms included in Appendix C. Purge water removed from the wells was routed through a 55-gallon carbon canister before being discharged to the surface. Once the readings of the water quality parameters stabilized, Eagle collected water samples directly from the sampling port/faucet at the wellhead. In instances where a sample could not be collected directly at the wellhead but had to be collected after the pressure tank, a minimum volume of purge water/equivalent to the pressure tank volume was removed from the well prior to sampling. The water sampled from each well was not routed through the flow-through cell to avoid the potential of cross-contamination between sampling events. The water samples were collected in specially prepared, clean glass vials (40 ml) preserved with hydrochloric acid and preserved on ice. The samples were collected in such a manner as to completely remove the headspace in each vial. Four (4) 40-ml vials for each well were collected utilizing these procedures. The samples were immediately placed on ice to await transportation to the laboratory. A completed chain-of-custody document was prepared to accompany the samples at all times during transport. A temperature blank and duplicates were also collected in accordance with the QAPP and were placed in the ice chest for transportation to the laboratory. The samples were prepared for shipping and were overnighted to Ana-Lab Corp. in Kilgore, Texas for analytical testing. The samples were shipped on Friday, September 10, 2004. The samples were analyzed for concentrations of volatile organic compounds as specified in

the QAPP. The primary target compound tested for was 1,2-dichloroethane utilizing EPA Method 8260B. The data quality objectives and acceptance criteria for the water sampling is presented in the QAPP (Appendix D). Copies of the signed laboratory analytical reports are included in Appendix E along with the Laboratory Review Checklist, the Exception Reports and the QC reports.

3.0 LABORATORY ANALYTICAL RESULTS

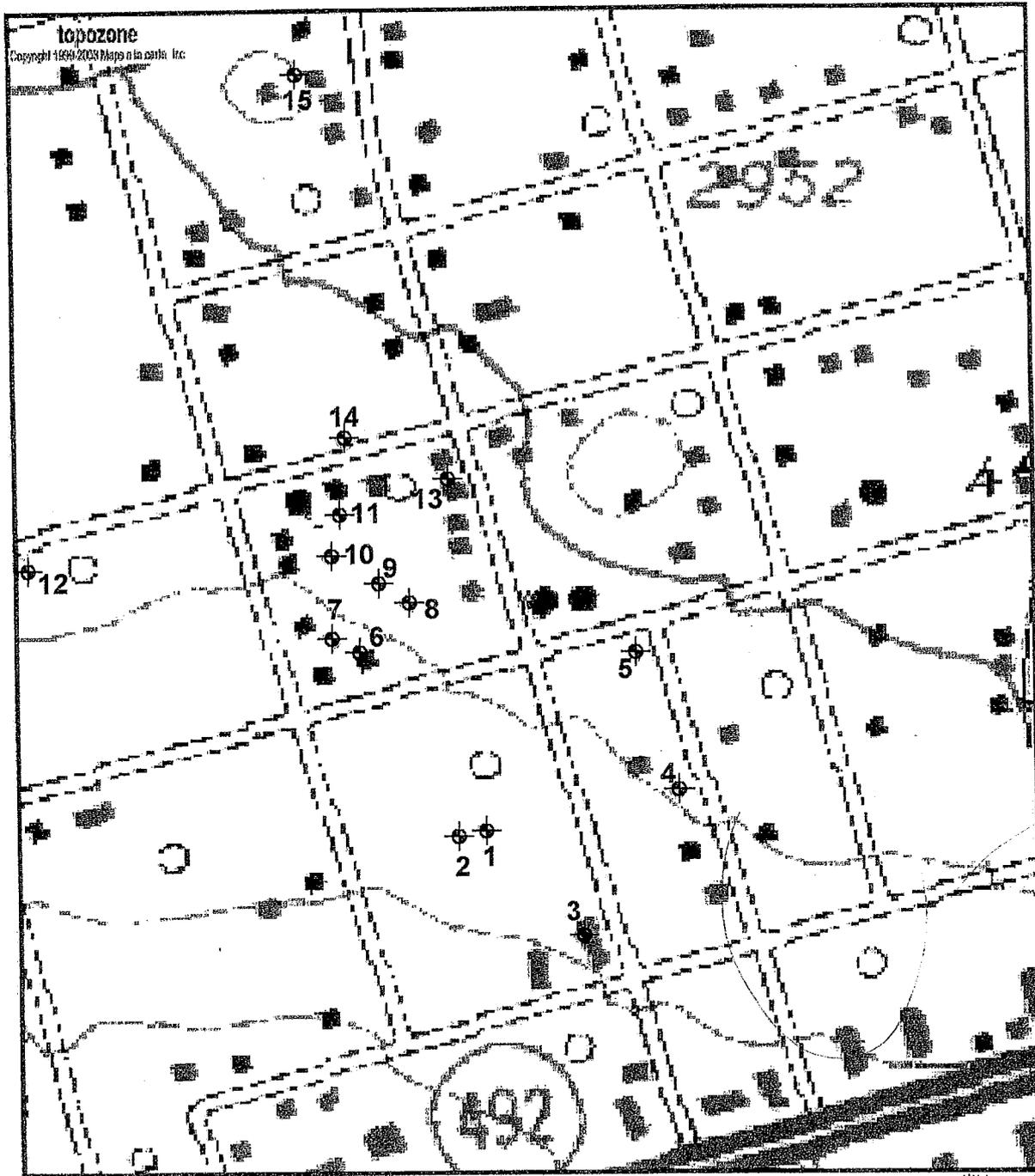
A review of the laboratory analytical results indicated that the principal target compound 1,2-dichloroethane was detected in several of the groundwater samples collected from the water wells with concentrations ranging from 0.410J ug/L (estimated-flagged with a J to indicate below the practical quantitation limit (PQL) but above the method detection limit (MDL) to 3.24 ug/L. Tetrachloroethylene (TCE) was detected in four (4) wells at concentrations ranging between 0.320J ug/L and 0.770J ug/L. These values were estimated (below the practical quantitation limit (PQL) but above the method detection limit (MDL). Two wells (Brown and Erwin) had reported concentrations of 1,1-dichloroethane of 0.840J ug/L and 0.490J ug/L respectively. Other volatile organic compounds detected in water well samples, included methyl tertiary butyl ether (MTBE) at concentrations ranging from below the laboratory detection limits (1.00 ug/L) to 9.35 ug/L, chloroform (<1.00 ug/L- 4.38 ug/L), benzene (<1.00 ug/L-0.940J ug/L), isopropylbenzene (<1.00 ug/L-0.560J ug/L), methylene chloride (0.340J ug/L-0.370 ug/L), 1,2,3-trichlorobenzene (<1.00-0.350JB ug/L. The two wells located at the Williams Trailer Park exhibited low levels of other chemicals including bromoform (4.95 ug/L-7.40 ug/L), dibromochloromethane (0.540J ug/L-0.800J ug/L). A summary of the laboratory analytical results for the water well samples is included in Table 2.0. The signed laboratory analytical reports and completed chain-of-custody documents are included in Appendix E.

070010

4.0 CONCLUSIONS

A review of the laboratory analytical results and comparison of these results with the Texas Risk Reduction Program Tier 1 Groundwater Protective Concentration Levels (PCLs) indicated that 1,2-dichloroethane and other volatile organic constituent concentrations did not exceed the residential PCL criteria. The distribution of the constituents indicates a source south of the Williams Trailer Park site in the industrial/commercial sector. The constituents of concern identified during this investigation were not detected in water wells located on the northern portion of the investigation area. No VOCs were detected in the samples collected from the Halligan well (used as drinking water source) located to the northwest of the Williams Trailer Park site.

07.0011



Eagle Construction and Environmental Services, L.P.
9204 Hwy 287 NW
Fort Worth, Texas 76131

**TCEQ
Topographic Map
Plotted Wells
Odessa, Texas**

Figure 1

**Project No.
02-44-0035**

070012

USGS Odessa, Texas, United States 08 Jan 1996



0 100M

0 100yd

Image courtesy of the U.S. Geological Survey
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Environmental Services, L.P.**
9204 Hwy 287 NW
Fort Worth, Texas 76131

**TCEQ
Aerial Map
Plotted Wells
Odessa, Texas**

Figure 2

**Project No.
02-44-0035**

C7.0013

**Table 1.0
TCEQ-Odessa
Water Well Survey
July 2004**

Map ID#	Owner	Address	Phone Number	Comments	Access Agreement	Well(s) Sampled
Businesses						
A	P&M Wireline Service/Russell Parnell	2714 W. 40th, Odessa, TX 79764	432/368-0822	1 well	Yes	
B	Anvil International	2600 W. 42nd Street, Odessa, TX 79764	432/366-2803	1 well on site. Doesn't use for drinking	Yes	
C	WWL Industries	43rd & Bryan, Odessa, TX 79764	432/362-0326	1 well	Yes	
D	Rig Tech/Michael D. Hamilton	4320 Johnson Road, Odessa, TX 79764	432/362-2789	1 well	Yes	
E	Ervin Supply/Noriene McBride	4410 A Angus Road, Odessa, TX 79764	432/362-5523	1 well	Yes	
F	Pheasant Rbr. Co./Johnnie Davis	2426 W. 40th, Odessa, TX 79763	432/367-5137	1 well, shares with Fitz Equipment Co. Some use for drinking.	Yes	
G	Varel International	2431 W. 42nd, Odessa, TX 79764	432/367-1658	1 well	Yes	
H	Basin Block & Supply, Inc./C.W. Oates	2500 W. 42nd Street, Odessa, TX 79764	432/550-5000	1 well	Yes	
I	RJ Sales, Inc./Rosanne Tavarez	2700 W. 42nd, Odessa, TX 79764	432/362-2601	Well in building behind office, spicket outside building, easy to sample	Yes	
J	A-1 Battery	2606 W. 42nd, Odessa, TX 79764	432/366-3502	1 well	Yes	
K	Salsbury Construction			1 well used for comodes, uses bottled water to drink	No	
L	Lubrication Services, Inc./Robert Roland	2818 W. 42nd St., Odessa, TX	432/366-4428	Do not use to drink, left form for owner to sign and mail to Dan.	No	
M	Campbell Testing	2724 W. 40th Street, Odessa, TX	432/367-7283	Mr. Campbell not in. Left card for owner to sign and send in.	No	
N	Triplex Service & Supply	2700 40th, Odessa, TX	432/333-3147	Left form for owner to sign and mail to Dan.	No	
O	C&S Welding/Carl Sansom	2700 West 43rd, Odessa, TX		1 abandoned well with gasoline. New well on west side next to fence.	No	
P	Rock Tool Co.	2712 West 40th, Odessa, TX		Abandoned business.	No	
Q	Lewis Casing Crews/Gary Thomson	4315 Bryan, Odessa, TX	432/661-6309	Not available	No	
R	Compressor Components	2605 W. 42nd Street, Odessa, TX 79760	432/367-7786	No wells, City water	No	
S	Cambrian Mgt. Ltd.	2500 W. 44th St., Odessa, TX	432/550-5245	No wells, haul in water for office use.	No	
T	Town & Country Service Station	4020 40th, Odessa, TX		No wells, City water	No	
U	L & W Diesel/Ken Davis	2600 W. 43rd St., Odessa, TX	432/367-2747	Mailed to TCEQ Central Office	No	
Residences						
1	Della Reynolds	4615 Bryan Road, Odessa, TX 79764	432/362-1021	Unable to access house dog in yard. 2 wells.	Yes	
2	Ty VanZandt	4320 Angus Road, Odessa, TX 79764	432/349-6956	2 wells in use. One open.	Yes	
3	Armando Llamas	2711 W. 44th St., Odessa, TX 79764	432/413-1473		Yes	

070014

Table 1.0
TCEQ-Odessa
Water Well Survey
July 2004

Map ID#	Owner	Address	Phone Number	Comments	Access Agreement	Well(s) Sampled
Residences						
4	Steven R. Fitch	2523 W. 46th, Odessa, TX 79764	432/368-0725	1 well	Yes	
5	Randy Ragsdale	4404 Hereford, Odessa, TX 79764	432/366-0749	2 wells, animals drink. Work # 432/498-4099	Yes	
6	Armando & Imer Rodriguez	2522 W. 46th, Odessa, TX 79764	432/366-0110	1 well.	Yes	
7	Rogelio Garcia Jr. & Sylvia Ann Garza Garcia	4717 Angus Road, Odessa, TX 79764	432/362-6232	1 well.	Yes	
8	Mary G. Lauraine	4314 Hereford Road, Odessa, TX 79764	432/362-1933	1 well.	Yes	
9	Cesar Ortiz	4411 Hereford, Odessa, TX 79764	432/368-5338	1 well.	Yes	
10	Ricky M. Roach	2818 West 43rd Street, Odessa, TX 79762	432/413-1949	1 well.	Yes	
11	Debbie Riggs	4612 Guernsey Road, Odessa, TX 79764	432/367-8059	1 well, doesn't use for drinking. Uses water to bath, laundry (clothes don't get	Yes	
12	Jerry McCollum	4600 Guernsey, Odessa, TX 79764	432/363-0745	1 well, doesn't use for drinking.	Yes	
13	Elgin K. Talley	4611 Angus Road, Odessa, TX 79764	342/362-9052	Owner, not tenant	Yes	
14	Baltazar Valencia Jr.	4615 N. Hereford, Odessa, TX 79764	432/368-9061	1 well.	Yes	
15	Mary L. Sharp	4618 Hereford, Odessa, TX 79764	432/367-1518	1 well serves three mobile homes. Doesn't use for drinking.	Yes	
16	Olivia A. Reyes	4500 Hereford Road, Odessa, TX 79764	432/368-5515	1 well, drinks water, uses filter (taste salty)	Yes	
17	Debbie Mallory	4614 Angus Road, Odessa, TX 79764	432/664-7007	1 well, doesn't drink.	Yes	
18	Williams Trailer Court/Esther Baroff	4307 Angus Road, Odessa, TX 79764	432/366-7025	2 wells	Yes	
19	Edgar Anchondo	4411 Angus Road, Odessa, TX 79763	432/367-3849	1 well.	Yes	
20	Wanda Edwards	4601 Angus, Odessa, TX 79764	432/367-2881	1 well.	Yes	
21	Florentine S. Urias	4605 Hereford Space #4, Odessa, TX 79764	432/368-0551	1 well.	Yes	
22	Marianna Whittemore	4418 Guernsey, Odessa, TX 79764	432/362-4685	1 well.	Yes	
23	W.D. Hallighn	2825 W. 46th, Odessa, TX 79764	432/550-9018	Cell # 432/352-3858	Yes	
24	Albert Adams	2804 W. 46th St., Odessa, TX 79764	432/362-3544	1 well.	Yes	
25	Bobby Greenwood	4301 Angus Road, Odessa, TX 79764	432/362-2341	1 well.	Yes	
26	D&L Trailer Park/Linda Lynch	2600 W. 46th, Odessa, TX 79764	432/368-0582	2 wells, 1 abandoned. 30 spaces, 6 occupied.	Yes	
27	Jose C. Ortiz	2601 W. 46th, Odessa, TX 79764	432/362-1130	1 well.	Yes	
28	David Erwin	4404 Guernsey, Odessa, TX 79764	432/363-8622	1 well.	Yes	
29	Randy Stephenson	4414 Guernsey, Odessa, TX 79764	425/425-8539	1 well.	Yes	

C-0015

Table 1.0
TCEQ-Odessa
Water Well Survey
July 2004

Map ID#	Owner	Address	Phone Number	Comments	Access Agreement	Well(s) Sampled
Residences						
30	Brandon & Kristin Garcia	4614 Guemsey Road, Odessa, TX 79764	432/238-9388	1 well.	Yes	
31	W.R. Massey	2818 W. 42nd, Odessa, TX 79764	432/366-4428	1 well.	Yes	
32	Vacant Lot	2601 W. 42nd, Odessa, TX 79764		1 well.	No	
33	Argujo	2800 W. 42nd, Kermit, TX	432/586-5650	Well sampled 2 days ago by ? Need to contact owner	No	
34	Alicea Neisser	2517 W. 46th, Odessa, TX		Shares well with neighbor (Steven Fitch-signed access form)	Yes	
35	not home	4610 Guemsey, Odessa, TX			No	
36	not home	4607 Angus, Odessa, TX		took form and will think about it.	No	
37	not home	4405 Angus, Odessa, TX		Parents asleep, left form to mail in.	No	
38	not home	4407 Angus, Odessa, TX			No	
39	Vacant Property	4311 Churchill, Odessa, TX		Trailer moved off property	No	
40	Cruz S. Sanchez	4313 Hereford, Odessa, TX		Well visible	No	
41	not home	4317 Guemsey, Odessa, TX			No	
42	not home	4400 Guemsey, Odessa, TX		Gloria Renteria/left form.	No	
43	Jesusite Ramos	4413 Bryan Road, Odessa, TX	432/366-6026	Son-Robert Ramos. Will mail in, left form with visitor.	No	
44	not home	4401 Bryan, Odessa, TX		Abandoned well with new pressure tank.	No	
45	not home	4313 Bryan, Odessa, TX		Request Industry.	No	
46	not home	2507 West 46th, Odessa, TX		Small house offset from road.	No	
47	Barbara Brown	2708 West 44th, Odessa, TX	432/366-6438	1 well, not home	No	
48	Abandoned			1 well abandoned	No	
49	Vacant Lot	4361 Church, Odessa, TX		Well on vacant lot with old house & trash. Supplies 2711 44th.	Yes	
50	Not home	4330 Angus, Odessa, TX			No	

070016

TABLE 2.0
Summary of Groundwater Laboratory Analytical Results
Williams Traller Park Area
Odessa, Texas

4207 Analyte

Analyte	Llomas	Vanzandt	Achendo	Edwards	Garcia	Williams #1	Williams #2	Tier 1 Residential Groundwater PCLs ¹
	Lab ID 701758 Sampled 9-9-04	Lab ID 701759 Sampled 9-9-04	Lab ID 701760 Sampled 9-9-04	Lab ID 701761 Sampled 9-9-04	Lab ID 701762 Sampled 9-9-04	Lab ID 701763 Sampled 9-9-04	Lab ID 701764 Sampled 9-9-04	
Acetone	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	22000
Acrolein	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	12
Acrylonitrile	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.7
Benzene	<1.00	0.940 J	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Bromobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
Bromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
Bromodichloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	15
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	4.95	7.40	120
Bromomethane (Methyl Bromi)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	34
tert-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
sec-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
n-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
tert-Butylmethylether (MTBE)	<1.00	9.35	<1.00	<1.00	<1.00	<1.00	<1.00	240
Carbon Tetrachloride	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
Chloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9800
2-Chloroethylvinyl ether	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.83
Chloroform	<1.00	<1.00	<1.00	<1.00	<1.00	4.38	<1.00	240
1,2-Dibromo-3-chloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.20
2-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
4-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
Dibromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	0.540 J	0.800 J	11
1,2-Dibromoethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.050
Dibromomethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.050
1,3-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	730
1,4-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	75
Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4900
1,1-Dichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2400
1,2-Dichloroethane	0.410 J	1.04	<1.00	<1.00	<1.00	1.31	0.810 J	5.0
trans-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	10
cis-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	70
1,1-Dichloroethylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	7.0
1,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
2,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	13
1,3-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
cis-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.7
trans-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
1,1-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
Ethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	700
Hexachlorobutadiene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4.9
Isopropylbenzene (Cumen)	<1.00	0.560 J	<1.00	<1.00	<1.00	<1.00	<1.00	2400
p-Isopropyltoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2400
Methyl ethyl ketone (Butanone)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	15000
Methyl Isobutyl Ketone	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2000
Methylene Chloride	<1.00	<1.00	<1.00	<1.00	<1.00	0.340 J	<1.00	5.0
Naphthalene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
n-Propylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
Styrene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
1,1,2,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4.6
1,1,1,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	35
Tetrachloroethylene	0.320 J	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1000
1,2,4-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	70
1,2,3-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.350 JB	73
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	200
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Trichloroethylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Trichlorofluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	7300
1,2,3-Trichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.13
1,2,4-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1200
1,3,5-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1200
Vinyl Chloride	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.0
m-and p-Xylene	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	100
O-Xylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100

J-estimated value, concentration below laboratory quantitation limits
Note: shaded concentrations exceed Tier 1 Residential PCLs.

070017

B-Analyte detected in the associated method blank.

TABLE 2.0
Summary of Groundwater Laboratory Analytical Results
Williams Trailer Park Area
Odessa, Texas

Analyte	Brown	Erwin	Halligan	Stephenson	Gomez	Saenz	Tier 1
	Lab ID 701765 Sampled 9-9-04	Lab ID 701766 Sampled 9-9-04	Lab ID 701767 Sampled 9-9-04	Lab ID 701768 Sampled 9-9-04	Lab ID 701769 Sampled 9-9-04	Lab ID 701770 Sampled 9-9-04	Residential Groundwater PCLs ¹
Acetone	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	22000
Acrolein	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	12
Acrylonitrile	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.7
Benzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Bromobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
Bromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
Bromodichloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	15
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	120
Bromomethane (Methyl Bromi)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	34
tert-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
sec-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
n-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
tert-Butylmethylether (MTBE)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	240
Carbon Tetrachloride	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
Chloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9800
2-Chloroethylvinyl ether	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.83
Chloroform	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	240
1,2-Dibromo-3-chloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.20
2-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
4-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
Dibromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	11
1,2-Dibromoethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.050
Dibromomethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.050
1,3-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	730
1,4-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	75
Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4900
1,1-Dichloroethane	0.840 J	0.490 J	<1.00	<1.00	<1.00	<1.00	2400
1,2-Dichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
trans-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	10
cis-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	70
1,1-Dichloroethylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	7.0
1,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
2,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	13
1,3-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
cis-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.7
trans-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
1,1-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	9.1
Ethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	700
Hexachlorobutadiene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4.9
Isopropylbenzene (Cumen)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2400
p-Isopropyltoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2400
Methyl ethyl ketone (Butanone)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	15000
Methyl Isobutyl Ketone	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2000
Methylene Chloride	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Naphthalene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	490
n-Propylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	980
Styrene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
1,1,2,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	4.6
1,1,1,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	35
Tetrachloroethylene	0.440 J	<1.00	<1.00	<1.00	0.320 J	0.770 J	5.0
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1000
1,2,4-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	70
1,2,3-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	73
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	200
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Trichloroethylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.0
Trichlorofluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	7300
1,2,3-Trichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.13
1,2,4-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1200
1,3,5-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1200
Vinyl Chloride	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.0
m-and p-Xylene	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	100
O-Xylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100

J-estimated value, concentration below laboratory quantitation limits
Note: shaded concentrations exceed Tier 1 Residential PCLs.

B-Analyte detected in the associated method blank.

070018

TABLE 2.0
Summary of Groundwater Laboratory Analytical Results
Williams Trailer Park Area
Odessa, Texas

	Analyte	Greenwood	Whitmore	Dup-1	Dup-2	Tier-1
		Lab ID 701771 Sampled 9-9-04	Lab ID 701772 Sampled 9-9-04	Lab ID 701773 Sampled 9-9-04	Lab ID 701774 Sampled 9-10-04	Residential Groundwater PCLs ¹
Volatile Organic Analytes EPA Method 8260B (ug/L)	Acetone	<1.00	<1.00	<1.00	<1.00	22000
	Acrolein	<1.00	<1.00	<1.00	<1.00	12
	Acrylonitrile	<1.00	<1.00	<1.00	<1.00	1.7
	Benzene	<1.00	<1.00	<1.00	<1.00	5.0
	Bromobenzene	<1.00	<1.00	<1.00	<1.00	490
	Bromochloromethane	<1.00	<1.00	<1.00	<1.00	980
	Bromodichloromethane	<1.00	<1.00	<1.00	<1.00	15
	Bromoform	<1.00	<1.00	5.28	<1.00	120
	Bromomethane (Methyl Bromi)	<1.00	<1.00	<1.00	<1.00	34
	tert-Butylbenzene	<1.00	<1.00	<1.00	<1.00	980
	sec-Butylbenzene	<1.00	<1.00	<1.00	<1.00	980
	n-Butylbenzene	<1.00	<1.00	<1.00	<1.00	980
	tert-Butylmethylether (MTBE)	<1.00	<1.00	<1.00	<1.00	240
	Carbon Tetrachloride	<1.00	<1.00	<1.00	<1.00	5.0
	Chlorobenzene	<1.00	<1.00	<1.00	<1.00	100
	Chloroethane	<1.00	<1.00	<1.00	<1.00	9800
	2-Chloroethylvinyl ether	<1.00	<1.00	<1.00	<1.00	0.83
	Chloroform	<1.00	<1.00	4.85	<1.00	240
	1,2-Dibromo-3-chloropropane	<1.00	<1.00	<1.00	<1.00	0.20
	2-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	490
	4-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	490
	Dibromochloromethane	<1.00	<1.00	0.610 J	<1.00	11
	1,2-Dibromoethane	<1.00	<1.00	<1.00	<1.00	0.050
	Dibromomethane	<1.00	<1.00	<1.00	<1.00	0.050
	1,3-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	730
	1,4-Dichlorobenzene	<1.00	<1.00	<1.00	<1.00	75
	Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	4900
	1,1-Dichloroethane	<1.00	<1.00	<1.00	<1.00	2400
	1,2-Dichloroethane	3.24	<1.00	1.28	3.24	5.0
	trans-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	10
	cis-1,2-Dichloroethene	<1.00	<1.00	<1.00	<1.00	70
	1,1-Dichloroethylene	<1.00	<1.00	<1.00	<1.00	7.0
	1,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	5.0
	2,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	13
	1,3-Dichloropropane	<1.00	<1.00	<1.00	<1.00	9.1
	cis-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	1.7
	trans-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	9.1
	1,1-Dichloropropene	<1.00	<1.00	<1.00	<1.00	9.1
	Ethylbenzene	<1.00	<1.00	<1.00	<1.00	700
	Hexachlorobutadiene	<1.00	<1.00	<1.00	<1.00	4.9
	Isopropylbenzene (Cumen)	<1.00	<1.00	<1.00	<1.00	2400
	p-Isopropyltoluene	<1.00	<1.00	<1.00	<1.00	2400
	Methyl ethyl ketone (Butanone)	<1.00	<1.00	<1.00	<1.00	15000
	Methyl Isobutyl Ketone	<1.00	<1.00	<1.00	<1.00	2000
	Methylene Chloride	0.340 J	<1.00	<1.00	0.370 J	5.0
	Naphthalene	<1.00	<1.00	<1.00	<1.00	490
	n-Propylbenzene	<1.00	<1.00	<1.00	<1.00	980
	Styrene	<1.00	<1.00	<1.00	<1.00	100
	1,1,2,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	4.6
	1,1,1,2-Tetrachloroethane	<1.00	<1.00	<1.00	<1.00	35
	Tetrachloroethylene	<1.00	<1.00	<1.00	<1.00	5.0
	Toluene	<1.00	<1.00	<1.00	<1.00	1000
	1,2,4-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	70
	1,2,3-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	73
	1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	200
1,1,2-Trichloroethane	<1.00	<1.00	<1.00	<1.00	5.0	
Trichloroethylene	<1.00	<1.00	<1.00	<1.00	5.0	
Trichlorofluoromethane	<1.00	<1.00	<1.00	<1.00	7300	
1,2,3-Trichloropropane	<1.00	<1.00	<1.00	<1.00	0.13	
1,2,4-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	1200	
1,3,5-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	1200	
Vinyl Chloride	<1.00	<1.00	<1.00	<1.00	2.0	
m-and p-Xylene	<2.00	<2.00	<2.00	<2.00	100	
O-Xylene	<1.00	<1.00	<1.00	<1.00	100	

J-estimated value, concentration below laboratory quantitation limits
Note: shaded concentrations exceed Tier 1 Residential PCLs.

B-Analyte detected in the associated method blank.

070019

v



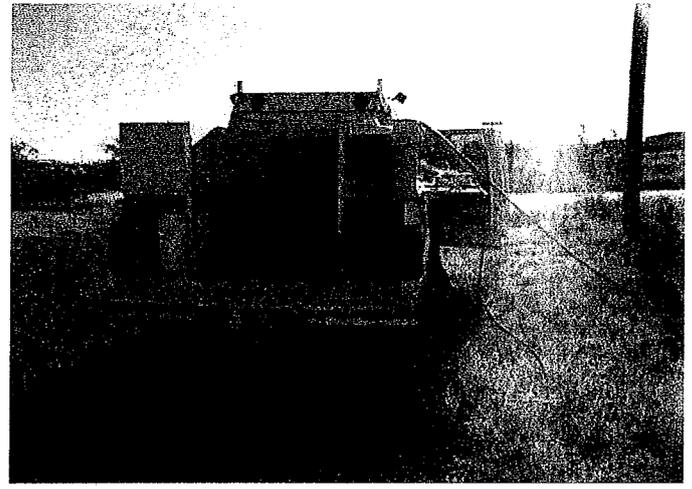
07.0020

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION

07.0021



1. Setting up equipment and calibration of YSI556MPS.



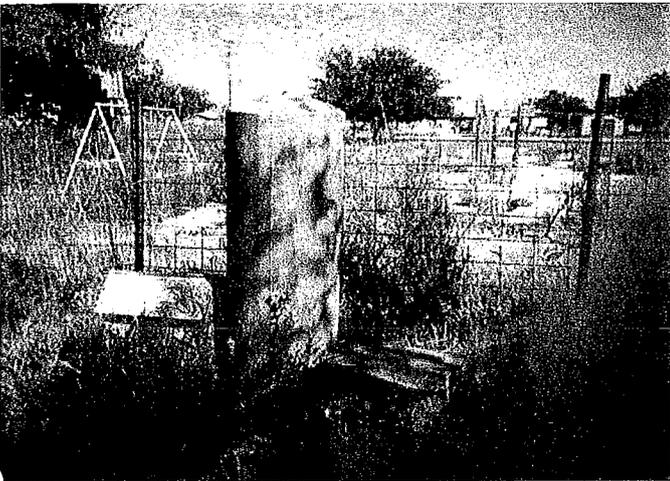
2. View of carbon drum used to filter water removed from water wells.



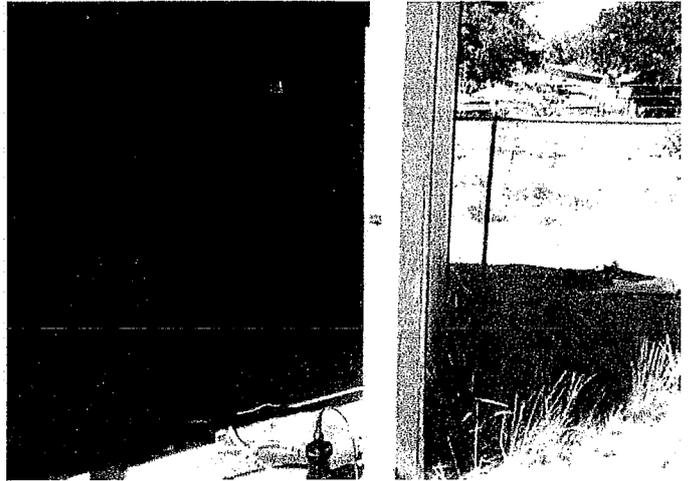
3. View of Llamas well near the intersection of Churchill Road and West 44th Street.



4. Vanzandt well and pressure tank.



5. Anchondo well and pressure tank.

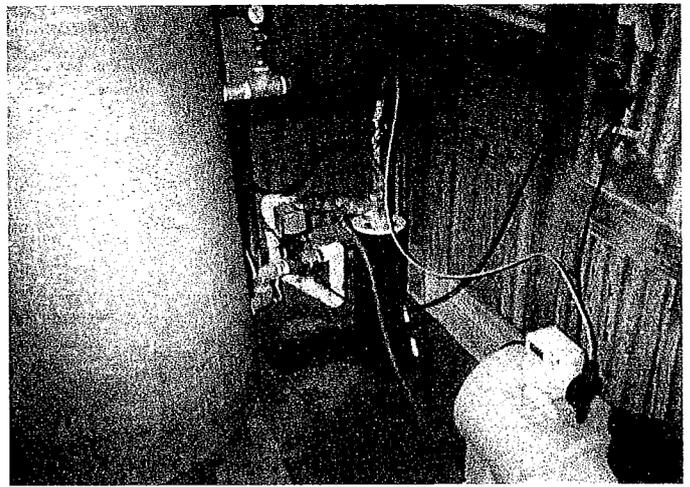


6. Edward's well and pressure tank.

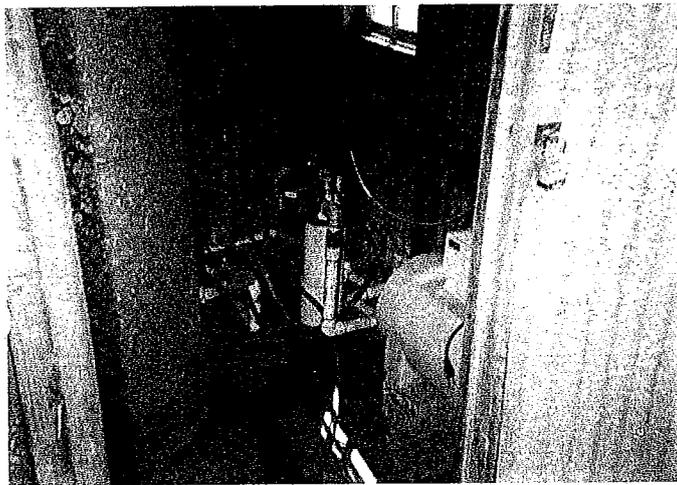
070022



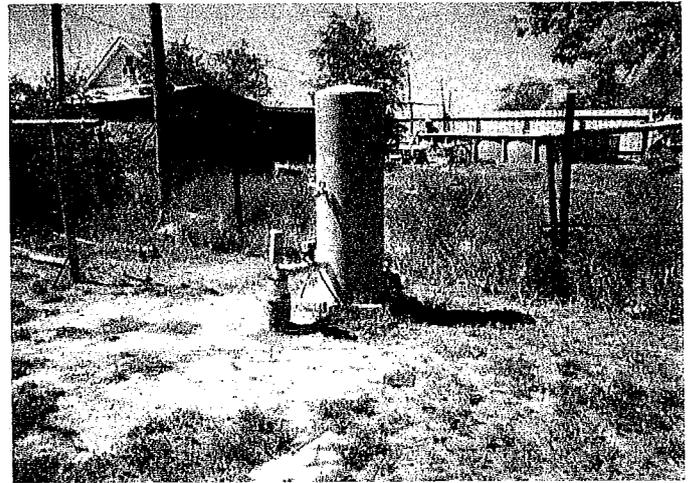
7. Garcia well and pressure tank.



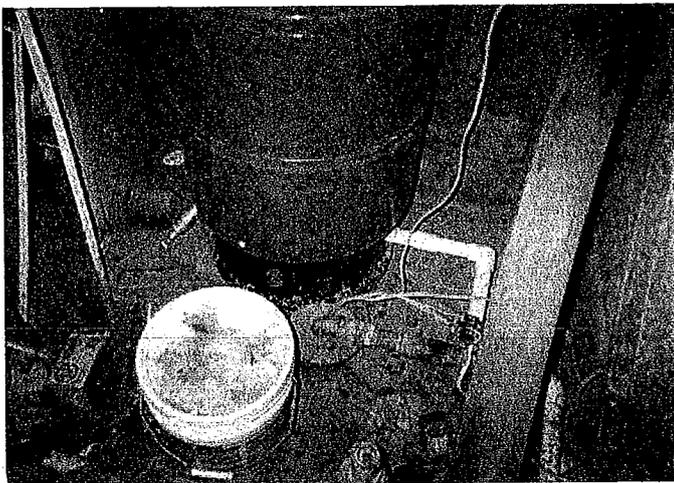
8. View of William's #1 at William's Trailer Park. View is south-southwest.



9. Williams #2 at William's Trailer Park.



10. Brown well and pressure tank. View is looking northwest at Erwin residence in background.



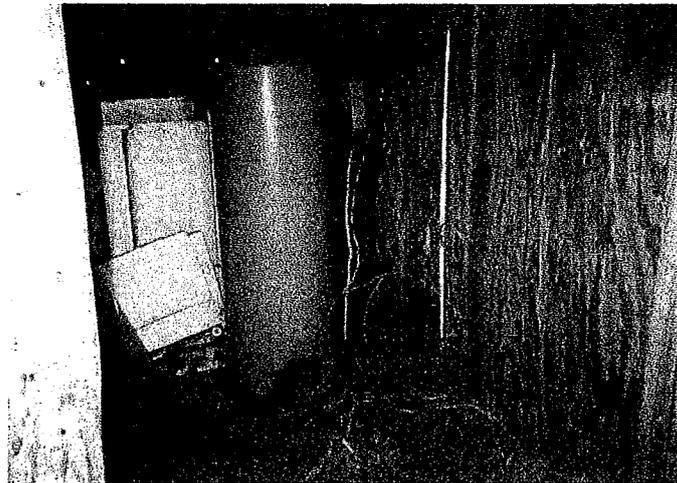
11. Erwin well inside wellhouse. View is east.



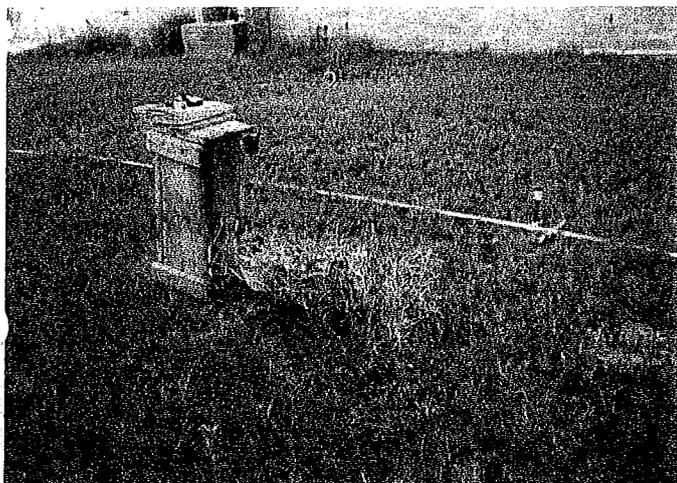
12. Halligan wellhouse and well. View is to the southeast.



13. Stephenseon pressure tank and well. View is to the east inside wellhouse.



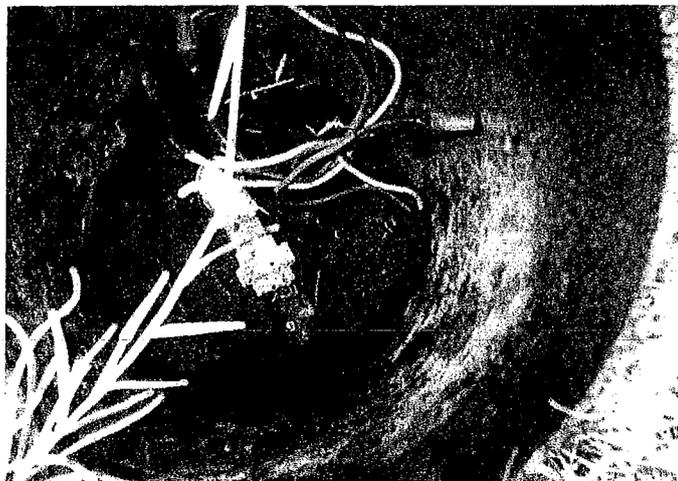
14. Saenz pressure tank. View inside wellhouse is to the east.



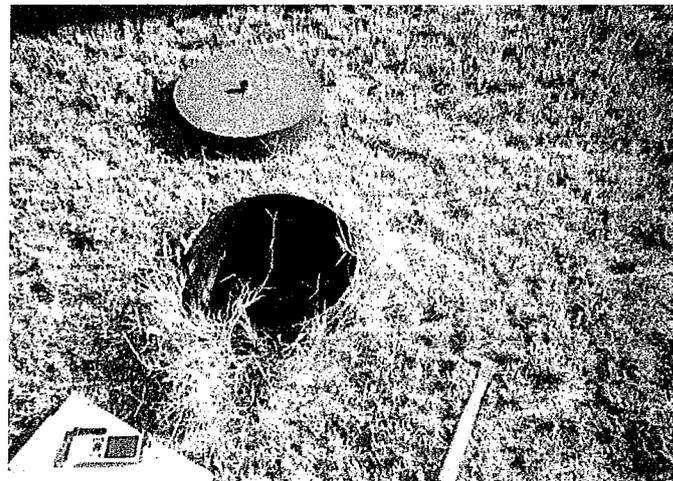
15. Saenz well in backyard. View is to the northeast.



16. Greenwood well inside Aire Flo Filter Corp. building. View is to south-southwest.



17. Whittmore well inside shell surface casing.



18. Whittmore well surface casing, 6" well is inside this casing.

APPENDIX B
ACCESS AGREEMENT FORMS

07.0025

APPENDIX D
QUALITY ASSURANCE PROJECT PLAN

07.0069

QUALITY ASSURANCE PROJECT PLAN

for

WATER WELL SAMPLING

**Ranchland Property
(Williams Trailer Park Area)
4307 Angus Road
Odessa, Texas**

September 7, 2004

prepared by

EAGLE CONSTRUCTION & ENVIRONMENTAL SERVICES, L.P.

9204 Highway 287 Northwest

Fort Worth, Texas 76131

07.0070

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*Page numbers may change when document is formatted to include all appendices.

** E-files only at this time. When QAPP is final, hard copy page numbers will be inserted.

Section A7--Quality Objectives and Criteria for Measurement Data

Table A7-1 presents the project quality objectives and performance criteria.

Table A7-1: Project Quality Objectives and Performance Criteria

Quality Objectives	Performance Criteria
High level of confidence regarding the presence of analytes	<p>EPA Method 8260B provides appropriate quality control specifications; these will be applied to the analysis of samples for drinking water analytes. Calibration and analyses for this project include general volatile organic compounds, specifically including methyl ethyl ketone, acetone, trichloroethylene, tetrahydrofuran, carbon disulfide, fluorotrichloromethane, 1,1-dichloroethane, cis and trans 1,2-dichloroethene, benzene, toluene, ethylbenzene, and o, m, and p-xylene.</p> <p>See Table A7-2 for analyte-specific requirements.</p>
Data of known accuracy and precision at or above drinking water regulatory limits.	<p>The lowest concentration calibration standard analyzed during an initial calibration will be \leq the drinking water limit for each analyte based on the final volume of extract (or sample) described in the preparative method or employed by the laboratory, i.e., the laboratory's method quantitation limit will be at or below 1 :g/L. Method 8260B requires 5-point calibrations.</p> <p>EPA method 8260B provides for use of laboratory control standards as well as MS/MSD; the LCSs and MSs are to be spiked with all of the analytes requested.</p> <p>Frequency of accuracy and precision analyses is once per 12 hour shift. The recovery and the relative percent difference should be within the specifications below.</p>
Samples which represent the system(s) being studied	<p>Evaluation of sampled point to ensure each sample is collected from a known point and it can be determined what was sampled. Any assumptions made, and the associated uncertainty, will be documented. Data for groundwater parameters of pH, temperature, conductivity, and oxidation/reduction potential will be collected to document the water sampled is formation water from the aquifer or zone of interest. Blind duplicate samples should be analyzed on a daily basis. The relative percent difference should be \pm 30%.</p>
Data which are comparable for the purpose of comparing and/or combining data	<p>The data may be used to determine comparability between sampled points. Documented or referenced standard operating procedures for all sample collection procedures and analysis methods will be used.</p> <p>Consistent quantity units, e.g., :g/L or mg/L, will be used for each constituent.</p>
Completeness in the data set to allow the uncertainty in the decision(s) to be determined and managed	<p>The completeness goal for this study is 95%.</p>

Table A7-2 - Data Quality Objectives for Measurement Data

Field Parameters

Parameter	Units	Method	MDL	Field %RPD
pH	pH	4500-H+B	1.0	<10%
ORP	mV	2580-B	10	<10%
Conductivity	uS/cm	2510-B	1.0	<10%
Temperature	deg. C	2550-B	0.1	<10%

Laboratory Parameters, Volatile Organics, Method 8260B, :g/L

Parameter	MDL, ug/L	RL (PQL)	LCS %R	LCSD %R	LCS %RPD	MS %R	MSD %R	MS %RPD	Field %RPD
Acetone	0.69	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Acrolein	0.58	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Acrylonitrile	0.37	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Benzene	0.08	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Bromobenzene	0.08	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Bromochloromethane	0.14	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Bromodichloromethane	0.09	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Bromoform	0.18	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Bromomethane	0.19	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30

07/0074

Parameter	MDL, ug/L	RL (PQL)	LCS %R	LCSD %R	LCS %RPD	MS %R	MSD%R	MS %RPD	Field %RPD
2-Butanone (MEK)	0.34	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>n</i> -Butylbenzene	0.13	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>sec</i> -Butylbenzene	0.09	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>tert</i> -Butylbenzene	0.12	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Carbon Disulfide	0.22	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Carbon tetrachloride	0.11	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Chlorobenzene	0.11	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Chloroethane	0.14	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
2-Chloroethylvinyl ether	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Chloroform	0.09	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Chloromethane	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
2-Chlorotoluene	0.10	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
4-Chlorotoluene	0.10	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Dibromochloromethane	0.10	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2-Dibromoethane	0.19	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Dibromomethane	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2-Dichlorobenzene	0.15	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,3-Dichlorobenzene	0.11	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,4-Dichlorobenzene	0.15	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Dichlorodifluoromethane	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1-Dichloroethane	0.17	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2-Dichloroethane	0.12	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30

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Parameter	MDL, ug/L	RL (PQL)	LCS %R	LCSD %R	LCS %RPD	MS %R	MSD%R	MS %RPD	Field %RPD
1,1-Dichloroethene	0.27	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>cis</i> -1,2-Dichloroethene	0.19	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>trans</i> -1,2-Dichloroethene	0.20	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2-Dichloropropane	0.08	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,3-Dichloropropane	0.15	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
2,2-Dichloropropane	0.12	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1-Dichloropropene	0.08	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>cis</i> -1,3-Dichloropropene	0.07	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>trans</i> -1,3-Dichloropropene	0.14	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Ethylbenzene	0.09	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Hexachlorobutadiene	0.50	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Isopropylbenzene	0.19	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>p</i> -Isopropyltoluene	0.12	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Methylene chloride	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Methyl isobutyl ketone	0.18	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Methyl t-Butyl ether	0.19	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Naphthalene	0.13	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
<i>n</i> -Propylbenzene	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Styrene	0.11	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1,1,2-Tetrachloroethane	0.12	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1,2,2-Tetrachloroethane	0.13	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Tetrachloroethene	0.18	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30

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Tetrahydrofuran	0.45	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Parameter	MDL, ug/L	RL (PQL)	LCS %R	LCSD %R	LCS %RPD	MS %R	MSD%R	MS %RPD	Field %RPD
Toluene	0.15	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2,3-Trichlorobenzene	0.34	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2,4-Trichlorobenzene	0.25	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1,1-Trichloroethane	0.14	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,1,2-Trichloroethane	0.09	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Trichloroethene	0.08	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Trichlorofluoromethane	0.20	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2,3-Trichloropropane	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,2,4-Trimethylbenzene	0.14	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
1,3,5-Trimethylbenzene	0.18	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
Vinyl chloride	0.16	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
o-Xylene	0.15	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
m-Xylene	0.24	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
p-Xylene	0.24	1	70 - 130	70 - 130	<20	70 - 130	70 - 130	<20	<30
4-Bromofluorobenzene (S)			86 - 115	86 - 115	<25	86 - 115	86 - 115	<25	N/A
Dibromofluoromethane (S)			86 - 118	86 - 118	<25	86 - 118	86 - 118	<25	N/A
Toluene-d8 (S)			88 - 110	88 - 110	<25	88 - 110	88 - 110	<25	N/A
Fluorobenzene (IS)			∇50% CCV	∇50% CCV	N/A	∇50% CCV	∇50% CCV	N/A	N/A
Chlorobenzene-d5 (IS)			∇50% CCV	∇50% CCV	N/A	∇50% CCV	∇50% CCV	N/A	N/A

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1,4-Dichlorobenzene-d4 (IS)			∇50% CCV	∇50% CCV	N/A	∇50% CCV	∇50% CCV	N/A	N/A
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(S): Surrogate
(IS): Internal Standard

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B MEASUREMENT DATA GENERATION AND ACQUISITION

Section B2--Sampling Methods

To ensure the project objectives are met, sampling will be carried out by following the procedures listed below.

- X Use of documented sample collection and field measurement methods (Appendix 1, SOP 1)
- X Calibration, inspection, maintenance and servicing of field equipment according to manufacturer's specifications (Appendices 1 & 2)
- X Use of sample containers specified in Table B3-1.
- X Use of preservation methods and adhering to holding times specified in Table B3-1.
- X Use of chain-of-custody procedures specified in Appendix 1, SOP 2.
- X Verification and/or assessment of the procedures by the ECESI QA Officer with corrective action as necessary initiated by the principal investigators (Section C1).

The SOPs applicable to field activities including sample collection, field measurements, and equipment decontamination are in Appendix 1. The manufacturer's instructions for field instruments are in Appendix 2. The fields SOPs include

- X Sample collection procedures [including decontamination procedures] (SOP1),
- X Sample handling and custody procedures (SOP2),
- X Field instrument procedures (SOP3), and
- X Groundwater Sampling Form

Any necessary deviations from an SOP will be documented in the field or laboratory and carried out. Deviations will be discussed in the project report or laboratory case narrative, as applicable.

Section B3--Sample Handling and Custody

Field Procedures

The custody procedures used for this project are for standard investigative samples, rather than for evidentiary samples, and are documented in the field SOP 2 in Appendix 1. In the event incomplete chain-of-custody forms are received by the laboratory, the laboratory custodian will note the missing information and call the ECESI principal investigator.

Table B3-1: Sample Holding Times, Containers, and Preservatives

Parameter	Methods	Holding Time (From date of collection)	Container	Preservative
Volatile Organics	EPA 8260B	14 days	40 mL VOA vial, teflon-lined cap in duplicate without headspace or bubbles	pH<2 with HCl or H ₂ SO ₄ . Sodium thiosulfate if residual chlorine. Cool to 4°C

Laboratory Procedures

Upon receipt of samples by the laboratory, the laboratory follows the sample handling procedures outlined in Sample Tracking 01 in Appendix 4.

Section B4--Analytical Methods

The analytical methods to be used on this project are listed in Table B4-1. All quality control parameters specified in the method will be performed unless exceptions are noted in an SOP in Appendix 4.

Table B4-1: Analytical Methods

Method/Technology	Analytes	SOP #	Appendix #
EPA 8260B	Volatile Organics	Method 8260/VOA	4

All results will meet the quality control criteria of the method except where exceptions are observed or suspected and are reported in the laboratory case narrative and exception reports. The use of methods other than EPA-approved methods is acceptable for this project provided that the quantitation limit, accuracy, and precision performance criteria can be met using the methods. The principal investigators must amend this QAPP before using methods other than those listed in this QAPP.

Analytical responses greater than the MDL (supported by the DCS as described in Section B7) and meeting the qualitative identification criteria will be reported as detected with those values less than the MQL flagged as estimated, e.g., "J". All non-detected results will be reported as less than the value of the sample detection limit, i.e., the MDL (supported by the DCS) adjusted for sample specific factors, e.g., sample characteristics, preparation/cleanup procedures, and any laboratory adjustments.

Section B5--Quality Control

Field Duplicate Samples: One field duplicate sample will be collected each day of sampling and kept at 4°C. The duplicate samples are collected for ongoing QC purposes. The principal investigators will determine if and how the duplicate samples will be analyzed. For example, if the primary sample results indicate chemicals of concern in the sample, the principal investigator will consult with TCEQ and a duplicate may be analyzed. For the purposes of ongoing QC, 5% of the remaining duplicates from selected samples will be sent for analysis. The laboratory to which the QC samples are sent may be Ana-Lab or, at the request of the TCEQ, the Texas Department of Health laboratory. The QC samples will be sent in such a manner as to keep the laboratory blind to the sample's origin and to the fact the sample is a QC sample. The receiving laboratory should not be able to relate the QC sample to any sample which the laboratory has analyzed for the project.

Field Equipment Blanks: If non-dedicated sampling devices are used to sample wells, at least once per day during the use of the equipment, an equipment blank will be collected after decontaminating the equipment to determine if any analytes are potentially contributed from the sampling devices.

Field Calibration and Standards: Field calibration and standards will be prepared (based on need and shelf life) according to the instructions from the supply company, or they will be ordered already prepared from an approved laboratory or supply company.

Field blanks will be analyzed for volatile organics on a 5% basis, or once per day.

Laboratory QC Samples: The laboratory will implement the method required, recommended, and/or suggested laboratory QC samples into its analysis program (unless exceptions are noted in the SOPs in Appendix 4). The laboratory standards and reagents will be traceable and will not be used after expiration date has passed. The Sample Tracking SOP will be followed to ensure traceability.

Precision will be determined by repeating the entire analysis of a sample, or by analyzing a matrix spike/matrix spike duplicate (MS/MSD) pair *once per batch or once per 10 samples*. If the method requires more stringent quality control procedures, the method requirements will be followed. The relative percent difference and/or

relative standard deviation will be calculated using the applicable equations in Table B5-1.

Accuracy will be monitored per every 10 samples in an analysis batch by analyzing a matrix spike sample, i.e., a project sample spiked with a known amount of each of the analytes in the analysis list, and using the applicable equation(s) in Table B5-1 to calculate the percent recovery of the spike. If the method requires more stringent quality control procedures, the method requirements will be followed.

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Table B5-1 Statistical Equations

Statistic	Symbol	Formula	Definition	Uses
Mean	\overline{x}	$\frac{\sum_{i=1}^n x_i}{n}$	Measure of central tendency	Used to determine average value of measurements
Standard Deviation	S	$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \overline{x})^2}{n-1}}$	Measure of relative scatter of the data	Used in calculating variation of measurements
Relative Standard Deviation	RSD	$RSD = \frac{s}{\overline{x}} \times 100$	Relative standard deviation, adjusts for magnitude of observations	Used to assess precision for replicate results
Relative Percent Difference	RPD	$RPD = \frac{\text{abs}(x_1 - x_2)}{(x_1 + x_2)/2} \times 100$	Measure of variability that adjusts for the magnitude of observations	Used to assess total and analytical precision of duplicate measurements
Percent Difference	%D	$\%D = \frac{x_1 - x_2}{x_2} \times 100$	Measure of the difference of two observations	Used to assess accuracy
Percent Recovery	%R	$\%R = \frac{x_{\text{meas}}}{x_{\text{true}}} \times 100$	Recovery of spiked compound in laboratory matrix	Used to assess accuracy
Percent Recovery	%R	$\%R = \frac{\frac{\sum_{\text{spiked}} \text{value}}{\sum_{\text{spiked}} \text{sample}}}{\frac{\sum_{\text{unspiked}} \text{value}}{\sum_{\text{unspiked}} \text{sample}}} \times \frac{\text{value of added spike}}{\text{value of added spike}} \times 100$	Recovery of spiked compound in sample matrix	Used to assess matrix effects and total precision

x = Observation (concentration)
 n = Number of observations