Preliminary Assessment Report

FM 1585 and Avenue L Ground Water
PWS ID 1520142
TXN000606862
13010 Avenue L, Lubbock,
Lubbock County, Texas

REGION VI

Prepared in cooperation with the
U.S. Environmental Protection Agency

June 2008

857081

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13010 Avenue L

Lubbock, Lubbock County, Texas

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FM 1585 and Avenue L Ground Water
PRELIMINARY ASSESSMENT REPORT
LUBBOCK, TEXAS

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FM 1585 and Avenue L Ground Water
PRELIMINARY ASSESSMENT REPORT
LUBBOCK, TEXAS

1.0 INTRODUCTION

The Texas Commission on Environmental Quality (TCEQ) was tasked by the U.S. Environmental Protection Agency (EPA) Region VI to conduct a Preliminary Assessment (PA) at the FM 1585 and Avenue L Ground Water Site (Country Squire Mobile Home Park), located at FM 1585 and Avenue L (the site) in Lubbock, Texas. The site has a Public Water Supply (PWS) well utilized for drinking water. The well is routinely sampled by the Texas Commission on Environmental Quality Public Drinking Water Section. During a recent sampling event, laboratory analysis of the water sampled from this well indicated the presence of 1,2-Dichlorobenzene (Ref. 4, pp. 2-3; Ref. 5, p. 1). The PA is an initial screening of the site's conditions to determine compliance with standards and regulations pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) as amended, 42 Unites States Cod 9601 et.seq (Ref. 1, 2, and 3).

The specific goals for the site PA are listed below (Ref 3):

- Determine the potential threat to public health or the environment posed by the site;
- Determine the potential for a release of hazardous constituents into the environment; and
- Determine the potential for placement of the site on the National Priorities List (NPL).

Completion of the PA included reviewing existing site information; collecting receptor information within the range of site influence; determining regional geology, groundwater, surface water, and surrounding population of the site. This document includes a discussion of: site information (Sections 1 and 2), applicable

summary (Section 7), report figures (Section 8), and references for the project (Section 9).

2.0 SITE BACKGROUND

2.1 SITE LOCATION

Site Name:	FM 1585 and Avenue L Ground Water 13010 Avenue L Lubbock, Texas 79423
Agency Interest:	PWS #1520142; (Ref. 4, p. 1; Ref. 5, pp. 1-37; Ref. 11, p. 2)
Location:	13010 Avenue L Lubbock, Lubbock County, Texas 79423
Latitude:	33.475334 (Ref. 11, p. 2, 4)
Longitude:	-101.849167 (Ref. 11, p. 2, 4)
Legal Description:	FAIRVIEW ACS BLK 14 NW 143.25 X 330, Property No. R273500-00014-00140-000 (Ref. 6, p. 1)
Site Contact:	Ms. Pamela Hughes, 13010 Avenue L Lubbock, Lubbock County, Texas Phone: (806) 748-1502

2.2 SITE DESCRIPTION/OWNERSHIP

Site Physical Address and Description – The site consists of contaminated ground water detected in a well that was sampled on March 8, 2007, and again on September 13, 2007. The samples were sent in for laboratory analysis after each sampling event. The indicator well is located in the southern portion of Lubbock, Texas on FM 1585 just west of its intersection with US Highway 87 (Figures 1 and 2). The well is located on an approximately 2.5 acres parcel of property at 13010 Avenue L, Lubbock, Texas. Loop 289, a major transportation route for the City of Lubbock, is located 3.5 miles north of the property. The well provides drinking water for residents living on the property (Ref. 4, p. 1; Ref. 5).

Longitude / Latitude – The site is located at 33.475334 latitude and -101.849167 longitude (Ref. 11, p. 2, 4).

Ownership - The current owner of the well is Ms. Pamela Hughes of Country Squire Mobile Home Park (Ref. 4, p. 1; Ref. 5, pp. 1, 3, 6, 13, 17-18, 20,-21, 25-29, 32-35). The land was purchased by Ms. Hughes in 2002 from Mr. Owen Johnson. Ms. Hughes stated that there is a commercial building on the site that was used as a furniture auction barn, but that it has not been used since 2005 or 2006 (Ref. 4, p. 1).

Surrounding Land Use - Within a half-mile radius of the site, the following land use was determined through an EPA internet database search and during a reconnaissance inspection conducted on January 30, 2008 (Ref. 4, p. 5; Ref. 8):

a. North of the site – A South 40 Convenience Store was observed to the north of the site, located at FM 1585 & Avenue L along with residential homes.

b. East of the site – Commercial businesses and residential homes;

c. South of the site are residential homes and west of the site are commercial businesses, including a dry cleaner drop off location.

The following industrial businesses were determined to be located within three (3) miles of the site via an EPA internet database search (Ref. 8, pp. 1-36). A description of the businesses is described on the following page:

Facility	**Description of Activities**	**Approximate Distance From Site**
Caprock Manufacturing Inc.	Plastics Product Manufacturing (Ref. 8, p. 30)	1.45 miles northwest
Custom Iron Works	Custom iron work; ornamental, commercial & residential (Ref. 8, p. 37)	0.5 mile northeast
Renfrow Hard Chrome Plating	Electroplating, plating, polishing, anodizing, and coloring (Ref. 8, p. 27)	0.6 mile northwest
Stripe A Zone	Parking Area Maintenance & Marking, Pavement & Floor Marking Services (Ref.	0.75 mile north northeast
Cooper Independent School District	Active Small Quantity Generator (only data available) (Ref. 8, p. 35)	1.95 miles south
Ray Sanchez Marble Company	Unspecified Universe (Inactive) (Ref. 8, p. 23)	2.5 miles southwest
Alex Ty Cooke Generating Station	Electric Power Distribution Station (Ref. 8, p. 12)	3.0 miles northeast
Custom Cleaners	Dry Cleaner Facilities (TCEQ DCRP)(Ref. 8, pp. 42, 44, 46-47)	3.0 miles northwest
Joe Jackson Transmission	Automotive Transmission Repair Shops (Ref. 8, p. 18)	2.15 miles north
Products By Big 12	Sheet Metal Work; fabricated structural metal (Ref. 8, p. 21)	2.8 miles north

Within a mile radius of the site, the following industrial businesses were determined via an EPA internet database search: Caprock Manufacturing Inc. at 2303 120th Street; Custom Iron Works at 12701 Highway 87; Renfrow Hard Chrome Plating at 13804 Highway 87; and Stripe A Zone at 12010 Highway 87 (Ref. 8, pp. 1-2).

Within 2 miles of the site, the following commercial facilities were found via an EPA internet database search: Cooper Independent School District at Loop 493 at Woodrow Road; and Ray Sanchez Marble Company at 16224 County Road 2200 (Ref. 8, pp. 3-5).

Within 3 miles of the site, the following commercial businesses were found via an EPA internet database search: Alex Ty Cooke Generating Station at 3500 East Slaton Highway; Custom Cleaners at 3322 83rd Street; Joe Jackson Transmission at 9603 Avenue P; and Products By Big 12 at 8606 Highway 87 (Ref. 8, pp. 6-8).

2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

Site Operations - The site consists of contaminated ground water detected in a well that was sampled on March 8, 2007, and again on September 13, 2007. The samples were sent in for laboratory analysis after each sampling event. The well on the site is routinely sampled by the TCEQ Public Drinking Water Section (PWS ID No. 1520142). The well system utilizes water supplied by one well which pumps through two pressure tanks, then to the distribution system and services the residences (60 residents) (Ref. 4, p. 1; Ref. 5, pp. 22-23). The well is screened in the Ogallala aquifer. The Ogallala aquifer is first encountered at approximately 189 feet below the ground surface at the site and

approximately 140 to 212 feet below the surface (Ref. 4, p. 1; Ref. 9, p. 1; Ref. 11, pp. 2, 4; Ref. 14, p. 2).

Waste Characterization - No waste oil, or waste petroleum products are managed on-site. At the PWS, chemical use is limited to chlorine stored onsite for treating the well (Ref. 4, p. 3).

2.4 PREVIOUS INVESTIGATIONS AND REGULATORY HISTORY

Investigations - The following investigations have been conducted for the site:

a. On March 8, 2007, routine samples were collected from the well. The sample results indicate that 1,2-Dichlorobenzene was detected at 1.52 µg/l. On September 13, 2007, routine samples were collected from the PWS well located at 13010 Avenue L, and at Entry Point 002 located on the southwest corner of the mobile home park. The correspondence incorrectly lists Entry Point 002 as "Entry Point 001" (Ref. 4, p. 1). The sample results indicate that 1,2-Dichlorobenzene was detected at 1.45 µg/l in Well #2, and 1.38 µg/l in Entry Point 002 (Ref. 4, pp. 2-3; Ref. 5, pp. 1, 4, 7, 12). The detection is below the Maximum Contaminant Level (MCL) for 1,2-Dichlorobenzene of 600 µg/l. As per available reports, the volatile organic compound (VOC) was analyzed only once during a routine sampling event.

b. On January 30, 2008, a reconnaissance inspection was conducted because of the detection of 1,2 - Dichlorobenzene in the PWS well (Ref. 4, pp. 2-3; Ref. 5, pp. 1, 4, 7, 12). Currently, no known source has been confirmed for the 1,2

– Dichlorobenzene (Constituent of Concern, COC) identified in March 8, 2007 and September 13, 2007 sample results. Research indicates that 1,2-Dichlorobenzene is a substance used as a chemical intermediate for making agricultural chemicals and herbicides, solvents for waxes, gums, resins, wood preservatives, paints; insecticides for termites and borers, making dyes, coolants, deodorizers, and degreasers (Ref. 4, pp. 7-10). If released into soil, it can bind to soil particles. Detection in ground water indicates leaching can occur. It evaporates from soil or surface water and will be broken down by microbes. 1,2 – Dichlorobenzene is likely to accumulate in fish and other aquatic life (Ref. 4, p. 9).

Regulatory History – The following is a brief regulatory history of the site:

a. According to the PWS file review obtained from TCEQ Central Records, a sample was taken from the subject well on March 8, 2007. The sample analysis revealed 1.52 ug/l of 1,2-Dichlorobenzene. Another sample was taken from the subject well's Entry Point 002 on September 13, 2007. It was not detected in previous sampling events of the PWS well or entry point (Ref. 4, pp. 1-2; Ref. 5, pp. 4-5, 8).

b. On May 25, 2007 and August 2, 2007, A Notice of a Bacteriological Monitoring Violation (NBMV) SECOND NOTICE of the PWS was investigated for missing coliform monitoring samples (Ref. 5, pp 13-16).

c. A PWS system inspection conducted on February 4, 2004 identified two compliance violations. One violation was for failure to properly maintain Pressure Tank #1 on the pressure tank. The other violation was for failure to provide a proper intruder resistant fence around Pressure Tank #2. These violations were resolved (Ref. 5, pp 23-25).

d. The facility has had numerous violations of fluoride and nitrate since 1998 for fluoride and 2000 for nitrate. These violations were resolved by Ms. Hughes by providing bottled water free of charge upon request (Ref. 5, pp. 20-21, 31, 35-37).

3.0 GROUNDWATER MIGRATION PATHWAY

3.1 SOILS, GEOLOGY AND HYDROGEOLOGY

Soils - According to the Soil Survey of Lubbock County, Texas (1979), the site is located on the Estacado clay loams which are typically deep, nearly level to gently sloping, soils in an upland plain (Ref. 7, p. 2). The soil horizon consists of up to six feet of friable, moderately alkaline, reddish yellow clay loam that also has many soft masses and concretions of calcium carbonate. The soil is typically well drained and surface runoff is typically slow (Ref. 7, pp. 10, 12, 15). The watershed for the area that drains the soils is the Double Mountain Fork Brazos located to the south of the site (Ref. 12, pp. 1-3).

Geology - The site is located on the Southern High Plains known as the Llano Estacado. Geologically, the area is located in the northern portion of the Permian Basin proximal to the Matador Arch, which divides the Permian Basin from the Palo Duro Basin to the north (Ref. 14). Geomorphically, the Southern High Plains is bounded to the north by the

Canadian River and grades into the Edwards Plateau to the south. The Caprock Escarpment bounds the Southern High Plains to the east and west (Ref. 14).

Hydrogeology - The major groundwater unit under the Southern High Plains and the site's property is contained within the Ogallala Formation and is referred to as the Ogallala Aquifer (Ref. 4, p. 5; Ref. 14, pp. 1-51). The Ogallala aquifer is unconfined with water being principally stored in the pore space between clastic sediments. Typically, the groundwater contains total dissolved solids values ranging from 300 to 2,000 mg/L (Ref. 14, pp. 3, 12).

In the vicinity of the site, the public and private drinking water wells in the Ogallala Aquifer are typically 140 to 155 feet deep. No well screening data was available for the wells around the site for review (Ref. 10, pp. 2, 4).

Recharge to the Ogallala Aquifer is generally limited to infiltration of rainwater and is slow due to the combination of low rainfall, low infiltration rates and high evaporation. The average recharge rate to the Ogallala in the entire High Plains region is approximately 0.5 inch per year (Ref. 14, p. 15).

The water table elevation of the Ogallala approximately parallels regional land surface and the general groundwater flow direction is from the northwest to the southeast. The mean regional gradient is approximately 10-15-feet per mile and the typical groundwater velocity averages one foot per day (Ref. 14 pp. 8, 14). The groundwater flow direction and gradient may be strongly influenced by the presence of playa lakes and draws that can serve as recharge points (Ref. 14, p. 15).

3.2 GROUNDWATER RECEPTORS

The City of Lubbock's drinking water comes from both surface and groundwater sources. The Canadian River Municipal Water Authority (CRMWA) provides up to 85 percent of Lubbock's water supply from Lake Meredith and from Roberts County well field located in the northern part of the Texas panhandle (Ref. 15). During 2006, the citizens of Lubbock used 13.9 billion gallons of water with 10.5 billion gallons supplied by CRMWA and 3.5 billion gallons from the Roberts County well field (Ref. 15, p. 1).

The 2000 census suggest that approximately 270 persons per square mile may be expected in the vicinity of the site (Ref. 13, p. 5). Residents outside the city limits of Lubbock rely upon the Ogallala Aquifer for their primary drinking water supply (Ref. 15, pp. 1, 36).

A search of the TCEQ water well data base identified 22 wells (including the site's well) within a two mile radius of the site (Ref. 10, pp. 3-4; Ref. 11, pp. 3-4); and a search of the Texas Water Development Board (TWDB) and TCEQ data bases identified two public wells within 0.25 mile of the site and four public wells from a radius of 0.25 to 0.50 mile from the site (Ref. 11, pp. 1-4, Figure 2). One well (PWS #1520180) within 0.25 mile of the site is listed as "Inactive" (Ref. 11, p. 43). Total population served by all of the active wells within a half mile is 1,725 people (Ref. 4, p. 1; Ref. 11, pp. 5, 7, 10, 16). No private wells were identified within 0.50 mile of the site (Ref. 10, pp. 1-4, Figure 2).

A total of 11 public wells and two private wells were identified within a one mile radius of the site (Figure 2). Total population served by all of the active public wells within one

mile is 1,835 people (Ref. 4, p. 1; Ref. 11, pp. 5, 7, 10, 12, 14). One well (PWS #1520047) within 1.0 mile of the site is listed as "Inactive" (Ref. 11, p. 46). The two private wells were identified within a 0.50 mile to one mile radius of the site. (Ref. 10, pp. 1-4; Ref. 11, pp. 1-4; Figure 2).

3.3 GROUNDWATER SUMMARY

The reconnaissance inspection conducted on January 30, 2008 did not result in the identification of any immediate threats to the public health or environment. The total population served by all of the active public water supply wells within a one-mile radius of the site is 1,835 people (Ref. 4, p. 1; Ref. 11, pp. 5, 7, 10, 12, 14). The highest concentration of the COC (1.2-Dichlorobenzene) was below the MCL. No potential source of the chemical could be located during the reconnaissance inspection and subsequent evaluation conducted as part of the PA (Ref. 4, pp. 1-5; Ref. 5, pp. 1-37).

4.0 SURFACE WATER PATHWAY AND TARGETS

The Surface Water Pathway will not be evaluated since the site has been identified as a contaminated groundwater well with no identified source.

5.0 SOIL EXPOSURE PATHWAY AND TARGETS

The Soil Exposure Pathway will not be evaluated since the site has been identified as a contaminated groundwater well with no identified source.

6.0 AIR PATHWAY AND TARGETS

The Air Pathway will not be evaluated due to the lack of an observed and documented air release.

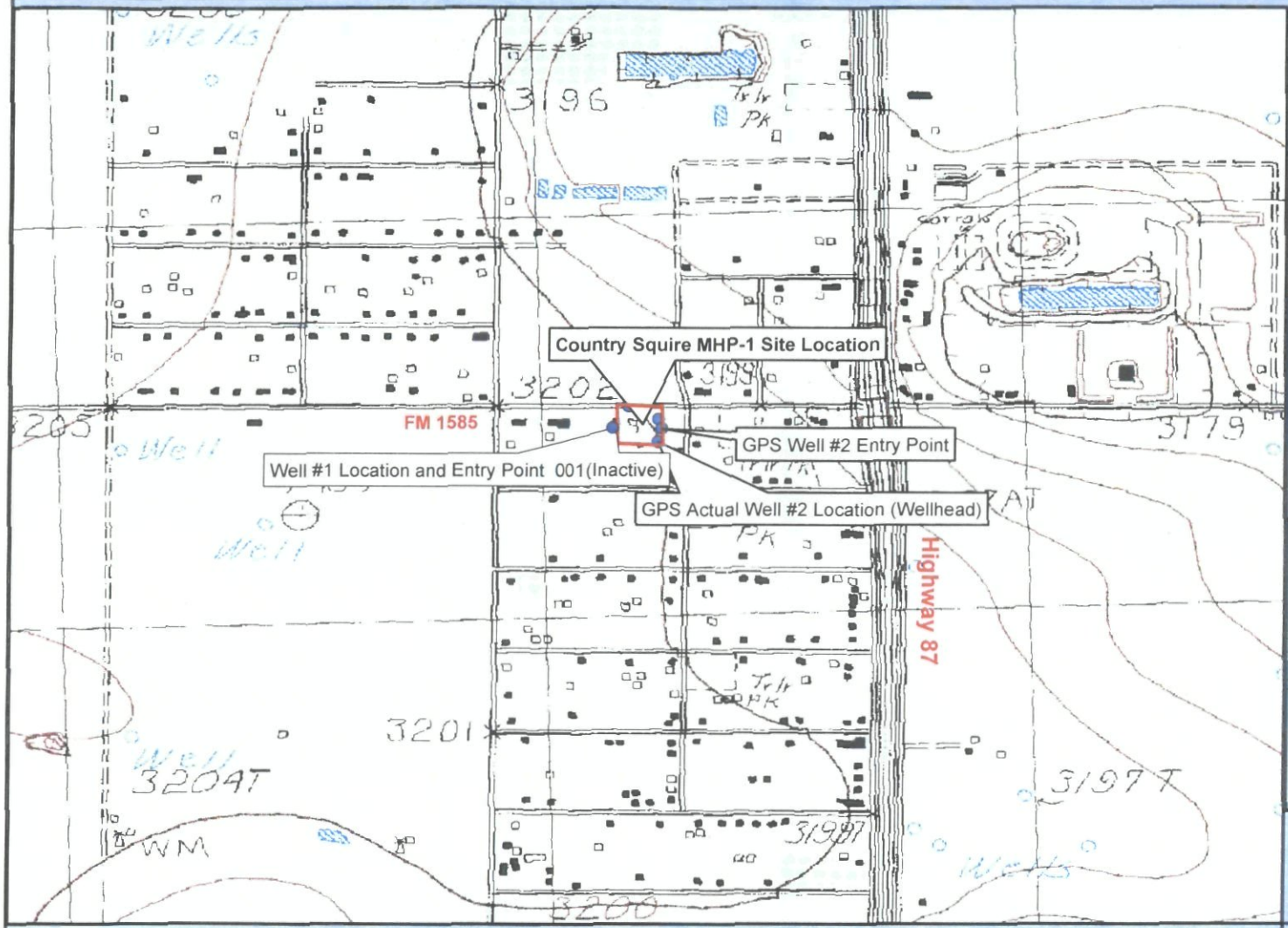
7.0 SUMMARY

Water well searches conducted as part of the PA have identified (both public and private wells) 13 drinking water wells located within a one mile radius of the site (Ref. 10, pp. 1-4, Figure 2; Ref. 11, pp. 1-4; Figure 2). The 2000 census suggest that approximately 270 persons per mile may be expected to reside in the vicinity of the site (Ref. 13, p. 5). Since the source of the 1,2-Dichlorobenzene contamination is unknown this contaminant may be more problematic in a nearby area that is not being monitored.

8.0 REPORT FIGURES

- Site Location map attached
- Site feature map attached

Country Squire Mobile Home Park



TCEQ

Country Squire MHP-1
PWS ID#1520142
13010 Avenue L
Lubbock, TX 79423

Figure 1
Site Location Map

0 0.125 0.25 0.5 0.75 1 Miles

Source
The base data used is:
Image Service: DDNAIP2004
ArcIMS Version: 9.1.0
Geographic Coordinate System: GCS_North_American_1927
Datum: D_North_American_1927

N
W E
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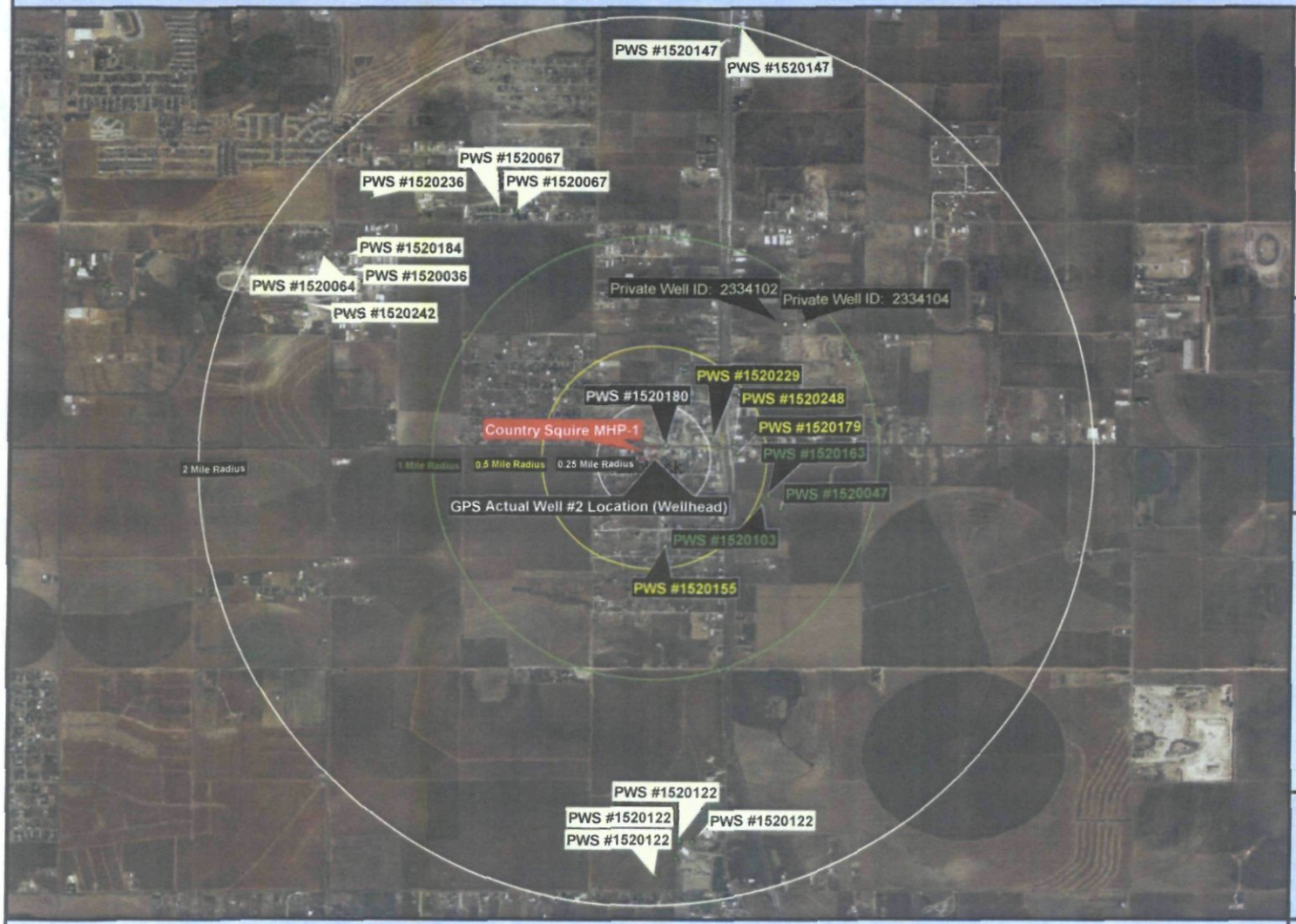
Country Squire Mobile Home Park



TCEQ

Country Squire MHP-1
PWS ID#1520142
13010 Avenue L
Lubbock, TX 79423

Figure 2
Site Feature Map

0 0.35 0.7 1.4 2.1 2.8 Miles

Source
The base data used is:
Image Service: DDNAIP2004
ArcIMS Version: 9.1.0
Geographic Coordinate System: GCS_North_American_1983
Datum: D_North_American_1983

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9.0 REFERENCES

1. U.S. Environmental Protection Agency, "Hazard Ranking System Rule, Pt 300, App A," 1996 (Cover Page).
2. U.S. Environmental Protection Agency, "Hazard Ranking System Guidance Manual," November 1992 (Cover Page).
3. U.S. Environmental Protection Agency, "Guidance for Performing Preliminary Assessments Under CERCLA," September 1991 (Cover Page).
4. Texas Commission on Environmental Quality, "Pre-CERCLIS Screening Checklist – Country Squire Mobile Home Park – PWS ID 1520142," January 2008, 6 p.; U.S. Environmental Protection Agency Ground Water & Drinking Water Technical Factsheet on: o-DICHLOROBENZENE, May 2008, 4 p.
5. "COUNTRY SQUIRE MHP 1 PWS 1520142 CORRESPONDENCE" Files, 37 p.
6. Lubbock Central Appraisal District – 2008 Proposed Values of Property Detail Sheets, "Query of Property Details Sheet for Country Squire Mobile Home Park, 13010 Ave L, Lubbock, TX 79423," http://www.lubbockcad.org /, 12 p.
7. United State Department of Agriculture Soil Conservation Service, "Soil Survey of Lubbock County Texas," August 1979, 7 p.; "United States Department of Agriculture Natural Resource Conservation Service Web Soil Survey," May 2008, http://websoilsurvey.nrcs.usda.gov/, 8 p.
8. United States Environmental Protection Agency, Envirofacts: "EnviroMapper Query of Regulated Sites in Vicinity of Country Squire Mobile Home Park" and associated Facility Detail Reports, http://www.epa.gov/enviro/emef/, May 2008, 36 p.
9. Texas Commission on Environmental Quality Public Water System Details/Data Sheet for COUNTRY SQUIRE MHP 1 (1520142), http://www3.tceq.state.tx.us, 6 p.

REFERENCE 1

NOTE TO PARAGRAPHS (A)(3) AND (B) OF THIS SECTION: Reference to 40 CFR 300.1100 is a reference to the provisions regarding secured creditors in CERCLA sections 101(20)(E)-(G), 42 U.S.C. 9601(20)(E)-(G). *See* Section 2504(a) of the Asset Conservation, Lender Liability, and Deposit Insurance Protection Act, Public Law, 104-208, 110 Stat. 3009-462, 3009-468 (1996).

APPENDIX A TO PART 300—THE HAZARD RANKING SYSTEM

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01 01

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Publication 9345.1-07
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November 1992

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02 01

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Office of Emergency and
Remedial Response
Washington DC 20460

EPA/540/G-91/013
September 1991

EPA

Guidance for Performing Preliminary Assessments Under CERCLA

03 01

REFERENCE 4

PRE-CERCLIS FIELD SCREENING CHECKLIST

1.0 GENERAL SITE INFORMATION

SITE NAME: Country Squire Mobile Home Park			
ADDRESS: 13010 Avenue L			
CITY: Lubbock	ZIP: 79423	COUNTY: Lubbock	CONG. DIST: 19

PHYSICAL LOCATION (directions to site):
From Lubbock International Airport, head south on Martin Luther King, Jr. Blvd. to Regis Street approximately 1.0 mile. Turn right at Regis Street proceeding approximately one mile to S. I-27/87. Proceed south on I-27/87 approximately 11.0 miles to FM 1585. Turn right at FM 1585 approximately 0.2 mile. Turn left at Avenue L. Arrive at 13010 Avenue L.

TYPE OF OWNERSHIP
__ Municipal _X_ Private __ Federal __ Indian Nation __ State __ County
Other

SITE STATUS: _X_ Active __ Inactive __ not specified) __1__ # of employees (if active)	YEARS OF OPERATION __ Unknown __2002 / Present_ Begin End

EPA ID # _NONE_____ State SWR # _____ Other #

Site Owner (if available): Pamela Hughes

Site Operator (if available): Pamela Hughes

Description of site activities
(e.g. manufacturing plant, abandoned refinery, etc.)

The Country Squire Mobile Home Park (MHP) 1 PWS ID# 1520142 (Well #2) well provides water to the Country Squire MHP serving the population of approximately 60 (Ref. 2). There are two water plants listed on the TCEQ Water System Data Sheet (Entry Points 001 and 002). Entry Points 001 and 002 are Wells #1 and #2 respectively. Mr. Lance Owens, Environmental Investigator for the TCEQ Region 2 office stated that Well #1 has been cut off from their system (air-gapped). Although the sampling data shows Entry Point 001 as being sampled in September 2007, Mr. Gary Regner of the TCEQ Drinking Water Section confirmed that the data listed for this site is for "Entry Point 002" and not "Entry Point 001." Entry Point 002 is located onsite at 13010 Avenue L approximately 20 feet north of Well #2 (wellhead)(Figure 2, Ref. 2). Based on the January 30, 2008 site investigation and as of the date of this report, Well #2 is confirmed to still be operating.

Ms. Hughes, the current well owner and operator at the site, stated that there is a commercial building on the property that was previously a furniture auction barn, but the building has not been used in two or three years (Ref. 1).

Comments
According to information obtained from the file, Well #2 was drilled in June 1983 to a depth of 189 feet. According to information provided by Mr. Gary Regner about the well and entry point locations, there are two wells at the trailer park (Ref. 4). He said that in the case of this trailer park, Entry Point 001 is in the same area as Well #1, and Entry Point 002 is located on the site about 20 feet to the north of Well #2. He stated that Entry Point 002 is also called Well #2 on the data and has not been sampled since 1996. The data available for arsenic, nitrate, and fluoride from this operating well are: <u>Previous data on file for Well #2</u> Arsenic - 0.0114 mg/L (MCL 0.01 mg/L), January 2005 Nitrate - 11.97 mg/L (MCL 10 mg/L), December 2002 Fluoride - 4.59 mg/L (MCL 2 mg/L), December 2004 According to TCEQ file information, on March 8, 2007, routine samples were collected from Well #2 (also called Well B) located at 13010 Avenue L. 1,2-Dichlorobenzene was detected at 1.52 µg/l. The MCL of 1,2-Dicholorobenzene is 600 µg/l (Ref. 2). According to a Certified letter from TCEQ dated October 2, 2007, routine samples were collected from Well #2 located at 13010 Avenue L, and at Entry Point 001 located on the southwest corner of the mobile home park (Ref. 2). During the sampling events, 1,2-Dichlorobenzene was detected at 1.45 µg/l in Well #2, and 1.38 µg/l in Entry Point 001. No documentation of the hazardous substance from any source attributing to the contamination of the well or entry points listed has been identified. However, potential sources are nearby. Ms. Knipfer stated that they have increased monitoring for volatile organic compounds (VOC) to annual for now, but stated she will have to work with the lab to get detections for organics. She said that Bromacil, a constituent not currently regulated, is also present. Ms. Knipfer did not have the entry point history for these detections.

2.0 SITE SCREENING INFORMATION

Date:	1/30/08	Time:	9:00am
TCEQ Personnel:	David Cullen and Robert Musick		

3.0 RANK (Seriousness of Situation)

☐ **Low Potential Hazard** - No waste source(s) identified and/or limited or no targets identified.

☐ **Low to Moderate Potential Hazard** - May have a waste source(s) and/or limited or no targets identified.

☐ **Moderate Potential Hazard** - Potential waste source(s), potential targets are present in the area but no release is suspected.

☒ **Moderate to High Potential Hazard** - Potential waste source(s) identified, a release may be suspected and potential targets are present in the area.

☐ **High Potential Hazard** - Potential waste source(s) identified, a release is strongly suspected or observed, targets are present in the area and may be impacted. Sites in this category are believed to require immediate attention by EPA.

☐ **Other** - Sites that for various reasons, do not fit into one of the above scoring criteria. An explanation is attached.

4.0 HAZARD DESCRIPTION (e.g. details on sources, contaminants, historical discharges, waste management and chemical use, threat to public and/or environment)

According to the file review, On March 8, 2007, routine samples were collected from Well 2 (Ref. 2). 1,2-Dichlorobenzene was detected at 1.52 µg/l on March 8, 2007. On September 13, 2007, routine samples were collected from the Entry Point #2 and Well 2. In Well 2, 1,2-Dichlorobenzene was detected at 1.45 µg/l. At Entry Point #2, the concentration of 1,2-Dichlorobenzene was detected at 1.38 µg/l. The concentrations of the contaminant 1,2-Dichlorobenzene detected in March and September 2007 were below the MCL of 600 µg/l. No documentation of the hazardous substance attributing to the contamination from any source has been identified. However, potential sources are nearby. During Pre-CERCLIS site reconnaissance, Ms. Hughes said that they store containers of chlorine on the site for treating the well water (Ref. 1).

5.0 SITE FEATURES

Potential Waste Sources:

	Ponds, Lagoons, Surface Impoundments		Drums
	Contaminated Soil		Pits
	Transformers		Landfills
	Waste Piles	X	No Sources Identified
X	Storage Tanks (above & below)		Other

Describe sources and releases
(e.g. #drums, size of impoundment, leaking drums, ruptured tank, containment)

There are several gasoline and repair service stations northwest adjacent of the site across FM 1585 (Photos 4, 5, and 6). A South 40 Convenience Store, located at FM 1585 & Avenue L (northeast adjacent to the site), is listed as a Petroleum Storage Tank (PST) facility, but not listed as a Leaking PST facility (Photo 4, Ref. 3). A Citgo 414 (FINA) LPST facility is listed at 906 FM 1585, approximately one-quarter mile northeast of the site. A Town & Country 121 is listed at 13001 Highway 87 as a PST facility. This facility is approximately 0.3 mile east of the site and not listed as an LPST facility.

A dry cleaning store was noted approximately 180 yards west of the site (Photos 2, 14). TCEQ contacted the dry cleaner and confirmed this store is a drop off location that takes the clothes it receives from customers to a facility in town to get dry cleaned (Ref. 4). This dry cleaner store is not listed in the TCEQ DCRP or VCP databases. A well was noted in front of the dry cleaning store during the time of the site inspection. TCEQ contacted the dry cleaner regarding this well. Information provided to TCEQ over the phone indicated that Steve Mosser (806-789-6999) is the well owner. TCEQ contacted Steve Mosser. Steve indicated that it is their water well, and they use it for everything except drinking and cooking (Ref. 4).

Agricultural fields were observed near the site and are abundant in this area (Figure 2, Photos 9, 17). 1,2-Dichlorobenzene is used as a chemical intermediate for making agricultural chemicals, mostly herbicides. Other uses include insecticide for termites and borers and many other uses (Ref. 2).

6.0 TARGETS

Describe targets and proximity to wastes
(lagoon draining to creek, 10 homes within 200 feet, stressed vegetation and contamination at homes, SW intakes, nearest public and private drinking water wells, etc.)

The site is located in a commercial and residential mixed community (Figure 1, Photos 1 – 17). The land use near the major roads (Highway 87 and FM 1585) are typically commercial business such as boat and vehicle storage facilities, convenience stores, vehicle repair facilities, food outlets, and agricultural.

The closest targets to the site are households located approximately 100 yards south of the site and approximately 0.25 mile northeast of the site (Figure 2, Photos 1, 3, 10). Private water wells were observed in the yards of some of these households and at the dry cleaner drop off location (Photos 10 and 14). The private well in front of the dry cleaner drop off location is owned by Mr. Steve Mosser. He said that the dry cleaner location uses the well for everything except drinking and cooking. Mr. Mosser said he believed his well to be 180 feet in depth. (Ref. 4).

A day care center was observed approximately 250 yards to the west of the site (Photos 12 and 13). The nearest listed school is Cooper Elementary School located 2.5 miles south of the site (Ref. 1). No private wells were observed in front of the day care center during the time of the site investigation. (Ref. 1) One private well was noted about 100 yards to the northwest of the site. Ms. Hughes stated that this well is owned by Owen Johnson. No sampling or well depth information was available for this well during the inspection.

According to information obtained from the Texas Water Development Board State of Texas Well Report, three (3) nearby private wells range in depth from 161 to 180 feet below the surface, and 125-140 feet from the surface to the static water level (Ref. 4).

Three Public Water Supply (PWS) wells are listed in the vicinity of the site (PWS #1520229, #1520248, and #1520179). The nearest public well (PWS #1520229 – Taylor Petroleum CO 61) is approximately 0.25 miles to the east-northeast of the site. This well is estimated to be 159 feet in depth. Benzene and 2-chloro-2-methylbutane were detected in this well at 1.45 and 3.42 micrograms per liter respectively in February 2007. PWS #1520248 is located approximately 0.3 mile west-northwest of the site. This well is listed at 149 feet in depth. No contaminants were listed in the data provided. PWS #1520179 is located approximately 0.3 miles west of the site. This well is estimated to be approximately 160 feet in depth and screened from 107 to 147 feet for water. Bromoform was detected in this well at 2.52 milligrams per liter in November 2006 (Ref. 4).

The surface water bodies are limited to playa lakes (ephemeral water bodies), with the closest ones located less than 0.5 miles to the north and 0.75 miles to the east-northeast. These surface water bodies are small ephemeral water sources that are not typically in hydraulic communication with the primary drinking water source (i.e., Ogallala Aquifer at approximately 150 feet below ground surface (bgs) (Fig. 1, Ref. 1).

7.0 SITE LOCATION MAP

8.0 SITE FEATURE MAP

9.0 SITE PHOTOGRAPHS

10.0 FIELD NOTES

U.S. ENVIRONMENTAL PROTECTION AGENCY

Ground Water & Drinking Water

Drinking Water and Health Basics
Frequently Asked Questions
Local Drinking Water Information
Drinking Water Standards
List of Contaminants & MCLs
Regulations & Guidance
Public Drinking Water Systems
Source Water Protection
Underground Injection Control
Data & Databases
Drinking Water Academy
Safe Drinking Water Act
National Drinking Water Advisory Council
Water Infrastructure Security

Technical Factsheet on: o-DICHLOROBENZENE

List of Contaminants

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

Drinking Water Standards

MCLG: 0.6 mg/L
MCL: 0.6 mg/L
HAL: 1 to 10 day: 9 mg/L; Longer-term: 9 mg/L

Health Effects Summary

Acute: EPA has no data on the acute toxicity of o-dichlorobenzene which is relevant to the drinking water context.

Drinking water levels which are considered "safe" for short-term exposures: For a 10-kg (22 lb.) child consuming 1 liter of water per day: upto a 7-year exposure to 9 mg/L.

Chronic: EPA has found o-dichlorobenzene to potentially cause damage to the nervous system, liver, kidneys and blood cells from long-term exposure at levels above the MCL.

Cancer: There is inadequate evidence to state whether or not o-dichlorobenzene has the potential to cause cancer from lifetime exposures in drinking water.

Usage Patterns

Production of o-dichlorobenzene has decreased since the 1970's: from 54.6 million lbs. in 1975 to an estimated 43 million lbs. in 1991. In 1987 it was estimated that industries consumed o-dichlorobenzene as follows: Organic synthesis (mainly for herbicides), 90%; toluene diisocyanate processing solvent, 5%; solvent and miscellaneous uses, 5%.

The greatest use of o-dichlorobenzene is as a chemical intermediate for making agricultural chemicals, primarily herbicides.

Other present and past uses include: solvent for waxes, gums, resins, wood preservatives, paints; insecticide for termites and borers; in making dyes; as a coolant, deodorizer, degreaser.

Release Patterns

04 07

1,2-Dichlorobenzene's use in manufacturing and solvents may be significant sources of discharges into water. Dichlorobenzenes also enter the water systems (raw and contaminated water) from the use of 1,2-DCB as a deodorant in industrial wastewater treatment. Chemical waste dump leachates and direct manufacturing effluents are reported to be the major source of pollution of the chlorobenzenes (including the dichlorobenzenes) to Lake Ontario. The major source of 1,2-dichlorobenzene emission to the atmosphere has been reported to be solvent applications which may emit 25% of annual production to the atmosphere.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, o-dichlorobenzene releases to land and water totalled over 240,000 lbs., of which nearly 172,000 lbs. was to land. These releases were primarily from organic chemicals manufacturing industries which use it as an intermediate in herbicide production. The largest releases occurred in New Jersey.

Environmental Fate

If released to soil, 1,2-dichlorobenzene can be moderately to tightly adsorbed. Experimental Koc values of 280 to 320 were determined in silt loam soils containing less than 2 percent organic matter. In equilibrium batch studies, a relatively strong adsorption of 1,2-dichlorobenzene to collected aquifer material was observed. However, the detection of 1,2-dichlorobenzene in various groundwaters indicates that leaching can occur. Volatilization from soil surfaces may be an important transport mechanism. It is possible that 1,2-dichlorobenzene will be slowly biodegraded in soil under aerobic conditions. Chemical transformation by hydrolysis, oxidation or direct photolysis are not expected to occur in soil.

If released to water, adsorption to sediment will be a major environmental fate process based upon extensive monitoring data in the Great Lakes area and Koc values. Analysis of Lake Ontario sediment cores has indicated the presence and persistence of 1,2-dichlorobenzene since before 1940. 1,2-Dichlorobenzene is volatile from the water column with an estimated half-life of 4.4 hours from a model river one meter deep flowing 1 m/sec with a wind velocity of 3 m/sec at 20 deg C; adsorption to sediment will attenuate volatilization. It has been suggested that the three dichlorobenzene isomers may undergo slow biodegradation in natural water. The dichlorobenzenes are not expected to be biotransformed in anaerobic water conditions found in aquifers.

1,2-Dichlorobenzene is not expected to undergo significant hydrolysis in environmental waters. It is reported to be resistant towards oxidation by peroxy radicals in aquatic media. In an isooctane solvent, 1,2-dichlorobenzene absorbs virtually no radiation above 300 nm; therefore, direct photolysis in the environment should not be significant.

If released to air, 1,2-dichlorobenzene will exist predominantly in the vapor-phase and will react with photochemically produced hydroxyl radicals at an estimated half-life rate of 24 days in a typical atmosphere. Direct photolysis in the troposphere is not expected to be important. The detection of 1,2-dichlorobenzene in rainwater suggests that atmospheric removal via wash-out is possible.

In a study of a representative green alga, the log10 bioconcentration factors (BCF) for 1,2-dichlorobenzene was 4.17. Experimental BCF values of 66-560 have been reported and 1,2-dichlorobenzene has been detected in trout from Lake Ontario. General population exposure to 1,2-dichlorobenzene may occur through oral consumption of contaminated drinking water and food (particularly fish) and through inhalation of contaminated air since 1,2-dichlorobenzene has been detected in widespread ambient air.

Chemical/Physical Properties

CAS Number: 95-50-1

Color/ Form/Odor: Colorless liquid with pleasant, aromatic odor

M.P.: -17 C B.P.: 180.5 C

Vapor Pressure: 1.47 mm Hg at 25 C

Octanol/Water Partition (Kow): Log Kow = 3.38

Density/Spec. grav: 1.31 g/L at 20 C

Solubility: 0.14 g/L of water at 25 C; Slightly soluble in water

Soil sorption coefficient: Koc measured at 280 to 320 for loam soils; low to moderate mobility in soil

Odor/Taste Thresholds: N/A

Bioconcentration Factor: BCF measured at 270 to 560 in fish; expected to bioconcentrate in aquatic organisms.

Henry's Law Coefficient: 0.0012 atm-cu m/mole at 20 C

Trade Names/Synonyms: ortho Dichlorobenzol, Dilantin, Dowtherm E, Chloroben, Dilatin DB

Other Regulatory Information

Monitoring:

--For Ground/Surface Water Sources:

Initial Frequency- 4 quarterly samples every 3 years

Repeat Frequency- Annually after 1 year of no detection

--Triggers - Return to Initial Freq. if detect at > 0.0005 mg/L

Analysis

Reference Source	Method Numbers
EPA 600/4-88-039	502.2; 524.2

Treatment/Best Available Technologies: Granular Activated Charcoal and Packed Tower Aeration

Toxic Release Inventory - Releases to Water and Land, 1987 to 1993 (in pounds):

		Water	Land
TOTALS (in pounds)		**75,967**	**171,663**
Top Five States*			
NJ	19,602	165,661	
WV	39,653	0	

04 09

OR	7,260	0	
SC	1,502	4,628	
TX	1,418	1,000	

Major Industries		
Industrial Organics	15,416	98,092
Cyclic crudes, dyes	7,639	67,418
Alkalis, chlorine	38,029	0
Paper mills	7,260	0
Gum, wood chems.	250	4,378

* Water/Land totals only include facilities with releases greater than a certain amount - usually 1000 to 10,000 lbs.

For Additional Information

EPA can provide further regulatory or other general information:
EPA Safe Drinking Water Hotline - 800/426-4791

Other sources of toxicological and environmental fate data include:
Toxic Substance Control Act Information Line - 202/554-1404
Toxics Release Inventory, National Library of Medicine - 301/496-6531
Agency for Toxic Substances and Disease Registry - 404/639-6000

List of Contaminants

Safewater Home | About Our Office | Publications | Links | Office of Water | En Español | Questions and Answers

EPA Home | Privacy and Security Notice | Contact Us

Last updated on Tuesday, November 28th, 2006
URL: http://www.epa.gov/OGWDW/dwh/t-voc/o-dichlo.html

04 10

REFERENCE 5

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

PWS / 1520142 / CO
RN 102677028
CN 602420820

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 2, 2007

RECEIVED
NOV 30 2007
TCEQ
CENTRAL FILE ROOM

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Country Squire MHP 1
Attn: Pamela Hughes (Responsible Official)
13010 Avenue L
Lubbock, TX 79423-5934

Subject: GROUND WATER CONTAMINATION CONFIRMED: 1,2-Dichlorobenzene
Country Squire MHP 1 - PWS ID# 1520142
Lubbock County, Texas

Dear Water System Official:

Results of samples collected from **Well B (2-SE of Mobile Home Park)** at your water system confirm ground water contamination with the regulated chemical **1,2-Dichlorobenzene**. The latest results of concern are listed below, and copies of the most recent individual results are attached. Field blanks were taken to rule out air contamination at the sampling site. Though you have had these detections, your water system is ***not*** in violation of TCEQ drinking water standards at this time because of these detections.

Chemical	Detected Level (µg/L)	MCL (µg/L)	Site	Sample Date	Lab ID#
1,2-Dichlorobenzene	1.45 †	600	Well G1520142B (2-SE of Mobile Home Park)	09/13/2007	0709340-001
1,2-Dichlorobenzene	1.38 †	600	Entry Point 001	09/13/2007	0709340-003
1,2-Dichlorobenzene	1.52 †	600	Well G1520142B (2-SE of Mobile Home Park)	03/08/2007	0703312-001

†Field blank was non-detect

Because of these detections, the entry point served by this well will be considered vulnerable to contamination. State and federal regulations *may* require that we continue to sample your entry point quarterly for VOCs because of this contamination. This sampling is in order to ensure that levels of regulated chemicals do not exceed the maximum contaminant level (MCL), so that public health is protected. After it is determined that levels are reliably and consistently below applicable MCLs, sampling may continue annually. Failure to submit to sampling or failure to pay for analyses will result in monitoring and reporting violations, and referral to enforcement.

This case will be referred to the TCEQ's Impact Evaluation Team to determine if notification of private well owners in the vicinity of this contaminated well is warranted under the provisions of Texas House Bill 3030. Your local health official, county judge and local groundwater conservation district, if applicable, have also been notified of this groundwater contamination in accordance with state law (Texas Water Code §5.236).

05 01

We recommend you contact the Drinking Water Protection team at (512) 239-4691 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 any member of the Drinking Water Quality Team at (512) 239-4691.

Sincerely,

Gary Regner, Drinking Water Quality Specialist
Public Drinking Water Section, MC-155

Enclosures

cc: **(by CERTIFIED MAIL)**
Honorable Tom Head, Lubbock County Judge, P.O. Box 10536, Lubbock, TX 79408
Tommy Camden, Lubbock Health Dept Director, 1902 Texas Avenue, Lubbock, TX 79408
High Plains UWCD #1, 2930 Avenue Q, Lubbock, TX 79411

cc: (by Regular Mail)
Patrick Cooke, TCEQ, Region 2
Sean Ables, Drinking Water Protection Team, TCEQ, MC-155
Groundwater Planning & Assessment Team, TCEQ , MC-147
SSDAT, TCEQ, MC-142
VCP, TCEQ, MC-221
Tom Weber, Chief Engineer, Office of the Executive Director, TCEQ, MC-109
Salal Tahiri, Waste Manager, Field Operations Division, TCEQ, MC-174

VOC PRIORITY (2 wk) PWS/1520142

Public Water System Water Analysis

TCEQ

TCEQ SAMPLE ID #: 0793610

BILL TO:

[redacted]

City, State, Zip

(Use Field Report for address changes)

REPORT TO:

Name: COUTRY SQUIRE MHP 1

Address 1: 13010 AVENUE L

Address 2: LUBBOCK TX 79423-5934

City, State, Zip

(List each E.P. & corresponding TCEQ ID # in this sample in the box below)

WATER SYSTEM ID #: 1520142

DATE/TIME COLLECTED: 09 (Month) 13 (Day) 07 (Year) 11:22 (Military Time)

SAMPLE: [ ] Routine [ ] Quarterly [X] Priority (2 wk) [ ] Emergency 24 hr / 48 hr

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

SAMPLING LOCATION:

[X] SOURCE (WELL): Source Code: G1520142B

Source Location: 2-SE OF MHP (A)

[ ] DISTRIBUTION: Location:

[ ] ENTRY POINT(S): Plant:

Tap Location:

Use for locational composites only

EP	EP	EP	EP	EP
TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #

Water analyses are required by law (30 TAC 290). I acknowledge that the sampling technician has been accompanied during sampling and that the sample has been collected from the correct location indicated on this form. Water systems are responsible for all laboratory fees.

Pam Hughes

Signature (Water System Representative)

Pam Hughes

Print Name

Instructions for sample collection and submission are available on request from the Public Drinking Water Section of the Texas Commission on Environmental Quality (512) 239-4691 • (http://www.tceq.state.tx.us)

REGION #: 2 CHLORINE RESIDUAL: 0.00 [X] Free [ ] Total

TAP FLUSHING: 11:15 START 11:20 END 19.6 TEMP.

FILTRATES: ____ START ____ END ____ AIR TEMP ____ H_2O TEMP

____ pH ____ TURBIDITY ____ LAST RAINFALL

Gerald Files

Signature (Sampling Technician)

GERALD FILES

Print Name

9/14/07

EACH BLOCK REQUIRES SEPARATE CONTAINERS AND FORM (Check only one test)

1 [ ] ALL MINERALS — 1 QT PLASTIC — 150.1, 300.0 SM 2501B, SM 2520B
Cl, F, NO_3, SO_4, pH, Cond, T-P Alk, HCO_3, CO_3, TDS
Iced, 7 Day Hold Time

1A [ ] NITRATE / NITRITE — 100 mL PLASTIC — 353.2, 300.0
Iced 48 Hour Hold Time, < 0.2 mg/L chlorine

1C [ ] NITRATE — 100 mL PLASTIC — 300.0
Iced, 14 Day Hold Time, ≥ 0.2 mg/L chlorine

2 [ ] ALL METALS — 1 QT PLASTIC — 200.8, 200.7, 245.1
No Field Preservation, 14 Day Hold Time

2A [ ] METALS 14 GROUP (ICP) — 1 QT PLASTIC — 200.8, 200.7
Al, Be, Ba, Cr, Cu, Fe, Pb, Mn, Ni, Na, Ag, Zn, Ca, Mg
No Field Preservation, 14 Day Hold Time

[ ] SINGLE METAL — 1 QT PLASTIC — 200.8, 200.7, 245.1
Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Ag, Tl, Zn, Se, Na, (Hardness Ca, Mg)
____ ONLY
No Field Preservation, 14 Day Hold Time

8 [ ] SEMIVOLATILES (SOCS) — 1 QT GLASS — 525.2
Sodium Sulfite, HCl, Iced, 14 day Hold Time

13 [X] VOC — 2-40 mL GLASS & Field Blank — 524.2
Ascorbic Acid, HCl, Iced, 14 Day Hold Time

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

18 [ ] HALOACETIC ACIDS (HAA) — 2-60 mL GLASS — 552.2
Ammonium Chloride, Iced, 14 Day Hold Time

16 [ ] RADIOCHEMICAL GRAB — 1 GAL PLASTIC — 900.0, 904.0 903.1 SM 7500-UC
No Field Preservation, 5 Day Hold Time

16 [ ] RADIOCHEMICAL COMPOSITE — 900.0, 904.0 903.1 SM 7500-UC
No Field Preservation, 5 Day Hold Time
[ ] 1 OF 4 1 GAL PLASTIC [ ] 2 OF 4 1 QT PLASTIC [ ] 3 OF 4 1 QT PLASTIC [ ] 4 OF 4 1 QT PLASTIC

[ ] OTHER ____
[ ] None [ ] Sodium Sulfite [ ] Iced [ ] Other: ____

COMMENTS:

COCID: 60082 Lab Name: LCRA

LAB ID: 0709340-001 (0793610) Date Received: 09/14/07 09:00 Received Temp: 0 °C

Login Review By: [signature] Date: 9/14/07

WHITE - Lab YELLOW - Sampler PINK - Contractor GOLDENROD - Water System

05 03

Final Analysis Report

LCRA Environmental Laboratory Services

Date: *18-Sep-07*

CLIENT:	Country Squire MHP 1	Client Sample ID:	NA
Lab ID:	0709340-001		G1520142B
Project:	WS 1520142	Collection Date:	9/13/2007 11:22:00 AM
Matrix:	DRINKING WATER	TCEQ Sample ID:	0793610

Analyses	Result	Qual	MCL	PQL	Units	DF	BatchID	Date Analyzed
VOLATILES BY GCMS			E524.2					Analyst: SG
Regulated Compounds [40 CFR §141.61(a) - 7/1/1999]								
Benzene	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Carbon Tetrachloride	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Chlorobenzene	ND		100	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2-Dichlorobenzene	1.45		600	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,4-Dichlorobenzene	ND		75	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2-Dichloroethane	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1-Dichloroethene	ND		7	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
cis-1,2-Dichloroethene	ND		70	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
trans-1,2-Dichloroethene	ND		100	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2-Dichloropropane	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Ethylbenzene	ND		700	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Methylene chloride (DCM)	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Styrene	ND		100	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Tetrachloroethene	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Toluene	ND		1000	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2,4-Trichlorobenzene	ND		70	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1,1-Trichloroethane	ND		200	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1,2-Trichloroethane	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Trichloroethene	ND		5	0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Vinyl chloride	ND		2	1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
m,p-Xylene	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
o-Xylene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Xylenes, Total	ND		10000	2.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Monitored Compounds [40 CFR §141.40(e) -7/1/1999]								
Chloroform	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Bromodichloromethane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Dibromochloromethane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Bromoform	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Dibromomethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,3-Dichlorobenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1-Dichloroethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1,2,2-Tetrachloroethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,3-Dichloropropane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Chloromethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Bromomethane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2,3-Trichloropropane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
1,1,1,2-Tetrachloroethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Chloroethane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
2,2-Dichloropropane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
2-Chlorotoluene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM

Qualifiers:

* or X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit

LCRA Environmental Laboratory Services

Date: *18-Sep-07*

CLIENT:	Country Squire MHP 1	Client Sample ID:	NA
Lab ID:	0709340-001		G1520142B
Project:	WS 1520142	Collection Date:	9/13/2007 11:22:00 AM
Matrix:	DRINKING WATER	TCEQ Sample ID:	0793610

Analyses	Result	Qual	MCL	PQL	Units	DF	BatchID	Date Analyzed
Monitored Compounds [40 CFR §141.40(e) -7/1/1999]								
4-Chlorotoluene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Bromobenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
cis-1,3-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
trans-1,3-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Screened Compounds								
1,2-Dibromo-3-chloropropane	ND		0.2	1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2-Dibromoethane	ND		0.05	1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Monitored Compounds [40 CFR §141.40(j) -7/1/1999]								
1,2,4-Trimethylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,2,3-Trichlorobenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
n-Propylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Butyl benzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Naphthalene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Hexachlorobutadiene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
1,3,5-Trimethylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
4-Isopropyltoluene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Isopropylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
tert-Butylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
sec-Butylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Trichlorofluoromethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Dichlorodifluoromethane	ND			1.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Bromochloromethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Other Compounds								
Acetone	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Acrylonitrile	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
2-Butanone (MEK)	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Carbon Disulfide	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Ethyl methacrylate	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
2-Hexanone	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Iodomethane	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Methyl methacrylate	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
4-Methyl-2-pentanone (MIBK)	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Methyl tert-butyl ether (MTBE)	ND			0.50	µg/L	1	51002	9/14/2007 9:36:00 PM
Tetrahydrofuran	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM
Vinyl Acetate	ND			5.00	µg/L	1	51002	9/14/2007 9:36:00 PM

Qualifiers:

* or X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit

VOC

PRIORITY (2 WK)

PWS/1520142

Public Water System Water Analysis

TCEQ SAMPLE ID #: 0293611

WATER SYSTEM ID #: 1520142

DATE/TIME COLLECTED: 09 (Month) 13 (Day) 07 (Year) 1136 (Military Time)

SAMPLE: [ ] Routine [ ] Quarterly [X] Priority (2 wk) [ ] Emergency 24 hr / 48 hr

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

SAMPLING LOCATION:

[ ] SOURCE (WELL): Source Code: _____

Source Location: _____

[ ] DISTRIBUTION: Location: _____

[X] ENTRY POINT(S): Plant: WELL 2

Tap Location: FAUCET 20 FT OFF PT

BILL TO:

[redacted]

City, State, Zip

(Use Field Report for address changes)

REPORT TO:

Name: COUNTRY SQUIRE MHP I

Address 1: 13010 AVENUE L

Address 2: LUBBOCK TX 79423-5934

City, State, Zip

(List each E.P. & corresponding TCEQ ID # in this sample in the box below)

Use for locational composites only

EP 002	EP ___	EP ___	EP ___	EP ___
0793611				
TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #	TCEQ SAMPLE ID #

Water analyses are required by law (30 TAC 290). I acknowledge that the sampling technician has been accompanied during sampling and that the sample has been collected from the correct location indicated on this form. Water systems are responsible for all laboratory fees.

Pam Hughes

Signature (Water System Representative)

Pam Hughes

Print Name

Instructions for sample collection and submission are available on request from the Public Drinking Water Section of the Texas Commission on Environmental Quality (512) 239-4891 • (http://www.tceq.state.tx.us)

REGION #: 2 CHLORINE RESIDUAL: 8.7 [X] Free [ ] Total

TAP FLUSHING: 11:27 START 11:34 END 19.7 TEMP.

FILTRATES: _____ START _____ END _____ AIR TEMP _____ H_2O TEMP

_____ pH _____ TURBIDITY _____ LAST RAINFALL

Gerald Files

Signature (Sampling Technician)

GERALD FILES

Print Name

JP 3 day 9/14/07

EACH BLOCK REQUIRES SEPARATE CONTAINERS AND FORM (Check only one test)

1 [ ] ALL MINERALS — 1 QT PLASTIC — 150.1, 300.0, SM 2501B, SM 2520B
Cl, F, NO_3, SO_4, pH, Cond, T-P Alk, HCO_3, CO_3, TDS
Iced, 7 Day Hold Time

1A [ ] NITRATE / NITRITE — 100 mL PLASTIC — 353.2, 300.0
Iced, 48 Hour Hold Time, < 0.2 mg/L chlorine

1C [ ] NITRATE — 100 mL PLASTIC — 300.0
Iced, 14 Day Hold Time, ≥ 0.2 mg/L chlorine

2 [ ] ALL METALS — 1 QT PLASTIC — 200.8, 200.7, 245.1
No Field Preservation, 14 Day Hold Time

2A [ ] METALS 14 GROUP (ICP) — 1 QT PLASTIC — 200.8, 200.7
Al, Be, Ba, Cr, Cu, Fe, Pb, Mn, Ni, Na, Ag, Zn, Ca, Mg
No Field Preservation, 14 Day Hold Time

[ ] SINGLE METAL — 1 QT PLASTIC — 200.8, 200.7, 245.1
Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Ag, Tl, Zn, Se, Na, (Hardness Ca, Mg)
_____ ONLY
No Field Preservation, 14 Day Hold Time

8 [ ] SEMIVOLATILES (SOC5) — 1 QT GLASS — 525.2
Sodium Sulfite, HCl, Iced, 14 day Hold Time

13 [X] VOC — 2-40 mL GLASS & Field Blank — 524.2
Ascorbic Acid, HCl, Iced, 14 Day Hold Time

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

18 [ ] HALOACETIC ACIDS (HAA) — 2-60 mL GLASS — 552.2
Ammonium Chloride, Iced, 14 Day Hold Time

16 [ ] RADIOCHEMICAL GRAB — 1 GAL PLASTIC — 900.0, 904.0, 903.1, SM 7500-UC
No Field Preservation, 5 Day Hold Time

16 [ ] RADIOCHEMICAL COMPOSITE — 900.0, 904.0, 903.1, SM 7500-UC
No Field Preservation, 5 Day Hold Time
[ ] 1 OF 4 — 1 GAL PLASTIC
[ ] 2 OF 4 — 1 QT PLASTIC
[ ] 3 OF 4 — 1 QT PLASTIC
[ ] 4 OF 4 — 1 QT PLASTIC

[ ] OTHER _____
[ ] None [ ] Sodium Sulfite [ ] Iced [ ] Other _____

COMMENTS:

L COCID: 60082 Lab Name: LCRA

L LAB ID: 0709340-003 (0793611) Date Received: 09/14/07 09:00 Received Temp. 0 °C

Login Review By: _____ Date: 9/14/07

05 06

WHITE - Lab YELLOW - Sampler PINK - Contractor GOLDENROD - Water System

LCRA Environmental Laboratory Services

Date: *18-Sep-07*

CLIENT:	Country Squire MHP 1	Client Sample ID:	002
Lab ID:	0709340-003		
Project:	WS 1520142	Collection Date:	9/13/2007 11:36:00 AM
Matrix:	DRINKING WATER	TCEQ Sample ID:	0793611

Analyses	Result	Qual	MCL	PQL	Units	DF	BatchID	Date Analyzed
VOLATILES BY GCMS			E524.2					Analyst: SG
Regulated Compounds [40 CFR §141.61(a) - 7/1/1999]								
Benzene	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Carbon Tetrachloride	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Chlorobenzene	ND		100	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2-Dichlorobenzene	1.38		600	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,4-Dichlorobenzene	ND		75	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2-Dichloroethane	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1-Dichloroethene	ND		7	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
cis-1,2-Dichloroethene	ND		70	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
trans-1,2-Dichloroethene	ND		100	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2-Dichloropropane	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Ethylbenzene	ND		700	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Methylene chloride (DCM)	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Styrene	ND		100	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Tetrachloroethene	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Toluene	ND		1000	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2,4-Trichlorobenzene	ND		70	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1,1-Trichloroethane	ND		200	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1,2-Trichloroethane	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Trichloroethene	ND		5	0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Vinyl chloride	ND		2	1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
m,p-Xylene	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
o-Xylene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Xylenes, Total	ND		10000	2.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Monitored Compounds [40 CFR §141.40(e) -7/1/1999]								
Chloroform	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Bromodichloromethane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Dibromochloromethane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Bromoform	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Dibromomethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,3-Dichlorobenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1-Dichloroethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1,2,2-Tetrachloroethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,3-Dichloropropane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Chloromethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Bromomethane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2,3-Trichloropropane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
1,1,1,2-Tetrachloroethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Chloroethane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
2,2-Dichloropropane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
2-Chlorotoluene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
4-Chlorotoluene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Bromobenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM

Qualifiers:

* or X	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit

05 07

LCRA Environmental Laboratory Services

Date: 18-Sep-07

CLIENT: Country Squire MHP 1
Lab ID: 0709340-003
Project: WS 1520142
Matrix: DRINKING WATER

Client Sample ID: 002
Collection Date: 9/13/2007 11:36:00 AM
TCEQ Sample ID: 0793611

Analyses	Result	Qual	MCL	PQL	Units	DF	BatchID	Date Analyzed
Monitored Compounds [40 CFR §141.40(e) -7/1/1999]								
cis-1,3-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
trans-1,3-Dichloropropene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Screened Compounds								
1,2-Dibromo-3-chloropropane	ND		0.2	1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2-Dibromoethane	ND		0.05	1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Monitored Compounds [40 CFR §141.40(j) -7/1/1999]								
1,2,4-Trimethylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,2,3-Trichlorobenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
n-Propylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Butyl benzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Naphthalene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Hexachlorobutadiene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
1,3,5-Trimethylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
4-Isopropyltoluene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Isopropylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
tert-Butylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
sec-Butylbenzene	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Trichlorofluoromethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Dichlorodifluoromethane	ND			1.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Bromochloromethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Other Compounds								
Acetone	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Acrylonitrile	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
2-Butanone (MEK)	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Carbon Disulfide	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Ethyl methacrylate	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
2-Hexanone	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Iodomethane	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Methyl methacrylate	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
4-Methyl-2-pentanone (MIBK)	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Methyl tert-butyl ether (MTBE)	ND			0.50	µg/L	1	51002	9/14/2007 10:40:00 PM
Tetrahydrofuran	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM
Vinyl Acetate	ND			5.00	µg/L	1	51002	9/14/2007 10:40:00 PM

Qualifiers:

* or X Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

05 08

Consumer Factsheet on: 1,2-DICHLOROBENZENE (o-DCB)

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 o-DCB and how is it used?
Ortho-dichlorobenzene, (o-DCB) is a colorless organic liquid with a pleasant, aromatic odor. The greatest use of o-dichlorobenzene is as a chemical intermediate for making agricultural chemicals, primarily herbicides. Other present and past uses include: solvent for waxes, gums, resins, wood preservatives, paints; insecticide for termites and borers; in making dyes; as a coolant, deodorizer, degreaser.

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:
ortho-Dichlorobenzene
ortho-Dichlorobenzol
Dilantin
Dowtherm E
Chloroben
Dilatin DB

Why is o-DCB 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 o-DCB has been set at 0.6 parts per million (ppm) 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 0.6 ppm 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.

What are the Health Effects?
Short-term: o-DCB is not known to cause any health problems when people are exposed to it at levels above the MCL for relatively short periods of time.
Long-term: o-DCB has the potential to cause the following effects from a lifetime exposure at levels above the MCL: damage to the nervous system, liver, kidneys and blood cells.

How much o-DCB is produced and released to the environment?
Production of o-DCB was estimated at 43 million lbs. in 1991. Its use in manufacturing and solvents may be significant sources of discharges into water. Dichlorobenzenes also enter water systems from the use of o-DCB as a deodorant in industrial wastewater treatment. Chemical waste dump leachates and industrial wastewater are the major source of pollution of dichlorobenzenes to Lake Ontario.

From 1987 to 1993, according to the Toxic Release Inventory, o-DCB releases to land and water totalled 248 million lbs., mostly to land. These releases were primarily form organic chemical manufacturing industries. The largest releases occurred in New Jersey.

What happens to o-DCB when it is released to the environment?
If released to soil, o-DCB can bind to soil particles. However, its detection in groundwater indicates that leaching can occur. It will evaporate from soil or surface water and will be broken down by microbes. o-DCB is likely to accumulate in fish and other aquatic life.

How will o-DCB be Detected in and Removed from My Drinking Water?
The regulation for o-DCB became effective in 1992. 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 o-DCB is present above 0.5 ppb. 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 o-DCB so that it is consistently below that level. The following treatment methods have been approved by EPA for removing o-DCB: Granular activated charcoal in combination with Packed Tower Aeration.

How will I know if o-DCB is in my drinking water?
If the levels of o-DCB exceed the MCL, 0.6 ppm, 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: 0.6 ppm
MCL: 0.6 ppm

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

9/17/2007

COUNTRY SQUIRE MHP 1
C/O WATER SYSTEM OFFICIAL
13010 AVENUE L
LUBBOCK , TX 79423-5934

RECEIVED
NOV 15 2007
TCEQ
CENTRAL FILE ROOM

Subject: Suspected Ground Water Contamination - 1,2-DICHLOROBENZENE
Well Sample(s) Required
COUNTRY SQUIRE MHP 1 , PWS ID# 1520142
Date of Sample(s): 3/8/2007
Laboratory ID#: 0703312001
LUBBOCK County, Texas

Dear Water System Official:

Results of drinking water samples collected from your water system show ongoing detections. The latest results are attached. The chemical(s) of concern that were detected are marked on the laboratory results page; the detect(s) should be bold or do not have a *"less than" sign (<). A "detection" means that the chemical(s) were present in the water sample.*

Though you have had these detections, your water system is not currently in violation of any drinking water standards. Minimally, we suggest that you investigate the possible sources of contamination.

Because these detections occurred and may have established maximum contaminant levels (MCL), we must require follow-up sampling. A contract sample collector will visit your system during the near future, and collect one sample from each of the operational and demand well(s) supplying this entry point. The purpose of this additional sampling is to determine if you have a ground water contamination. You will be billed by the laboratory (DSHS or LCRA) after the samples have been analyzed. This follow-up sampling does not apply to detections, if present, of the entry point disinfection byproduct trihalomethanes: chloroform, bromodichloromethane, dibromochloromethane and bromoform.

The entry points of concern will be sampled quarterly and, later, annually at your cost. If an MCL violation develops, you will be required to notify your customers.

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

Gary Regner, Drinking Water Quality Specialist
Public Drinking Water Section, MC-155
Water Supply Division

Enclosures

cc: TCEQ Region 2
Greg Rogers, Drinking Water Protection Team, TCEQ, MC-155
Tony Bennett, Water Supply Division, TCEQ, MC-154
Steve Musick, Groundwater Planning Assessment Team, TCEQ, MC-147
Patricia Fontenot, Field Operations, TCEQ, MC-174
Tom Weber, Chief Engineer's Office, MC-203
TCEQ, SSDAT, MC-142
TCEQ, VCP, MC-221

TCEQ

TCEQ ID#: 0793607

LAB ID#: 0[illegible]12001
Collection Date: 3/8/2007 By: GFI
Check in Date: 3/9/2007
Report Date: 3/15/2007
Entry Point: NA
Sample Type: R G1520142B
Lab Comment:
Sample Comment:
Reject Code:

Submitted by: [illegible] ID# 1520142
Country Squire MHP 1
Pam Hughes
13010 Ave L
Lubbock, TX 79423
Region: 2
Residual: 0.02 F

COPY

Volatile Organic Compounds by GC/MS

Compound	Result		MCL
Regulated Compounds [40 CFR §141.61(a)]			
Benzene	< 0.5	µg/L	5
Carbon Tetrachloride	< 0.5	µg/L	5
Chlorobenzene	< 0.5	µg/L	100
1,2-Dichlorobenzene	**1.52**	µg/L	600
1,4-Dichlorobenzene	< 0.5	µg/L	75
1,2-Dichloroethane	< 0.5	µg/L	5
1,1-Dichloroethene	< 0.5	µg/L	7
cis-1,2-Dichloroethene	< 0.5	µg/L	70
trans-1,2-Dichloroethene	< 0.5	µg/L	100
1,2-Dichloropropane	< 0.5	µg/L	5
Methylene chloride (DCM)	< 0.5	µg/L	5
Ethylbenzene	< 0.5	µg/L	700
Styrene	< 0.5	µg/L	100
Tetrachloroethene	< 0.5	µg/L	5
Toluene	< 0.5	µg/L	1000
1,2,4-Trichlorobenzene	< 0.5	µg/L	70
1,1,1-Trichloroethane	< 0.5	µg/L	200
1,1,2-Trichloroethane	< 0.5	µg/L	5
Trichloroethene	< 0.5	µg/L	5
Vinyl chloride	< 1	µg/L	2
m,p-Xylene	< 1	µg/L	
o-Xylene	< 0.5	µg/L	
Xylenes, Total	< 2	µg/L	10000
Monitored Compounds [40 CFR §141.40(e)]			
Chloroform	< 1	µg/L	
Bromodichloromethane	< 1	µg/L	
Dibromochloromethane	< 1	µg/L	
Bromoform	< 1	µg/L	
Dibromomethane	< 0.5	µg/L	
1,3-Dichlorobenzene	< 0.5	µg/L	
1,1-Dichloropropene	< 0.5	µg/L	
1,1-Dichloroethane	< 0.5	µg/L	
1,1,2,2-Tetrachloroethane	< 0.5	µg/L	
1,3-Dichloropropane	< 0.5	µg/L	
Chloromethane	< 0.5	µg/L	
Bromomethane	< 1	µg/L	
1,2,3-Trichloropropane	< 1	µg/L	
1,1,1,2-Tetrachloroethane	< 0.5	µg/L	
Chloroethane	< 1	µg/L	
2,2-Dichloropropane	< 0.5	µg/L	
2-Chlorotoluene	< 0.5	µg/L	
4-Chlorotoluene	< 0.5	µg/L	
Bromobenzene	< 0.5	µg/L	
cis-1,3-Dichloropropene	< 0.5	µg/L	
trans-1,3-Dichloropropene	< 0.5	µg/L	

Compound	Result		MCL
Screened Compounds			
1,2-Dibromo-3-chloropropane	< 1	µg/L	
1,2-Dibromoethane	< 1	µg/L	
Monitored Compounds [40 CFR §141.40(j)]			
1,2,4-Trimethylbenzene	< 0.5	µg/L	
1,2,3-Trichlorobenzene	< 0.5	µg/L	
n-Propylbenzene	< 0.5	µg/L	
Butyl benzene	< 0.5	µg/L	
Naphthalene	< 0.5	µg/L	
Hexachlorobutadiene	< 0.5	µg/L	
1,3,5-Trimethylbenzene	< 0.5	µg/L	
4-Isopropyltoluene	< 0.5	µg/L	
Isopropylbenzene	< 0.5	µg/L	
tert-Butylbenzene	< 0.5	µg/L	
sec-Butylbenzene	< 0.5	µg/L	
Trichlorofluoromethane	< 0.5	µg/L	
Dichlorodifluoromethane	< 1	µg/L	
Bromochloromethane	< 0.5	µg/L	
Other Compounds			
Acetone	< 5	µg/L	
Acrylonitrile	< 5	µg/L	
2-Butanone (MEK)	< 5	µg/L	
Carbon Disulfide	< 0.5	µg/L	
Ethyl methacrylate	< 5	µg/L	
2-Hexanone	< 5	µg/L	
Iodomethane	< 0.5	µg/L	
Methyl methacrylate	< 5	µg/L	
4-Methyl-2-pentanone (MIBK)	< 5	µg/L	
Methyl tert-butyl ether (MTBE)	< 0.5	µg/L	
Tetrahydrofuran	< 5	µg/L	
Vinyl Acetate	< 5	µg/L	

05 12

Printed: *Tuesday, September 11, 2007*

J - Analyte detected below the quantitation limit.

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

PWS/1520142/CO
RP

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 2, 2007

1520142
COUNTRY SQUIRE MHP 1
PAMELA HUGHES, OWNER
13010 AVENUE L
LUBBOCK, TX 794235934

SUBJECT: Notice of a Bacteriological Monitoring Violation- SECOND NOTICE

We previously notified the referenced public water supply (PWS) of missing coliform monitoring data for the month of **APRIL 2007**. Our records indicate that this PWS is required to submit **1** coliform monitoring sample(s) monthly. For **APRIL**, our records show that **0** sample result(s) were received.

To date, TCEQ has not received a complete set of monitoring results or, if sampling was not completed, a copy of the required public notice. Please note that if you fail to adequately respond, the TCEQ will initiate additional enforcement action.

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TCEQ
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Rule citation: 30 TAC, Section 290.109(c)

If the system DID SUBMIT the required sample(s):

Forward a copy of the laboratory result form(s) and we will update your bacteriological monitoring record.

For the most timely and accurate processing, fax the results to (512) 239-3666 or mail to TCEQ Drinking Water Protection Team, MC155, PO BOX 13087, Austin, TX 78711-3087.

The most common reasons that a PWS did not get credit for samples that were submitted include:

- PWS Identification Number (PWS ID) recorded on the sample submission form was omitted or incorrect.
- System Type was not marked as **Public** on the laboratory submission form. (Note: Forms marked as "Private / Individual" or "Other" are not entered into our database and will result in a Notice of Violation.)
- Sample Type was not marked as **Routine / Distribution** on the laboratory submission form.
- Information provided on the form was not legible.

05 13

If the system DID NOT submit the required samples:

If the required monitoring was not completed, the system will be charged with a monitoring violation. You must notify your customers in writing within 90 days of the violation date. The mandatory language to be used for public notification is provided as an attachment to this letter.

Rule citations: 30 TAC, Section 290.109(f)(4); Section 290.122(c)(1-2); Section 290.122(d)(1-9)

You must provide copies of the Public Notice and Certificate of Delivery to TCEQ. Fax these documents to (512) 239-3666 or mail to TCEQ Drinking Water Protection Team, MC155, PO BOX 13087, Austin, TX 78711-3087.

Failure to notify your customers and TCEQ will result in a reporting violation being charged to your PWS. 30 TAC, Sections 290.109(g)(4) and 290.122(c) describe the public notification reporting requirements for public water systems.

COMMUNITY PWSs (majority of connections served are permanent homes):

These systems must publish their public notice in a local newspaper of general circulation to the area served by the water system. If there is no local paper, the system must mail the notice to each customer or include the notice with the water bill.

Rule citation: 30 TAC, Section 290.122(c)(2)(A)

NON-COMMUNITY PWSs (majority of connections served are not permanent homes):

These systems may post the public notice in conspicuous places within the service area of the water system. The notice must remain posted for thirty (30) days.

Rule citation: 30 TAC, Section 290.122(c)(2)(B-C)

Questions ?

If you have questions about the coliform monitoring or public notification rules, please contact the Total Coliform Rule program at (512) 239-4691. You may speak to a staff member directly by calling:

- Matt Court – (512) 239-5844
- Sally Paramo – (512) 239-6675
- Joaquin Montes - (512) 239-6061

cc: TCEQ Region 2

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

PWS/1520142/CO
RP

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 25, 2007

1520142
COUNTRY SQUIRE MHP 1
PAMELA HUGHES, OWNER
LUBBOCK, TX 794235934

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JUN 06 2007
TCEQ
CENTRAL FILE ROOM

SUBJECT: Notice of a Bacteriological Monitoring Violation

Attention: Public Water System Owner / Manager / Operator:

Our records indicate that your public water system (PWS) did not submit the required amount of routine/distribution samples for the month of **APRIL 2007.** Your PWS is required to submit **001** samples each month for coliform analysis. To date, we have only received **000** sample(s).

Rule citation: 30 TAC, Section 290.109(c)

If your system has proof of the required sample(s):

Forward a copy of the laboratory result form(s) and we will update your bacteriological monitoring record.

For the most timely and accurate processing, fax the results to (512) 239-3666 or mail to TCEQ Drinking Water Protection Team, MC155, PO BOX 13087, Austin, TX 78711-3087.

The most common reasons that a PWS did not get credit for samples that were submitted include:

- PWS Identification Number (PWS ID) recorded on the sample submission form was omitted or incorrect.
- System Type was not marked as **Public** on the laboratory submission form. (Note: Forms marked as "Private / Individual" or "Other" are not entered into our database and will result in a Notice of Violation.)
- Sample Type was not marked as **Routine / Distribution** on the laboratory submission form.
- Information provided on the form was not legible.

05 15

If the system DID NOT submit the required samples:

If the required monitoring was not completed, the system will be charged with a monitoring violation. You must notify your customers in writing within 90 days of the violation date. The mandatory language to be used for public notification is provided as an attachment to this letter.

Rule citations: 30 TAC, Section 290.109(f)(4); Section 290.122(c)(1-2); Section 290.122(d)(1-9)

You must provide copies of the Public Notice and Certificate of Delivery to TCEQ. Fax these documents to (512) 239-3666 or mail to TCEQ Drinking Water Protection Team, MC155, PO BOX 13087, Austin, TX 78711-3087.

Failure to notify your customers and TCEQ will result in a reporting violation being charged to your PWS. 30 TAC, Sections 290.109(g)(4) and 290.122(c) describe the public notification reporting requirements for public water systems.

COMMUNITY PWSs (majority of connections served are permanent homes):

These systems must publish their public notice in a local newspaper of general circulation to the area served by the water system. If there is no local paper, the system must mail the notice to each customer or include the notice with the water bill.

Rule citation: 30 TAC, *Section* 290.122(c)(2)(A)

NON-COMMUNITY PWSs (majority of connections served are not permanent homes):

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Rule citation: 30 TAC, Section 290.122(c)(2)(B-C)

Questions?

If you have questions about the coliform monitoring or public notification rules, please contact the Total Coliform Rule program at (512) 239-4691. You may speak to a staff member directly by calling:

- Matt Court – (512) 239-5844
- Gregg Tatum – (512) 239-5040
- Sally Paramo – (512) 239-6675
- Joaquin Montes - (512) 239-6061

cc: TCEQ Region 2
23&24 doc

PWS/1520142/CC

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 9, 2007

Mrs. Pamela S. Hughes, Owner
Country Squire Mobile Home Park #1
13010 Avenue L
Lubbock, Texas 79423-9723

Re: Comprehensive Compliance Investigation at:
Country Squire MHP #1 Public Water System, 13010 Avenue L,
Lubbock (Lubbock County), Texas
TCEQ ID No.: 1520142

Dear Mrs. Hughes:

On April 26 & 27, 2007, Mr. Lance Owens of the Texas Commission On Environmental Quality (TCEQ) Lubbock Region Office conducted an investigation of the above-referenced facility to evaluate compliance with applicable requirements for the public water supply program. No violations were documented during the investigation. However, during the investigation two additional issues were identified. Enclosed is a summary which lists the additional issues.

The TCEQ appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact Mr. Owens in the Lubbock Region Office at (806) 796-7092.

Sincerely,

Pat Cooke

Patrick M. Cooke
Water Section Manager
Lubbock Region Office

PMC/elo

Enclosures: Summary of Additional Issues

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TCEQ
CENTRAL FILE ROOM

05 17

REPLY TO: REGION 2 • 5012 50TH ST., STE 100 • LUBBOCK, TEXAS 79414-3421 • 806-796-7092 • FAX 806-796-7107

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • Internet address: www.tceq.state.tx.us

SUMMARY OF INVESTIGATION FINDINGS

gulated Entity Name: Country Squire MHP #1 PWS Mrs. Pamela S. Hughes, Owner	**TCEQ ID:** 1520142	**Investigation Date:** April 26&27, 2007

OUTSTANDING ALLEGED VIOLATIONS

).	Requirement(s) Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date

AREAS OF CONCERN NOTED AND RESOLVED

.	Requirement(s) Cited	Description of Areas of Concern, Corrective Action Taken, and Compliance Documentation

ADDITIONAL ISSUES

It is strongly suggested that the owner/operator maintain water pressure on the system in excess of the minimum required 35 PSI in order to avoid being in violation of TCEQ Rules and Regulations for a PWS.

The system owner is required to give notification to the Water Utilities and Districts Section of the TCEQ at 512/239-6947 prior to selling the water system. The Water Utilities and Districts Section can then provide the proper notification procedure to the owner.

			Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
		10	10	10	10	0	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
		value was effective January 23, 2006. In the event of a you will be notified.						
		0.04	0.04	0.04	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
	Fluoride	4.3	4.3	4.3	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
002	Nitrate	10.78	10.06	11.97	10	10	ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
2001	Selenium	13	13	13	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
2001	Uranium	20.4	20.4	20.4	30	0	ppb	Erosion of natural deposits.
2001	Combined Radium 226 & 228	2.8	2.8	2.8	5	0	pCi/L	Erosion of natural deposits.
2001	Gross beta emitters	28.8	28.8	28.8	50	0	pCi/L	Decay of natural and man-made deposits.
2001	Gross alpha	10.2	10.2	10.2	15	0	pCi/L	Erosion of natural deposits.

Required Additional Health Information for Arsenic

The maximum contaminant level (MCL) for arsenic decreased from 0.05 mg/L (50 ppb) to 0.010 mg/L (10 ppb) effective January 23, 2006. Because the highest reported arsenic level on this report is between 5 ppb and 10 ppb, the following information is required by EPA:

"While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."

Required Additional Health Information for Nitrate

Because the highest reported nitrate level on this report is above 5 ppm, but below the MCL, this information is required by the EPA:

"Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. If you are caring for an infant you should ask advise from your health care provider."

Organic Contaminants TESTING WAIVED, NOT REPORTED, OR NONE DETECTED

Maximum Residual Disinfectant Level

Year	Disinfectant	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Disinfectant
2005	Chlorine Residual, Free	0.68	0.5	1.5	4	4	ppm	Disinfectant used to control microbes.

Disinfection Byproducts NOT REPORTED OR NONE DETECTED

Mandatory Public Notification Language

Notice of Drinking Water NITRATE Violation

The Texas Natural Resource Conservation Commission (TNRCC) has notified the <Country Sq #1> water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for NITRATE. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for NITRATE at 10 mg/L, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for NITRATE indicates a level of < 10.8 > mg/L.

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. If your child is under the age of six months, the child must be given an alternative water supply for any consumption. Boiling the affected water is **not** an effective treatment for nitrate removal.

Most consumers do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you. At this time, the health effects to fetuses of pregnant women is unclear. If you are pregnant, you may also choose to use an alternative source of water for drinking and cooking purposes.

We are working to correct the problem. _____

Your public water system must indicate in this area specific actions which you are taking to provide the customers with alternative water source and to correct the problem. For example:

- *Bottled water is available at no cost to affected populations at .....* OFFICE
- *We are drilling a new well to be completed by (anticipated date)*
- *We are receiving technical assistance from TNRCC*
- *We are installing a Reverse Osmosis (RO) Unit to lower the Nitrate as Nitrogen levels*
- *We have a RO unit attached to a designated tap located at (location) for use by affected populations*

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For further information contact: Pam Hughes

13010 ave L
Lubbock, TX. 79423

Public Water System ID #< 1520-142

05 20

Mandatory Public Notification Language

Notice of Drinking Water FLUORIDE Violation

The Texas Natural Resource Conservation Commission (TNRCC) has notified the (Countryside Water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for FLUORIDE. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for FLUORIDE at 4 mg/L, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for FLUORIDE indicates a level of (4.2) mg/L.

This is not an emergency. However, some people who drink water containing FLUORIDE in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

You do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you.

We are working to correct the problem.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For further information contact Pam Hughes 806-632-2861

Public Water System ID # (1520-142)

05 21

Texas Commission on Environmental Quality
Investigation Report
COUNTRY SQUIRE MHP 1

COUNTRY SQUIRE MHP 1
RN102677028

Investigation # 269557 | **Incident #**

Investigator: EDWARD OWENS | **Site Classification** GW <=50 CONNECTION

Conducted: 04/19/2004 -- 04/19/2004 | **No Industry Code Assigned**

Program(s): PUBLIC WATER SYSTEM/SUPPLY

Investigation Type : Compliance Investigation | **Location :** 130th and Ave L

Additional ID(s) : 1520142

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APR 2 6 2004
Public Drinking W

Address: 13010 AVENUE L; LUBBOCK, TX 79423 | **Activity Type :** PWS FRR - Record review

Principal(s) :

Role	Name
RESPONDENT	COUNTRY SQUIRE MHP 1

Contact(s) :

Role	Title	Name	Phone	
Notified	OWNER	MRS PAMELA HUGHES	Home	(806) 748-0902
Regulated Entity Mail Contact	OWNER	MRS PAMELA HUGHES	Home	(806) 748-0902

Other Staff Member(s) :

Role	Name
SUPERVISOR	JAMES JAGGERS

Associated Check List

Checklist Name	Unit Name
PWS INVESTIGATION TYPES FY04	CS1PWS
PWS DISINFECTION	CS1PWS
PWS OPERATION AND MAINTENANCE	CS1PWS
PWS PRESSURE TANK	CS1PWS

Investigation Comments :

INTRODUCTION:

This file review will resolve four violations noted during the 02/04/2004 PWS CCI. Although the system owner was given 30 days to complete the repairs, bad weather resulted in several delays in completing the projects.

GENERAL FACILITY AND PROCESS INFORMATION:

Water is supplied by one well which discharges through two pressure tanks, then to the distribution system. Chlorination is provided ahead of the pressure tanks. A second well is present by air airgapped from the system.

BACKGROUND:

COUNT. 4/19/04 Page 3 of 3 Investig. Failu

This is a community system that has 19 connections, one meter and serves a population of 60.

The system employs one water operator, Rodney Hughes, who holds a "D" Water License.

ADDITIONAL INFORMATION:

Compliance documentation (photos) was submitted to the Region 2 Office on 04/15/2004. These violations are considered resolved.

ALLEGED NONCOMPLIANCES NOTED AND RESOLVED

Track No: 154865 **Resolution Date: 4/22/04**

30 TAC Chapter 290.110(d)(3)(C)(ii)

Alleged Violation:

Investigation: 261031 Comment Date: 03/02/2004

Failure to provide a DPD method chlorine test kit.

Investigation: 269557 Comment Date: 04/22/2004

Failure to provide a DPD method chlorine test kit.

Recommended Corrective Action: Purchase a DPD method chlorine test kit.

Resolution: System purchased a DPD method test kit. Photo, dated 04/15/2004, of the DPD test kit is attached. This violation is resloved

Track No: 154870 **Resolution Date: 4/22/04**

30 TAC Chapter 290.46(m)

Alleged Violation:

Investigation: 261031 Comment Date: 03/02/2004

Failure to maintain the grounds around Pressure Tank #2

Investigation: 269557 Comment Date: 04/22/2004

Failure to maintain the grounds around Pressure Tank #2.

Recommended Corrective Action: Cut all weeds and remove all debris from around Pressure Tank #2

Resolution: The system provided photos, dated 04/15/2004, of the maintenance around the pressure tank. This violation is resolved.

Track No: 154871 **Resolution Date: 4/22/04**

30 TAC Chapter 290.46(m)(1)

Alleged Violation:

Investigation: 261031 Comment Date: 03/02/2004

Failure to properly maintain Pressure Tank #1.

Investigation: 269557 Comment Date: 04/22/2004

Failure to properly maintain Pressure Tank#1.

Recommended Corrective Action: Provide a proper exterior coating on Pressure Tank #1.

Resolution: The system provided photos, dated 04/15/2004, of the maintenance (paint) on Pressure Tank #1. This violation is resolved.

Track No: 154872 **Resolution Date: 4/22/04**

30 TAC Chapter 290.43(e)

Alleged Violation:

Investigation: 261031 Comment Date: 03/02/2004

Failure to provide a proper intruder resistant fence around Pressure Tank #2.

Investigation: 269557 Comment Date: 04/22/2004

Failure to privide a proper intruder resistant fence around Pressure Tank #2.

Recommended Corrective Action: Provide a proper intruder resistant fence around *Pressure Tank #2 as defined in 30 TAC 290.38(25).*

Resolution: *The sytstem provided photos, dated 04/15/2004, of the repaired intruder* resistant fence around Pressure Tank #2.

Signed [signature] **Date** 4/22/2004
Environmental Investigator

Signed [signature] **Date** 4-23-2004
Supervisor

Attachments: (in order of final report submittal)

___Enforcement Action Request (EAR)

X Letter to Facility (specify type) : Resolve Letter

Investigation Report

___Sample Analysis Results

___Manifests

___NOR

___Maps, Plans, Sketches

X Photographs

X Correspondence from the facility

Other (specify) :

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 23, 2004

Mrs. Pamela S. Hughes, Owner
Country Squire #1 Mobile Home Park
13010 Avenue L
Lubbock, Texas 79423-9723

Re: Notice of Violation for the Comprehensive Compliance Investigation at:
Country Squire #1 MHP PWS, 13010 Ave. L, Lubbock (Lubbock County), Texas
TCEQ ID No.: 1520142

Dear Mrs. Hughes:

The Texas Commission on Environmental Quality (TCEQ) Lubbock Region Office has received the compliance documentation that you submitted April 15, 2004, for the alleged violations noted during the investigation of the above-referenced facility conducted on February 4, 2004. The compliance documentation and photos contained in your response appear to indicate that corrective action has been taken for the alleged violations. No further submittal from you is required concerning this investigation.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact Mr. Lance Owens in the Lubbock Region Office at (806) 796-7092.

Sincerely,

James E. Jaggers
Water Section Manger
Lubbock Region Office

JEJ/elo

REPLY TO: REGION 2 • 4630 50TH ST., STE. 600 • LUBBOCK, TEXAS 79414-3520 • 806/796-7092 • FAX 806/796-7107

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tceq.state.tx.us

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PWS/1520142/00

Texas Commission on Environmental Quality

COMPLIANCE AGREEMENT

Pamela Hughes dba Country Squire MHP 1
Enforcement ID No. 11331
Public Water Supply ID No. 1520142
Lubbock County, Texas

The Texas Commission on Environmental Quality ("Commission" or "TCEQ") is the state agency charged with enforcing TEX. HEALTH & SAFETY CODE ch. 341 (the "Code") and the regulations promulgated pursuant to the Code.

Pamela Hughes dba Country Squire MHP 1 ("Ms. Hughes") owns and operates a public drinking water system that provides water for human consumption in Lubbock County, Texas ("the Facility").

The Facility is in substantial violation of the TCEQ's requirements found in the Code and 30 TEX. ADMIN. CODE ch. 290. It has been determined that the Facility's water treatment and operation are deficient due to its failure to comply with the Maximum Contaminant Level ("MCL") requirement for nitrate and flouride. Ms. Hughes will be required to correct all violations listed in the following paragraphs to insure a reduction of risk to the public health and comply with the Commission treatment requirements.

VIOLATIONS

The Facility had a nitrate level of 11.97 milligram per liter ("mg/L") which exceeds the MCL of 10.0 mg/L, as required by 30 TEX. ADMIN. CODE §§ 290.106(b) and 290.106(f)(2) and a fluoride level of 4.3 mg/L which exceeds the MCL level of 4.0 mg/L pursuant to 30 TEX. ADMIN. CODE §§ 290.106(b) and 290.106(f)(3).

In response to these violations and in an effort to eliminate the potential threat to public health, Ms. Hughes and the Commission have entered into a Compliance Agreement ("CA").

The provisions of this CA are as follows:

1. Immediately upon the effective date of this CA, Ms. Hughes shall:

   a. Supply to affected populations, which includes households with infants under six (6) months of age, pregnant women, and nursing mothers an alternative source of water, from an approved source that meets the Commission's Drinking Water Standards for nitrates. The water shall be provided at no additional cost to the consumer until such time as the Facility's water source meets the Drinking Water Standards for nitrates or there is no affected persons in the household. The alternative water is only for drinking and cooking purposes;

   b. Supply to affected populations, which includes households with individuals who are less than nine years of age, an alternative source of water, from an approved source that meets the Commission's Drinking Water Standards for fluoride. The water shall be provided at no additional cost to the consumer until such time as the Facility's water source meets the Drinking Water Standards for fluoride or there is no affected persons in the household. The alternative water is only for drinking and cooking purposes;

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c. Operate the disinfection facilities so as to maintain a minimum disinfectant residual throughout the entire distribution system as required by 30 TEX. ADMIN. CODE § 290.110; and

d. Actively participate and cooperate in any effort to form a regional water supply.

2. Continue to notify each customer on a quarterly basis in writing of the existing water quality violations and provide a copy of this notice to the Commission. Using provided mandatory notification language, this notification requirement shall continue until Ms. Hughes can provide water that meets the Commission's Drinking Water Standards. The required notice is included with this CA as Attachments A and B. Where appropriate, the notice should be multilingual. This notification must include a statement that the alternative source of water is available as well as where and how it can be obtained.

3. **Within 90 days** after the effective date of this CA, conduct a feasibility investigation which will evaluate all alternate water sources and viable treatment technologies to correct the nitrate and fluoride violations. The investigation must be repeated at three year intervals as long as the nitrate and fluoride violation exists.

4. **Within 120 days** after the effective date of this CA, submit a written report outlining the results of the first feasibility investigation to the Commission.

5. **Every six months** starting with the effective date of this CA, submit a progress report to the Commission. These reports shall include information regarding actions taken by Ms. Hughes to provide water to its customers which meets the Commission's Drinking Water Standards.

6. **Within two years** of determination by either the Commission or Ms. Hughes of a viable treatment option or the availability of an alternate source of water which meets the Commission's Drinking Water Standards, provide water to the public which meets the Commission's chemical quality standards. Engineering plans and specifications for treatment must be submitted for approval prior to beginning of construction in accordance with 30 TEX. ADMIN. CODE § 290.39(h) to:

Utility Creation and Plan Review Team MC-153
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

7. Once the submitted engineering plans and specifications are approved, the following technical requirements will apply:

a. If blending with an alternate water source or treated water

i. Monitor finished water nitrate and fluoride levels on a daily basis for compliance and process control using a test method approved by the Commission. These results will not be used for compliance determination;

ii. Maintain monthly operating report (TCEQ-0811) and submit quarterly in accordance with 30 TEX. ADMIN. CODE § 290.46 (f)(4);

iii. Maintain Blending-Monthly operating report (TCEQ draft 03-12-03) and submit quarterly in accordance with 30 TEX. ADMIN. CODE § 290.46(f)(4); and

iv. If purchasing from another water system, the interconnection must receive prior TCEQ approval as required in 30 TEX. ADMIN. CODE § 290.44(g). The water purchase contract must be submitted to the Commission within sixty days.

b. If operating a reverse osmosis system:

i. Monitor finished water nitrate levels on a daily basis for compliance and process control using a testing method approved by the Commission. These results will not be used for compliance determination;

ii. Maintain monthly operating report and submit quarterly in accordance with 30 TEX. ADMIN. CODE § 290.46(f)(4);

iii. If leased, provide a copy of the service agreement, including specifications and maintenance schedule;

iv. If owned, provide specifications, maintenance schedule and maintenance reports on quarterly basis;

v. Monitor pH level daily to prevent corrosive water from being sent to distribution; and

vi. Monitor RO permeate, TDS, or conductivity daily for membrane integrity verification.

c. If operating an ion exchange treatment system monitor finished water nitrate and flouride levels on a daily basis for compliance and process control using a test method approved by the Commission. These results will not be used for compliance determination.

d. If the affected well(s) are to be abandoned

i. Plug with cement according to 16 TEX. ADMIN. CODE Chapter 76 (relating to Water Well Drillers and Water Well Pump Installers); and

ii. Submit copies of plugging report to Source Water Assessment and Protection Team.

8. Ms. Hughes shall submit all written correspondence required by Provision Nos. 2, 4, 5, and 7 to:

RECEIVED
JAN 22 2004
ENFORCEMENT DIVISION

Ms. Elvia Maske, Coordinator
Enforcement Division, MC 149
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

with a copy to:

Public Drinking Water Section
Water Supply Division, MC 155
P.O. Box 13087
Austin, Texas 78711-3087

In return for Ms. Hughes' agreement and adherence to these terms, the Commission will withhold further enforcement actions related to the noted violations. Should unforeseen circumstances indicate a need to alter the above mentioned schedule, the utility must immediately notify the Commission so that an amendment can be discussed.

The effective date of this CA is the signature date of Ms. Hughes' authorized representative. Acceptance of the terms of this CA is indicated by the signatures below.

Pam Hughes — Owner — 1-15-04

Authorized representative of Pamela Hughes dba Country Squire MHP 1 — Title — Date

Pam Hughes

Printed Name of authorized representative for Pamela Hughes dba Country Squire MHP 1

John Sadlier — 1/6/2004

John Sadlier, Manager
Enforcement Division — Date

Instructions: Send this signed, original Compliance Agreement to Elvia Maske, VI, III, Enforcement Division, MC 149, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087.

Bromoform	0.3667	0.0000-1.1000	ppb	Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants

Lead and Copper NOT TESTED FOR OR NOT DETECTED

Total Coliform NOT DETECTED

Fecal Coliform NOT DETECTED

Violations

Violation Type	Explanation	Health Effects	Duration	Steps to Correct
MCL-FLUORIDE		Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.	5/13/1983 to PRESENT	
MCL-NITRATE		Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill, and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	7/1/2001 to 9/30/2001	

Required Additional Health Information for Arsenic

The maximum contaminant level (MCL) for arsenic will be decreasing from 0.05 mg/l (CCR - 50 ppb) to 0.01 mg/l (CCR - 10 ppb) effective January 23, 2006. EPA and States are still discussing the level. Until these issues are worked out, TNRCC is providing the following health effects language according to new Consumer Confidence Report (CCR) reporting

Because the highest reported arsenic level on this report is between 5 ppb and 10 ppb, this information is required by EPA:

"While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems."

You can pick up bottled water at office.

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*

PWS/1520142/CO

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 25, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
MS. PAM HUGHES, OWNER
COUNTRY SQUIRE MHP 1
13010 AVENUE L
LUBBOCK, TX 79423-5934

Ms. Hughes

We have recently discovered that you may not have received the attached Notice of Enforcement letter. We are resending the letter. If you have any questions, please contact Kristi Krieg at 512-239-5723 or e-mail at kkrieg@tceq.state.tx.us.

Sincerely,

Marie Knipfer, Program Specialist
Drinking Water Quality Team
Public Drinking Water Section (MC-155)
Water Supply Division

MEK/KK

cc: TCEQ FOD Division Liaison, Bob Burrell MC-174
TCEQ Regional Director, Jim Estes, R-2
TCEQ Water Section Manager, James Jaggers, R-2
TCEQ Public Water Supply Investigator, Attn: Lance Owens, R-2
TCEQ Enforcement Team Leader, Terry Thompson MC-149
TCEQ Enforcement Coordinator, Tim Haase MC-149
TCEQ Drinking Water Quality Team Leader, Alicia Diehl MC-155
TCEQ Public Drinking Water Section Section Manager, Buck Henderson
TCEQ Media Relations, Andy Saenz MC-118
TCEQ Legislative Liaison, Isaac Jackson MC-119
TCEQ Technical Specialist, Tony Bennett
Lubbock County Judge, Honorable Tom Head, PO Box 10536, Lubbock, TX 79408

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Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

April 9, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
MS. PAM HUGHES, OWNER
COUNTRY SQUIRE MHP 1
13010 AVENUE L
LUBBOCK, TX 79423

Subject: Public Drinking Water System
NOTICE OF ENFORCEMENT for FLUORIDE & NITRATE
COUNTRY SQUIRE MHP 1 — PWS ID 1520142
Lubbock County, Texas

Dear Ms. Pam Hughes:

Our record review shows that the **Country Squire MHP 1** public water system is still in violation for the maximum contaminant level (MCL) for **fluoride** and **nitrate** in the water supplied to its customers. In order to comply with new state rules, the TCEQ Public Drinking Water program is referring all systems with chemical violations that have not had a compliance agreement in the last five years to the TCEQ Enforcement Division. This agreement will be updated to formally document your continued compliance and/or activities toward compliance. Chapter 30, Section 290.106 of the Texas Administrative Code describes how we determined that this violation occurred.

The information that we used to determine compliance for your system is shown in the table below. The MCL for fluoride is **4.0 milligrams per liter (mg/L)** & the MCL for nitrate is **10** based on single samples.

Data Reviewed for Compliance Determination

Nitrate

Year	Quarter	Compliance Value (Result) (mg/L)	Entry Point (POE)	Collection Date	Sample ID Numbers
2000	All	11 (11.17)	002	06/12/00	EP008155
2001	All	12 (11.63)	002	07/23/01	EP111404
2002	3	11 (10.66)	002	08/08/02	EP212933
2002	4	12 (11.97)	002	12/03/02	EP218793

Fluoride

Period of Violation	Fluoride Result (mg/L)	Entry Point (POE)	Collection Date	Sample ID Numbers
1998	4.7	002	04/30/98	EP806393
2001	4.2	002	07/23/01	EP111404
2002	4.3	002	03/27/02	EP206105

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COMMENTS:
We have conducted a review of your chemical sampling history. All primary and secondary standards are being met at this time, except for fluoride and nitrate. We are also conducting composite monitoring to determine compliance with the radionuclide standards.

PUBLIC NOTIFICATION REQUIRED:
You must take the following actions to meet the public notification requirements of 30 TAC §290.122:

- You are **required to notify** your customers of this violation.
- Your notification must include instructions for the affected population on the availability of an alternative source of water and describe where and how it can be obtained.
- You are required to **reissue the notice** at least once every three months for as long as the violation exists. You should use the same method that was used for the initial notice.
- You must use the **enclosed wording** for every notice, and include a brief statement about what you plan to do to fix the problem. This statement must describe what actions the water system is taking to correct the violation, and when the water system expects to return to compliance.
- **You must send a copy** of every public notice to this office within ten days after its delivery. Send to:

  TCEQ Public Drinking Water Section (MC-155)
  Attn: FluorideCoordinator
  PO Box 13087, Austin TX 78711-3087

- You must give notice of any primary and secondary constituent violations to **new customers**, billing units or hookups prior to or at the time service begins. In addition, you must give notice of these violations in the **annual Consumer Confidence Report (CCR or Drinking Water Quality Report)**.

OTHER REQUIREMENTS:
In addition, you must take the following actions:

- You need to identify how you can **provide water that meets the drinking water standards**. Some options include: treatment, blending sources, reconfiguring your entry points, finding an additional source, or shutting down the well with the elevated chemical level. You may wish to consult with an engineer who specializes in drinking water issues for specific solutions on how to resolve your violation.
- Your public water system will be scheduled for **quarterly sampling** for the chemical of concern.
- FOR NITRATE: You must supply **an alternative source of water** from an approved source at no cost to your customers until the violation is corrected. You are required to furnish this water to the affected population which is infants under six (6) months of age, nursing mothers, and pregnant women. This alternative water is only for drinking and cooking uses. Your notification must include a statement that the alternative source of water is available and describe where and how it can be obtained.

- FOR FLUORIDE: You must supply **an alternative source of water** from an approved source at no cost to your customers until the violation is corrected. You are required to furnish this water to the affected population which consists of children less than nine years old. This alternative water should be used for drinking and cooking only.

- You must keep a copy of this letter with your **Monitoring Plan**, in accordance with 30 TAC §290.121. If you have not yet completed the Monitoring Plan, save this letter and attach it to your completed Monitoring Plan by the January 1, 2004 deadline.

The Legislature has granted the TCEQ enforcement powers to ensure compliance with drinking water regulatory requirements. You will be contacted by the TCEQ's Enforcement Division informing you of what measures will be necessary to address these violations. When your case is processed, the Enforcement Coordinator will inform you of any additional technical requirements. **If you have addressed these technical requirements already, you will be required to submit documentation.**

If you have any questions for fluoride, please call Kristi Krieg at 512-239-5723 or Gary Regner at 512-239-4528 or contact by e-mail at kkrieg@tceq.state.tx.us or gregner@tceq.state.ts.us. Any questions for nitrate, please call Debra Cerda at 512-239-6045 or e-mail at dcerda@tceq.state.tx.us.
The general phone number for the Water Supply Division is (512) 239-4691.

Sincerely,

Marie Knipfer, Program Specialist
Drinking Water Quality Team
Public Drinking Water Section (MC-155)
Water Supply Division

MEK/KK

Enclosure: Mandatory Public Notification Language

cc: TCEQ FOD Division Liaison, Bob Burrell MC-174
TCEQ Regional Director, Jim Estes, R-2
TCEQ Water Section Manager, James Jaggers, R-2
TCEQ Public Water Supply Investigator, Malcolm Laing, R-2
TCEQ Enforcement Team Leader, Terry Thompson MC-149
TCEQ Enforcement Coordinator, Tim Haase MC-149
TCEQ Drinking Water Quality Team Leader, Alicia Diehl MC-155
TCEQ Media Relations, Andy Saenz MC-118
TCEQ Legislative Liaison, Isaac Jackson MC-119
Lubbock Judge, Honorable Tom Head, PO Box 10536, Lubbock, TX 79408-3536

Mandatory Public Notification Language

Notice of Drinking Water NITRATE Violation

The Texas Commission on Environmental Quality (TCEQ) has notified the **Country Squire MHP 1** water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for NITRATE. The U.S. Environmental Protection Agency (U.S.EPA) has established the MCL for NITRATE at 10 mg/L, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for NITRATE indicates a level of **11.17** mg/L for 2000, **11.63** mg/L for 2001, **10.66** mg/L for quarter 3 of 2002, and **11.97** mg/L for quarter 4 in 2002.

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. If your child is under the age of six months, the child must be given an alternative water supply for any consumption. Boiling the affected water is **not** an effective treatment for nitrate removal.

Most consumers do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you. At this time, the health effects to fetuses of pregnant women is unclear. If you are pregnant, you may also choose to use an alternative source of water for drinking and cooking purposes.

We are working to correct the problem. *See box below*

Your public water system must indicate in this area specific actions which you are taking to provide the customers with alternative water source and to correct the problem. For example:

- *Bottled water is available at no cost to affected populations at .....*
- *We are drilling a new well to be completed by (anticipated date)*
- *We are receiving technical assistance from TCEQ*
- *We are installing a Reverse Osmosis (RO) Unit to lower the Nitrate as Nitrogen levels*
- *We have a RO unit attached to a designated tap located at (location) for use by affected populations*

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For further information contact: *See box below*

You must provide a name and phone number for a representative of your public water system who can provide more information about this issue to your consumers. When appropriate, this should include a multilingual contact.

Public Water System ID #1520142

Mandatory Public Notification Language

Notice of Drinking Water FLUORIDE Violation

The Texas Commission On Environmental Quality (TCEQ) has notified the **Coutry Squire MHP 1** water system that the drinking water being supplied to customers had exceeded the Maximum Contaminant Level (MCL) for FLUORIDE. The U.S. Environmental Protection Agency (U.S. EPA) has established the MCL for FLUORIDE at 4 mg/L, and has determined that it is a health concern at levels above the MCL. Analysis of drinking water in your community for FLUORIDE indicates a level of **4.7** mg/L in1998, **4.2** mg/L in 2001, **4.3** mg/L in 2002.

This is not an emergency. However, some people who drink water containing FLUORIDE in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

You do not need to use an alternative water supply. However, if you have health concerns, you may want to talk to your doctor to get more information about how this may affect you.

We are working to correct the problem. *See box below*

Your public water system must indicate in this area specific actions which you are taking to provide the customers with alternative water source and to correct the problem. For example:

- *Bottled water is available at no cost to affected populations at .....*
- *We are drilling a new well to be completed by (anticipated date).*
- *We are receiving technical assistance from TCEQ.*
- *We are investigating the possibility of connecting to another system.*
- *We plan to change the way we blend water from different sources.*
- *We are installing a Reverse Osmosis (RO) Unit or other treatment to lower the Fluoride levels.*
- *We have a RO unit or other treatment attached to a designated tap located at (location) for use by affected populations.*

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For further information contact: *See box below*

You must provide a name and phone number for a representative of your public water system who can provide more information about this issue to your consumers. When appropriate, this should include a multilingual contact.

Public Water System ID # 1520142

REFERENCE 6

Lubbock Central Appraisal District

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Property Detail Sheet (R162164)

History | Datasheet
Bills | Pay Taxes

Owner Information

Owner ID:	00050609
Owner Name:	HUGHES, PAM
Owner Address:	13010 AVE L LUBBOCK,TX 79423-5934
Property Address:	13010 AVE L LUBBOCK, TX 79423

Parcel Information

Legal Description:	FAIRVIEW ACS BLK 14 NW 143.25 X 330
Acreage:	
Cross Reference:	R273500-00014-00140-000
Undivided Interest:	
Exemption Codes:	
Entity Codes:	CLB (City Of Lubbock) GLB (Lubbock County) HSP (Lubb Cnty Hospital) SLB (Lubbock ISD) WHP (Hi Plains Water)
Deed Type:	Warranty Deed
Deed Book:	
Deed Page:	2006017682
Map Page:	486

Land HS:	$0 +
Land NHS:	$2,453 +
Improvement HS:	$0 +
Improvement NHS:	$49,010 +
Ag Market:	$0
Ag Use:	$0 +
Timber Market:	$0
Timber Use:	$0 +
Assessed:	$51,463 =

Improvements

ID	Type	SPTB	Segs	Value
Imp1	C (Commercial)	F1 (F1 - Real Commercial)	1	$ 49,010

Land

ID	Type	SPTB	Acres	Market
Land1	C (Commercial)	F1 (F1 - Real Commercial)	1.09	$ 2,453

Get Adobe Reader

* Adobe Acrobat Reader 5.0 (minimum) is required to view pdf documents. Acrobat Reader is a free program available here.

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Lubbock Central Appraisal District

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Assessment History (R162164)

Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

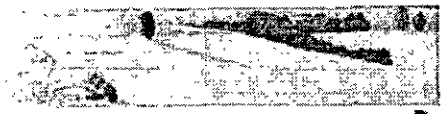
Situs Address
13010 AVE L
LUBBOCK, TX 79423

	2007	2006	2005	2004
Improvement HS	$0	$0	$0	$0
Improvement NHS	$12,360	$12,360	$12,360	$12,360
Land HS	$0	$0	$0	$0
Land NHS	$2,453	$2,453	$2,453	$2,453
Agricultural Mkt	$0	$0	$0	$0
Agricultural Use	$0	$0	$0	$0
Timber Market	$0	$0	$0	$0
Timber Use	$0	$0	$0	$0
Appraised	$14,813	$14,813	$14,813	$14,813
Homestead Limit				
Assessed	$14,813	$14,813	$14,813	$14,813
Exemptions				

06 02

Lubbock Central Appraisal District

2008 Proposed Values



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Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

Situs Address
13010 AVE L
LUBBOCK, TX 79423

	2007	2006	2005	2004
Improvement HS	$0	$0	$0	$0
Improvement NHS	$12,360	$12,360	$12,360	$12,360
Land HS	$0	$0	$0	$0
Land NHS	$2,453	$2,453	$2,453	$2,453
Agricultural Mkt	$0	$0	$0	$0
Agricultural Use	$0	$0	$0	$0
Timber Market	$0	$0	$0	$0
Timber Use	$0	$0	$0	$0
Appraised	$14,813	$14,813	$14,813	$14,813
Homestead Limit				
Assessed	$14,813	$14,813	$14,813	$14,813
Exemptions				

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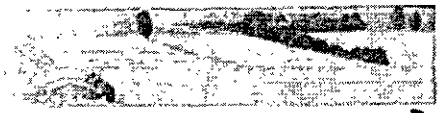
- 2007 Tax Rates
- 2006 Tax Rates
- Employment

Lubbock Central Appraisal District

2008 Proposed Values



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Improvement 1 of 1

Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

Situs Address
13010 AVE L
LUBBOCK, TX 79423

Type	C (Commercial)
Homesite	N
SPTB	F1 (F1 - Real Commercial)
Value	$ 49,010

Segments 1
Description

Improvement Segments

1. **MA (MA - Main Area)** — $ 49,010
   Class: WM1 (WM1 - Warehouse-mini)
   Year Built: 1966

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- 2007 Tax Rates
- 2006 Tax Rates
- Employment

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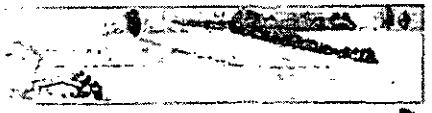
Lubbock Central Appraisal District

2008 Proposed Values



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Improvement 1 of 1

Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

Situs Address
13010 AVE L
LUBBOCK, TX 79423

Segment 1 of 1

Type	MA (MA - Main Area)	Rooms	
Class	WM1 (WM1 - Warehouse-mini)	Area	2269
Act. Year Built	1966	Bedrooms	
Eff. Year Built	1966	Int Finish	
Heat and AC		Roof Style	
Value	$ 49,010	Plumbing	
Ext Finish		Flooring	
Fireplace			
Adjustment %			

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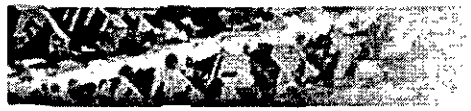
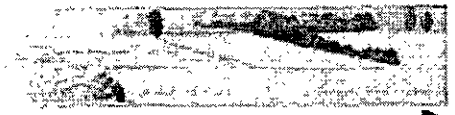


Lubbock Central Appraisal District

2008 Proposed Values



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Land Segment 1 of 1 (R162164)

Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

Situs Address
13010 AVE L
LUBBOCK, TX 79423

Type	C (Commercial)	Size - Acres	1.09
SPTB	F1 (F1 - Real Commercial)	Ag Table	
Homesite	N		
Class		Description	
Appr Method	A	Market Value	$ 2,453
Effective Front		Ag Value	0
Effective Depth		Size - Square Feet	

90 60

- 2007 Tax Rates
- 2006 Tax Rates
- Employment

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Lubbock Central Appraisal District

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- Taxpayer's Rights - Espanol
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Bill Listing (R162164)

Owner Information
HUGHES, PAM
13010 AVE L
LUBBOCK, TX 79423-5934

XRef ID
R273500-00014-00140-000

Situs Address
13010 AVE L
LUBBOCK, TX 79423

Calculation Date

Sort by: Tax Year

05/05/2008 Calculate

Past Years Due		Current Amount Due		Total Amount Due
554.12		0.00		554.12

Year	Tax Description *	Levy	P&I	Att Fee	Disc./Credits	Amt. Paid	Balance
2007	Hi Plains Water	1.18	0.08	0.00	0.00	1.26	0.00
2007	Lubbock ISD	182.95	12.80	0.00	0.00	195.75	0.00
2007	Lubb Cnty Hospital	17.27	1.21	0.00	0.00	18.48	0.00
2007	Lubbock County	45.35	3.17	0.00	0.00	48.52	0.00
2007	City Of Lubbock	67.40	4.72	0.00	0.00	72.12	0.00
	2007 total	**314.15**	**21.98**	**0.00**	**0.00**	**336.13**	**0.00**
2006	Hi Plains Water	1.23	0.35	0.32	0.00	0.00	1.90
2006	Lubbock ISD	231.83	64.91	59.35	0.00	0.00	356.09
2006	Lubb Cnty Hospital	16.92	4.74	4.33	0.00	0.00	25.99
2006	Lubbock County	42.33	11.85	10.84	0.00	0.00	65.02
2006	City Of Lubbock	68.43	19.17	17.52	0.00	0.00	105.12
	2006 total	**360.74**	**101.02**	**92.36**	**0.00**	**0.00**	**554.12**
2005	Hi Plains Water	1.23	0.00	0.00	0.00	1.23	0.00
2005	Lubbock ISD	245.74	0.00	0.00	0.00	245.74	0.00
2005	Lubb Cnty Hospital	16.34	0.00	0.00	0.00	16.34	0.00
2005	Lubbock County	38.75	0.00	0.00	0.00	38.75	0.00
2005	City Of Lubbock	66.25	0.00	0.00	0.00	66.25	0.00
	2005 total	**368.31**	**0.00**	**0.00**	**0.00**	**368.31**	**0.00**
2004	Hi Plains Water	1.23	0.18	0.00	0.00	1.41	0.00
2004	Lubbock ISD	237.84	35.67	0.00	0.00	273.51	0.00
2004	Lubb Cnty Hospital	15.91	2.39	0.00	0.00	18.30	0.00

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- 2007 Tax Rates
- 2006 Tax Rates
- Employment

2004 Lubbock County		37.90	5.68	0.00	0.00	43.58	0.00
2004 City Of Lubbock		68.10	10.21	0.00	0.00	78.31	0.00
2004 Appraisal District		0.00	0.00	0.00	0.00	0.00	0.00
	2004 total	**360.98**	**54.13**	**0.00**	**0.00**	**415.11**	**0.00**
2003 Hi Plains Water		1.23	0.00	0.00	0.00	1.23	0.00
2003 Lubbock ISD		237.95	0.00	0.00	0.00	237.95	0.00
2003 Lubb Cnty Hospital		16.15	0.00	0.00	0.00	16 15	0.00
2003 Lubbock County		38.46	0.00	0.00	0.00	38.46	0 00
2003 City Of Lubbock		80.87	0.00	0.00	0.00	80.87	0.00
	2003 total	**374.66**	**0.00**	**0.00**	**0.00**	**374.66**	**0.00**
2002 Hi Plains Water		1.04	0.14	0.00	0.00	1.18	0.00
2002 Lubbock ISD		198.77	25.84	0.00	0.00	224.61	0.00
2002 Lubb Cnty Hospital		12.92	1.68	0.00	0.00	14 60	0.00
2002 Lubbock County		23.66	3.08	0.00	0.00	26.74	0.00
2002 City Of Lubbock		70.57	9.18	0.00	0.00	79.75	0.00
	2002 total	**306.96**	**39.92**	**0.00**	**0.00**	**346.88**	**0.00**

*** To see the full entity name, position the mouse over the entity name you wish to view.**

DISCLAIMER

If applicable, the above described property is receiving special valuation based upon its use. Additional rollback taxes which may become due based on the provisions of the special valuation are not indicated in these pages.

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06 12

REFERENCE 7

SOIL SURVEY OF

LUBBOCK COUNTY TEXAS

United States Department of Agriculture
Soil Conservation Service

in cooperation with
Texas Agricultural Experiment Station

07 01

plant roots. The hazards of water erosion and soil blowing are moderate.

Included in some areas of this soil are small areas of Estacado, Midessa, and Posey soils. Included soils make up less than 10 percent of any one mapped area.

This soil is used as cropland and range. Grain sorghum and wheat are the main crops, but other crops can be grown. This soil has low potential for nonirrigated and irrigated grain sorghum, wheat, and cotton. Good management includes growing crops that produce large amounts of residue and leaving residue on the surface when crops are not growing. These practices conserve moisture and control soil blowing and water erosion. Occasionally, emergency tillage is needed to roughen the surface and thus reduce the damage caused by soil blowing when crops and residue provide inadequate protection. A well designed sprinkler irrigation system and proper application of irrigation water are essential. If irrigated, this soil needs to be fertilized.

This soil has medium potential for native range plants. Its potential is limited by medium available moisture and excess amounts of calcium carbonate in the root zone. Native plants are generally short grasses that produce a medium amount of forage. The potential is medium for wildlife habitat.

This soil has medium potential for most urban and recreational use. It is corrosive to uncoated steel, has low strength, and is dusty. Careful installation and good design are essential.

Capability subclass IVe nonirrigated and IIIe irrigated; High Lime range site.

17—Drake clay loam, 3 to 5 percent slopes. This deep, gently sloping soil is on convex low duned uplands on the eastern sides of playas or in large enclosed depressions. It occurs as long to elliptical areas. Local shifting of soil by wind is evident in some places.

The surface layer is friable, moderately alkaline, grayish brown clay loam about 10 inches thick. From 10 to 60 inches is friable, moderately alkaline clay loam that has visible soft masses of calcium carbonate throughout. This layer is light gray in the upper 12 inches and very pale brown below.

This soil is well drained. Surface runoff is rapid. Permeability is moderate, and available water capacity is medium. The root zone is deep and is easily penetrated by plant roots. The hazards of water erosion and soil blowing are moderate.

Included in some areas of this soil are small areas of Arch, Mansker, Midessa, and Posey soils. Included soils make up less than 10 percent of any one mapped area.

This soil is used as range and cropland. The main crops are grain sorghum and wheat. Some areas are in native grass and are not fenced or grazed.

This soil is not suitable as cropland unless it is irrigated. It has low potential for irrigated grain sorghum and wheat. A well designed sprinkler irrigation system and proper application of irrigation water are needed because of rapid runoff. Good management includes growing crops that produce large amounts of residue and lea ing residue on the surface when crops are not growi These practices conserve moisture and help to control s blowing and water erosion. Residue also helps to maint soil productivity. Occasionally, emergency tillage needed to roughen the surface and thus reduce t damage caused by soil blowing when crops and resid give inadequate protection. This soil responds well to f tilizer.

This soil has medium potential for native range plan Its potential is limited because of medium availat moisture during the growing season and excess lime the root zone. Native plants are mainly short grass which produce a medium amount of forage. The potent is medium for wildlife habitat.

The potential is medium for most urban and recre tional development. This soil is corrosive to uncoat steel, has low strength, and is dusty when dry. Go design and careful installation are needed.

Capability subclass VIe nonirrigated, IVe irrigate High Lime range site.

18—Estacado clay loam, 0 to 1 percent slopes. Th deep, nearly level soil is on upland plains. It occurs as i regularly shaped areas that range from 10 to several hu dred acres.

The surface layer is friable, moderately alkaline, brov clay loam about 16 inches thick. From 16 to 26 inches friable, moderately alkaline, brown clay loam that has few concretions of calcium carbonate. From 26 to inches is friable, moderately alkaline, light brown cl loam that has many soft masses and concretions of cal um carbonate. From 40 to 66 inches is friable, moderate alkaline, reddish yellow clay loam that also has many so masses and concretions of calcium carbonate (fig. 9).

This soil is well drained. Surface runoff is slo Permeability is moderate, and available water capacity high. Tilth is good. The root zone is easily penetrated b roots. The hazard of water erosion is slight. The hazard soil blowing is moderate.

Included in some areas of this soil are small areas Acuff, Amarillo, and Portales soils. These included soi make up less than 15 percent of any one mapped area.

This soil is used mainly as cropland. A few small area are range. Cotton is the main crop, but other crops can b grown.

This soil has high potential for nonirrigated and i rigated cotton, grain sorghum, and wheat. Careful manag ment is needed to keep crop residue on the surface du ing critical periods of erosion. Residue management help to control soil blowing and water erosion and conserv moisture. It also helps to maintain soil productivity. Occa sionally, emergency tillage is needed to roughen the su face and thus reduce the damage caused by soil blowin when crops and residue do not provide adequate protec tion. This soil needs to be fertilized if it is irrigate Either surface or sprinkler irrigation can be used. A we designed irrigation system and and proper application o irrigation water are essential.

This soil has medium potential for native range plants. Low rainfall limits production. Native range plants are mainly short grasses, which produce a medium amount of forage. The potential is medium for wildlife habitat.

This soil has medium potential for most urban use. Corrosivity to uncoated steel, low strength, and the clayey surface layer are the most limiting features, but they are easily overcome by good design and careful installation. The potential is medium for recreational use. The clay loam surface layer is the most limiting feature.

Capability subclass IIIe nonirrigated, IIe irrigated; Loamy range site.

19—Estacado clay loam, 1 to 3 percent slopes. This deep, gently sloping soil is on uplands adjacent to playas. It occurs as narrow, long, elliptical areas that range from 10 to 100 acres.

The surface layer is friable, moderately alkaline, dark brown clay loam about 14 inches thick. From 14 to 20 inches is friable, moderately alkaline, brown clay loam. From 20 to 34 inches is friable, moderately alkaline, yellowish red clay loam that is about 10 percent by volume soft masses of calcium carbonate. From 34 to 80 inches is friable, moderately alkaline, reddish yellow clay loam that is about 35 percent by volume calcium carbonate in the upper 26 inches and 10 percent below.

This soil is well drained. Surface runoff is medium, and permeability is moderate. Available water capacity is high. The root zone is deep and is easily penetrated by plant roots. The hazards of water erosion and soil blowing are moderate.

Included in some areas of this soil are spots of Acuff, Amarillo, Mansker, and Posey soils. These inclusions make up less than 10 percent of any one mapped area.

This soil is used mainly as cropland. Some areas are used as range. Cotton, grain sorghum, and wheat are the main crops, but other crops can be grown.

The potential is high for nonirrigated and irrigated cotton, grain sorghum, and wheat. Keeping crop residue on or near the surface conserves moisture and helps to control water erosion and soil blowing. Emergency tillage is sometimes needed to control soil blowing if crop residue does not provide adequate protection. A designed surface or sprinkler irrigation system and proper application of irrigation water are needed. Fertilizer is needed if this soil is irrigated.

The potential is medium for native range plants. Short and mid grasses produce moderate yields during favorable years. The potential is medium for wildlife habitat.

This soil has medium potential for most urban use. It is corrosive to uncoated steel, has low strength, and has a surface layer that is too clayey. The potential is medium for recreational use because the surface is too clayey.

Capability subclass IIIe nonirrigated, IIIe irrigated; Loamy range site.

20—Estacado-Urban land complex, 0 to 2 percent slopes. This nearly level to gently sloping map unit is on uplands. It occurs as irregularly shaped areas that range from 15 to several hundred acres. It is about 60 percent Estacado soils, 30 percent Urban land, and 10 percent other soils.

The deep Estacado soil has a surface layer of friable, moderately alkaline, brown clay loam about 16 inches thick. From 16 to 28 inches is friable, moderately alkaline, brown clay loam that has a few concretions of calcium carbonate. From 28 to 40 inches is friable, moderately alkaline, pink clay loam that has many soft masses and concretions of calcium carbonate. From 40 to 80 inches is friable, moderately alkaline, reddish yellow clay loam that also has many soft masses and concretions of calcium carbonate.

Urban land consists of residential and commercial buildings, driveways, streets, sidewalks, and parking lots.

Surface runoff is high because a large acreage is covered by works and structures, which shed most of the precipitation. The Estacado soil has good tilth, is high in natural fertility, and is well drained. The root zone is easily penetrated by roots.

Included in mapping are areas of Mansker, Posey, Portales, and Zita soils. Included soils make up less than 15 percent of any one mapped area.

This unit is entirely in urban use. Estacado soils are used for lawn grasses, ornamental trees and shrubs, and flower and vegetable gardens.

The potential is high for most urban use. Corrosivity to uncoated steel and low strength are the most limiting factors but are easily overcome by good design and careful installation. The potential is medium for recreation use. The main limitation is the clay loam surface layer.

The potential is low for cropland and range.

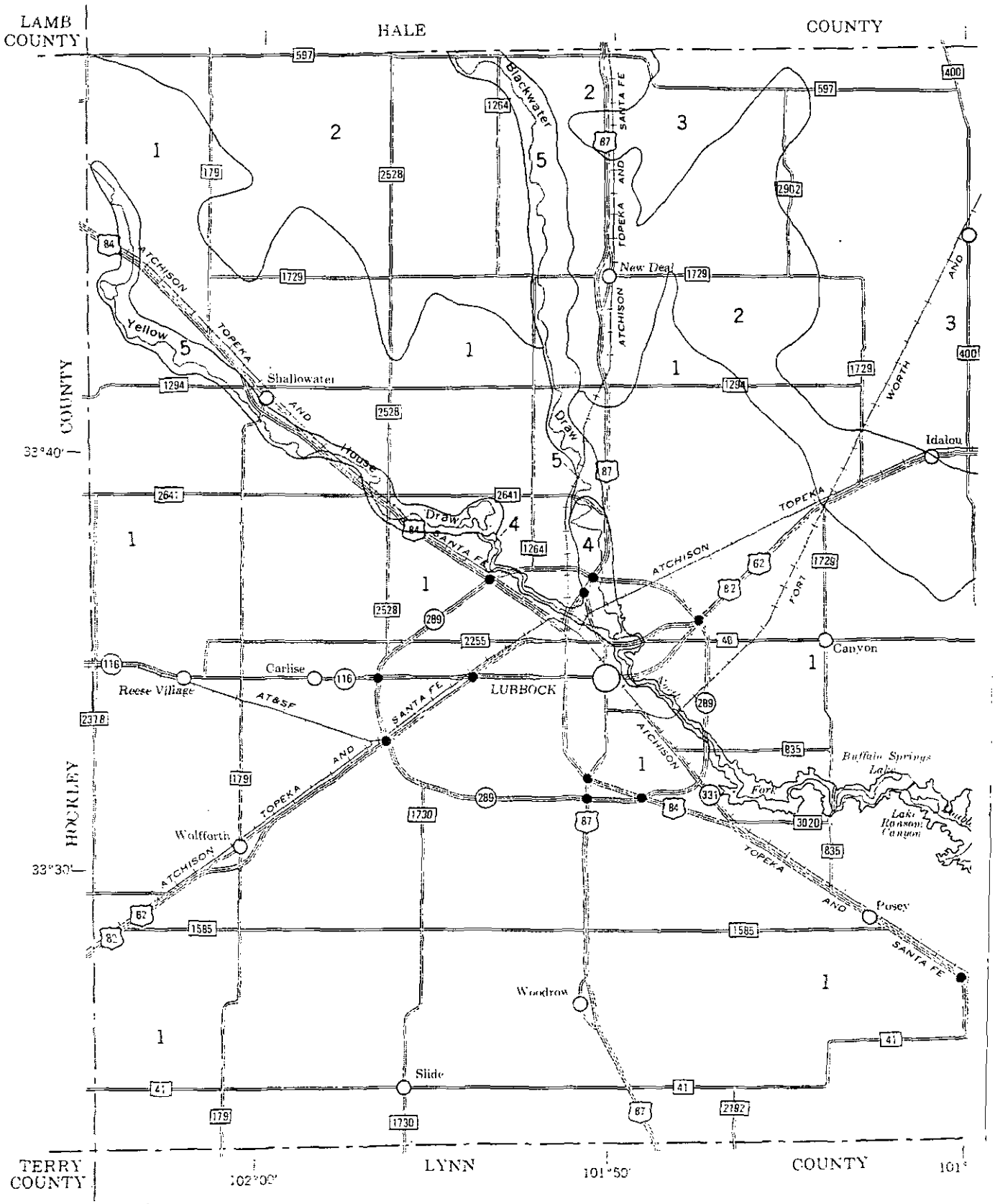
21—Friona loam, 0 to 1 percent slopes. This moderately deep, nearly level soil is on uplands. It occurs as irregularly shaped areas that range from 25 to more than 200 acres.

The surface layer is very friable, mildly alkaline, reddish brown sandy clay loam about 8 inches thick. From 8 to 26 inches is friable, moderately alkaline, reddish brown clay loam that has a few films and threads of calcium carbonate in the lower part. From 26 to 32 inches is pinkish white caliche that is indurated in the upper part and strongly cemented in the lower part. From 32 to 60 inches is friable, moderately alkaline, pink sandy clay loam that is about 50 percent by volume soft powdery calcium carbonate.

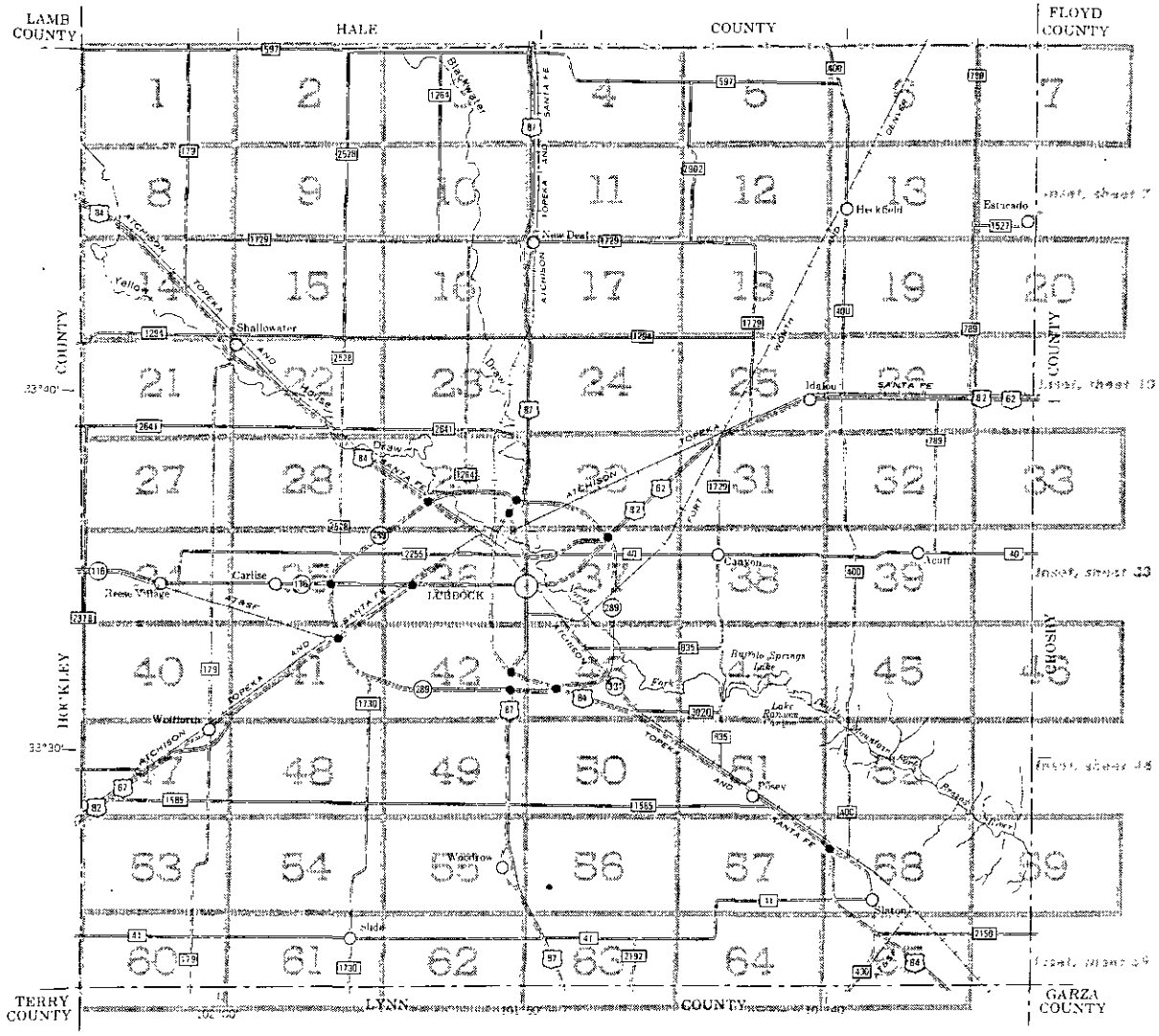
This soil is well drained. Surface runoff is slow. permeability is moderate, and available water capacity is high. Tilth is good, but the root depth is restricted by the cemented layer at a depth of about 26 inches. The hazards of water erosion and soil blowing are slight.

Included in some areas of this soil are spots of Acuff and Kimbrough soils and a soil that is similar to the Friona soil but is calcareous to the surface. Included soils make up less than 15 percent of any one mapped area.

This soil is used entirely as cropland. Cotton, grain sorghum, and wheat are the main crops, but other crops can be grown.



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



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Scale 1:190,080
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SOIL LEGEND

Soil names followed by the superscript [illegible] are briefly defined units. The composition of these units is more variable than that of the others in the survey area but has been controlled well enough to be interpretive for the expected use of the soils.

A [illegible] following the soil name indicates that signs of erosion, especially of local shifting of soil [illegible], are evident in some places, but the degree of erosion cannot be reliably estimated.

SYMBOL	NAME
1	Acuff loam, 0 to 1 percent slopes
2	Acuff loam, 1 to 3 percent slopes
3	Acuff-Urban land complex, 0 to 3 percent slopes
4	Amarillo fine sandy loam, 0 to 3 percent slopes (W)
5	Amarillo fine sandy loam, 0 to 1 percent slopes (W)
6	Amarillo fine sandy loam, 1 to 3 percent slopes (W)
7	Amarillo-Urban land complex, 0 to 3 percent slopes
8	Arch loam, 0 to 3 percent slopes
9	Arents and P.L.
10	Berdo loam, 1 to 3 percent slopes
11	Berdo loam, 3 to 5 percent slopes
12	Berdo-Potter association, level
13	Bippus fine sandy loam, frequently flooded
14	Bippus clay loam, occasionally flooded
15	Bippus clay loam, frequently flooded
16	Drake clay loam, 1 to 3 percent slopes (W)
17	Drake clay loam, 3 to 5 percent slopes (W)
18	Estacado clay loam, 0 to 1 percent slopes
19	Estacado clay loam, 1 to 3 percent slopes
20	Estacado-Urban land complex, 0 to 3 percent slopes
21	Knolle loam, 0 to 1 percent slopes
22	Knolle loam, 0 to 3 percent slopes
23	Lofton clay loam, 0 to 1 percent slopes
24	Mansker clay loam, 1 to 3 percent slopes
25	Mansker clay loam, 3 to 5 percent slopes
26	Midessa fine sandy loam, 1 to 3 percent slopes (W)
27	Midessa fine sandy loam, 1 to 3 percent slopes (W)
28	Midessa fine sandy loam, 3 to 5 percent slopes (W)
29	Midessa fine sandy loam, 5 to 8 percent slopes (W)
30	Olton clay loam, 0 to 1 percent slopes
31	Olton clay loam, 1 to 3 percent slopes
32	Olton-Urban land complex, 0 to 3 percent slopes
33	Portales loam, 0 to 1 percent slopes
34	Posey fine sandy loam, 0 to 1 percent slopes (W)
35	Posey fine sandy loam, 1 to 3 percent slopes (W)
36	Posey fine sandy loam, 3 to 5 percent slopes (W)
37	Posey fine sandy loam, 5 to 8 percent slopes (W)
38	Potter loam, 2 to 12 percent slopes
39	Potter-Berdo association, steep
40	Potter-Kimbrough-Urban land complex, 3 to 8 percent slopes
41	Pullman clay loam, 0 to 1 percent slope
42	Randall clay
43	Randall Variant fine sandy loam
44	Urban land
45	Zita fine sandy loam, 0 to 3 percent slopes (W)
46	Zita loam, 0 to 1 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double line (label)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

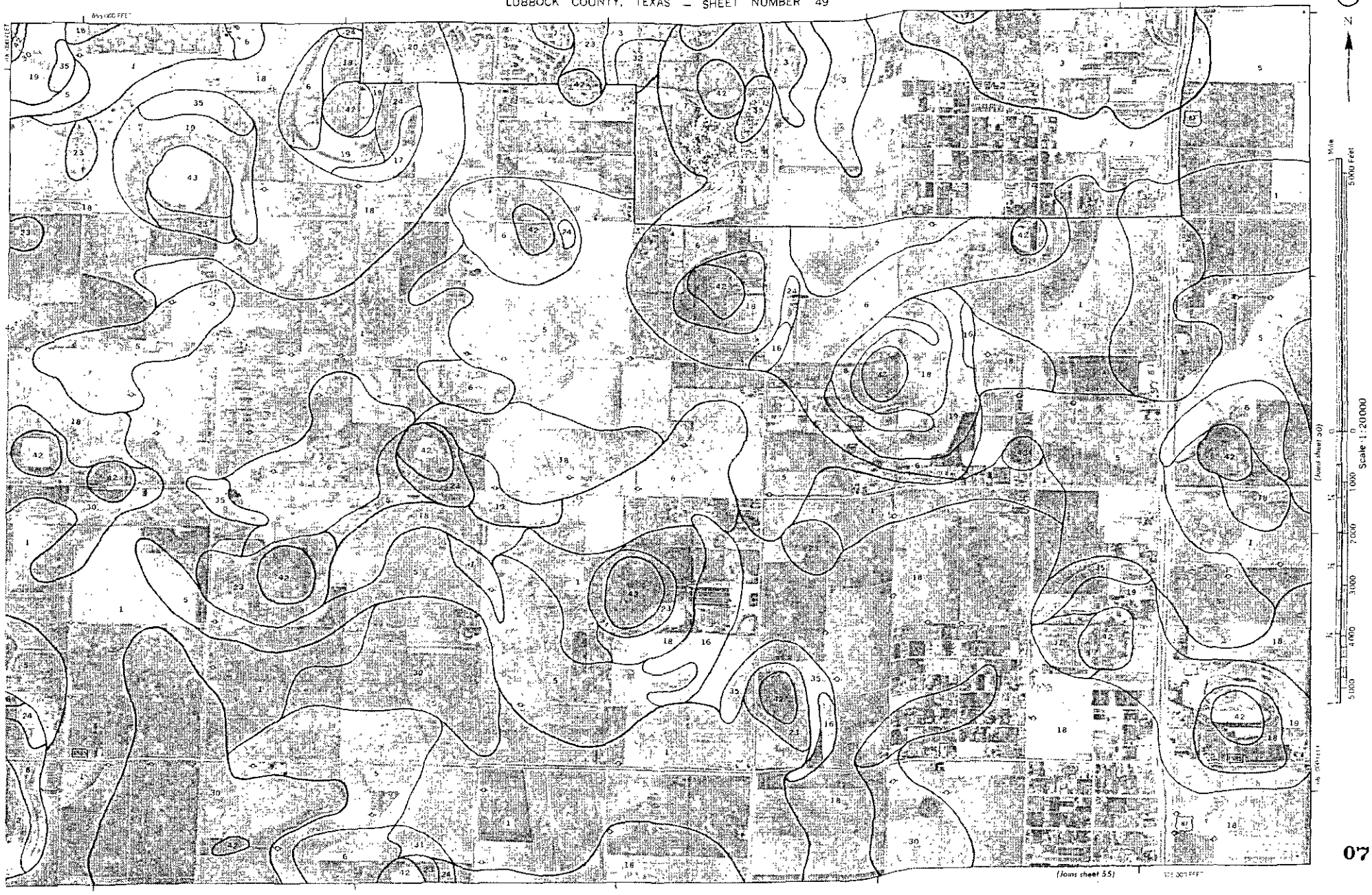
SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non-soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

07 06

LUBBOCK COUNTY, TEXAS — SHEET NUMBER 49



07 07

USDA United States Department of Agriculture
Natural Resources Conservation Service

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A A A

Area of Interest (AOI) | Soil Map | Soil Data Explorer | Shopping Cart

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Soil Map

Scale

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Lubbock County, Texas (TX303)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Acuff loam, 0 to 1 percent slopes	109,320.0	19.0%
2	Acuff loam, 1 to 3 percent slopes	12,714.0	2.2%
3	Acuff-Urban land complex, 0 to 2 percent slopes	14,213.0	2.5%
4	Amarillo loamy fine sand, 0 to 3 percent slopes	665.7	0.1%
5	Amarillo fine sandy loam, 0 to 1 percent slopes	78,245.5	13.6%
6	Amarillo fine sandy loam, 1 to 3 percent slopes	24,888.7	4.3%
7	Amarillo-Urban land complex, 0 to 2 percent slopes	16,681.2	2.9%
8	Arch loam, 0 to 3 percent slopes	2,073.7	0.4%
9	Arents and Pits	1,561.6	0.3%
Totals for Area of Interest (AOI)		**575,694.3**	**100.0%**

LOCATION ESTACADO TX+NM

Established Series
Rev. TCB-FBP-CLN
09/2007

ESTACADO SERIES

The Estacado series consists of very deep, well drained, moderately permeable soils that formed in calcareous moderately fine textured alluvial and eolian sediments of the Blackwater Draw Formation of Pleistocene age. These soils are on nearly level to gently sloping plains. Slope ranges from 0 to 5 percent. Mean annual precipitation is 483 millimeters (19 inches), and mean annual air temperature is 15 degrees C (59 degrees F).

TAXONOMIC CLASS: Fine-loamy, mixed, superactive, thermic Aridic Paleustolls

TYPICAL PEDON: Estacado clay loam, on a level plain, 0.5 percent slope in cropland at an elevation of about 1,166 meters (3,825 feet). (Colors are for dry soil unless otherwise stated.)

Ap--0 to 15 cm (0 to 6 inches); dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, firm; many fine roots; many fine and medium tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary. (13 to 25 cm thick)

Bt1--15 to 48 cm (6 to 19 inches); brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; very hard, firm; many fine and medium roots between peds; many very fine and fine tubular pores; few distinct clay films on ped surfaces; few fine masses of calcium carbonate; strongly effervescent; moderately alkaline; clear wavy boundary. (13 to 51 cm thick)

Bt2--48 to 97 cm (19 to 38 inches); brown (7.5YR 4/4) clay loam, dark brown (7.5YR 3/4) moist; weak coarse prismatic structure parting to weak fine subangular blocky; hard, firm; common very fine and fine roots between peds; many very fine and fine tubular pores; few distinct clay films on ped surfaces; common fine nodules of calcium carbonate; strongly effervescent; moderately alkaline; gradual irregular boundary. (30 to 89 cm thick)

Btk1--97 to 127 cm (38 to 50 inches); reddish yellow (7.5YR 7/6) clay loam, reddish yellow (7.5YR 6/6) moist; weak coarse prismatic structure parting to weak fine subangular blocky; hard, firm; common very fine and fine roots between peds; many fine and medium tubular pores; few distinct clay films on ped surfaces; many masses and films of calcium carbonate; violently effervescent; moderately alkaline; gradual wavy boundary. (38 to 64 cm thick)

Btk2--127 to 203 cm (50 to 80 inches); pinkish white (7.5YR 8/2) clay loam; pinkish gray (7.5YR 7/2) moist; weak coarse prismatic structure parting to weak fine and medium subangular blocky; hard, firm; common very fine and fine roots between peds; many fine and medium tubular pores; few distinct clay films on ped surfaces; many masses and nodules of calcium carbonate; violently effervescent; moderately alkaline.

07 10

TYPE LOCATION: Deaf Smith County, Texas; from the intersection of U.S. Highway 385 and U.S. Highway 60 in Hereford, 11 kilometers (6.75 miles) north on U.S. Highway 385, 5 kilometers (3 miles) east on county road, 0.8 kilometer (0.5 mile) north on county road, 183 meters (600 feet) east in cropland; Latitude: 34 degrees, 25 minutes, 30 seconds N; Longitude: 102 degrees, 20 minutes, 10 seconds W; Hereford NE, Texas USGS quad; NAD 27.

RANGE IN CHARACTERISTICS:
Soil moisture: An ustic moisture regime bordering on aridic. The soil moisture control section is dry in some or all parts for more than 180 but less than 205 days, cumulative, in normal years. July through August and December through February are the driest months. These soils are intermittently moist in September through November and March through June.
Mean annual soil temperature: 15 to 18 degrees C (59 to 64 degrees F).
Depth to argillic horizon: 13 to 25 cm (5 to 10 inches).
Depth to secondary calcium carbonate: 13 to 61 cm (5 to 24 inches).
Depth to calcic horizon: 61 to 102 cm (24 to 40 inches).
Solum thickness: more than 203 (80 inches).
Particle-size control section: 20 to 35 percent silicate clay.

A horizon:
Hue: 7.5YR or 10YR
Value: 3 to 5, 2 to 4 moist
Chroma: 2 or 3
Texture: loam, clay loam
Effervescence: slight to violent
Reaction: slightly alkaline or moderately alkaline

Bt horizons:
Hue: 7.5YR or 10YR
Value: 4 to 6, 3 to 5 moist
Chroma: 3 to 6
Texture: sandy clay loam, clay loam
Visible calcium carbonate: less than 5 percent as films, threads, or nodules
Effervescence: strong or violent
Reaction: slightly alkaline or moderately alkaline

Btk horizons:
Hue: 7.5YR or 10YR
Value: 4 to 8, 3 to 7 moist
Chroma: 3 to 6
Matrix color is redder than 7.5YR and chroma is 5 or more
Texture: sandy clay loam, clay loam
Visible calcium carbonate: 5 to 50 percent as films, threads, masses, and nodules
Effervescence: strong or violent
Reaction: moderately alkaline

COMPETING SERIES: This is the Acuff series. Similar soils include the Manson, Mansker, Olton, Pep, Portales, Sunray, and Texline series.
Acuff and Olton series: non-calcareous in the upper horizons and have a calcic horizon between 76 to 152 cm (30 and 60 inches), in addition the Olton soils have 35 to 45 percent clay in the particle-size control section.
Manson series: has a calcic horizon within 38 to 61 cm (15 and 24 inches) of the soil surface.

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Mansker series: has a calcic horizon within 38 to 61 cm (15 and 24 inches) of the soil surface and has carbonatic mineralogy.
Pep and Portales series: do not have an argillic horizon.
Sunray and Texline series: have mean annual soil temperatures less than 15 degrees C (59 degrees F).

GEOGRAPHIC SETTING:
Parent material: calcareous, moderately fine textured alluvial and eolian sediments of the Blackwater Draw Formation of Pleistocene age.
Landform: on nearly level to gently sloping plains.
Slopes: 0 to 5 percent.
Mean annual air temperature: 14 to 17 degrees C (57 to 62 degrees F).
Mean annual precipitation: 432 to 533 millimeters (17 to 21 inches).
Frost-free period: 180 to 220 days.
Elevation: 763 to 1,402 meters (2,600 to 4,600 feet).
Thornthwaite annual P-E Index Values: 30 to 34.

GEOGRAPHICALLY ASSOCIATED SOILS: These include the similar Acuff and Olton series, and the Amarillo, Pantex, Pep, Posey, and Pullman series.
Acuff, Amarillo, Olton, Pantex, and Pullman soils: are on similar landscape positions and are non-calcareous in the surface and Bt horizons.
Pep soils: are on similar landscape positions and do not have an argillic horizon.
Posey soils: are on similar landscape positions and have a calcic horizon within 24 inches of the soil surface.

DRAINAGE AND PERMEABILITY: Well drained. Moderately slow permeability. Surface runoff is negligible on 0 to 1 percent slopes, very low on 1 to 3 percent slopes, and low on 3 to 5 percent slopes.

USE AND VEGETATION: Mainly used for crop production. Principal crops grown are cotton, grain sorghum, and wheat. Climax vegetation in rangeland is mainly mid and short grasses and includes blue grama, sideoats grama, and buffalograss, with lesser amounts of vine-mesquite, western wheatgrass, galleta or tobosa, silver bluestem, wild alfalfa, and prairieclover with a light to moderate overstory of mesquite. This soil has been correlated to the Deep Hardland (077CY022TX) range site in MLRA-77.

DISTRIBUTION AND EXTENT: The Southern High Plains, Southern Part (MLRA 77C in LRR H) of western Texas and eastern New Mexico. The soil is moderately extensive.

MLRA OFFICE RESPONSIBLE: Temple, Texas

SERIES ESTABLISHED: Hale County, Texas; 1969.

REMARKS: These soils were previously included with the Portales and Mansker series.
Diagnostic horizons and features recognized in this pedon are:

Mollic epipedon: 0 to 48 cm. (Ap, Bt1 horizons)
Argillic horizon: 15 to 203 cm. (Bt1, Bt2, Btk1, Btk2 horizons)
Calcic horizon: 97 to 203 cm. (Btk1, Btk2 horizons)
Pale feature: Clay content does not decrease within 152 cm (60 inches) of the surface by as much as 20 percent and argillic horizon has matrix colors redder than hue 7.5YR and chroma 5 or more.

ADDITIONAL DATA: ARS Bushland Experiment Station data from Deaf Smith County, TX (S91TX-

07 12

117-001); NSSL data from Carson County, TX (S93TX-065-001) (69L007-69L010).

TAXONOMIC VERSION: Keys to Soil Taxonomy, Tenth Edition, 2006.

National Cooperative Soil Survey
U.S.A.

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Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Acuff loam, 0 to 1 percent slopes	109,320.0	19.0%
2	Acuff loam, 1 to 3 percent slopes	12,714.0	2.2%
3	Acuff-Urban land complex, 0 to 2 percent slopes	14,213.0	2.5%
4	Amarillo loamy fine sand, 0 to 3 percent slopes	665.7	0.1%
5	Amarillo fine sandy loam, 0 to 1 percent slopes	78,245.5	13.6%
6	Amarillo fine sandy loam, 1 to 3 percent slopes	24,888.7	4.3%
7	Amarillo-Urban land complex, 0 to 2 percent slopes	16,681.2	2.9%
8	Arch loam, 0 to 3 percent slopes	2,073.7	0.4%
9	Arents and Pits	1,561.6	0.3%
10	Berda loam, 1 to 3 percent slopes	929.6	0.2%
11	Berda loam, 3 to 5 percent slopes	1,216.0	0.2%
12	Berda-Potter association, hilly	3,132.1	0.5%
13	Bippus fine sandy loam, frequently flooded	506.2	0.1%
14	Bippus clay loam, occasionally flooded	3,394.8	0.6%
15	Bippus clay loam, frequently flooded	1,868.2	0.3%
16	Drake clay loam, 1 to 3 percent slopes	2,787.6	0.5%
Totals for Area of Interest (AOI)		**575,694.3**	**100.0%**

07 14

18	Estacado clay loam, 0 to 1 percent slopes	41,666.4	7.2%

07 15

REFERENCE 8

http://iaspub.epa.gov/wme/i3_ef_link.query_links?db_type=ENVIROFACTS&ul_lr=-101.86851,33.46084125,-101.829824,33.46082675
Last updated on Tuesday, May 6th, 2008.

Envirofacts Data Warehouse

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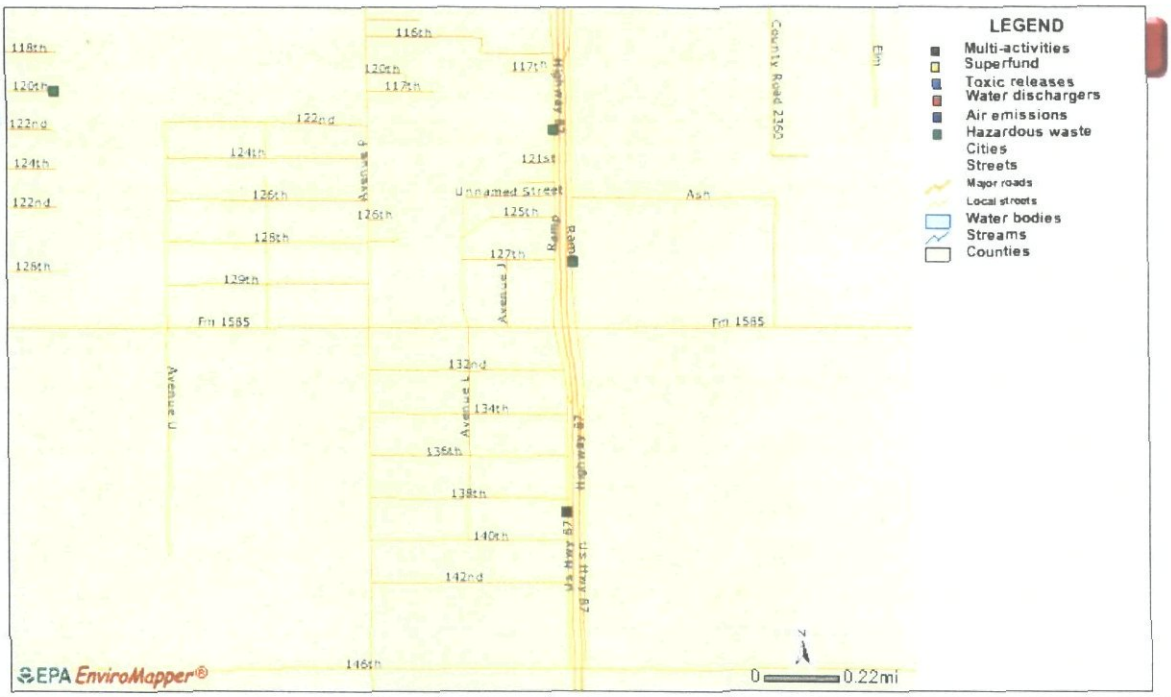
One-Mile Radius David Culbe 5/8/08



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FACILITY NAME/ADDRESS	FACILITY INFORMATION	Permitted Discharges to Water?	Toxic Releases Reported?	Hazardous Waste Handler?	Active or Archived Superfund Report?	Air Releases Reported?
CAPROCK MANUFACTURING INC 2303 120TH STREET LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
CUSTOM IRON WORKS 12701 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
RENFROW HARD CHROME PLATING 13804 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	**YES**
STRIPE A ZONE 12010 HWY 87 LUBBOCK, TX 79404	View Facility Information	NO	NO	**YES**	NO	NO

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Demographic Profile

One-Mile Radius
David Allen
5/8/08

The following tables illustrate population characteristics for the area within the map window

Demographic Profile of Surrounding Area

Total Persons:	1253	Land Area:	100%
Population Density:	280.45 /sq mi	Water Area:	0%

SOURCE: U.S. Bureau of the Census EXIT EPA
Data represents population statistics by block for 2000.

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URL: http://iaspub.epa.gov/wme/i3_embedded.open_links
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http://iaspub.epa.gov/wme/i3_ef_link.query_links?db_type=ENVIROFACTS&ul_lr=-101.887838,33.50433725,-101.810496,33.44633075
Last updated on Tuesday, May 6th, 2008.

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Two-Mile Radius
David Culbe
5/8/08

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FACILITY NAME/ADDRESS	FACILITY INFORMATION	Permitted Discharges to Water?	Toxic Releases Reported?	Hazardous Waste Handler?	Active or Archived Superfund Report?	Air Releases Reported?
CAPROCK MANUFACTURING INC 2303 120TH STREET LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
COOPER INDEPENDENT SCHOOL DISTRICT LOOP 493 AT WOODROW ROAD LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
CUSTOM IRON WORKS 12701 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
RAY SANCHEZ MARBLE CO 16224 COUNTY ROAD 2200	View Facility Information	NO	NO	**YES**	NO	NO

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LUBBOCK, TX 79423						
RENFROW HARD CHROME PLATING 13804 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	**YES**
STRIPE A ZONE 12010 HWY 87 LUBBOCK, TX 79404	View Facility Information	NO	NO	**YES**	NO	NO

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Total Number of Facilities Displayed: 6

Two-Mile Radius
David Culbe
5/8/08

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Demographic Profile

Two-mile Radius
David Cole
5/8/08

The following tables illustrate population characteristics for the area within the map window

Demographic Profile of Surrounding Area

Total Persons:	2179	Land Area:	100%
Population Density:	122.02 /sq mi	Water Area:	0%

SOURCE: U.S. Bureau of the Census EXIT EPA
Data represents population statistics by block for 2000.

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Last updated on Tuesday, May 6th, 2008.

Envirofacts Data Warehouse

Three-mile Radius David Cullen 5/8/08

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FACILITY NAME/ADDRESS	FACILITY INFORMATION	Permitted Discharges to Water?	Toxic Releases Reported?	Hazardous Waste Handler?	Active or Archived Superfund Report?	Air Releases Reported?
CAPROCK MANUFACTURING INC 2303 120TH STREET LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
ALEX TY COOKE GENERATING STATION 3500 EAST SLATON HIGHWAY LUBBOCK, TX 79457	View Facility Information	**YES**	NO	**YES**	NO	**YES**
COOPER INDEPENDENT SCHOOL DISTRICT LOOP 493 AT WOODROW ROAD LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
CUSTOM CLEANERS 3322 83RD ST	View Facility Information	NO	NO	**YES**	NO	NO

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Three-mile Radius 5/8/08 David Cobb

LUBBOCK, TX 79423						
CUSTOM IRON WORKS 12701 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
JOE JACKSON AUTOMATIC TRANSMISSION 9603 AVE P LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
PRODUCTS BY BIG 12 8606 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
RAY SANCHEZ MARBLE CO 16224 COUNTY ROAD 2200 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	NO
RENFROW HARD CHROME PLATING 13804 HIGHWAY 87 LUBBOCK, TX 79423	View Facility Information	NO	NO	**YES**	NO	**YES**
STRIPE A ZONE 12010 HWY 87 LUBBOCK, TX 79404	View Facility Information	NO	NO	**YES**	NO	NO

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Total Number of Facilities Displayed: 10

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Three-Mile Radius 5/8/08 David Allen

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Demographic Profile

The following tables illustrate population characteristics for the area within the map window

Demographic Profile of Surrounding Area

Total Persons:	17915	Land Area:	100%
Population Density:	444.83 /sq mi	Water Area:	0%

SOURCE: U.S. Bureau of the Census EXIT EPA
Data represents population statistics by block for 2000.

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Facility Detail Report

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Facility Name:	ALEX TY COOKE GENERATING STATION
Location Address:	3500 EAST SLATON HIGHWAY
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79457
EPA Region:	06
Congressional District Number:	13
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.5
Longitude:	-101.8
Method:	INTERPOLATION-MAP
Reference Point Description:	
Duns Number:	
Registry ID:	110005089386

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
AIRS/AFS	4830300001	AIR MAJOR (ACTIVE)	AIRS/AFS	10/26/2006	
NEI	NEITX303057V	CRITERIA AND HAZARDOUS AIR POLLUTANT	NEI		

08 09

		INVENTORY			
PCS	TXG830154	NPDES NON-MAJOR	NPDES PERMIT	10/02/2002	
CAMDBS	3602	AIR PROGRAM	CAMDBS		
PCS	TX0028487	NPDES NON-MAJOR	NPDES PERMIT	07/22/1998	
EGRID	3602	ELECTRIC POWER GENERATION	EGRID		
RCRAINFO	TXD981512205	CESQG (ACTIVE)	RCRAINFO	11/29/2005	
AIRS/AFS	483036E001	AIR MINOR (ACTIVE)	AIRS/AFS	07/22/1998	
					PERMIT-1212 AIR NEW SOURCE PERMITS **ACCOUNT NUMBER**-LN0057V AIR OPERATING PERMITS **PERMIT**-1213 AIR NEW SOURCE PERMITS **PERMIT**-5X2600389 UNDERGROUND INJECTION CONTROL **PERMIT**-TX0028487 WASTEWATER **PERMIT**-3807 AIR NEW SOURCE PERMITS **PERMIT**-TPDES0028487 WASTEWATER **PERMIT**-TXR05L083 STORMWATER **PERMIT**-45596 AIR NEW SOURCE PERMITS **AFS NUM**-4830300001 AIR NEW SOURCE PERMITS **ACCOUNT NUMBER**-LN0057V AIR NEW SOURCE PERMITS **SOLID WASTE REGISTRA**-37374 INDUSTRIAL AND HAZARDOUS WASTE

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TX-TCEQ ACR	RN102545142	STATE MASTER	TX-TCEQ ACR		GENERATION **PERMIT**-9 AIR OPERATING PERMITS **EPA ID**-TXD981512205 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **PERMIT**-WQ0001895000 WASTEWATER **PERMIT**-5X2600389 UIC **PERMIT**-45596 AIR PROGRAM **SOLID WASTE REGISTRA**-37374 HAZARDOUS WASTE PROGRAM **ACCOUNT NUMBER**-LN0057V AIR PROGRAM **PERMIT**-TXR05L083 NPDES STORMWATER PERMIT **ACCOUNT NUMBER**-LN0057V AIR PROGRAM **PERMIT**-TX0028487 NPDES PERMIT **PERMIT**-WQ0001895000 NPDES PERMIT **PERMIT**-1212 AIR PROGRAM **PERMIT**-3807 AIR PROGRAM **PERMIT**-TPDES0028487 NPDES PERMIT **PERMIT**-9 AIR PROGRAM **EPA ID**-TXD981512205 HAZARDOUS WASTE PROGRAM **PERMIT**-1213 AIR PROGRAM **AFS NUM**-4830300001 AIR PROGRAM

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RCRAINFO	TXD981512205	TRANSPORTER (ACTIVE)	RCRAINFO	11/29/2005	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OPERATOR	PO BOX 2000	LUBBOCK	TX	79408	RCRAINFO
OWNER	C/O LUBBOCK POWER & LIGHT	LUBBOCK	TX	794570001	PCS
OWNER	POWER AND LIGHT	LUBBOCK	TX	79457	PCS
FACILITY MAILING ADDRESS	PO BOX 2000	LUBBOCK	TX	79457	RCRAINFO
REGULATORY CONTACT	PO BOX 2000	LUBBOCK	TX	79457	RCRAINFO
FACILITY MAILING ADDRESS	3500 EAST SLATON HWY	LUBBOCK	TX	79459	AIRS/AFS
ALTERNATE MAILING ADDRESS	LP & L EHS/ LBC MAILROOM	LUBBOCK	TX	79457	PCS
FACILITY MAILING ADDRESS	P.O. BOX 2000	LUBBOCK	TX	79457	AIRS/AFS
OWNER OPERATOR	RR 10 BOX 31C	LUBBOCK	TX	794047010	TX-TCEQ ACR
PRIMARY MAILING ADDRESS	PO BOX 2000	LUBBOCK	TX	79457	PCS
MAILING ADDRESS	3500 E SLATON RD	LUBBOCK	TX	794049722	TX-TCEQ ACR
OWNER	PO BOX 2000	LUBBOCK	TX	79408	RCRAINFO

NAICS Codes

Data Source	NAICS Code	Description	Primary
RCRAINFO	221122	ELECTRIC POWER DISTRIBUTION.	

SIC Codes

Data Source	SIC Code	Description	Primary
PCS	4911	ELECTRIC SERVICES	
TX-TCEQ ACR	4911	ELECTRIC SERVICES	
PCS	4911	ELECTRIC SERVICES	
NEI	4911	ELECTRIC SERVICES	
AIRS/AFS	4911	ELECTRIC SERVICES	
CAMDBS	4911	ELECTRIC SERVICES	
AIRS/AFS	4911	ELECTRIC SERVICES	

Contacts

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Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
COGNIZANT OFFICIAL	GARY ZHENG, CHIEF OPER OFFICER	8067752551	PCS	
COMPLIANCE CONTACT	DAVID GOODE	8067753535	AIRS/AFS	
MAILING ADDRESS	GARY ZHENG		CAMDBS	
REGULATORY CONTACT	CHRIS E SIMS	8067753580	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OWNER	CITY OF LUBBOCK - LUBBOCK		PCS	View
OWNER/OPERATOR	CITY OF LUBBOCK		CAMDBS	
OPERATOR	CITY OF LUBBOCK		RCRAINFO	View
OWNER OPERATOR	CITY OF LUBBOCK		TX-TCEQ ACR	View
OWNER	CITY OF LUBBOCK		RCRAINFO	View
MAILING ADDRESS	CITY OF LUBBOCK		CAMDBS	
OWNER	CITY OF LUBBOCK		PCS	View

Alternative Names

Alternative Name	Source of Data
ALEX TY COOKE GENERATING STATI	NPDES PERMIT
CITY OF LUBBOCK	NPDES PERMIT
LUBBOCK, CITY OF	NPDES PERMIT
LUBBOCK POWER AND LIGHT	NPDES PERMIT
JAY WADSWORTH	AIRS/AFS
ALEX TY COOKE GEN STA (HOLLY AVE)	FRS
LUBBOCK CITY HOLLY AVE PLANT	RCRAINFO
LUBBOCK POWER AND LIGHT/HOLLY AVE PLANT	AIRS/AFS
HOLLY AVE	AIR VOLUNTARY SUBMISSION

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Facility Detail Report

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FRS

Facility Name:	CUSTOM CLEANERS
Location Address:	3322 83RD ST
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.518555
Longitude:	-101.885975
Method:	ADDRESS MATCHING-HOUSE NUMBER

08 14

Reference Point Description:	
Duns Number:	026787135
Registry ID:	110005044120

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXD026787135	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	08/23/2001	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
FACILITY MAILING ADDRESS	3322 83RD ST	LUBBOCK	TX	79423	RCRAINFO
REGULATORY CONTACT	3322 83RD ST	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

No SIC Codes returned.

Contacts

Organizations

08 15

No Organizations returned.

Alternative Names

Alternative Name	Source of Data
CUSTOM CLNRS	NOTIFICATION (RCRA)

Query executed on: MAY-08-2008

- EPA Home
- Privacy and Security Notice
- Contact Us

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Last updated on Thursday, May 8th, 2008.

Facility Registry System (FRS)

You are here: EPA Home Envirofacts FRS Report

Facility Detail Report

Report an Error

FRS

Facility Name:	JOE JACKSON AUTOMATIC TRANSMISSION
Location Address:	9603 AVE P
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.506332
Longitude:	-101.852656
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	PLANT ENTRANCE (GENERAL)
Duns Number:	170961338
Registry ID:	110005143969

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
					EPA ID- TXD988057204 HAZARDOUS WASTE PROGRAM **SOLID WASTE**

08 17

TX-TCEQ ACR	RN102980570	STATE MASTER	TX-TCEQ ACR		**REGISTRA-** 39948 HAZARDOUS WASTE PROGRAM **SOLID WASTE REGISTRA-** 39948 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **EPA ID-** TXD988057204 INDUSTRIAL AND HAZARDOUS WASTE GENERATION
RCRAINFO	TXD988057204	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	07/31/1996	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
FACILITY MAILING ADDRESS	9603 AVE P	LUBBOCK	TX	79423	RCRAINFO
MAILING ADDRESS	9603 AVENUE P	LUBBOCK	TX	794233270	TX-TCEQ ACR
OWNER OPERATOR	9603 AVENUE P	LUBBOCK	TX	794233270	TX-TCEQ ACR
REGULATORY CONTACT	9603 AVE P	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

Data Source	SIC Code	Description	Primary
TX-TCEQ ACR	7537	AUTOMOTIVE TRANSMISSION REPAIR SHOPS	

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
OWNER OPERATOR	JOE JACKSON	8067451313	TX-TCEQ ACR	View
REGULATORY CONTACT	JOE JACKSON	8067451313	RCRAINFO	View

08 18

Organizations

No Organizations returned.

Alternative Names

Alternative Name	Source of Data
JOE JACKSONS AUTOMATIC TRANSM	NOTIFICATION (RCRA)

Query executed on: MAY-08-2008

08 19

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Last updated on Thursday, May 8th, 2008.

Facility Registry System (FRS)

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Facility Detail Report

Report an Error

FRS

Facility Name:	PRODUCTS BY BIG 12
Location Address:	8606 HIGHWAY 87
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	
Legislative District Number:	02
HUC Code:	
Federal Facility:	NO
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.515872
Longitude:	-101.844401
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	
Registry ID:	110031302409

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
TX-TCEQ ACR	RN102200078	STATE MASTER	TX-TCEQ		**REGISTRATION-** 26374 AIR NEW SOURCE PERMITS **ACCOUNT**

08 20

			ACR		**NUMBER-** LN0122M AIR NEW SOURCE PERMITS
RCRAINFO	TXR000070110	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	03/12/2008	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
CONTACT / OPERATOR	8504 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
OWNER OPERATOR	8606 HIGHWAY 87	LUBBOCK	TX	794233537	TX-TCEQ ACR
OWNER	8606 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
CONTACT / OWNER	8504 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
CONTACT / REGULATORY	8504 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
MAILING ADDRESS	8606 HIGHWAY 87	LUBBOCK	TX	794233537	TX-TCEQ ACR
FACILITY MAILING ADDRESS	8504 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

Data Source	SIC Code	Description	Primary
TX-TCEQ ACR	3444	SHEET METALWORK	
TX-TCEQ ACR	3441	FABRICATED STRUCTURAL METAL	

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
CONTACT / REGULATORY	MIKE HEFNER	8067451191	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address

08 21

CONTACT / OPERATOR	LUMMUS CORPORATION		RCRAINFO	View
CONTACT / OWNER	LUMMUS CORPORATION		RCRAINFO	View
OWNER OPERATOR	PRODUCTS BY BIG 12, INC.		TX-TCEQ ACR	View
OWNER	PRODUCTS BY BIG 12 INC		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-08-2008

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Last updated on Thursday, May 8th, 2008.

Facility Registry System (FRS)

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Facility Detail Report

Report an Error

FRS

Facility Name:	RAY SANCHEZ MARBLE CO
Location Address:	16224 COUNTY ROAD 2200
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.44665
Longitude:	-101.870341
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	066400912
Registry ID:	110005091836

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXD981592066	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	02/14/2001	

08 23

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OPERATOR	16224 COUNTY ROAD 2200	LUBBOCK	TX	79423	RCRAINFO
OWNER	16224 COUNTY ROAD 2200	LUBBOCK	TX	79423	RCRAINFO
FACILITY MAILING ADDRESS	16224 COUNTY ROAD 2200	LUBBOCK	TX	79423	RCRAINFO
REGULATORY CONTACT	16224 COUNTY ROAD 2200	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

No SIC Codes returned.

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	RAY SANCHEZ	8068632633	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OWNER	RAY SANCHEZ MARBLE CO		RCRAINFO	View
OPERATOR	RAY SANCHEZ MARBLE CO		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-08-2008

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Facility Registry System (FRS)

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Facility Detail Report

Report an Error

FRS

Facility Name:	RENFROW HARD CHROME PLATING
Location Address:	13804 HIGHWAY 87
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.468385
Longitude:	-101.844709
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	026790170
Registry ID:	110007205700

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
					ICIS-06-1997-0506 FORMAL ENFORCEMENT ACTION

08 25

ICIS	44945	FORMAL ENFORCEMENT ACTION	ICIS	08/03/2000	**ICIS**-06-1997-0872 FORMAL ENFORCEMENT ACTION **ICIS**-06-1998-0359 FORMAL ENFORCEMENT ACTION **ICIS**-06-1998-0528 FORMAL ENFORCEMENT ACTION
RCRAINFO	TXD026790170	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	01/23/2006	
AIRS/AFS	483036E002	AIR MINOR (ACTIVE)	AIRS/AFS	09/01/2000	
TX-TCEQ ACR	RN101469542	STATE MASTER	TX-TCEQ ACR		**SOLID WASTE REGISTRA**-62042 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **PERMIT**-38047 AIR NEW SOURCE PERMITS **EPA ID**-TXD026790170 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **PERMIT**-TXRNEP050 STORMWATER **EPA ID**-TXU500182 PRETREATMENT **ACCOUNT NUMBER**-LN0445I AIR NEW SOURCE PERMITS **EPA ID**-TXU500182 NPDES PRETREATMENT PROGRAM

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System

08 26

OWNER	13804 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
REGULATORY CONTACT	13804 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
MAILING ADDRESS	13804 HIGHWAY 87	LUBBOCK	TX	794237612	TX-TCEQ ACR
OPERATOR	13804 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
OWNER OPERATOR	13804 HIGHWAY 87	LUBBOCK	TX	794237612	TX-TCEQ ACR
FACILITY MAILING ADDRESS	13804 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
FACILITY MAILING ADDRESS	13804 HWY. 87	LUBBOCK	TX	79423	AIRS/AFS

NAICS Codes

No NAICS Codes returned.

SIC Codes

Data Source	SIC Code	Description	Primary
AIRS/AFS	3471	ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING	
ICIS	3471	ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING	
TX-TCEQ ACR	3471	ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING	
ICIS	3398	METAL HEAT TREATING	

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	MIKE PROPER	8067453624	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OPERATOR	PROPER INC		RCRAINFO	View
OWNER OPERATOR	PROPER, INC.		TX-TCEQ ACR	View
OWNER	PROPER INC		RCRAINFO	View

Alternative Names

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Alternative Name	Source of Data
RENFROW HARD CHROME CO.	AIRS/AFS
RENFRO HARD CROME CO	ICIS
RENFROW HARD CHROME CO.	AIRS/AFS

Query executed on: MAY-08-2008

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Last updated on Monday, May 5th, 2008.

Facility Registry System (FRS)

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Facility Detail Report

Report an Error

FRS

Facility Name:	CAPROCK MANUFACTURING INC
Location Address:	2303 120TH STREET
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.486334
Longitude:	-101.86648
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	102492238
Registry ID:	110005175826

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXR000018978	CESQG (ACTIVE)	RCRAINFO	07/02/2007	

Facility Mailing Addresses

08 29

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OPERATOR	2303 120TH ST	LUBBOCK	TX	79423	RCRAINFO
OWNER	2303 120TH ST	LUBBOCK	TX	79423	RCRAINFO
FACILITY MAILING ADDRESS	2303 120TH ST	LUBBOCK	TX	79423	RCRAINFO
REGULATORY CONTACT	2303 120TH ST	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

Data Source	NAICS Code	Description	Primary
RCRAINFO	326199	ALL OTHER PLASTICS PRODUCT MANUFACTURING.	

SIC Codes

No SIC Codes returned.

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	DARWIN HYATT	8067456454	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OPERATOR	CAPROCK MANUFACTURING INC		RCRAINFO	View
OWNER	CAPROCK MANUFACTURING INC		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-05-2008

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Last updated on Monday, May 5th, 2008.

Facility Registry System (FRS)

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Facility Detail Report

Report an Error

FRS

Facility Name:	STRIPE A ZONE
Location Address:	12010 HWY 87
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79404
EPA Region:	06
Congressional District Number:	
Legislative District Number:	02
HUC Code:	
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.484659
Longitude:	-101.845144
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	
Registry ID:	110022829260

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXR000043166	CESQG (ACTIVE)	RCRAINFO	07/25/2001	

Facility Mailing Addresses

08 31

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OWNER	12010 HWY 87	LUBBOCK	TX	79404	RCRAINFO
FACILITY MAILING ADDRESS	12010 HWY 87	LUBBOCK	TX	79404	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

No SIC Codes returned.

Contacts

No Contacts returned.

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OWNER	UNKNOWN		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-05-2008

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Last updated on Monday, May 5th, 2008.

Facility Registry System (FRS)

You are here: EPA Home Envirofacts FRS Report

Facility Detail Report

Report an Error

FRS

Facility Name:	CUSTOM IRON WORKS
Location Address:	12701 HIGHWAY 87
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.479028
Longitude:	-101.844307
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	059686436
Registry ID:	110008147424

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXD059686436	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	07/27/2001	

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Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OPERATOR	12701 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
FACILITY MAILING ADDRESS	12701 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
OWNER	12701 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO
REGULATORY CONTACT	12701 HIGHWAY 87	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

No SIC Codes returned.

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	ENVIRONMENTAL MANAGER	8067452757	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OPERATOR	CUSTOM IRON WORKS		RCRAINFO	View
OWNER	CUSTOM IRON WORKS		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-05-2008

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Last updated on Monday, May 5th, 2008.

Facility Registry System (FRS)

You are here: EPA Home Envirofacts FRS Report

Facility Detail Report

Report an Error

FRS

Facility Name:	COOPER INDEPENDENT SCHOOL DISTRICT
Location Address:	LOOP 493 AT WOODROW ROAD
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	
Legislative District Number:	
HUC Code:	
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.44726
Longitude:	-101.84371
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	
Registry ID:	110031306058

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXR000030130	CESQG (ACTIVE)	RCRAINFO	02/22/1999	

Facility Mailing Addresses

08 35

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OWNER	LOOP493 AT WOODROW ROAD	LUBBOCK	TX	79423	RCRAINFO

NAICS Codes

No NAICS Codes returned.

SIC Codes

No SIC Codes returned.

Contacts

No Contacts returned.

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OWNER	COOPER ISD		RCRAINFO	View

Alternative Names

No Alternative Names returned.

Query executed on: MAY-05-2008

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BBB Reliability Report for

CUSTOM IRON WORKS

What is a BBB Accredited Business?
Learn More

A BBB Accredited business since 06/15/2005.

BBB Rating Satisfactory

Request a Quote

BBB issues Reliability Reports on all businesses, whether or not they are BBB accredited. If a business is a BBB Accredited Business, it is stated in this **report**.

Name:	CUSTOM IRON WORKS
Phone:	(806) 745-2757
Fax:	(806) 745-2015
Address:	12701 Highway 87 Lubbock, TX 79423-7435 Yahoo Map
Local Start Date:	January 1971
Principal:	Donna Townsend, Off. Mgr.
Customer Contact:	Donna Townsend, Off. Mgr. - (806) 745-2757
Entity:	Sole Proprietor
File Open Date:	August 1995
TOB Classification:	Manufacturers & Producers
BBB Accreditation:	This organization is a BBB Accredited business.

BBB Accreditation Status

This company has been a BBB Accredited business since June 2005. This means it supports the BBB's services to the public and meets our BBB Accreditation standards.

Program Participation

068 37

This company participates in the BBB Accreditation Identification Program and has agreed to use special procedures including **arbitration**, if necessary, to resolve disputes.

Nature Of Business

This company offers custom iron work; ornamental, commercial & residential

Customer Experience

Based on BBB files, this company has a **satisfactory record** with the BBB. A **satisfactory record** means a company has been in business for at least 12 months, and properly addressed matters referred by the BBB. The company does not have an unusual volume of complaints, or any government actions involving its marketplace conduct. The BBB understands and has no concerns about the company's products, services and type of business.

The BBB processed a total of 0 complaints about this company in the last 36 months, our standard reporting period.

Report as of May 21, 2008
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If you choose to do business with this business, please let the business know that you contacted BBB for a BBB Reliability **Report**.

As a matter of policy, BBB does not endorse any product, service or business.

BBB Reliability Reports are provided solely to assist you in exercising your own best judgment. Information in this BBB Reliability Report is believed reliable, but not guaranteed as to accuracy.

BBB Reliability Reports generally cover a three-year reporting period. BBB Reliability Reports are subject to change at any time.

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BBB Reliability Report for

A 1 SEAL COAT

What is a BBB Accredited Business?
Learn More

BBB Rating No Rating

BBB issues Reliability Reports on all businesses, whether or not they are BBB accredited. If a business is a BBB Accredited Business, it is stated in this **report.**

Name:	A 1 SEAL COAT
Phone:	(806) 745-3617
Fax:	(806) 745-3799
Address:	609 E Slaton Rd Lubbock, TX 79404-5821
Local Start Date:	June 1960
Principal:	Richard H Tivis, Owner
Customer Contact:	Richard H Tivis, Owner
Entity:	Sole Proprietor
File Open Date:	July 1987
TOB Classification:	Parking Area Maintenance & Marking, Pavement & Floor Marking Services
BBB Accreditation:	This organization is not a BBB Accredited business.

Additional DBA Names

TEXAS STRIPING COMPANY
STRIPE-A-ZONE
A STRIPE A ZONE CO.
STRAIGHT LINE STRIPING

Out of Business

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According to information in BBB files, this company is no longer in business. If you have an **unresolved** dispute with this company you may wish to seek legal advice.

Customer Experience

The BBB processed a total of 0 complaints about this company in the last 36 months, our standard reporting period.

Additional Contact Information

Additional Addresses
3604 101st St
Lubbock, TX 79423-5119

121st & Tahoka Hwy
Lubbock, TX 79423

Industry Tips

GOING OUT of BUSINESS

It has been reported to the BBB that this company is in th process of going out of business.

GENERAL ADVISORY

On September 3, 2001, the Going Out of Business law was changed to require businesses that conduct "going out of business sales" to receive a permit. These types of sales cannot be conducted unless the business is planning on ceasing operations.

The law requires businesses that wish to go out of business and conduct a "going out of business" sale, to get a permit from the Central Appraisal District of the county in which the store is
located. The store must file a sworn permit application and pay a $20 fee along with an original inventory to receive the permit.
The Chief Appraiser will then issue a non-renewable permit for the sale that is valid for 120 days.

Failure to comply with this law is a Class A misdemeanor and is punishable by a fine not to exceed $4000 and or confinement in jail for no more than a year, with each day of violation
constituting a separate offense.

Persons wishing to **report** "going out of business" sales or seeking to get a **license** to advertise they are going out of business, may call the Lubbock Central Appraisal District at 806.762.5000.

Report as of May 21, 2008
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If you choose to do business with this business, please let the business know that you contacted BBB for a BBB Reliability **Report**.

As a matter of policy, BBB does not endorse any product, service or business.

BBB Reliability Reports are provided solely to assist you in exercising your own best judgment. Information in this BBB Reliability Report is believed reliable, but not guaranteed as to accuracy.

BBB Reliability Reports generally cover a three-year reporting period. BBB Reliability Reports are subject to change at any time.

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Last updated on Wednesday, May 21st, 2008.

Facility Registry System (FRS)

You are here: EPA Home Envirofacts FRS Report

Facility Detail Report

Report an Error

FRS

Facility Name:	BRITE WAY CLEANERS
Location Address:	8004 INDIANA AVENUE
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.521776
Longitude:	-101.887677
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	157613852
Registry ID:	110005100531

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
RCRAINFO	TXD981915721	HAZARDOUS WASTE BIENNIAL REPORTER (ACTIVE)	RCRAINFO	12/31/2005	

INTERNAL-
08 43

TX-TCEQ ACR	RN100701754	STATE MASTER	TX-TCEQ ACR		100701754 DRY CLEANERS REGISTRATION **EPA ID-** TXD981915721 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **SOLID WASTE REGISTRA-** 72485 INDUSTRIAL AND HAZARDOUS WASTE GENERATION **EPA ID-** TXD981915721 HAZARDOUS WASTE PROGRAM **SOLID WASTE REGISTRA-** 72485 HAZARDOUS WASTE PROGRAM **INTERNAL-** 100701754 DRY CLEANER REMEDIATION PROGRAM
RCRAINFO	TXD981915721	LQG (ACTIVE)	RCRAINFO	03/01/2006	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
OWNER OPERATOR	3331 70TH ST	LUBBOCK	TX	794136130	TX-TCEQ ACR
OWNER	8004 INDIANA AVE STE A1	LUBBOCK	TX	794232033	TX-TCEQ ACR
OWNER	8004 INDIANA AVENUE	LUBBOCK	TX	794232033	RCRAINFO
OPERATOR	3331 70TH ST	LUBBOCK	TX	79413	RCRAINFO
FACILITY MAILING ADDRESS	8004 INDIANA	LUBBOCK	TX	79423	RCRAINFO
MAILING ADDRESS	8004 INDIANA AVE STE A1	LUBBOCK	TX	794232033	TX-TCEQ ACR

NAICS Codes

Data Source	NAICS Code	Description	Primary
RCRAINFO	81232		

08 44

SIC Codes

Data Source	SIC Code	Description	Primary
TX-TCEQ ACR	7216	DRYCLEANING PLANTS, EXCEPT RUG CLEANING	

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	VICTOR BOLTON	8067978034	RCRAINFO	
OWNER OPERATOR	VICTOR BOLTON	8067929948	TX-TCEQ ACR	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
OWNER	BOLTON BRITE WAY CLEANERS INC		RCRAINFO	View
OPERATOR	BOLTON		RCRAINFO	View
OWNER	BOLTON BRITE WAY CLEANERS, INC.		TX-TCEQ ACR	View

Alternative Names

Alternative Name	Source of Data
BOLTON BRITE-WAY CLEANERS INC	NOTIFICATION (RCRA)

Query executed on: MAY-21-2008

08 45

http://oaspub.epa.gov/enviro/fii_query_dtl.disp_program_facility?p_registry_id=110008151098
Last updated on Wednesday, May 21st, 2008.

Facility Registry System (FRS)

You are here: EPA Home Envirofacts FRS Report

Facility Detail Report

Report an Error

FRS

Facility Name:	MASTER CLEANERS 2
Location Address:	3420 82ND
Supplemental Address:	
City Name:	LUBBOCK
State	TX
County Name:	LUBBOCK
ZIP/Postal Code:	79423
EPA Region:	06
Congressional District Number:	19
Legislative District Number:	02
HUC Code:	12050003
Federal Facility:	
US Mexico Border Indicator:	NO
Tribal Land :	NO
Latitude:	33.519776
Longitude:	-101.888055
Method:	ADDRESS MATCHING-HOUSE NUMBER
Reference Point Description:	
Duns Number:	799952630
Registry ID:	110008151098

Map this facility

Environmental Interests

Information System	Information System ID	Environmental Interest Type	Data Source	Last Updated Date	Supplemental Environmental Interests:
TX-TCEQ ACR	RN100596584	STATE MASTER	TX-TCEQ		**INTERNAL-** 100596584 DRY CLEANERS REGISTRATION **INTERNAL-**

68 46

			ACR		100596584 DRY CLEANER REMEDIATION PROGRAM
RCRAINFO	TXD127848927	UNSPECIFIED UNIVERSE (INACTIVE)	RCRAINFO	09/27/2001	

Facility Mailing Addresses

Affiliation Type	Delivery Point	City Name	State	Postal Code	Information System
REGULATORY CONTACT	3420 82ND	LUBBOCK	TX	79423	RCRAINFO
FACILITY MAILING ADDRESS	3420 82ND	LUBBOCK	TX	79423	RCRAINFO
CONTACT / OWNER	6006 82ND ST	LUBBOCK	TX	794243643	TX-TCEQ ACR
MAILING ADDRESS	3420 82ND ST	LUBBOCK	TX	794231716	TX-TCEQ ACR

NAICS Codes

Data Source	NAICS Code	Description	Primary
RCRAINFO	81232		

SIC Codes

Data Source	SIC Code	Description	Primary
TX-TCEQ ACR	7216	DRYCLEANING PLANTS, EXCEPT RUG CLEANING	

Contacts

Affiliation Type	Full Name	Office Phone	Information System	Mailing Address
REGULATORY CONTACT	GARY AMMONS	8067977305	RCRAINFO	View

Organizations

Affiliation Type	Name	DUNS Number	Information System	Mailing Address
CONTACT / OWNER	PHA-GA TEXAS INC.		TX-TCEQ ACR	View

Alternative Names

08 47

Alternative Name	Source of Data
WEST TEXAS MASTER CLEANERS INC	RCRAINFO
MASTER CLEANERS INC #2	NOTIFICATION (RCRA)

Query executed on: MAY-21-2008

08 48

REFERENCE 9

TCEQ TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SITE SEARCH:
please enter search phrase Go
SUBJECT INDEX
› Air › Water › Waste
› Search TCEQ Data
› Agency Organization Map

Districts | Utilities | PWSs | Maps | Documents | Reports | WUD Main

Public Water Systems Details/Data Sheet for COUNTRY SQUIRE MHP 1 (1520142)

Affiliations | Site Visits | Documents | Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Address: **13010 AVENUE L**
LUBBOCK, TX 79423-5934
Individual: **PAMELA HUGHES**
Job Title: **OWNER** Phone: **(806) 748-1502**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602420820	HUGHES, PAMELA SUE	OWNER OPERATOR

Properties

CR Regulated Entity Number: **RN102677028**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	60	19	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

09 01

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00100 MG**

Production:

Total Production: **0.057 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
03/03/2000	SURVEY	20	MALCOLM LAING
03/07/2001	SURVEY	0	MALCOLM LAING
02/04/2004	SURVEY	11	LANCE OWENS
05/16/2005	SURVEY	0	LANCE OWENS
04/26/2007	SURVEY MD05/09/2007,RD05/22/2007	0	LANCE OWENS

Site Visit occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

Comments | Webmaster | Disclaimer

09 02

05/08/2008
4:21:03PM

Texas Commission on Environmental Quality
Water System Data Sheet

WSDSR

PWS ID	PWS Name	Central Registry RN
1520142	COUNTRY SQUIRE MHP 1	RN102677028

Organization/Customer *	Central Registry CN
HUGHES, PAMELA SUE	CN602420820

* Regulatory mail will be addressed to this organization / person

Responsible Official **	Title
PAMELA HUGHES	OWNER

Mailing Address:

Street Address	C/O or Address Line 2
13010 AVENUE L	

City	State	Zip
LUBBOCK	TX	79423 - 5934

Business Phone	Other Phone	Other Phone Type	Email
(806) 748-1502	(806) 239-1313	CELLULAR	

** Regulatory mail will be addressed to this person

No PWS Primary Contact assigned to this PWS

No Emergency Contact assigned to this PWS

Owner Type	Owner Type Options: AFFECTED COUNTIES, COUNTY, DISTRICT/AUTHORITY, EXEMPT, FEDERAL GOVERNMENT, INVESTOR, MUNICIPALITY, NATIVE AMERICAN, PRIVATE, SUBMETER \ ALLOCATION, STATE GOVERNMENT, NOT RETAIL PUBLIC UTILITIES, WATER SUPPLY CORPORATION, MISC/UNKNOWN
PRIVATE	

System Type	System Type Options: COMMUNITY, COMMUNITY (NON-GOVERNMENT OWNED), TRANSIENT/NON-COMMUNITY, NON-PUBLIC, NON-TRANSIENT/NON-COMMUNITY
COMMUNITY	

Customer Class	Customer Category	Population Served	# of Connect	# of Meters	# I/C w/other PWS
RESIDENTIAL	MOBILE HOME PARK	60	19	1	0

Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux.Prod.Cap. Max.Pur.Cap.(MGD)	Pressure Tank Cap.(MG)
0.057	0.000	0.000	0.000	0.000	0.000	0.00100

Activity Status	Deactivation Date	Reason
ACTIVE		

09 03

Operator Grade	Number
WATER GRADE D	**1**

Last Survey Date	Surveyor	Survey Type	Code	Region	County	Def.Score
04/26/2007	**LANCE OWENS**	**SURVEY**		**2**	**LUBBOCK**	**0**
05/16/2005	**LANCE OWENS**	**SURVEY**		**2**	**LUBBOCK**	**0**
02/04/2004	**LANCE OWENS**	**SURVEY**		**2**	**LUBBOCK**	**11**

09 04

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
001	**EP 000000000000001(I)**	**WELL 1(I)**	**16338**			**Yes**

Train:	**(Unnamed)**

(Treatments)				
Disinfection Zone	Treatment Sequence	Objective	Process	Treatment
	1	**D**	**423**	**HYPOCHLORINATION(PRE)**

(Active Sources)
(No active Sources associated with this EP/Plant)

(Inactive/Offline Sources)			
SourceNumber	Name	Status	Depth
G1520142A	**1 - SW OF MHP**	**E**	**140**

09 05

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
002	**FAUCET 20FT OFF PT / OGALLALA(A)**	**WELL 2(A)**	**9602**	**G**		**Yes**

Train:	**(Unnamed)**

(Treatments)				
Disinfection Zone	Treatment Sequence	Objective	Process	Treatment
	1	**D**	**423**	**HYPOCHLORINATION(PRE)**

(Active Sources)						
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G1520142B	**2 - SE OF MHP(A)**	**O**	**G**	**189**	**40**	**40**

Drill Date	Well Data
6/0/1983	**OGALLALA FORMATION**

GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller
Not Available	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**Not a Purchased Source**

(Inactive/Offline Sources)
(No inactive Sources associated with this EP/Plant)

Code Explanations
Monitoring Type Codes: (G) GROUND WATER , (S) SURFACE WATER , (U) GROUND WATER UNDER THE INFLUENCE
Activity Status Codes:
Operational Status Codes: (C) CAPPED , (D) DEMAND , (E) EMERGENCY , (F) FORMER PWS SOURCE , (I) INACTIVE PWS SYSTEM , (N) NON-DRINKING WATER , (O) OPERATING , (P) PLUGGED , (T) TEST , (Y) PWS NOT ACTIVE AND NOT EXPECTED TO BE SO
Source Types: (G) GROUND WATER , (S) SURFACE WATER , (U) GROUND WATER UNDER THE INFLUENCE

- End of Report -

The Texas Commission on Environmental Quality is pleased to provide this information to you free of charge. Please understand that we cannot guarantee the accuracy or completeness of the information being supplied. At the time of your query this data was the most current information available from our database, which is updated weekly. Every effort was made to retrieve it according to your query. Thank-you for using WUD.

09 06

REFERENCE 10

TWDB WIID
Water Well Data

Wells in TWDB Groundwater Database - Texas

Help

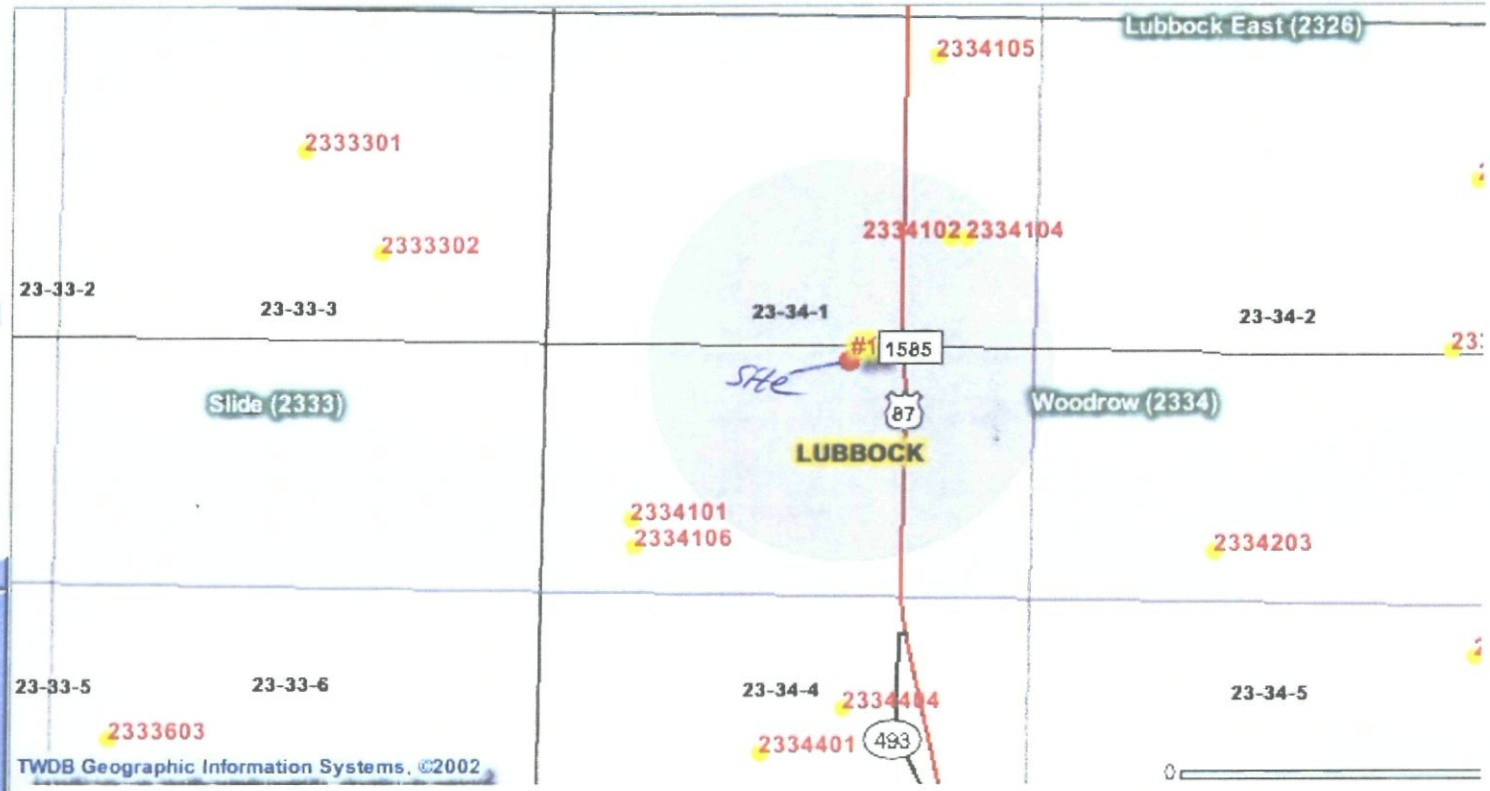
Active Tool
Zoom Out

Zoom Move Select

[Layers]

Visible Active

- TWDB Groundwater Data
- Submitted Driller's Reports
- Submitted Drillers Reports - D.I.M.s
- Groundwater Districts
- Major Aquifers
- Minor Aquifers
- State Hwy
- FM & RM Roads
- Other State Roads
- Interstate Hwy
- US Hwy
- 7.5' USGS Grid



Restart

Buffer Size: 1 Miles

Attributes: Display

Buffer Point & Select

Buffer Line & Select

Buffer Polygon & Select

10 01

TWDB GROUNDWATER DATA *(Explanation)*

Rec	OBJECT	State Well Number	Owner	Water Use	Elevation	Well Depth	Water Level	Water Quality	Aquifer Code	Latitude	Longitude	COUNTY_CODE	WELL_TYPE	area	len
1	27864893	2334102		I	3188		H	N	121OGLL	332903	1015027	303	W	0	0
2	27864894	2334104	Ed Gordon	I	3192	155	H	N	121OGLL	332903	1015022	303	W	0	0

Zoom to these records

One-Mile Radius
David Culh
5/13/08

10 02

TWDB WIID
Water Well Data

Wells in TWDB Groundwater Database - Texas

Help

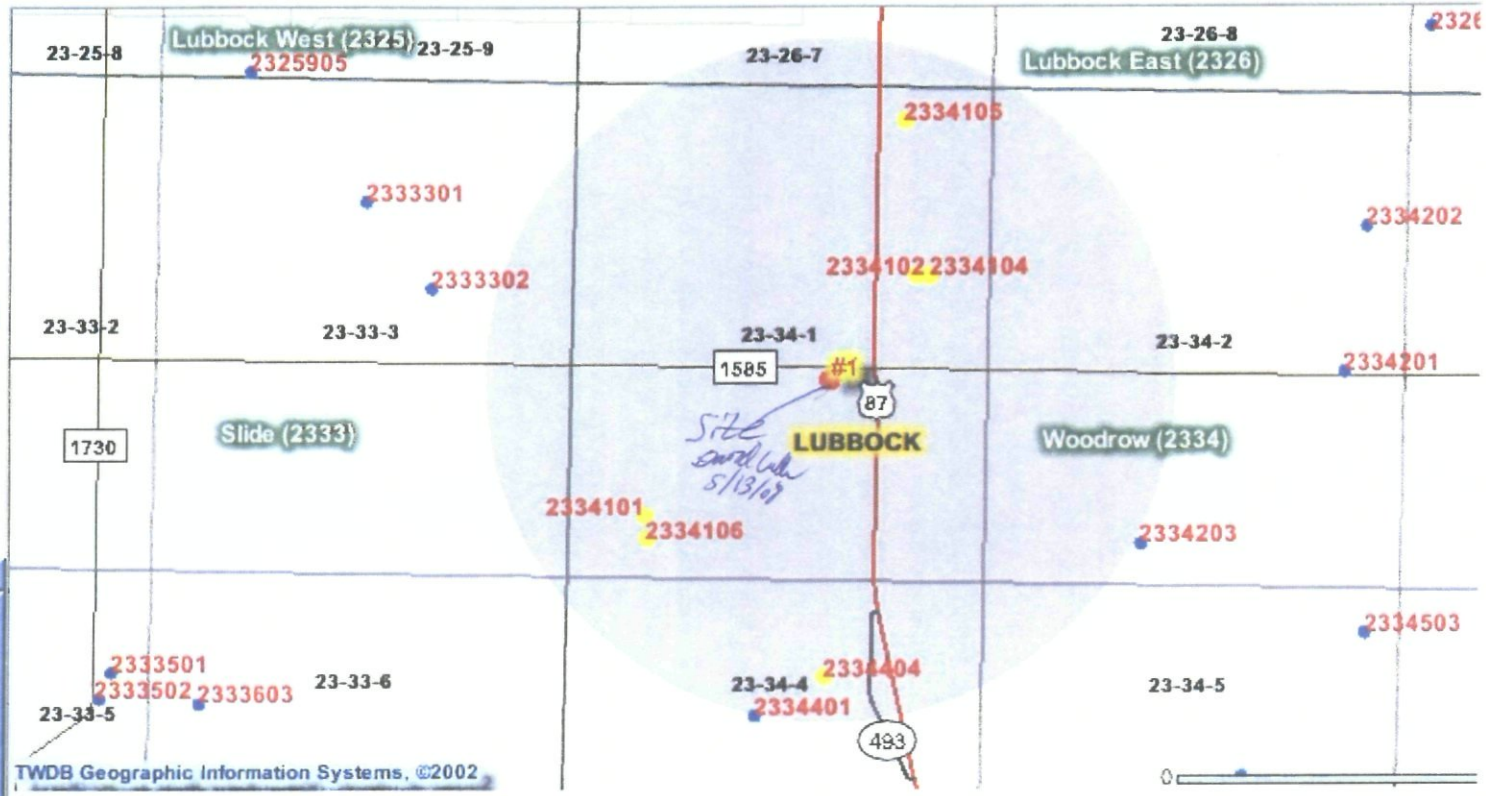
Active Tool
Zoom In

Zoom Move Select

[Layers]

Visible Active

- TWDB Groundwater Data
- Submitted Driller's Reports
- Submitted Drillers Reports - D.I.M.s
- Groundwater Districts
- Major Aquifers
- Minor Aquifers
- State Hwy
- FM & RM Roads
- Other State Roads
- Interstate Hwy
- US Hwy
- 7.5' USGS Grid



Restart

Buffer Size: 2 Miles

Attributes: Display

Buffer Point & Select

Buffer Line & Select

Buffer Polygon & Select

10 03

TWDB GROUNDWATER DATA *(Explanation)*

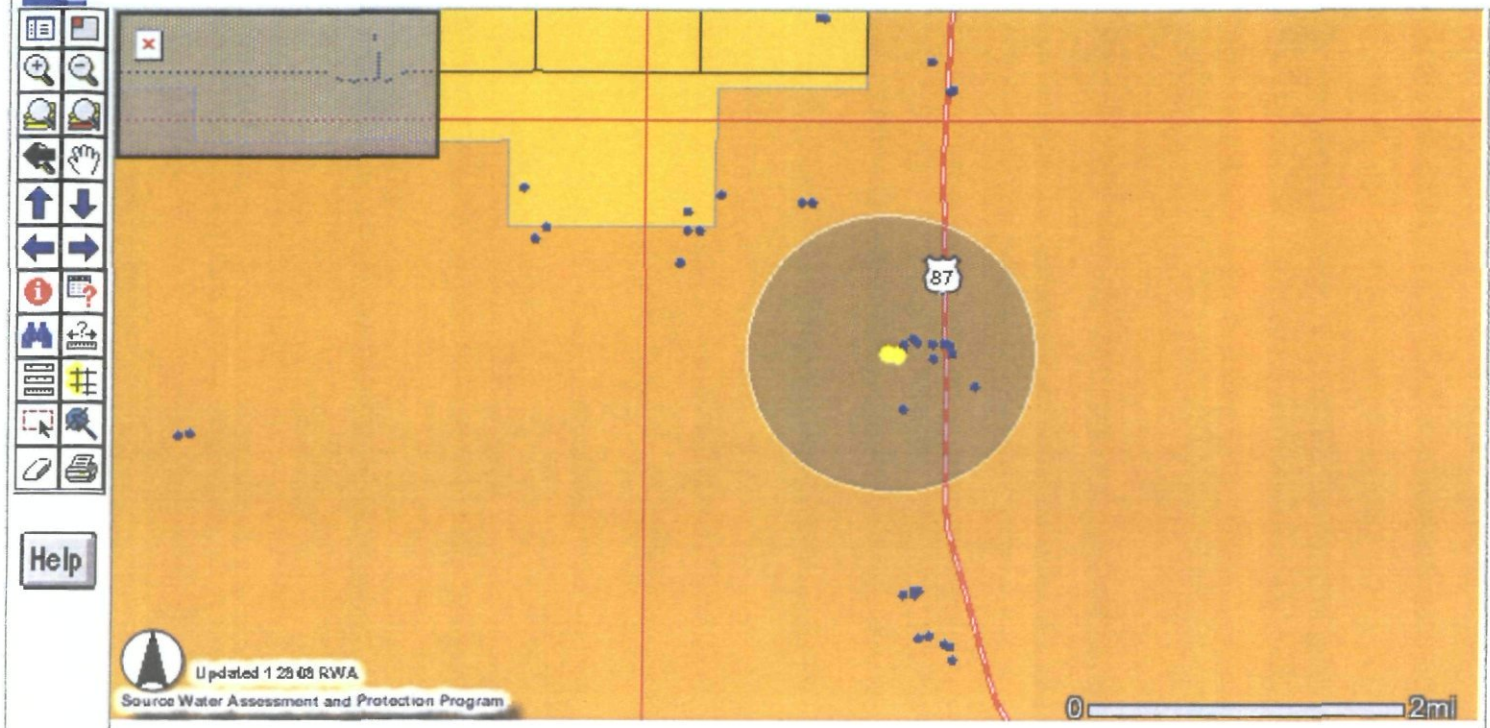
Rec	OBJECT	State Well Number	Owner	Water Use	Elevation	Well Depth	Water Level	Water Quality	Aquifer Code	Latitude	Longitude	COUNTY_CODE	WELL_TYPE	area	len
1	27864892	2334101	Gary Bell	I	3204	150	H	N	121OGLL	332749	1015203	303	W	0	0
2	27864893	2334102		I	3188		H	N	121OGLL	332903	1015027	303	W	0	0
3	27864894	2334104	Ed Gordon	I	3192	155	H	N	121OGLL	332903	1015022	303	W	0	0
4	27864895	2334105	J T Kreuger	I	3200	161	M	Y	121OGLL	332950	1015032	303	W	0	0
5	27864896	2334106	Diane H. Mitchell	I	3202		C	N	121OGLL	332742	1015202	303	W	0	0
6	27864903	2334404	Lubbock - Cooper ISD	I	3190	140	N	Y	121OGLL	332701	1015057	303	W	0	0

Two-mile radius
David Culh
5/13/08

10 04

REFERENCE 11

Source Water Assessment Viewer



Help

Layers

Visible Active

- Wells
- Surface water intakes
- TWDB Wells
- 100 yr Capture zones
- TCEQ Regions
- Rivers
- Reservoirs
- 7.5'Quadrangle Grid
- Roads
- Cities
- Counties
- Mexico Rivers
- Mexico States
- US States

Refresh Map

For an explanation of the PSOC layer type codes click the link below.

PSOC Codes

Please send your Comments

Buffer

Highlight features from No Layer within a distance of 1 MILES around the selected features of Wells

Create Buffer

Display Attributes

Buffer

11 01

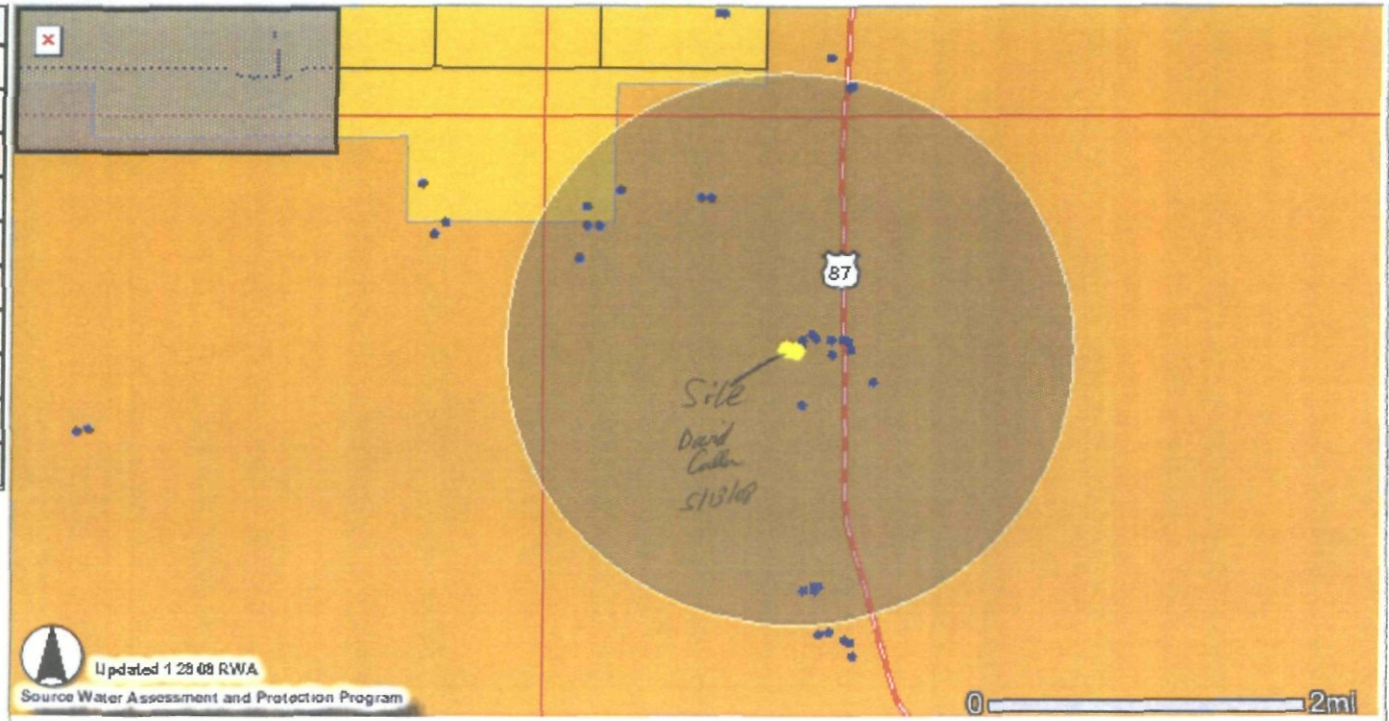
Wells

Rec	PWS_ID	SYS_NAME	WTRSRC	OWNR_DES	ST_WELL_NO	AQUIFER	OPSTAT	DRILL_DATE	WELL_DEPTH	DEPTH_AGEN	H_DATUM	LATDD	LONGDD	LOC_AGEN	LOC_METH
1	1520047	WESTERN TERRACE MOBILE HOME PARK	G1520047A	WELL 2-NW CORNER MHP		121OGLL	O	19690516	160	DRILL	83	33.4720726013	-101.840950012	TNRCC	GPS-UNK
2	1520047	WESTERN TERRACE MOBILE HOME PARK	G1520047B	WELL 1		121OGLL	A	99999999	212	TNRCC	27	33.4749984741	-101.845275879	TNRCC	MAP-D1
3	1520103	SOUTH 40 CONVENIENCE STORE	G1520103A	1		121OGLL	O	99999999	175	TNRCC	83	33.4764709473	-101.848350525	Delta	GPS-S
4	1520142	COUNTRY SQUIRE MHP 1	G1520142A	1-SW OF MHP		121OGLL	E	19570000	140	TNRCC	83	33.4755333333	-101.849947222	TCEQ	GIS-M3
5	1520142	COUNTRY SQUIRE MHP 1	G1520142B	2-SE OF MHP		121OGLL	O	19630600	169	DRILL	83	33.475375	-101.848877778	TCEQ	GIS-M3
6	1520155	COUNTRY SQUIRE MHP 2	G1520155A	1		121OGLL	O	99999999	160	UNK	83	33.4696655273	-101.848335266	TNRCC	GPS-UNK
7	1520179	TOWN & COUNTRY INC	G1520179A	1		121OGLL	O	99999999	160	TNRCC	27	33.4755554199	-101.843330383	TNRCC	MAP-D1
8	1520180	WES TEXAS FAMILY DINING	G1520180A			121OGLL	O	99999999	0		83	33.476148698	-101.848396301	TNRCC	GPS-UNK
9	1520209	GREAT SCOTTS BBQ WATER SUPPLY	G1520209A	1		UNKNOWN	F	99999999			27	33.4763870239	-101.843612671	TNRCC	MAP-D1
10	1520222	COOPER DRIVE IN	G1520222A	1		121OGLL	O	99999999	151	TCEQ	83	33.4770889282	-101.84740448	Delta	GPS-S
11	1520229	TAYLOR PETROLEUM CO 81	G1520229A	1		121OGLL	O	99999999	159	TNRCC	83	33.4765277778	-101.845364583	TCEQ	GPS-C
12	1520230	COUNTRY LIVINGS MOBILE HOME PARK	G1520230A	DOUGHERTY 1		UNKNOWN	F	99999999			27	33.4768654968	-101.846946716	TNRCC	MAP-D1
13	1520248	DOUBLE T DISCOUNT LIQUOR	G1520248A	1		121OGLL	O	20001114	149	DRILL	83	33.47659302	-101.8441772	Delta	GPS-S

one-mile radius
David Collins
5/13/08

11 02

Source Water Assessment Viewer



Help

Layers

Visible Active

- [x] Wells
- [x] Surface water intakes
- [ ] TWDB Wells
- [ ] 100 yr Capture zones
- [x] TCEQ Regions
- [x] Rivers
- [x] Reservoirs
- [x] 7.5'Quadrangle Grid
- [x] Roads
- [x] Cities
- [x] Counties
- [x] Mexico Rivers
- [x] Mexico States
- [x] US States

Refresh Map

For an explanation of the PSOC layer type codes click the link below.

PSOC Codes

Please send your Comments

Buffer

Highlight features from No Layer within a distance of 2 MILES around the selected features of Wells

Create Buffer

Display Attributes

11 03

Pan

Wells

Rec	PWS_ID	SYS_NAME	WTRSRC	OWNR_DES	ST_WELL_NO	AQUIFER	OPSTAT	DRILL_DATE	WELL_DEPTH	DEPTH_AGEN	H_DATUM	LATDD	LONGDD	LOC_AGEN	LOC_METH
1	1520036	GREEN MOBILE HOME PARK	G1520036A	1		121OGLL	O	19900223	135	TNRCC	83	33.4904289246	-101.870666504	Delta	GPS-S
2	1520037	SOUTH 87 MOBILE HOME PARK	G1520037A	1-W OF VASQUEZ		121OGLL	F	99999999	165	TNRCC	27	33.4830551147	-101.845275879	TNRCC	MAP-D1
3	1520047	WESTERN TERRACE MOBILE HOME PARK	G1520047A	WELL 2- NW CORNER MHP		121OGLL	O	19690516	160	DRILL	83	33.4720726013	-101.840950012	TNRCC	GPS-UNK
4	1520047	WESTERN TERRACE MOBILE HOME PARK	G1520047B	WELL 1		121OGLL	A	99999999	212	TNRCC	27	33.4749984741	-101.845275879	TNRCC	MAP-D1
5	1520064	FORT JACKSON MOBILE ESTATES	G1520064A			121OGLL	O	19710000	160	TNRCC	83	33.4864414673	-101.870674133	Delta	GPS-S
6	1520067	114TH STREET MOBILE HOME PARK	G1520067A	1		121OGLL	O	19620000	150	UNK	27	33.4913902283	-101.858886719	TNRCC	MAP-D1
7	1520067	114TH STREET MOBILE HOME PARK	G1520067B	2		121OGLL	O	19720000	150	UNK	27	33.4913902283	-101.857780457	TNRCC	MAP-D1
8	1520103	SOUTH 40 CONVENIENCE STORE	G1520103A	1		121OGLL	O	99999999	175	TNRCC	83	33.4764709473	-101.848350525	Delta	GPS-S
9	1520122	LUBBOCK-COOPER ISD	G1520122F	6		121OGLL	N	19890328	151	DRILL	83	33.4505861111	-101.847102778	TCEQ	GIS-M3
10	1520122	LUBBOCK-COOPER ISD	G1520122G	7		121OGLL	N	19890330	127	DRILL	83	33.4505916667	-101.846647222	TCEQ	GIS-M3
11	1520122	LUBBOCK-COOPER ISD	G1520122H	8		121OGLL	N	19890404	125	DRILL	83	33.4501805556	-101.847105556	TCEQ	GIS-M3
12	1520122	LUBBOCK-COOPER ISD	G1520122I	9	2334404	121OGLL	N	19940824	140	DRILL	83	33.4501944444	-101.848213889	TCEQ	GIS-M3
13	1520142	COUNTRY SQUIRE MHP 1	G1520142A	1-SW OF MHP		121OGLL	E	19570000	140	TNRCC	83	33.4755333333	-101.849947222	TCEQ	GIS-M3
14	1520142	COUNTRY SQUIRE MHP 1	G1520142B	2-SE OF MHP		121OGLL	O	19830600	189	DRILL	83	33.475375	-101.848977778	TCEQ	GIS-M3
15	1520147	BECKER PUMP & PIPE WATER SUPPLY	G1520147A	1		121OGLL	O	19620000	155	TNRCC	27	33.50305557	-101.8436127	TNRCC	MAP-D1
16	1520147	BECKER PUMP & PIPE WATER SUPPLY	G1520147B	2		121OGLL	O	19620000	155	TNRCC	27	33.50333405	-101.8433304	TNRCC	MAP-D1
17	1520155	COUNTRY SQUIRE MHP 2	G1520155A	1		121OGLL	O	99999999	160	UNK	83	33.4696655273	-101.848335266	TNRCC	GPS-UNK
18	1520179	TOWN & COUNTRY INC	G1520179A	1		121OGLL	O	99999999	160	TNRCC	27	33.4755554199	-101.843330383	TNRCC	MAP-D1
19	1520180	WES TEXAS FAMILY DINING	G1520180A			121OGLL	O	99999999	0		83	33.476146698	-101.848396301	TNRCC	GPS-UNK
20	1520184	PETES DRIVE IN 4	G1520184A			121OGLL	O	99999999	160	OWNER	83	33.48844147	-101.8693619	TNRCC	GPS-UNK
21	1520209	GREAT SCOTTS BBQ WATER SUPPLY	G1520209A	1		UNKNOWN	F	99999999			27	33.4763870239	-101.843612671	TNRCC	MAP-D1
22	1520222	COOPER DRIVE IN	G1520222A	1		121OGLL	O	99999999	151	TCEQ	83	33.4770889282	-101.84740448	Delta	GPS-S
23	1520229	TAYLOR PETROLEUM CO 61	G1520229A	1		121OGLL	O	99999999	159	TNRCC	83	33.4765277778	-101.845364583	TCEQ	GPS-C
24	1520230	COUNTRY LIVINGS MOBILE HOME PARK	G1520230A	DOUGHERTY 1		UNKNOWN	F	99999999			27	33.4766654968	-101.846946716	TNRCC	MAP-D1
25	1520236	PRATERS FOODS INC	G1520236A	1- 500FT NE AT PLANT		121OGLL	O	19850331	133	DRILL	27	33.49216843	-101.8672104	TNRCC	GPS-UNK

More Records Zoom to these records

11 04

2-mile Radius
Dave Culbe
5/13/08

Public Water Systems Details/Data Sheet for TAYLOR PETROLEUM CO 61 (1520229)

Responsible Party

Organization: **TAYLOR PETROLEUM COMPANIES INC**
Address: **PO BOX 9000**
AMARILLO, TX 79105-9000
Individual: **GREG HENDRICKS**
Job Title: **VICE PRESIDENT** Phone: **(806) 748-8145**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602282303	THRIFTWAY MARKETING CORP DBA J AND R MERCANTILE LTD AKA SUNWEST C-STORES INC	OWNER
CN601260730	TAYLOR PETROLEUM COMPANIES INC	OPERATOR
CN600808158	ANADARKO DEVELOPMENT COMPANY	OWNER
CN600808166	TAYLOR PETROLEUM INC	OPERATOR

Properties

CR Regulated Entity Number: **RN101885069**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **INVESTOR**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	SERVICE STATION	600	1	1

Customer Group occurrences retrieved.

11 05

Capacity

Total Storage:

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00032 MG**

Production:

Total Production: **0.014 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Date: **10/08/2001**

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
10/27/1998	SURVEY	32	SUSAN NEWCOMB
10/08/2001	SURVEY	0	LANCE OWENS
03/10/2004	SURVEY	0	KRISTA PERCIVAL

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
03/21/2002	REACTIVATED THE SYSTEM, UNDER NEW OWNERSHIP AND NEW NAME. FORMERLY SUNWEST CONVENIENCE STORE #414.	LANCE OWENS

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 06

Public Water Systems Details/Data Sheet for DOUBLE T DISCOUNT LIQUOR (1520248)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **DOUBLE T DISCOUNT 1**
Address: **10101 HWY 87**
LUBBOCK, TX 79423-7223
Individual: **JIMMY DUNLAP**
Job Title: **OWNER** Phone: **(806) 745-5092**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602299133	DUNLAY JIMMY	OWNER OPERATOR

Properties

CR Regulated Entity Number: **RN101248342**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **INVESTOR**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	OTHER TRANSIENT AREA	275	2	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 07

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00023 MG**

Production:

Total Production: **0.024 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Date: **01/02/2004**

Activity Status: **ACTIVE**

Activity Reason: **SEE COMMENTS**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
	SURVEY	-1	
10/30/2003	SURVEY	4	MALCOLM LAING
09/08/2005	SURVEY	0	MALCOLM LAING
04/25/2007	SURVEY	7	MALCOLM LAING
	MD05/09/2007,RD05/22/2007		

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
07/02/2007	Per call to Jimmy Dunlap (alt # on RP) this system will be sold in approx 2 weeks, currently CAD has 2 different names listed as the owner of the property: Docs Liquor & Beer Store & Jimmy & Natu Patel Dunalp. Jimmy could not remember which was correct & I could not verify in SOS. Further research may need to be done. Verified address in USPS, updated Jimmy's name from Dunlay to Dunlap, updated owner type to private from investor, added alt # for Jimmy. ~DCourtney	MARIE KNIPFER
09/30/2005	MPY-FR04/12/05-TC.	
01/02/2004	ACTIVATE SYSTEM - SEE CCI DATED 10/30/03---TC.	

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

11 08

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 09

Public Water Systems Details/Data Sheet for TOWN & COUNTRY INC (1520179)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **TOWN AND COUNTRY INC**
Address: **3513 50TH ST**
LUBBOCK, TX 79413-4015
Individual: **J BROOKS**
Job Title: **SENIOR V P** Phone: **(806) 791-5000**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600891287	TOWN & COUNTRY FOOD STORES INC	OWNER OPERATOR
CN601500663	TOWN AND COUNTRY INC	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101770717**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	OTHER TRANSIENT AREA	850	1	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

11 10

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00022 MG**

Production:

Total Production: **0.014 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
07/21/2000	SURVEY	17	LANCE OWENS
07/25/2001	SURVEY	32	LANCE OWENS
07/10/2002	SURVEY	2	LANCE OWENS
06/07/2004	SURVEY	5	LANCE OWENS
09/19/2005	SURVEY	5	LANCE OWENS

Site Visit occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 11

Public Water Systems Details/Data Sheet for ADVENTURES USA (1520163)

Responsible Party

Address: **3305 116TH ST**
LUBBOCK, TX 79423-7441
Individual: **KEVIN BAKER**
Job Title: **OWNER** Phone: **(806) 745-3600**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600641922	BAKER, KEVIN	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101196434**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	OTHER TRANSIENT AREA	50	1	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 12

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00022 MG**

Production:

Total Production: **0.000 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
06/13/2000	SURVEY	10	LANCE OWENS
06/14/2001	SURVEY	0	KRISTA PERCIVAL
10/03/2002	SURVEY	0	LANCE OWENS
10/27/2004	SURVEY	2	LANCE OWENS
02/08/2007	SURVEY MD02/15/2008,RD02/26/2008	4	MALCOLM LAING

Site Visit occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 13

Public Water Systems Details/Data Sheet for SOUTH 40 CONVENIENCE STORE (1520103)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **JUSTIN INC**
Address: **PO BOX 53777**
LUBBOCK, TX 79453-3777
Individual: **MIKE KING**
Job Title: **PRESIDENT** Phone: **(806) 748-1585**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN601226764	KING, MIKE	OWNER OPERATOR
CN602905093	JUSTIN INC	RESPONSIBLE PARTY
CN602752784	KING MIKE JUSTIN INC DBA SOUTH 40 CONVENIENCE STORE	OWNER OPERATOR

Properties

CR Regulated Entity Number: **RN102321874**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	RESTAURANT	60	1	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

11 14

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00030 MG**

Production:

Total Production: **0.029 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
03/11/1999	SURVEY	15	LANCE OWENS
03/15/2001	SURVEY	0	KRISTA PERCIVAL
12/10/2004	SURVEY	5	LANCE OWENS

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
10/20/2004	OWNERSHIP CHANGED FROM BARBARA RUDD TO MIKE KING---TC.	
08/27/2004	SYSTEM NAME CHANGED FROM RUDD COUNTRY INC TO SOUTH 40 CONVENIENCE STORE. SEE MEMO DATED 8/11/04---TC.	SALLY PARAMO

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 15

Public Water Systems Details/Data Sheet for COUNTRY SQUIRE MHP 2 (1520155)

Responsible Party

Address: **9717 N DETROIT AVE # 163**
LUBBOCK, TX 79415-7629
Individual: **BRUCE JOHNSON**
Job Title: **OWNER** Phone: **(806) 746-5625**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602518565	JOHNSON, BRUCE	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101180438**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	75	16	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 16

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00099 MG**

Production:

Total Production: **0.057 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.023 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	2

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
03/03/2000	SURVEY	10	MALCOLM LAING
03/07/2001	SURVEY	0	MALCOLM LAING
02/04/2004	SURVEY	0	LANCE OWENS
04/05/2006	SURVEY MD04/07/2006,RD04/18/2006	0	LANCE OWENS
01/15/2008	CCI-RCVD MD01/30/2008,RD02/05/2008	0	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
04/25/2006	UPDATED ORGANIZATION. SEE CCI DATED 4/05/06----TC.	
07/12/2002	NEW OWNER-BRUCE JOHNSON.	LANCE OWENS

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

11 17

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 18

Public Water Systems Details/Data Sheet for LUBBOCK-COOPER ISD (1520122)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **LUBBOCK-COOPER ISD**
Address: **16302 LOOP 493**
LUBBOCK, TX 79423-7805
Individual: **PAT HENDERSON**
Job Title: **SUPERINTENDENT** Phone: **(806) 863-2282**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600679054	LUBBOCK-COOPER ISD	OWNER

Properties

CR Regulated Entity Number: **RN101241990**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **DISTRICT/AUTHORITY**
System Type: **NON-TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **SURFACE WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
NON-TRANSIENT	SCHOOL	2300	14	2

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.045 MG**

11 19

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.01145 MG**

Production:

Total Production: **0.216 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.792 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE C GROUND	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
01/20/1999	SURVEY	16	LANCE OWENS
02/06/2001	SURVEY	0	LANCE OWENS
02/28/2002	SURVEY	2	MALCOLM LAING
02/19/2003	SURVEY	0	MALCOLM LAING
09/06/2006	SURVEY MD09/07/2006,RD09/11/2006	0	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
01/04/2008	Arsenic Violator supposedly no more. Per Delta sampler Norris Wuensche and operator on site on phone, ISD purchases from Lubbock now and all wells are for non-potable use like irrigation. Purchased SW comes in to same facilities and entry point.	MARIE KNIPFER
03/27/2006	Rec'd return mail FY06 PHS fee----BW	
02/06/2006	POPULATION CHANGED FROM 2150 TO 2686. ALSO ADDRESS CHANGED. SEE FAX FROM SYSTEM-----TC.	SALLY PARAMO
02/02/2006	RECEIVED RETURN MAIL-FY06 PHS FEE---JG	

Occurrences retrieved.

11 20

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 21

Public Water Systems Details/Data Sheet for LUBBOCK STOCKYARD (1520242)

Responsible Party

Address: **PO BOX 53199**
LUBBOCK, TX 79453-3199
Individual: **TONY MANN**
Job Title: **OWNER** Phone: **(806) 745-3383**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600686745	MANN, TONY	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101251874**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	RESTAURANT	75	3	0

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 22

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00030 MG**

Production:

Total Production: **0.043 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
11/19/1999	SURVEY	17	LANCE OWENS
12/19/2000	SURVEY	0	LANCE OWENS
12/28/2001	SURVEY	0	KRISTA PERCIVAL
09/08/2004	SURVEY	4	MALCOLM LAING
09/06/2006	SURVEY MD09/07/2006,RD09/11/2006	0	MALCOLM LAING

Site Visit occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 23

Public Water Systems Details/Data Sheet for FORT JACKSON MOBILE ESTATES (1520064)

Responsible Party

Address: **2903 76TH ST**
LUBBOCK, TX 79423-2109
Individual: **GEORGE JACKSON**
Job Title: **OWNER** Phone: **(806) 745-2658**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN601368798	JACKSON, GEORGE W	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN102698545**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	61	24	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 24

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00225 MG**

Production:

Total Production: **0.518 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
10/21/1999	SURVEY	14	MALCOLM LAING
10/11/2000	SURVEY	14	MALCOLM LAING
10/02/2001	SURVEY	0	LANCE OWENS
11/07/2003	SURVEY	0	LANCE OWENS
01/31/2006	SURVEY	5	LANCE OWENS
03/14/2008	CCI-RCVD MD03/28/2008,RD04/07/2008	7	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
04/05/2008	RETURN MAIL: NOV-FL, Y, 9/99/99: RETURNED MAIL BUT NO LETTER, TRACKING # IS 7002-2410-0001-7628-9081 AND 7004-1350-0002-7566-2495.	KRISTINE KRIEG
03/04/2008	CCR SNC AFFIL REVIEW: RP George W. Jackson correct as verified by TX Comptroller and Lubbock CAD. Mailing address is to Mr. Jackson's residence 2903 76th St., Lubbock, TX 79423-2109. The physical address for the MHP is 11604 University Ave. 1-34, Lubbock, TX 79423-6542 as verified with CAD, USPS and Google Maps. Physical address is incorrect in CR. RP phone number is correct per whitepages.com. Situation of one owner of the MHP	BRAD KING

11 25

though Jackson lives elsewhere and should be ready for enforcement.

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 26

Public Water Systems Details/Data Sheet for GREEN MOBILE HOME PARK (1520036)

Responsible Party

Address: **118 SHERMAN AVE**
LUBBOCK, TX 79415-3608
Individual: **MAZEN BATRICE**
Job Title: **OWNER** Phone: **(806) 765-6223**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602885006	BATRICE, MAZEN	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101242584**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	50	28	0

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 27

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00145 MG**

Production:

Total Production: **0.065 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.010 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE B GROUND	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
04/17/2000	SURVEY	10	LANCE OWENS
04/30/2001	SURVEY	2	ROBERT OZMENT
04/03/2002	SURVEY	4	MALCOLM LAING
04/22/2003	SURVEY	0	MALCOLM LAING
03/09/2005	SURVEY	4	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
01/18/2008	Enforcement Christopher Keffer needed Mr. Batrice Mazen phone number (he may not have seen cell in iWUD). UPdated to following: " Hi Christopher: I called Mr. Batrice Mazen on his cell 806-438-7070 in WUD it works. He said his new office number is 806-765-6223 daytime. I gave him your information also. 806 745-2963 didn't work. 806 535-1224 2005 CCI number didn't work Good luck, Marie	MARIE KNIPFER
05/30/2007	Per data update request I added a cell # and updated RP's #. ~DCourtney	MARIE KNIPFER
04/07/2005	SYSTEM NAME CHANGED FROM GREER MOBILE HOME PARK TO GREEN MOBILE HOME PARK. SEE CCI DATED 3/9/05 AND CDF----TC.	
04/05/2005	REC'D FIELD REPORT DATED 1/19/05 WITH NEW OWNER INFORMATION---TC.	

11 28

03/23/2004	THE CUSTOMER NAME CHANGED FROM GREER MOBILE HOME PARK TO MACKEY GREER ESTATE. INFO FROM MARILYN QUEREJAZU (CENTRAL REGISTRY). SEE EMAIL DATED 3/12/04---TC.
01/08/2004	REC'D RETURN MAIL-FY04 FEE-ROUTE TO BE REMAIL TO BRENDA LOGGINS--SR

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 29

Public Water Systems Details/Data Sheet for PETES DRIVE IN 4 (1520184)

Responsible Party

Address: **1628 FM 1585**
LUBBOCK, TX 79423-7463
Individual: **FRANCES GOTSIS**
Job Title: **OWNER** Phone: **(806) 745-2029**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600754964	MARSTON, CHRIS	RESPONSIBLE PARTY
CN603325341	JOHN KIOUSIS	OWNER

Properties

CR Regulated Entity Number: **RN101453561**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	RESTAURANT	150	1	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

11 30

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00023 MG**

Production:

Total Production: **0.023 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
10/21/1999	SURVEY	10	MALCOLM LAING
10/24/2000	SURVEY	10	MALCOLM LAING
10/16/2001	SURVEY	0	KRISTA PERCIVAL
08/08/2003	SURVEY	5	LANCE OWENS
09/21/2004	SURVEY	0	LANCE OWENS
02/08/2007	SURVEY MD02/09/2007,RD02/15/2007	0	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
01/09/2008	OWNERSHIP changed from Mr. Alexopoulos to Ms. Frances Gotsis. Received letter from Elizabeth Alexopoulos stating she was leasing the property and her last day of business was 12/01/07. She give the new owner information. Updated WUD to reflect new owner. Senting Ownership Letter with the Data Sheet. See letter from Elizabeth Alexopoulos rec'd 1/9/08----tcisneros	THERESA CISNEROS
12/13/2007	Rec'd phone call from Elizabeth regarding FY08 PHS fee, stating sold system. Will be senting information for the new owner-----tcisneros	THERESA CISNEROS
03/14/2007	Couldn't verify legal ownership (sole proprietor) per CCI Affil Check.	ALLISON MARSHALL
02/08/2007	Updated RP address per yellow label from PHS fee return mail.	THERESA CISNEROS
12/02/2003	OWNERSHIP & ADDRESS CHANGED - NEW OWNER IS PETE ALEXOPULOS AND PREVIOUS OWNER WAS CHRIS MARSTON. INFO VIA PWS FEE.	MIKE LANNEN

Occurrences retrieved.

Run Water System Data Sheet Report

11 31

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 32

Public Water Systems Details/Data Sheet for PRATERS FOODS INC (1520236)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **PRATERS FOODS INC**
Address: **2206 114TH ST**
LUBBOCK, TX 79423-7235
Individual: **CHIP CHENOWETH**
Job Title: **GENERAL MANAGER** Phone: **(806) 745-2727**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600688865	PRATERS FOODS INC	OWNER OPERATOR

Properties

CR Regulated Entity Number: **RN101254803**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	INDUSTRIAL/AGRICULTURAL	30	1	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.003 MG**

11 33

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00027 MG**

Production:

Total Production: **0.072 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.432 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.019 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
02/15/2000	SURVEY	10	LANCE OWENS
02/12/2001	SURVEY	0	LANCE OWENS
02/13/2002	SURVEY	0	LANCE OWENS
09/21/2004	SURVEY	0	LANCE OWENS
12/11/2007	SURVEY MD12/12/2007,RD12/17/2007	0	MALCOLM LAING

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
02/07/2003	ADDRESS CHANGED-REC'D RETURN MAIL-CALLED SYSTEM FOR NEW ADDRESS. (VICKY)--TC	

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

11 34

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 35

Public Water Systems Details/Data Sheet for 114TH STREET MOBILE HOME PARK (1520067)

Responsible Party

Organization: **RA AND R INVESTMENTS LLC**
Address: **1818 114TH ST SPC 16**
LUBBOCK, TX 79423-7279
Individual: **PENNY ADAMS**
Job Title: **MANAGING MEMBER** Phone: **(806) 745-5779**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN603341728	RA AND R INVESTMENTS LLC	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN102318094**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	80	43	2

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 36

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00300 MG**

Production:

Total Production: **0.036 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
11/17/1999	SURVEY	14	LANCE OWENS
11/21/2000	SURVEY	2	KRISTA PERCIVAL
11/15/2001	SURVEY	10	MALCOLM LAING
12/05/2003	SURVEY	2	LANCE OWENS
11/16/2006	SURVEY MD11/22/2006,RD11/28/2006	14	LANCE OWENS

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
03/18/2008	OWNERSHIP CHANGE: per PHS FY08 Fee received phone call from Penny L. Adams stating purchased system on 06/01/2007. Help Ms. Adams with Core Data Form. While helping Ms. Adams found RA and R Investments LLC, Tax ID 32033186191, in SOS. Status in SOS is involuntarily dissolved, address issue the customer. Ms. Adams will contact SOS to reinstate organization. Update WUD to reflect new owner data. Ms. Adams will fax CDF. Mr. John Ballew will continue submitting bact samples-----tcisneros	THERESA CISNEROS
09/06/2005	OWNERSHIP CHANGED. SEE COMPLIANCE AGREEMENT AND CORE DATA FORM-----TC.	

11 37

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 38

Public Water Systems Details/Data Sheet for BECKER PUMP & PIPE WATER SUPPLY (1520147)

Affiliations | Comments | Samples | Schedules | Fee | Site Visits | Documents
Violations | Sources | Sold Source | Entry Points | Plants

Responsible Party

Organization: **BECKER PUMP & PIPE CO**
Address: **PO BOX 580**
SLATON, TX 79364-0580
Individual: **BEN BECKER**
Job Title: **PRESIDENT**
Phone: **(806) 828-5881**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN603197484	BECKER PUMP & PIPE CO	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN102315165**
CCEDS Status: **NO ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **NON-TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
NON-TRANSIENT	OTHER NON-TRANSIENTAREA	300	8	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

11 39

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00025 MG**

Production:

Total Production: **0.057 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
01/12/2000	SURVEY	10	MALCOLM LAING
01/12/2001	SURVEY	0	KRISTA PERCIVAL
01/15/2002	SURVEY	0	KRISTA PERCIVAL
04/06/2004	SURVEY	0	LANCE OWENS
04/20/2007	SURVEY MD05/01/2007,RD05/03/2007	12	LANCE OWENS

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
07/05/2007	Per Lance Owens - water system provides water for eight liquor stores south of the City of Lubbock on US Hwy 87 which is referred to as "the strip". There are eight connections, one meter and serves approximately 300 employees on "the strip".	MARIE KNIPFER
06/12/2007	Per SOS the correct Org/RP for this system is: Becker Pump & Pipe Co with Ben H Becker SR as Pres. I added begin/end dates and emailed CR. Added tax ID. Verifiied address in USPS, added 4 digit zip. ~DCourtney	MARIE KNIPFER

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

11 40

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 41

Public Water Systems Details/Data Sheet for WES TEXAS FAMILY DINING (1520180)

Responsible Party

Address: **5811 87TH ST**
LUBBOCK, TX 79424-5503
Individual: **A MITTAL**
Job Title: **OWNER** Phone: **(806) 745-3515**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN602523235	MITTAL, A K	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN102315736**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **TRANSIENT/NON-COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
TRANSIENT	RESTAURANT	75	3	1

Customer Group occurrences retrieved.

Capacity

Total Storage:

Total Storage: **0.000 MG**

11 42

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00025 MG**

Production:

Total Production: **0.000 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Start Date: **07/14/2003**

End Date: **06/12/2006**

Activity Date: **06/16/2006**

Activity Status: **INACTIVE**

Activity Reason: **SEE COMMENTS**

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
10/18/1999	SURVEY	10	SUSAN NEWCOMB
10/24/2000	SURVEY	13	MALCOLM LAING
03/27/2003	SURVEY	0	LANCE OWENS
12/10/2004	SURVEY	2	LANCE OWENS
08/30/2007	CCI-RCVD MD09/05/2007,RD09/11/2007	0	LANCE OWENS

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
11/28/2007	SYSTEM name changed from DOS AMIGOS MEXICAN RESTAURANT to WES TEXAS FAMILY DINING per CDF prepared by Lance Owens rec'd from Central Ristry---tcisneros	THERESA CISNEROS
09/11/2007	INACTIVATION letter dated 8/5/07 from region 2 stating conducted an investigation and found that this water system is now closed for business. If the business is to re-open the individual having responsibility must notify TCEQ within 30 days of system change in status. System is now known as WES-TEXAS FAMILY DINING---tcisneros	THERESA CISNEROS
06/16/2006	INACTIVATED SYSTEM PER REGION 2, LANCE OWENS, STATING DROVE BY AND CONFIRMED THAT RESTAURANT IS CLOSED FOR REMODELING AND A SIGN OUT FRONT READS "PRIVATE PARTY ROOM, FOR RESERVATIONS CALL.....".---TC.	SALLY PARAMO
04/06/2006	SYSTEM NAME CHANGED FROM PIRATES RESTAURANT TO DOS AMIGOS MEXICAN RESTAURANT. OWNERSHIP ALSO CHANGED FROM RAMONA LIGHT TO	SALLY PARAMO

11 43

	A K MITTAL. SEE CORE DATA FORM WITH DATA SHEET CHANGE-----TC.	
03/29/2006	REC'D RETURN MAIL - FY06 PHS FEE --- BW	
07/14/2003	REACTIVATED SYSTEM. SYSTEM NAME CHANGED FROM JOANNS FAMILY RESTAURANT 2 TO PIRATES RESTAURANT. SEE CCI DATED 3/27/2003--TC.	
02/07/2003	INACTIVE SYSTEM.	LARRY MITCHELL
06/14/2001	6//1/01-FORMERLY RIVER SMITHS OUTPOST	

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 44

Public Water Systems Details/Data Sheet for WESTERN TERRACE MOBILE HOME PARK (1520047)

Responsible Party

Address: **910-132ND ST**
LUBBOCK, TX 79423
Individual: **LISA COFFMAN**
Job Title: **OWNER**
Phone: **(806) 745-0997**

Occurences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600671101	COFFMAN, LISA	RESPONSIBLE PARTY

Properties

CR Regulated Entity Number: **RN101231504**
CCEDS Status: **ACTIVE NOE EXISTS**
Ownership Type: **PRIVATE**
System Type: **COMMUNITY**
County: **LUBBOCK (152)**
Region: **LUBBOCK (2)**
Monitoring Class: **GROUND WATER**
Out of Season:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
RESIDENTIAL	MOBILE HOME PARK	36	18	2

Customer Group occurrences retrieved.

Capacity

Total Storage:

11 45

Total Storage: **0.000 MG**

Elevated Storage: **0.000 MG**

Pressure Tank Capacity: **0.00300 MG**

Production:

Total Production: **0.000 MGD**

Max Purchased Capacity: **0.000 MGD**

Emergency Production: **0.000 MGD**

Total Service Capacity: **0.000 MGD**

Service Pump Capacity: **0.000 MGD**

Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **0.000 MGD**

Max Daily Consumption: **0.000 MGD**

Activity

Activity Date: **10/08/2002**

Activity Status: **INACTIVE**

Operator Grades

Grade	Total
WATER GRADE D	1

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
12/08/1999	SURVEY	22	LANCE OWENS
12/15/2000	SURVEY	10	LANCE OWENS
12/06/2001	SURVEY	12	LANCE OWENS

Site Visit occurrences retrieved.

Comments

Comment Date	Text	Staff Name
10/08/2002	INACTIVE SYSTEM-REGION HAS SENT MEMO.	LARRY MITCHELL

Occurrences retrieved.

Run Water System Data Sheet Report

Water System successfully retrieved.

11 46

For questions or comments regarding information on this page, contact the TCEQ iWUD Web Manager

11 47

REFERENCE 12

http://cfpub.epa.gov/surf/locate/zip_search.cfm?value=79423
Last updated on Monday, May 12th, 2008.

Surf Your Watershed

You are here: EPA Home Water Wetlands, Oceans, & Watersheds Watersheds Adopt Your Watershed Surf Your Watershed Locate Your Watershed Zip Code Search Results

Search Results:79423

List of Huc Codes Produced by Search

(search for: 79423)

- 12050004 Double Mountain Fork Brazos; state(s): TX
- 12050003 North Fork Double Mountain Fork; state(s): TX

Disclaimer | Comments

12 01

Surf Your Watershed

http://cfpub.epa.gov/surf/huc.cfm?huc_code=12050004
Last updated on Monday, May 12th, 2008.

You are here: EPA Home Water Wetlands, Oceans, & Watersheds Watersheds Adopt Your Watershed Surf Your Watershed Double Mountain Fork Brazos Watershed -- 12050004

Double Mountain Fork Brazos Watershed -- 12050004

Double Mountain Fork Brazos

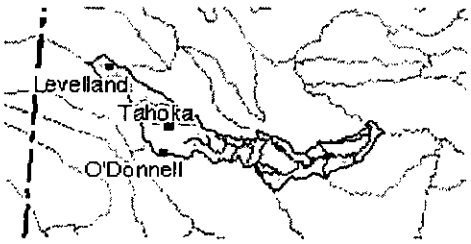
Watershed Profile

Watershed Name: Double Mountain Fork Brazos
USGS Cataloging Unit: 12050004
TX 11th Congressional District
TX 13th Congressional District
TX 19th Congressional District

Citizen-based Groups at work in this watershed
(Provided by Adopt your Watershed)

Environmental Websites Involving this Watershed

National Watershed Network (provided by Conservation Technology Information Center) EXIT Disclaimer



Visit the Envirofacts Warehouse to retrieve environmental information from EPA databases on Air, Community Water Sources, Water Dischargers, Toxic Releases, Hazardous Waste, and Superfund Sites Geographic searches include zip code, city, EPA Region, or county.

Assessments of Watershed Health

- Impaired Water for this watershed
- *Assessed Waters by Watershed*
  - Texas

Information provided by the United States Geological Survey (USGS) EXIT Disclaimer

- Stream Flow (Source: USGS)
- Science in Your Watershed
- Water use data (1985-2000): Information about the amount of water used and how it is used.
- Selected USGS Abstracts

12 02

Places Involving this Watershed

Counties:
- Borden
- Cochran
- Dawson
- Fisher
- Garza
- Haskell
- Hockley
- Jones
- Kent
- Lubbock
- Lynn
- Scurry
- Stonewall
- Terry

National Estuary Programs:
- None

States:
- Texas

Other Watersheds Upstream:
- North Fork Double Mountain Fork

Other Watersheds Downstream:
- Middle Brazos-Millers

Disclaimer | Comments

12 03

Surf Your Watershed

North Fork Double Mountain Fork Watershed -- 12050003

North Fork Double Mountain Fork

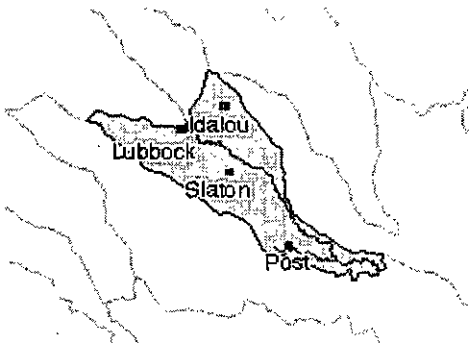
Watershed Profile

Watershed Name: North Fork Double Mountain Fork
USGS Cataloging Unit: 12050003
TX 13th Congressional District
TX 19th Congressional District

Citizen-based Groups at work in this watershed
(Provided by Adopt your Watershed)

Environmental Websites Involving this Watershed

National Watershed Network (provided by Conservation Technology Information Center) EXIT Disclaimer



Visit the Envirofacts Warehouse to retrieve environmental information from EPA databases on Air, Community Water Sources, Water Dischargers, Toxic Releases, Hazardous Waste, and Superfund Sites Geographic searches include zip code, city, EPA Region, or county.

Assessments of Watershed Health

- Impaired Water for this watershed
- *Assessed Waters by Watershed*
  - Texas

Information provided by the United States Geological Survey (USGS) EXIT Disclaimer

- Stream Flow (Source: USGS)
- Science in Your Watershed
- Water use data (1985-2000): Information about the amount of water used and how it is used.
- Selected USGS Abstracts

Places Involving this Watershed

12 04

Counties:
- Crosby
- Garza
- Hockley
- Kent
- Lubbock
- Lynn

National Estuary Programs:
- None

States:
- Texas

Other Watersheds Upstream:
- Yellow House Draw
- Blackwater Draw

Other Watersheds Downstream:
- Double Mountain Fork Brazos

Disclaimer | Comments

12 05

REFERENCE 13

U.S. Census Bureau
American FactFinder

TM-P002. Persons per Square Mile: 2000
Universe: **Total population**
Data Set: **Census 2000 Summary File 1 (SF 1) 100-Percent Data**
United States by Metropolitan Area

NOTE: For information on confidentiality protection, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm

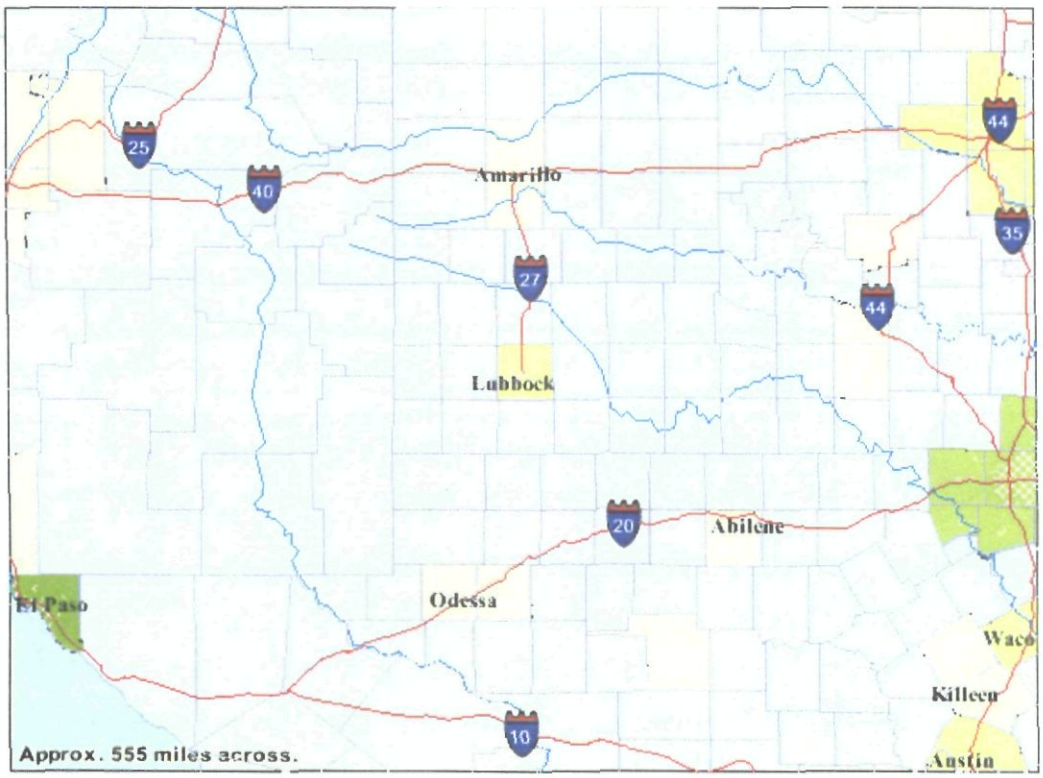
Legend

Data Classes
Persons/Sq Mile
5 - 166
168 - 341
350 - 626
668 - 1043
1230 - 2029

Boundaries
'00 County
'00 Urban Area

Features
Major Road
Stream/Waterbody
Stream/Waterbody

Items in red text are not visible at this zoom level



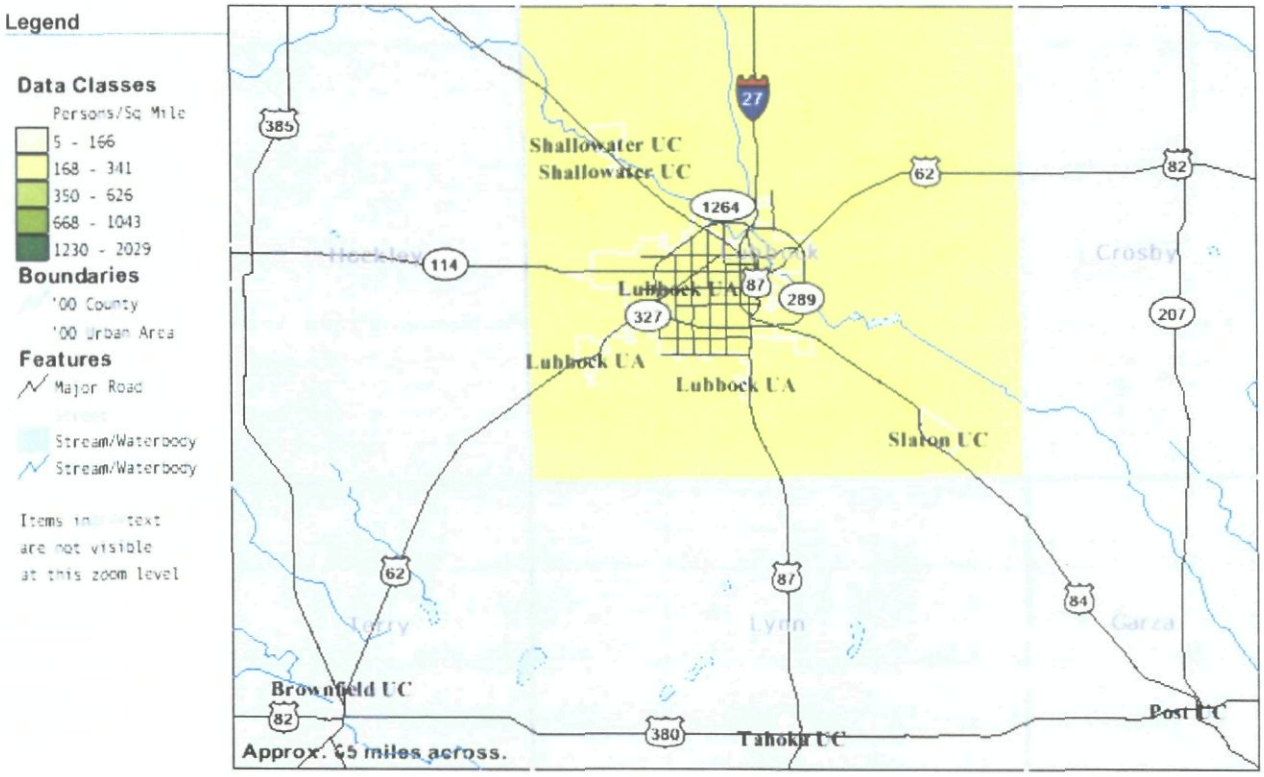
Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrix P1

13 01

U.S. Census Bureau
American FactFinder

TM-P002. Persons per Square Mile: 2000
Universe: **Total population**
Data Set: **Census 2000 Summary File 1 (SF 1) 100-Percent Data**
United States by Metropolitan Area

NOTE: For information on confidentiality protection, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm



Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrix P1

13 02

U.S. Census Bureau
American FactFinder

TM-P002. Persons per Square Mile: 2000
Universe: **Total population**
Data Set: **Census 2000 Summary File 1 (SF 1) 100-Percent Data**
United States by Metropolitan Area

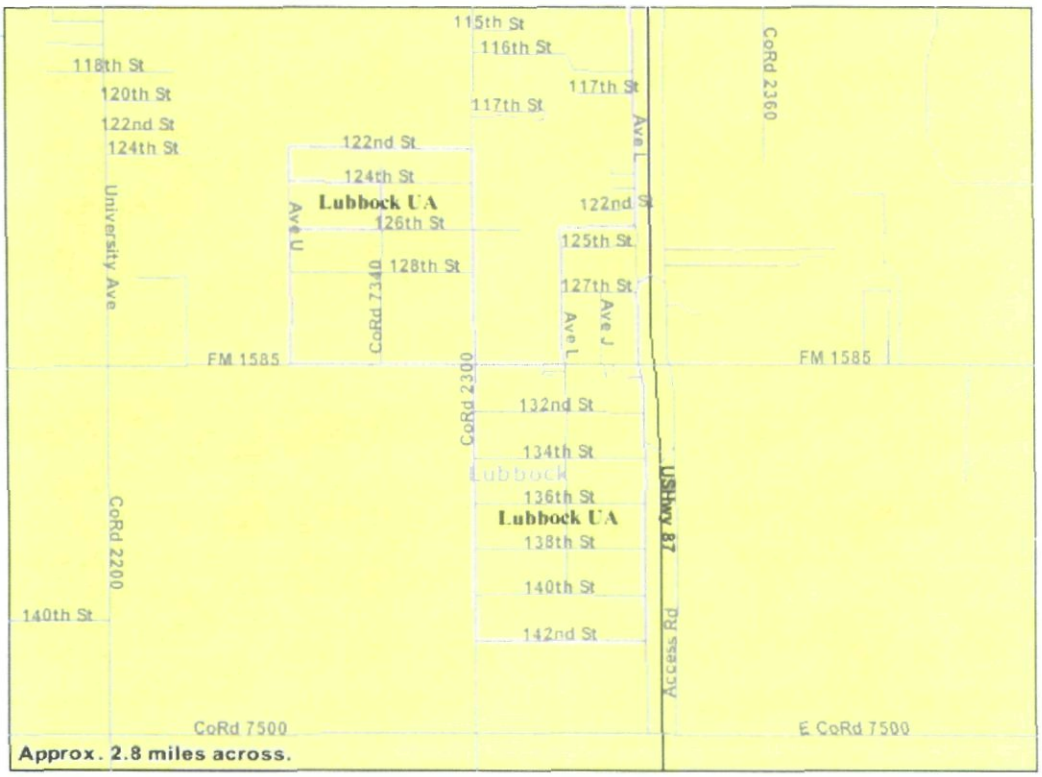
NOTE: For information on confidentiality protection, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm

Legend

Data Classes
Persons/Sq Mile
- 5 - 166
- 168 - 341
- 350 - 626
- 668 - 1043
- 1230 - 2029

Boundaries
- '00 County
- '00 Urban Area

Features
- Major Road
- Street
- Stream/Waterbody
- Stream/Waterbody



Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrix P1

13 03

U.S. Census Bureau
American FactFinder

TM-P002. Persons per Square Mile: 2000
Universe: **Total population**
Data Set: **Census 2000 Summary File 1 (SF 1) 100-Percent Data**
United States by Metropolitan Area

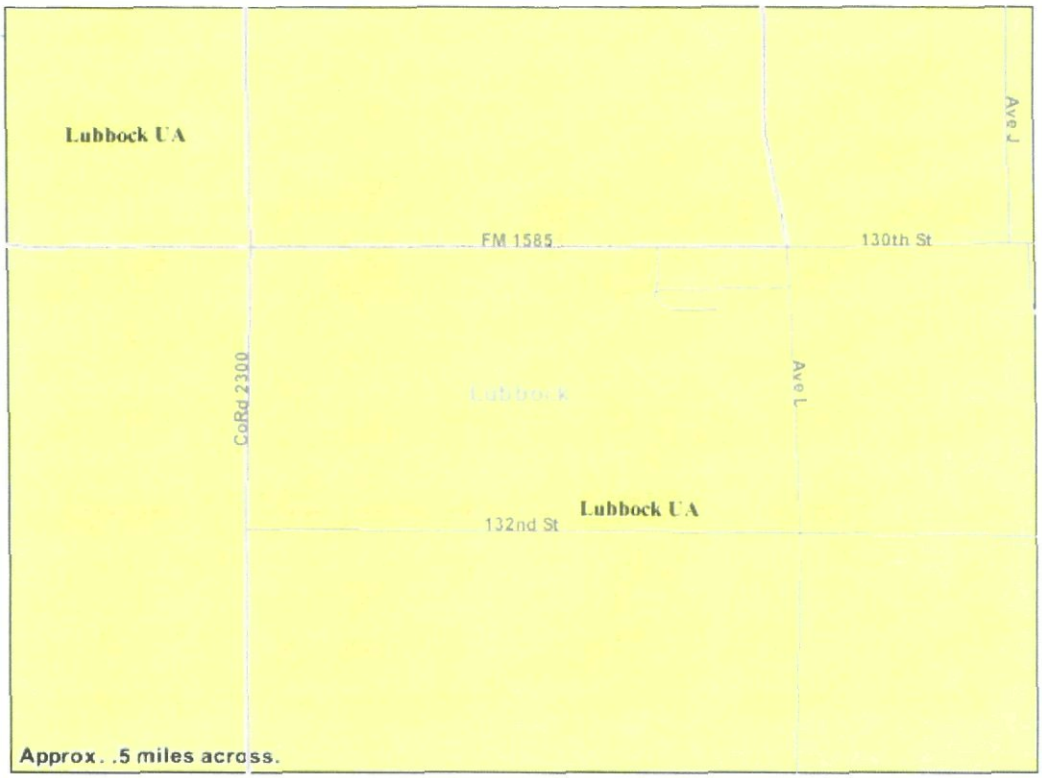
NOTE: For information on confidentiality protection, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm

Legend

Data Classes
Persons/Sq Mile
5 - 166
168 - 341
350 - 626
668 - 1043
1230 - 2029

Boundaries
'00 County
'00 Urban Area

Features
Major Road
Street
Stream/Waterbody
Stream/Waterbody



Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrix P1

13 04

Persons per Square Mile

Geography: Lubbock, TX MSA
Value: 270 Persons/Sq Mile
(universe = 242,628 persons)

(United States: Value: 80 Persons/Sq Mile)

Close

13 05

REFERENCE 14

North Plains Groundwater Conservation District

Home

Ogallala Aquifer

A. GENERAL GEOLOGY, STRATIGRAPHY, AND HYDROLOGY

The Ogallala Formation in Texas is the southernmost extension of the major water-bearing unit underlying the physiographic province of North America. It was named by Darton (1898) for the town of Ogallala, Nebraska, near the type locality.

Following the Laramide revolution in which the southern Rocky Mountains were uplifted and the Cretaceous seas retreated, rivers flowing east and southeastward cut valleys into the pre-Ogallala surface. The deposition of the Ogallala Formation began in late Miocene to early Pliocene age and continued until late Pliocene time when the climate became more arid and up-warping of the High Plains area caused deposition to cease and erosion to begin. During Pliocene time, large quantities of eroded material from the Rocky Mountain region were transported by wind and water southeastward and deposited on the then existing surface of primarily Triassic and Permian age rocks. In certain areas, the depositional surface was composed of Cretaceous and Jurassic age sediments. The low valley areas were usually filled first by coarser materials such as gravels and coarse sand. As the valleys and basins filled, sediments overflowed to form coalescing aprons fed by braided streams that spread across a generally level plain. Eventually, the entire area was covered by Ogallala sediments until a maximum thickness of almost 900 feet (274 m) was attained in southwestern Ochiltree County (Muller and Price, 1979; Bell and Morrison, 1978).

NPGCD is a Groundwater Guardian Community

Throughout the time when the Ogallala sediments were being deposited, the Southern Rocky Mountains remained tectonically active, providing source material for the Ogallala Formation (Knowles and others 1984).

The Ogallala Formation unconformably overlies Permian, Triassic, Jurassic, and Cretaceous strata and consists primarily of heterogeneous sequences of coarse-grained sand and gravel in the lower part grading upward into fine clay, silt, and sand. Gravel commonly occurs in layers in the basal section and ranges in size from boulders to pea size. In places, the Ogallala Formation contains some quartz gravel and caliche with pebbles and cobbles of

quartz, quartzite, and chert being common. In the Northern High Plains the formation has been divided into three subdivisions: the Valentine, Ash Hollow, and Kimball, based on fossil vertebrates and flora. The subdivisions, often referred to as floral zones, are less distinguishable in the Southern High Plains.

The sands are generally tan, yellow, or reddish brown, medium to coarse-grained, moderately to well sorted, unconsolidated quartz grains, interbedded with thin layers of clay and occasionally sandstone. The sand is generally poorly consolidated to unconsolidated, although local cementation by calcium carbonate and silica occurs. Grain size and condition of sorting is an indication of the high energy involved in the depositional process of these sediments. As expected, sand grain and gravel size decreases and sorting improves eastward.

The gravel is usually associated with sand, silt, and clay and is occasionally cemented. Quartzite is generally the predominant rock type in the gravel, although a high percentage of limestone boulders and cobbles occur in the southern area along with weathered Cretaceous invertebrate fossils. The occurrence of limestone gravel and Cretaceous fossils indicate that a local source possibly contributed to the Ogallala sediments in the southern third of the area.

Near the surface of much of the Texas High Plains are layers of resistant caliche known as "caprock". Caliche occurs in both Ogallala and post-Ogallala sediments and is formed by the leaching of carbonate and silica from surface soils and the re-deposition of the dissolved mineral layers below the surface. Although caliche layers occur primarily near the surface, deeper zones of caliche are also present. These deeper layers represent older soil horizons. The caliche ranges from crumbly to very hard and is almost impermeable although secondary porosity has been observed in many samples.

Previously, the Ogallala was described as fluvial sediments deposited as a series of coalescing alluvial fans or plains with only minor amounts of eolian sediments (Seni, 1980). However, Reeves (1972), Hawley and others (1976), and Hawley (1984) recognize the Ogallala as predominately eolian sediments in parts of Texas and southeastern New Mexico. Outcrop and core studies by Gustavson and Winkler (1987) indicate the Ogallala in Texas and New Mexico consists of alluvial sediments that partly fill paleovalleys and widespread thick eolian sediments capping paleo-uplands and most fluvial sections. Calcic paleo-soils and fossil evidence suggest a depositional environment in a mostly semiarid to sub-humid climate (Winkler, 1990; Scholiast 1990; and Thomasson, 1990).

Water-bearing areas of the Ogallala Formation are hydraulically connected except where the Canadian River has partially or totally eroded through the formation to separate the North and South Plains. Water-bearing units of Cretaceous and Jurassic ages combine to form the Rita Blanca aquifer in the western part of Dallam and Hartley counties (Christian, 1983). Lower Cretaceous units form two separate subcrops within the Texas High Plains, the Edwards-Trinity (High Plains) and the Edwards-Trinity (Plateau). Underlying these three aquifers and much of the Ogallala are Triassic (Dockum aquifer) and Permian formations.

Thickness of the Ogallala Formation is primarily controlled by the morphology of the eroded pre-Ogallala surface. The greatest thickness occurs where sediments have filled previously eroded drainage channels. These channels generally trend east or southeast. Other areas of large Ogallala thickness occur in the northeast quadrant of the Texas High Plains where sediments have filled collapsed basins formed by dissolution of Permian evaporites.

The saturated thickness of the Ogallala Formation ranges from a few feet to more than 525 feet (160 m). In general, the areas of greatest saturated thickness occur in the North Plains. In the South Plains, between Lubbock and Midland, the saturated zone varies from less than 50 feet (15 m) to 200 feet (61 m). Depth to water below the land surface can range from almost 400 feet (122 m) in parts of the North Plains to between 100 to 200 feet (30 to 61 m) throughout much of the South Plains.

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Ogallala groundwater is generally fresh, containing between 300 and 1,000 milligrams per liter (mg/l) of dissolved solids of which calcium, magnesium, and bicarbonate are the principal constituents. Some hydraulic continuity occurs between the Ogallala Formation and the underlying Cretaceous, Triassic, and Permian formations in many areas of the High Plains. For the purposes of this document, the Ogallala Aquifer will be considered to consist of the saturated sediments of the Ogallala Formation and any underlying, potable water-bearing units hydraulically connected with it.

Post-Ogallala Depositions

Post-Ogallala sediments consist of windblown sand and silt, alluvium, and playa lake deposits. Windblown sands occupy the largest surface area of the High Plains of Texas and are of both Pleistocene and Recent (Holocene) age. They are primarily fine-grained to silty, sometimes calcareous, and are derived from lacustrine, fluvial, and eolian deposits. These sands and soils form sheet or cover sand, dunes, and dune ridges with thicknesses generally ranging from 0 to 10 feet (0 to 3 m).

Alluvium is present as fluvial flood plain and terraced sediments along the more active streams and rivers. The deposits consist of poorly sorted, often cross-bedded, gravel sand, and silt.

Lacustrine deposits, consisting primarily of clay and silt, line the bottom of the many playa lakes on the High Plains. The sediments are virtually impermeable, thus restricting natural recharge to the underlying formation.

(Selected references are included in in the back of the Management Plan)

B. CURRENT VOLUME IN STORAGE:

Scope:

In the counties of Dallam, Hartley, Hutchinson, and Moore the area of investigation was limited to that part of the counties that are within the defined Boundaries of the North Plains Groundwater Conservation District .

Methodology:

A Water Level Elevation Map was created using winter water level measurements measured during the winter of 1996-97. The Water Level Elevation map was superimposed upon a Historical Base of the Aquifer Elevation Map (Red Bed) and data points calculated at the intersections of the contours. In areas where these intersections were scarce, values were interpolated from the nearest redbed and contour points. From these data points a current Saturated Material Map was created. A value of saturated material (to the nearest 10 foot interval) was assigned from the Saturated Material Map at the center of each section, 3/4 -,½-, and 1/4 section of land. That value of saturated material was multiplied by the appropriate number of acres and a storage value of .15 and the resulting values were then totaled. Corrections were made to account for any over estimation of area calculations.

County	County Area in Sq. Miles	County Area Calculated in District in Sq. Miles	Percent of County in District	Correction Applied to Calculations
Dallam	1494	741	49.6	None
Hansford	907	917	100	.989
Hartley	1489	1192.75	80.1	None

14 03

Hutchinson	911	241.5	26.51	None
Lipscomb	934	914	100	None
Moore	914	677.75	74.15	None
Ochiltree	907	907	100	None
Sherman	916	904.5	98.74	None

Total County Area-8472 mi sq; District Area-6495 mi sq with error correction-6485 mi sq

Results:

County Acre-feet

Dallam County Water in Storage: 9,748, 800 acre-feet not a recoverable volume

Hartley County Water in Storage: 20,175,840 acre-feet not a recoverable volume

Hansford County Water in Storage: 18,399,207 acre-feet not a recoverable volume

Hutchinson County Water in Storage: 4,021920 acre-feet not a recoverable volume

Lipscomb County Water in Storage: 19,140,480 acre-feet not a recoverable volume

Moore County Water in Storage: 11,242,320 acre-feet not a recoverable volume

Ochiltree County Water in Storage: 16,177,440 acre-feet not a recoverable volume

Sherman County Water in Storage: 17,749,920 acre-feet not a recoverable volume

Total 116,655,927 acre-feet not a recoverable volume

Omitting the bottom ten feet leaves a recoverable volume of **110,430,327 acre-feet**

Average Saturated Material 187.38 Ft

C. ESTIMATED ANNUAL DECLINE (USAGE)

Scope:

In the counties of Dallam, Hartley, Hutchinson, and Moore the area of investigation was limited to that part of the county that is within the defined Boundaries of the North Plains Groundwater Conservation District . In the counties of Sherman, Hansford, Ochiltree, and Lipscomb the area of investigation includes the entire county. The area of investigation is estimated to be 6485 square miles while the counties in their entirety are 8472 square miles. The District includes 76.55 % of the area of the counties.

Methodology:

Water levels are measured annually between December and March in approximately 630 observation wells located throughout the District. A database with historical water-level measurements (630 observation wells) was used to calculate yearly (since 1981) average decline in the water-level of the Ogallala Aquifer throughout the District. From these, averages were calculated for 1982 thru 1986, 1987 thru 1992, and 1993 thru 1997. The third five-year average (1993 thru 1997) decline was selected to represent the present decline rate.

14 04

Results:

The Ogallala Aquifer within the boundaries of the North Plains Groundwater Conservation District is declining at an average of 1.74 feet per year (1,082,631 acre ft).

14 05

USGS

GROUND WATER ATLAS of the UNITED STATES
Kansas, Missouri, and Nebraska
HA 730-D

Preview and download High Plains aquifer figures--(46 thru 66)

Download the text (This is the text for all of HA 730-D in ascii format, no links, no page formatting) D-text.ascii--(165k)

HIGH PLAINS AQUIFER

INTRODUCTION

The High Plains aquifer underlies an area of about 174,000 square miles in parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming (fig. 46). Parts of the aquifer are in Segments 2, 3, 4, 8, and 9 of this Atlas; for the most part, the aquifer is within Segments 3 and 4 and is discussed in detail only in the chapters that describe those segments. The High Plains aquifer is the principal source of ground water for the High Plains region, which is one of the Nation's most important agricultural areas. In Nebraska, the aquifer underlies an area of about 63,650 square miles, and in Kansas, it underlies an area of about 30,500 square miles; only these parts of the aquifer are discussed in this chapter.

The High Plains aquifer is named from the High Plains Physiographic Province, an area of flat to gently rolling topography (fig. 47) which is part of a vast plain that slopes gently eastward from the Rocky Mountains. The plain was formed by the deposition of sediments that were transported eastward from the Rocky Mountains by a network of streams. Subsequent uplift and erosion have partly dissected the plain. In places, extensive areas of windblown silt and sand that were derived from channel deposits of the streams are at the land surface. The windblown sand deposits form dunes that cover an area of about 20,000 square miles in central Nebraska. Local dune sands also are common in parts of southern Kansas.

The economy of the High Plains area, which provides a major part of the food supply of the Nation, is dependent on the successful growing of crops. The prevailing method of farming in the High Plains before the drought of 1930 through 1939 was dryland farming. By the 1930's, continuous cropping, primarily by repeatedly planting the cropland in wheat, had depleted the humus that bound the soil. During the drought, the wind blew away much of the remaining pulverized soil as huge clouds of dust, and the area was known as the "Dust Bowl." Ground-water irrigation, which had begun in the late 1800's, was greatly intensified in the 1940's in response to the drought. A second surge in irrigation development followed a severe drought during the 1950's. During 1985, about 10.5 million acres were irrigated on the High Plains in Nebraska and Kansas. Most of the water that supplies these irrigation needs was withdrawn from the High Plains aquifer.

HYDROGEOLOGIC UNITS

The High Plains aquifer consists of all or parts of several geologic units of Quaternary and Tertiary age. The stratigraphic column in figure 48 shows the formation name, generalized rock type, thickness, and

14 06

age of the geologic units that compose the aquifer. The Brule Formation of Oligocene age is the oldest geologic unit included in the aquifer. The Brule Formation is the upper unit of the White River Group and is primarily massive siltstone with beds and channel deposits of sandstone. Locally, the Brule includes lenticular beds of volcanic ash, clay, and fine sand. The Brule underlies much of western Nebraska and is included in the aquifer only where it has been fractured or where the formation contains solution openings. Such secondary porosity and permeability are developed only where the Brule crops out or is near the land surface (fig. 49).

The Arikaree Group of Miocene and Oligocene age overlies the Brule Formation and consists primarily of massive, very fine to fine-grained sandstone. Locally, the Arikaree includes beds of volcanic ash, siltstone, claystone, and marl. The Arikaree Group crops out in western Nebraska and pinches out to the south and east as does the White River Group, which includes the Brule Formation (fig. 50). The maximum thickness of the Arikaree is about 1,000 feet in western Nebraska.

The Ogallala Formation of Miocene age is the principal geologic unit included in the High Plains aquifer and is at the land surface throughout most of the extent of the aquifer (fig. 49). The Ogallala consists of unconsolidated gravel, sand, silt, and clay. Locally, it also includes caliche, which is a hard deposit of calcium carbonate that precipitated when part of the ground water that moved through the formation evaporated. The Ogallala Formation was deposited by an extensive eastward-flowing system of braided streams that drained the eastern slopes of the Rocky Mountains during late Tertiary time. The location of the stream system migrated during a long period of time, and the Ogallala Formation was deposited over about 134,000 square miles in eastern Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming.

Unconsolidated deposits of Quaternary age overlie the Ogallala Formation. These Quaternary deposits consist of gravel, sand, silt, and clay, much of which is reworked material that was derived from the Ogallala Formation. Where these unconsolidated deposits are saturated, such as in southeastern Nebraska and south-central Kansas, they compose part of the High Plains aquifer (fig. 49). Deposits of loess (fig. 51) overlie the Ogallala Formation or the unconsolidated Quaternary sediments in some locations. The loess was deposited as windblown material and consists mostly of silt with small quantities of very fine-grained sand and clay. Where the loess is thick, it forms the upper confining unit of the High Plains aquifer. Dune sands of Quaternary age compose part of the aquifer where they are saturated. The dune sands are most extensive in west-central Nebraska where they cover about 20,000 square miles (fig. 49) and attain a maximum thickness of about 300 feet. Saturated dune sands also are part of the High Plains aquifer south of the Arkansas River in southwest and south-central Kansas. The dune sands are highly porous and, therefore, quickly absorb rainfall that recharges the High Plains aquifer. Valley-fill deposits along the channels of streams, such as the Platte and the Arkansas Rivers, also are considered to be part of the aquifer where they are hydraulically connected to it. In such places, the valley-fill deposits directly link the streams to the High Plains aquifer and allow water to move freely between the aquifer and the streams.

The High Plains aquifer is underlain by rocks that range in age from Tertiary to Permian. Rocks of Permian age directly underlie parts of the aquifer in southern Kansas (fig. 52). These rocks are predominantly red shale, siltstone, sandstone, gypsum, anhydrite, and dolomite and locally include limestone and halite (rock salt) as beds or disseminated grains. Partial dissolution of salt and evaporite minerals by circulating ground water has adversely affected the chemical quality of water in the High Plains aquifer where Permian rocks that contain salt beds or saline water are in hydraulic connection with the aquifer. The dissolution of salt beds also has resulted in collapse structures and faulting in the overlying deposits. The Bear Creek and the Crooked Creek Fault Zones in southwestern Kansas (fig. 52) are collapse structures that have formed as a result of partial dissolution of salt beds.

14 07

Rocks of Jurassic and Triassic age directly underlie the High Plains aquifer in small parts of southwestern Kansas and western Nebraska. These rocks consist primarily of shale and sandstone, and some of the sandstone beds are permeable enough to yield water to wells. Some irrigation wells in southwestern Kansas withdraw water from the High Plains aquifer and the rocks of Jurassic and Triassic age. For the most part, however, the Jurassic and Triassic rocks have low permeability.

Lower Cretaceous rocks directly underlie the High Plains aquifer in parts of southern Kansas and eastern Nebraska (fig. 52). These rocks are primarily shale and sandstone. The hydraulic properties of the sandstones are highly variable, but Lower Cretaceous rocks provide water for irrigation and other uses in parts of Kansas and Nebraska.

Upper Cretaceous rocks directly underlie the High Plains aquifer in large parts of Nebraska and Kansas. These rocks consist primarily of shale, chalk, limestone, and sandstone of which only the chalk (where it is fractured, contains solution openings, or both) yields quantities of water large enough for irrigation purposes. Elsewhere, Upper Cretaceous rocks have little permeability.

The Chadron Formation that is part of the White River Group of Tertiary age (fig. 48) directly underlies the High Plains aquifer in most of western Nebraska (fig. 52). The Chadron Formation is predominantly clay and silt, both with minimal permeability. The Brule Formation, which also is part of the White River Group, is predominantly siltstone but locally is fractured. Where it contains fracture or solution permeability, the Brule Formation is considered to be part of the High Plains aquifer.

GROUND-WATER HYDROLOGY

Depth to Water

The depth to water in a particular area is the difference between the altitude of land surface and the altitude of the water table. The generalized depth to water in the High Plains aquifer in 1980 is shown in figure 53. In most places, the water levels shown are lower than those that existed before widespread irrigation withdrawals began. The depth to water in the High Plains aquifer is less than 100 feet in about one-half of the area of the aquifer and less than 200 feet in most of Nebraska and Kansas. The depth to water generally is less near the Platte and the Arkansas Rivers than in areas farther from the rivers because the rivers are hydraulically connected to the aquifer through the stream valley aquifers that parallel the rivers. The water table is between 200 and 300 feet below the land surface in parts of western and southwestern Nebraska and in parts of southwestern Kansas. The depth to water is as much as 400 feet below the surface in a small area in southwestern Kansas where development of the aquifer began earlier than in most parts of Kansas; consequently, water-level declines are greater.

Ground-Water Flow

Water in the High Plains aquifer generally is under unconfined, or water-table, conditions. Locally, water levels in wells completed in some parts of the aquifer may rise slightly above the regional water table because of artesian pressure created by local confining beds. The altitude and configuration of the water table of the High Plains aquifer are shown in figure 54. The configuration and slope of the water table are similar to the configuration and slope of the land surface. Water in the aquifer generally moves from west to east, or perpendicular to the contours and in the direction of the arrows shown in figure 54. Water moves in response to the slope of the water table, which typically averages between 10 and 15 feet per mile. On the basis of this average slope and aquifer hydraulic properties, the velocity of water that moves through the aquifer is estimated to average about 1 foot per day.

14 08

Where the water-table contours cross streams, the configuration of the contours indicates the relation of the water in the aquifer to the water in the stream. For example, where the contours from 3,200 to 4,000 feet in figure 54 cross the North Platte River in western Nebraska, the contours bend upstream. This upstream flexture indicates that water moves from the aquifer to the stream, and the North Platte River is a gaining stream in this area. By contrast, where the 2,000-foot contour crosses the Platte River in west-central Nebraska, a slight downstream bend in the contour indicates that water is moving from the stream to the aquifer; the Platte River is a losing stream in this area, and the water from the river recharges the aquifer.

In southwestern Kansas, the Bear Creek and the Crooked Creek Fault Zones (fig. 52) have displaced the High Plains aquifer and little or no saturated thickness of the aquifer exists on the upthrown side of the faults. In these areas, the water-table contours shown in figure 54 end abruptly at the faults.

The spacing of the water-table contours is affected by different hydrologic conditions. For example, where contours are widely separated, such as in western Nebraska, the slope of the water table is gentler than where the contours are more closely spaced. Widespread recharge to the aquifer by infiltration of precipitation through dune sands occurs in western Nebraska, and, thus, the slope of the water table is relatively gentle.

Recharge and Discharge

In an undisturbed ground-water flow system, the amount of water that moves into an aquifer (recharge) and the amount of water that moves out of the aquifer (discharge) are equal, and the flow system is in equilibrium. Before development in an unconfined aquifer, such as the High Plains aquifer, the water table of the aquifer and the quantity of water stored in the aquifer vary little in response to changes in precipitation, streamflow, and the amount and types of vegetation.

A ground-water flow system is no longer in equilibrium when the long-term discharge is not equal to the long-term recharge. The altitude of the water table rises when the recharge rate exceeds the discharge rate and declines when the discharge rate exceeds the recharge rate. Withdrawal of large quantities of ground water by wells and redistribution of surface water in ditches and canals, all for irrigation purposes, have changed the natural recharge and discharge of the High Plains aquifer.

Recharge to the High Plains aquifer is primarily by infiltration of precipitation and locally is by infiltration from streams and canals. Some surface water that is applied to crops for irrigation also percolates downward and recharges the aquifer. A small quantity of water from the underlying bedrock moves upward and mixes with water in the High Plains aquifer; this water is also considered to be recharge. The aquifer is recharged at total rates of between 0.05 and 6 inches per year in Nebraska and Kansas. The rates of recharge are highly variable and range from about 0.3 to 20 percent of the average annual precipitation in the dry and wet parts of these States. The greatest rates of recharge by precipitation are in areas where dune sand or other highly permeable material is at the land surface. Recharge by infiltration of streamflow usually is greatest when streamflow is high and, thus, provides a large difference between stream and aquifer water levels.

Natural discharge from the High Plains aquifer is to springs, seeps, and streams and by evapotranspiration. Where the water table is near the land surface, ground water can evaporate directly. Transpiration rates are greatest along stream valleys where deep-rooted salt cedar, willows, cottonwoods, and sedges grow. Where the High Plains aquifer locally is underlain by permeable bedrock and the water table in the aquifer is higher than that in the bedrock, small amounts of water move downward from the aquifer into the bedrock.

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Large quantities of water are withdrawn from the aquifer by wells, and in some areas large amounts of water discharge from the aquifer to streams. For example, a study was done during 1975 to determine how much of the flow of the Platte River in Nebraska was derived from ground water. The gain in streamflow within Nebraska was about 3 million acre-feet, most of which was ground-water discharge from the High Plains aquifer to the river. Large quantities of surface water are diverted from the Platte River and used for irrigation; thus, the amount of ground-water discharge to the river probably was significantly greater than the measured gain in streamflow.

Most of the discharge from the High Plains aquifer is by withdrawals from wells, and practically all of the water withdrawn is used for irrigation purposes. Total withdrawals of water from the entire aquifer for irrigation increased from about 4 million acre-feet during 1949 to about 23 million acre-feet during 1978 (fig. 55) then decreased to about 16 million acre-feet during 1990. During 1978, more than 4 million acre-feet of irrigation water was withdrawn in Kansas and about 8 million acre-feet was withdrawn in Nebraska. During 1990, irrigation withdrawals in Kansas were about the same as those during 1978, whereas withdrawals in Nebraska were only about 5 million acre-feet per day.

Saturated Thickness and Well Yield

The saturated thickness of an aquifer is the vertical distance between the water table and the base of the aquifer and is one of the factors that determines the quantity of water that can be pumped from a well. Other factors that affect well yield include well construction and the hydraulic properties of the aquifer. The saturated thickness of the High Plains aquifer in 1980 (fig. 56) ranged from 0 (where the sediments that compose the aquifer were unsaturated) to about 1,000 feet. The greatest saturated thickness is in north-central Nebraska where the aquifer consists of the Ogallala Formation and overlying dune sands. Locally in southwestern Kansas, dissolution of salt in the Permian bedrock that underlies the High Plains aquifer has resulted in collapse features that were filled with younger sediments. These anomalously thick accumulations of sediments coincide with thick sequences of saturated aquifer materials. The average saturated thickness of the entire aquifer in 1992 was about 190 feet. In Nebraska, the average saturated thickness was 340 feet, but in Kansas, it was only about 90 feet.

Changes in the saturated thickness of the High Plains aquifer have resulted from ground-water development. Saturated thickness has decreased in most places (fig. 57), but in two areas in south-central Nebraska, recharge to the aquifer from surface-water irrigation combined with downward leakage of water from canals and reservoirs has increased saturated thickness. In large areas in southwestern Kansas, large-scale irrigation development has decreased the saturated thickness of the aquifer more than 25 percent. Decreases of more than 10 percent in saturated thickness result in a decrease in well yields and an increase in pumping costs because of the increased depth at which the pump must be set in order to lift the water.

The entire High Plains aquifer contained about 21.7 billion acre-feet of saturated material in 1992. The quantity of drainable water in storage in the aquifer can be estimated by multiplying the volume of saturated material by the average specific yield (15 percent). The specific yield of an aquifer is the volume of water that will drain from a unit volume of rock under the influence of gravity alone. Therefore, about 3.25 billion acre-feet of drainable water was in storage in the High Plains aquifer in 1992. About 65 percent of the drainable water in storage in the entire aquifer is in Nebraska, and about 10 percent is in Kansas. The remaining drainable water is in storage in Colorado, New Mexico, Texas, South Dakota, Oklahoma, and Wyoming. Not all drainable water in storage within the aquifer can be recovered for use. The quantity of water that can be recovered varies with location and depends on the lithology, saturated thickness, hydraulic conductivity, and specific yield of the aquifer at that location and on well construction. Water has been almost completely removed from about 8 percent of the formerly saturated aquifer material in Kansas, whereas the quantity of material dewatered in Nebraska is

negligible.

The greatest yields of water generally are obtained from wells that are completed in coarse-grained aquifer material in places where the saturated thickness of the High Plains aquifer is great. A generalized map of the potential yield of properly constructed wells completed in the High Plains aquifer is shown in figure 58. The potential yield of wells is greater than 750 gallons per minute in most of Nebraska and large parts of Kansas. A well capable of producing 750 gallons per minute can irrigate 125 acres and effectively supply one center-pivot irrigation system.

Well yields from different formations that compose the aquifer vary. Yields from the Brule Formation typically are less than 300 gallons per minute. Wells completed in the Arikaree Group generally do not yield large quantities of water but might yield as much as 350 gallons per minute in western Nebraska where the saturated thickness is about 200 feet. Well yields from the Brule Formation and the Arikaree Group are greatest where secondary porosity, such as fractures or solution openings, has been developed in the rocks. Well yields from the Ogallala Formation are 1,000 gallons per minute from 100 feet of saturated sand and gravel in many parts of Kansas and Nebraska but are only 100 gallons per minute from 20 feet of saturated sand and gravel in western Kansas.

GROUND-WATER DEVELOPMENT AND WATER-LEVEL FLUCTUATIONS

Development of the High Plains aquifer began in the late 1800's, when windmills were used as a source of power to pump water from scattered irrigation wells. Spurred by the drought of the 1930's, ground-water irrigation expanded rapidly. Development of the High Plains aquifer generally began in Texas, adjacent parts of New Mexico, and in major stream valleys in other States in the 1930's. Widespread development progressed to Oklahoma and Kansas in the 1940's and extended to Colorado, Nebraska, and Wyoming in the 1950's; the aquifer has undergone little development in South Dakota.

In 1949, the total acreage irrigated by ground water in the High Plains was slightly more than 2 million acres (fig. 59), most of which was in Texas. The number of acres irrigated in Kansas and Nebraska expanded greatly in the late 1950's in response to a drought. The amount of irrigated acreage in those States continued to increase until 1978, by which time nearly 170,000 irrigation wells had been completed in the High Plains aquifer; about 23,000 of these wells were in Kansas, and about 59,300 were in Nebraska. Collectively, irrigation wells in eight States pumped about 23 million acre-feet of water from the High Plains aquifer in 1978 to irrigate about 13 million acres. In 1978, water from the High Plains aquifer was used to irrigate about 4.5 million acres in Nebraska and more than 2 million acres in Kansas. The large increase in the number of wells drilled for irrigation between 1952 and 1978 was partially a result of the development of center-pivot irrigation systems during the 1960's. Center-pivot systems, such as those shown from an aerial view in figure 60, are supplied by irrigation wells and have the water-distribution pipes mounted on a wheeled boom that rotates in a circle around the center of the irrigated area. Such systems make it possible to irrigate the rolling terrain of the High Plains. In Nebraska alone, the number of center-pivot irrigation systems increased from about 2,800 in 1972 to more than 27,000 by the end of 1984 (fig. 61).

As the number of irrigation wells increased, the percentage of land that was irrigated also increased. In 1949, the 5 percent or less of land that was irrigated in most of Nebraska and Kansas (fig. 62A), was mostly along river valleys. By 1964, the percentage of irrigated land had increased, and much of the irrigated acreage was away from the rivers (fig. 62B). By 1978, the percentage of irrigated acreage had greatly increased (fig. 62C) as more upland areas were irrigated.

As development of the High Plains aquifer became more extensive, water levels in the aquifer began to

decline in some locations. Well yields decreased in some places as a result of the water-level declines. The cost of pumping increased as water levels declined because pumps were set deeper and more energy was required to lift the water an increased distance. The cost of the energy used to pump the water also increased. This increased cost for obtaining irrigation water decreased the profit in growing crops that require irrigation in parts of the High Plains area.

Average annual withdrawals of water from the High Plains aquifer generally are much larger than recharge to the aquifer from precipitation. In places where recharge rates are high, the demand for irrigation water could be as low as twice the average annual recharge; where recharge rates are low, the demand could be more than 100 times the recharge. The quantity of water removed from storage from the entire aquifer between predevelopment conditions and 1980 is estimated to be about 166 million acre-feet, of which about 27 million acre-feet was withdrawn in Kansas. No significant quantity of water has been removed from storage in Nebraska. By 1980, withdrawals of water from the High Plains aquifer had resulted in water-level declines of more than 100 feet in parts of southwestern Kansas (fig. 63). Development of the aquifer in this area began in the 1940's, which is earlier than in most other places in Kansas. Generally, the later development of the aquifer began in an area and the less intense the development has been, the smaller the water-level decline in that area. Water-level rises shown in parts of southern Nebraska are in response to increased recharge of the aquifer by infiltration of surface water applied for irrigation.

GROUND-WATER QUALITY

The chemical quality of water in the High Plains aquifer is affected by many factors. These factors include the chemical composition and solubility of aquifer materials, the increase in dissolved-solids concentrations in ground water in areas where the water discharges by evapotranspiration, and the chemical composition of water that recharges the aquifer. Ground water generally contains smaller concentrations of dissolved minerals near recharge areas where the residence time of the water in the aquifer has been short, and, thus, dissolution of aquifer minerals has been less. The water generally is more mineralized near discharge areas because residence time has been longer and more dissolution of minerals has taken place.

The dissolved-solids concentration in ground water is a general indicator of the chemical quality of the water. Dissolved-solids concentrations in water from the High Plains aquifer are less than 500 milligrams per liter in most of Kansas and Nebraska (fig. 64) but locally exceed 1,000 milligrams per liter in both States. The limit of dissolved solids recommended by the U.S. Environmental Protection Agency for drinking water is 500 milligrams per liter. Most crops can tolerate water in which the dissolved-solids concentration is 500 milligrams per liter or less. In places with well-drained soils, many types of crops can tolerate water with a dissolved-solids concentration of between 500 and 1,500 milligrams per liter. In southwestern and south-central Kansas, the High Plains aquifer overlies Permian bedrock that contains bedded salt. Where circulating ground water has dissolved some of this salt and the mineralized water has subsequently moved upward into the High Plains aquifer, the dissolved-solids concentration of the water in the High Plains aquifer is greatly increased. Also, dissolved-solids concentrations generally are greater near streams where water from the High Plains aquifer discharges. Ground water near the streams is shallow enough to be transpired by plants or to be evaporated directly from the soil. Concentrations of dissolved solids in the ground water are increased by the evapotranspiration process. Rates of transpiration are greatest where deep-rooted phreatophytes, such as sedges, cottonwood, willows, and salt cedar, grow.

Excessive concentrations of sodium in water adversely affect plant growth and soil properties, and constitute salinity and sodium hazards that may limit irrigation development. Sodium that has been concentrated in the soil by evapotranspiration and ion exchange decreases soil tillability and

permeability. Areas of high or very high sodium hazard occur in parts of Kansas. Sodium hazard is evaluated by the sodium adsorption ratio, which relates the concentration of sodium to calcium plus magnesium; if this ratio is high, then the sodium can destroy any clay in the soil and thus affect soil structure. Sodium concentrations in water from the High Plains aquifer in Kansas and Nebraska are shown in figure 65. Concentrations are less than 25 milligrams per liter in most of Nebraska and northern Kansas. Concentrations are greatest in southwestern Kansas where evapotranspiration rates are high and in south-central Kansas where the High Plains aquifer overlies Permian bedrock that contains saline water derived from partial dissolution of salt beds. Sodium concentrations are increased along the Platte and the Republican Rivers where evapotranspiration rates also are high. Salinity and sodium hazards generally are low in Nebraska where the High Plains aquifer primarily consists of sand and gravel, which contain few sodium-bearing minerals.

Excessive fluoride concentrations are a widespread problem in water from the High Plains aquifer. Some of the fluoride is derived from dissolution of fluoride-bearing minerals in parts of the aquifer that contain sand and gravel, such as the Ogallala Formation. Extremely large concentrations (2-8 milligrams per liter) of fluoride are reported where the aquifer contains volcanic ash deposits or where it is underlain by rocks of Cretaceous age. Large concentrations of fluoride in drinking water cause staining of teeth, but fluoride is not a concern in irrigation water.

The generally shallow depth of the water table in the High Plains aquifer makes water in the aquifer susceptible to contamination. Application of fertilizers and organic pesticides to cropland has greatly increased since the 1960's, thus increasing the availability and the amount of potential contaminants available. Increased concentrations of sodium, alkalinity, nitrate, and triazine (a herbicide) have been found in water that underlies small areas of irrigated cropland in Nebraska and Kansas. Of 132 wells sampled during 1984-85 in Nebraska, 43 had measurable concentrations (greater than 0.04 microgram per liter) of the herbicide atrazine. Increased concentrations of 2,4-Dichlorophen-oxyacetic acid (2,4-D, a pesticide) were found in water that underlies rangeland in a small part of the Great Bend area of the Arkansas River in Kansas.

FRESH GROUND-WATER WITHDRAWALS

Withdrawals of fresh ground water from the High Plains aquifer in Segment 3 during 1990 totaled 8,181 million gallons per day (fig. 66). Of this amount, 4,556 million gallons per day was withdrawn in Nebraska. About 97 percent of the total withdrawals, or about 7,900 million gallons per day, was used for agricultural, primarily irrigation, purposes. About 200 million gallons per day was pumped for public supply. Domestic and commercial withdrawals were about 40 million gallons per day, and industrial, mining, and thermoelectric power withdrawals also were about 40 million gallons per day.

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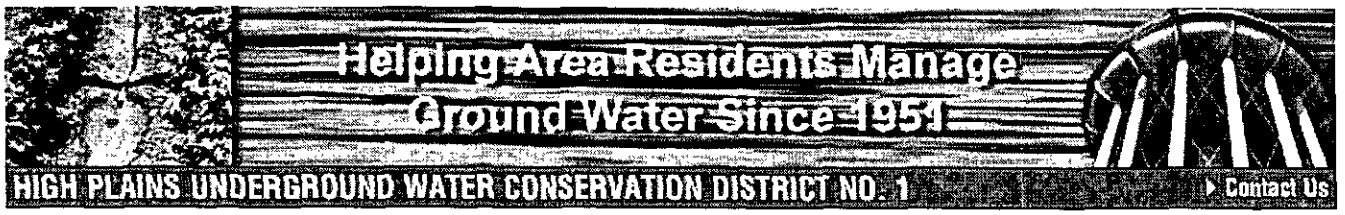

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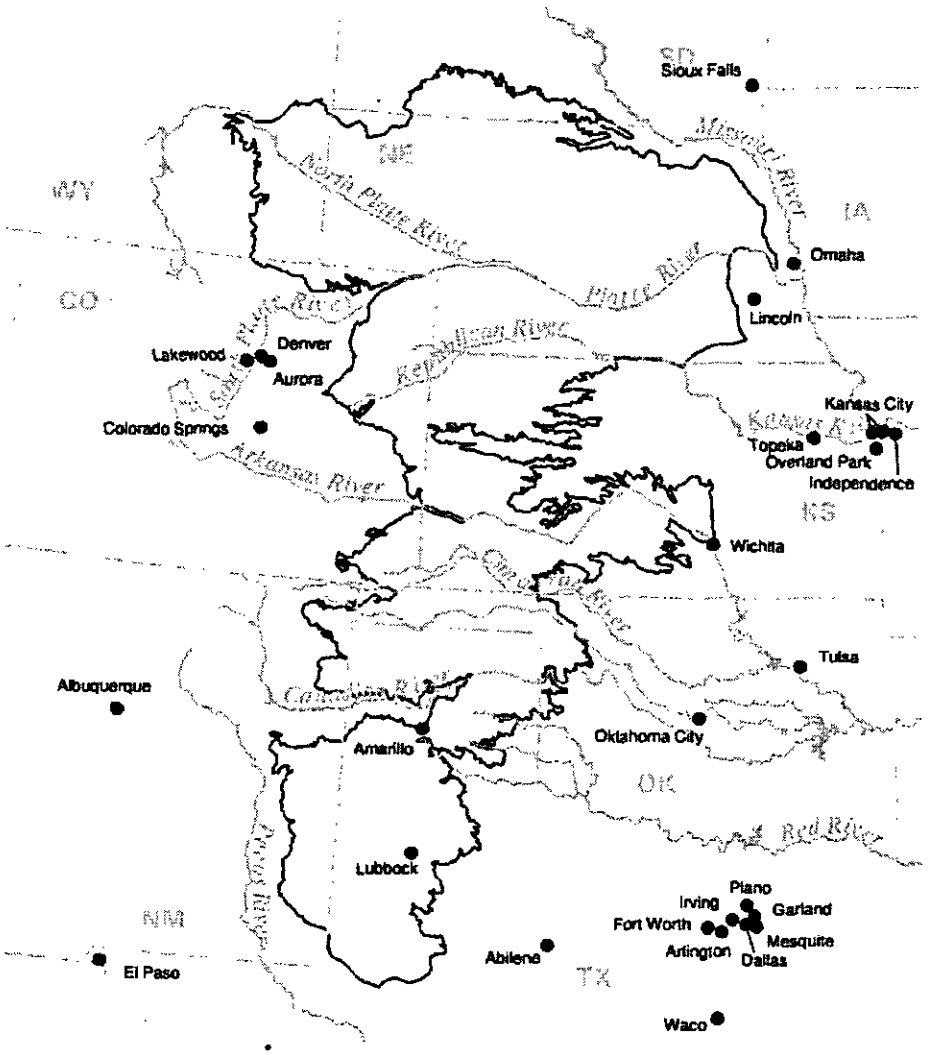
THE OGALLALA AQUIFER



The Ogallala aquifer (pronounced *OH-GA-LA-LA*) is one of the largest aquifer systems in the world. It stretches across all or portions of eight states generally from north to south to include South Dakota, Nebraska, Wyoming, Colorado, Kansas, Oklahoma, New Mexico, and Texas and underlies about 174,000 square miles. N.H. Darton is credited with describing and naming the formation in 1899 after the town of Ogallala, Nebraska.

The Ogallala aquifer lies relatively near the land surface in most of the above-described area with a maximum thickness of about 1,000 feet with a few hundred feet more the norm. Even in those areas of only a few feet of thickness, the aquifer can almost always be counted on to yield water to a well drilled into it. Some wells yield only a few gallons of water per minute, while others yield 1,000 gallons of water per minute or more. The Ogallala aquifer not only includes the portion of the Ogallala that is saturated with water, but may also include saturated portions of the overlying and underlying formations that are hydraulically connected to the Ogallala. Water in the aquifer on the Southern High Plains flows from northwest to southeast at about 150 feet per year under natural conditions. This rate of movement can be altered by discharge from the aquifer by pumping wells.

Deposition of the Ogallala Formation began 10 to 12 million years ago during late Tertiary

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(Miocene/Pliocene) geologic time. Sand, gravel, silt, and clay eroded from upland areas to the west and north were deposited over the erosional land surface of the present-day High Plains by primarily eastward flowing streams. The surface on which the sediments were deposited would have been much like the present area located east of the High Plains escarpment characterized by low hills, relatively shallow valleys, and meandering streams. As a result of the burial of this land surface by predominantly Ogallala sediments, the Ogallala Formation is thicker where these sediments filled the old stream channels and thinner where hills or upland areas were buried. The uppermost layer of the Ogallala Formation is typically a caliche layer described as the "Caprock Caliche." This layer locally varies in thickness and has been reported to be as much as 60 feet in thickness in some areas. The caliche layer formed about one million years ago after the land surface stabilized and soils formed.

The water table is a term used to describe the uppermost surface of sediments that are 100 percent saturated. Saturated thickness describes the thickness of an aquifer. This interval is determined by subtracting the elevation of the base of the aquifer from the elevation of the water table at a point of interest. In some parts of Nebraska, the saturated thickness exceeds 1,000 feet and generally thins to less than 20 feet in thickness in some areas of the Great Plains.

The amount of water that may be recovered in an aquifer, such as the Ogallala, is dependent primarily on the areal extent, the saturated thickness, and the specific yield of the aquifer. Specific yield is a hydrologic parameter related to the volume of water an aquifer will yield as a result of gravity drainage. As an example of this parameter, 15 percent specific yield is an average value that is customarily accepted for the Southern High Plains Ogallala aquifer. More specifically at 15 percent specific yield each cubic foot of water saturated aquifer volume will yield 0.15 cubic-foot of water as a result of gravity drainage (*See graphic depicting specific yield at right).*

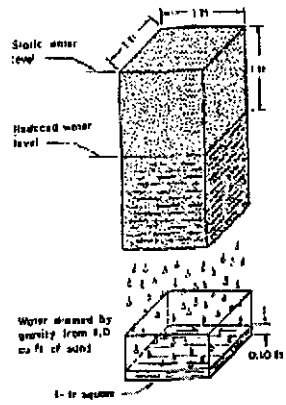

Fig. 2.5 VISUAL REPRESENTATION OF SPECIFIC YIELD. ITS VALUE HERE IS 0.10 CU FT PER CU FT OF AQUIFER MATERIAL.

In 1990, the Ogallala aquifer in the eight-state area of the Great Plains contained 3.270 billion acre-feet of water, of which about 65 percent was located under Nebraska. Texas had about 12 percent of the water in storage or approximately 417 million acre-feet of water. Kansas has 10 percent of the water. About 4 percent was located under Colorado, with 3.5 percent located under Oklahoma. Another 2 percent was under Wyoming. The remaining 1.5 percent of the water was under New Mexico. A recent estimate of the volume of water in the eight-state Great Plains area was just under 3 billion acre-feet.

Natural recharge to the Ogallala aquifer occurs primarily through the percolation of precipitation through the soils and underlying sediments to the water table. It is generally recognized that playa lakes are the primary points of most natural recharge. The interplaya areas generally contribute a minimum of the recharge, except for areas of exceptional accumulation of precipitation with resultant extensive percolation of water to the water table in locations where streambeds and dune areas are common. Various studies of natural recharge have historically estimated various ranges of average recharge to the Ogallala aquifer. Recent studies have estimated an average recharge rate for the entire High Plains region of approximately 0.5 of an inch per year.

Before the development of irrigation, the discharge from the aquifer occurred from both saline and fresh water like basins, from streams, and from seeps and springs located primarily along the eastern escarpment. Some of these still flow today; however, most seeps and springs have ceased to flow due primarily to lowering of the water table as discharge has exceeded natural recharge.

Approximately 95 percent of the water pumped from the Ogallala is for irrigation. The High Plains area represents 65 percent of the total irrigated acreage in the United States. The quality of the water pumped from the aquifer is suitable for irrigating; but in some places, the water does not meet U.S. Environmental Protection Agency (USEPA) drinking water quality standards. For example, some constituents identified above EPA standards include sulfate, chloride, selenium, fluoride, nitrate, and total dissolved solids.

The Southern High Plains area is characterized as a semi-arid climate. Average annual rainfall varies across the region. In the Lubbock, Texas area, the average annual rainfall is about 18 inches per year. High evaporation rates are common in the area. The average annual evaporation rate for the Lubbock area is about 80 inches per year.

Monitoring of the depth-to-water in the aquifer's Southern High Plains revealed rapid declines in the water table in the early 1950s, 1960s, and the 1970s. Declines of a foot or more per year were recorded throughout the 1940s; and during the late 1950s at the peak of irrigation development, some monitoring wells indicated as much as five feet of decline in a single year. The trend of rapid decline started slowing in the mid-1970s. By 1985, the portion of the Ogallala aquifer within the service area of the High Plains Underground Water Conservation District No. 1 began to stabilize. In some limited or unique areas, water level rises have been documented. A drought began in the area in mid-1992, and continued until late 1996. Agricultural producers, out of necessity, increased pumpage of water for irrigation to supplement precipitation. The increased demand for crop water by irrigation resulted in an increased rate of water level decline during this period. In subsequent years of greater precipitation, decreased needs for pumpage have allowed water level declines to decrease.

Early settlers believed the water supply that lay beneath them was inexhaustible. In the 1930s, people had begun to realize the potential of the vast water supply that lay beneath them. By 1949, about 2 million acres of the Southern High Plains were irrigated. Pumpage for irrigation increased from about 4 million acre-feet in 1949 to nearly 18 million acre-feet in1980.

In the early days of irrigation on the Texas High Plains, very little water conservation equipment or technology was available. As a result, large amounts of water were lost to evaporation and deep percolation.

Open, unlined ditches were used to transport the water from the well to the field being irrigated. It was not uncommon to have water losses ranging from 10 to 30 percent per 1,000 feet of ditch. High pressure, hand-moved sprinklers had evaporation losses of up to 50 percent.

Throughout the years, irrigation technology has evolved to allow agricultural producers to apply water much more efficiently without waste. Irrigation water escaping from fields into road ditches ("irrigation tailwater") is not as common as it once was in the 1960s and 1970s. Improved technologies, spurred on by incentives such as the Environmental Quality Incentives Program (EQIP) and low interest agricultural water conservation equipment loan programs, have helped improve water use efficiencies. For example, average water use efficiency within the High Plains Water District service area improved from about 50 percent in the mid 1970s to approximately 75 percent in 1990. Current state-of-the-art low pressure, full dropline center pivot systems, used in conjunction with furrow dikes, are about 95 percent efficient, while buried subsurface drip irrigation lines approach 100 percent efficiency.

Producers are irrigating fewer acres. Land enrolled in the Conservation Reserve Program (CRP), rising energy costs, declines in well yields, and low farm prices also account for part of this reduction.

The rates of decline in the water levels in the aquifer continue to be somewhat stable with noted annual decreases in decline resulting when annual precipitation is above average and less ground water needs to be pumped. Researchers continue to work on methods to increase natural recharge to the aquifer and to improve water-use efficiency. The prospects for the future of the Ogallala aquifer ultimately depend upon its management by each of its water users.

Additional information is available by contacting Don McReynolds, P.G., Technical Group Supervisor, at (806) 762-0181.

DOWNLOADS:

Map of the major aquifers in Texas [PDF]

Map of the minor aquifers in Texas [PDF]

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The Ogallala Aquifer

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Abstract

The Ogallala Aquifer covers approximately 10,000 square miles from Texas to the Dakotas, and is a major source of water for the High Plains. Unfortunately its water is being used faster than it is being replenished, and the result is predicted by many to be serious eco-centric pressure on the area in the not so distant future.

This paper critically examines the impacts of the increasing use of the Ogallala-with specific focus on the situation in the Oklahoma and Texas Panhandle regions, and the possibility of adopting sustainable development practices to curb the increasing aquifer water depletion and deterioration.

The first section of this paper is the introduction to the subject. The next section peruses Ogallala water conditions and quality issues, and examines how and why the aquifer is in its present state. Past studies conducted in this area are also briefly covered. Case studies of the prevailing Ogallala water situation in the Oklahoma and Texas Panhandle areas will be presented in the third section. The fourth section discusses adoption of sustainable development practices by farmers in the affected areas in lieu of absolute dependence on irrigation practices, and the last section summarizes the paper with a note of warning about ultimate water depletion.

Keywords: Aquifer, water depletion, water quality, sustainability.

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Section 1: Introduction

"We know the value of water when the well runs dry."
– Benjamin Franklin

The purpose of this section is to introduce the prevailing water requirements in the United States. Further the section focuses on the declining as well as deteriorating water conditions in the Ogallala Aquifer. This aquifer plays an important role in fulfilling the needs of the American people.

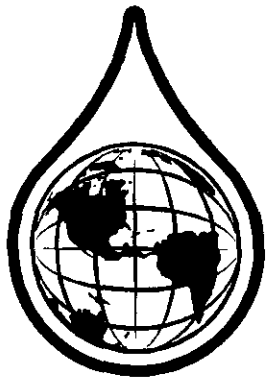
The Ogallala[1] Aquifer (also known as the High Plains Aquifer) is now facing declining water levels and deteriorating water quality. More than 90% of the water pumped from the Ogallala irrigates at least one fifth of all U.S. cropland. This water accounts for 30% of all groundwater used for irrigation in America. Crops that benefit from the aquifer are cotton, corn, alfalfa, soybeans, and wheat. These crops provide the Midwest cattle operations with enormous amounts of feed and account for 40% of the feedlot beef output here in the U.S. Since the advancement of agricultural irrigation in the earlier part of the 20th century, the Ogallala has made it possible so that states such as Nebraska and Kansas can produce large quantities of grain required to feed livestock.[2]

If the High Plains Aquifer were unaffected by human activities, it would be in a state of equilibrium in which natural discharge from the aquifer would be approximately equal to natural recharge to the aquifer. However, activities such as pumpage from wells, surface-water diversions for irrigation and hydroelectric-power generation, and cultivation and grazing practices result in non-equilibrium in the aquifer. The result is that

discharge does not equal recharge in many areas. This non-equilibrium results in substantial changes in groundwater levels.[3]

Half of the U.S. population and almost all of those in rural areas draw water from underground aquifers for their domestic needs. Additionally farmers depend on it for irrigation. Once thought an unlimited source of pure water, these sources are increasingly threatened. While toxic waste dumps, cesspools, landfills, and septic tanks contribute their share of wastes to groundwater, agricultural chemicals contribute the most in sheer volume and affect the greatest area. Excess nitrates from fertilizer (and manure), can leach into ground water, and in high enough concentrations make such water dangerous to drink. Other farm run-off can also reduce water quality. Furthermore, some farm pesticides pollute ground water in agricultural areas.[4]

Conservation of water is therefore imperative. It is extremely important that we search for solutions to deal with the problem. We also need to urgently explore the alternative approaches that could be taken instead of those being implemented now.



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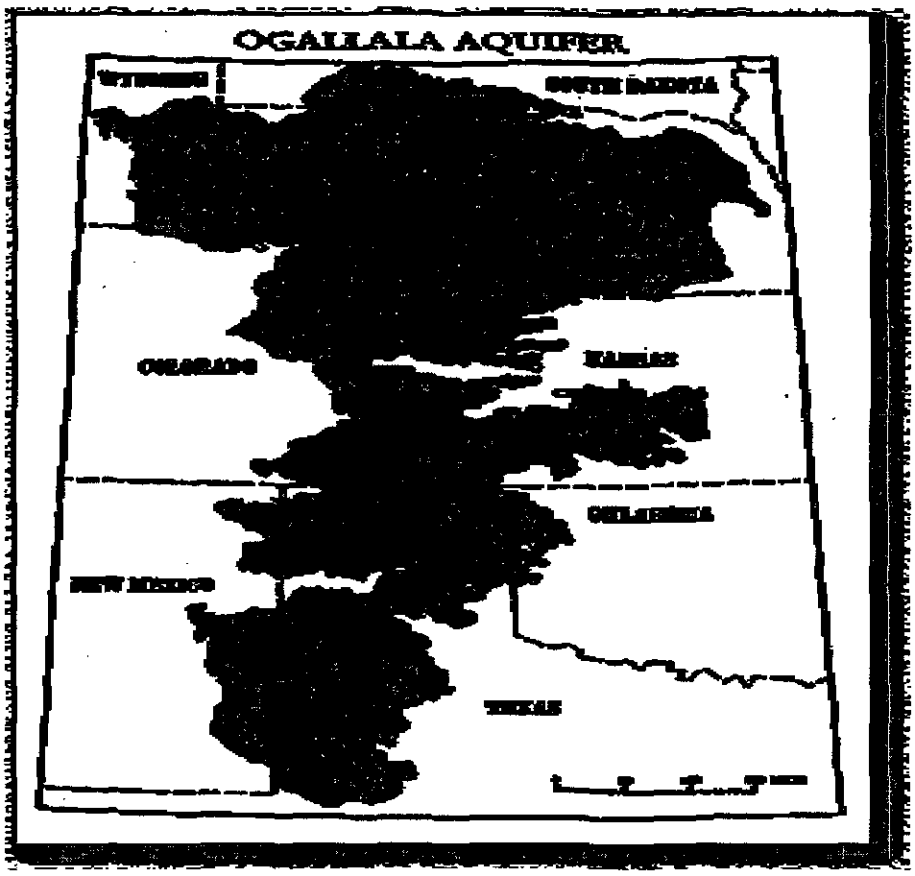
Section 2: The Ogallala

In this section we shall be looking into the past and present water usage conditions surrounding the Ogallala Aquifer. Studies conducted in this area to date will also be briefly examined.

2.1. Physical Characteristics

Figure 1: Areas covered by the Ogallala Aquifer.
Source: ***The Ogallala Aquifer.***[5]



The Ogallala ranges in thickness from less than one foot to 1300 feet from one place to another. The average depth, however, is 200 feet. The aquifer underlies a considerable portion of the Great Plains region,

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particularly in the High Plains of Texas, New Mexico, Oklahoma, Kansas, Colorado, and Nebraska (see Figure 1). The depth of the aquifer from the surface of the land, and its natural thickness, vary from region to region.[6]

As a whole the aquifer covers 174,000 square miles and has long been a major source of water for agricultural, municipal, and industrial development. The surface area of each state covered by the Ogallala formation varies in about the same proportion as the volume of water in storage. Nebraska with 64,400 square miles and Texas with 36,080 are the largest. New Mexico, Oklahoma, South Dakota, and Wyoming all have less than 10,000 square miles of surface area underlain by the Ogallala.[7]

Table 1: Characteristics of the High Plains Aquifer. Source: USGS, 1997.[8]

Characteristic	Unit	Total	CO	KS	NE	NM	OK	SD	TX	WY
Area underlain by aquifer	mi^2	174050	14900	30500	63650	9450	7350	4750	35450	800
% of total aquifer area	%	100	8.6	17.5	36.6	5.4	4.2	2.7	20.4	4
% of each state underlain by aquifer	%	--	14	38	83	8	11	7	13	8
Avg. area weighted saturated thickness in 1980	Ft	190	79	101	342	51	130	207	110	182
Volume of drainable water in storage in 1980	Mil. acre -ft	3250	120	320	2130	50	110	60	390	70

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The amount of water in storage in the aquifer in each state is dependent on the actual extent of the formation's saturated thickness. In 1990, the Ogallala Aquifer in the eight-state area of the Great Plains contained 3.270 billion acre-feet of water. Out of this, about 65% was located under Nebraska, Texas had about 12% of the water in storage or approximately 417 million acre-feet of water, Kansas had 10% of the water, about 4% was located under Colorado, and 3.5% was located under Oklahoma. Another 2% was under South Dakota and 2% was under Wyoming. The remaining 1.5% of the water was under New Mexico.[9]

The Ogallala Aquifer was formed over twenty million years ago. The formation process began when gravel and sand from the Rocky Mountains was eroded by rain and washed downstream. Those sediments soaked up water from rain and melted snow forming a sponge-like structure.[10] Most of the water has been held within the aquifer for millions of years.[11]

2.2. History of Use

Use of the Ogallala began at the turn of the century, and since World War II reliance on it has steadily increased. The withdrawal of this groundwater has now greatly surpassed the aquifer's rate of natural recharge. Some places overlying the aquifer have already exhausted their underground supply as a source of irrigation. Other parts have more favorable saturated thickness and recharge rates, and so are less valuable.

Reasons to tap the water are many. American farmers suffered and failed during the 1930's because they did not have the technology to reach it. After the government's initial failure to get farmers to move elsewhere, the New Deal committed the federal

government and society to take drastic steps to keep farmers on the Plains. The miracle of new irrigation technologies did much to protect farmers from the harshness of drought during the 1950's, early 1970's, and in the late 1980's. In addition it helped create today's highly productive industrial farming and feedlots in the plains.

Many people assume that large groundwater formations may temporarily run low, but will fill again when rainfall is plentiful – as do lakes, rivers, and reservoirs. However, unless the areas impacted are unaffected by the factors that contribute to high evaporation – such as minimal rainfall, abundant sunshine, low humidity, and periodic strong winds – this assumption is not even remotely correct. Therefore, it is imperative that we find solutions through research to water problems and maintain the aquifer as a continuing resource.

By the time we know whether today's conventional High Plains farmers can live with less groundwater, it may be too late to save enough to keep them on the land. Pumping the Ogallala is still a one-time experiment, unrepeatable and irreversible.

2.3. Why is the Ogallala in its Current State?

Nationwide, irrigation has always been treated as a farmer panacea almost beyond credibility. Not until the late 1940's did the combination of efficient deep-well pumps, low-cost energy to run gasoline or natural-gas engines, inexpensive aluminum piping, center-pivot sprinklers and other watering technologies, new management skills, an increased scale of operation, and, not least, the existence of vast water-filled gravel beds from the Ogallala Aquifer, allow farmers to ignore the lack of rain. From then

onwards, the Ogallala has been increasingly used for agricultural purposes.

Prior to the 40's and 50's, the lack of water was so severe a problem that there were repeated attempts to declare the region sub-marginal and redundant, off-limits to further attempts at farming. Much of the land, like the sandhills of southwest Kansas, seemed more suited to light cattle grazing than wheat production. By the 1960's, water was being pumped out from hundreds of wells at the rate of one thousand cubic feet a minute to water quarter sections of wheat, alfalfa, grain sorghum, and corn.

Irrigation on the High Plains was not merely a response to climate, but its replacement. While in the beginning the farmer tapped groundwater only as a last resort when rains failed, and often applied the water when it was too late, by the 1960's irrigation was integrated into the farming routine as the single most important activity to guarantee big yields. Most consumers of the High Plains groundwater treat it as a "free good," available to the first-taker at no cost for the water itself. Hence this free water has been generously consumed on profligate levels, and there are forces at work that encourage excessive use.

Irrigation for the farmers in the High Plains region made possible yields that matched or surpassed corn or sorghum production in Iowa or Illinois or California. As late as the 1850's American commercial farming relied on large tracts of cheap land. High Plains agriculture seemed destined to remain such a big-acreage, low-yield region until the farmers discovered the Ogallala. While in 1950 the Ogallala irrigated 3.5 million acres of farmer land, today it is irrigating 16 million acres.[12] As a result of the factors discussed above, for thirty years the High Plains irrigators

have been consuming aquifer water at a rate conservatively estimated to be ten times the rate of natural recharge.

2.4. Water Quality Issues

Industrial agriculture with its reliance on chemicals and its failure to adequately address soil erosion problems is guilty of depleting water resources. Ignorance and carelessness are in fact the main factors behind the increasing water quality deterioration.

While industrial contamination is important, some agricultural activities are exceptionally likely to pollute the groundwater, which then flows into an aquifer and may be drawn into a well. Irrigation, which does not permit improvements of water quality after usage before returning to a source, as municipal/sewage water would, changes the content of dissolved salts and adds agricultural chemicals and eroded sediments. For a typical soil, water returning to a source after irrigation is more saline than prior to an irrigated application.

Nitrates in fertilizer, used on farms and also on home lawns and gardens, can seep into groundwater, and this can be very harmful to pregnant women and children.[13] Pesticides too are harmful in many cases. They can pollute ground water in agricultural areas exceeding the water quality standards. And according to the EPA there is no known way to remove pesticide residues from ground water. Groundwater may also be polluted by outflows from polluted rivers and streams or saline estuaries, in cases where the groundwater has been depleted to an unusually low level.

While farm chemical wastes are a problem nationwide, in areas where confined feeding operations of cattle, hogs, and chicken is common (it's common in all the states blessed with Ogallala waters) animal wastes have become a major source of water pollution. Agricultural runoff is the greatest non-point source of water pollution in the U.S.[14] Besides sediment, agriculture contributes pesticides, chemical fertilizers, and animal manure to surface water such as streams, rivers, ponds, and lakes. Animal manure is rated with commercial fertilizers and atmospheric deposition as one of the three primary non-point sources of nitrates in surface and ground water according to the national Water Quality Assessment done by the United States Geological Society (USGS).[15]

The quality of water in the High Plains Aquifer generally is suitable for irrigation use but, in many places, the water does not meet U.S. Environmental Protection Agency drinking water standards with respect to several dissolved constituents (dissolved solids/salinity, fluoride, chloride, and sulfate). Only a small fraction of Ogallala groundwater is known to be contaminated such that it fails to meet drinking water standards. Communities that rely on groundwater for drinking are subject to federal monitoring requirements. In most other areas, however, groundwater monitoring is infrequent or nonexistent. Effective monitoring is expensive, and there are plenty of potential sources of groundwater contamination. For example, many on-site domestic waste disposal systems in the country contain nitrates, phosphates, pathogens, inorganic contaminants, or other toxins that could leak into neighboring groundwater supplies.[16]

Potential sources of groundwater contamination include landfills, abandoned waste sites, oil and gas brine pits, and the

chemicals applied to most of the acres typically planted to crops each year. Only sparsely scattered water quality data (except in Texas) are available for pesticides, volatile organic compounds, and trace metals in the High Plains Aquifer system. Nutrient data are available, to a varying degree, across the aquifer.[17]

2.5. Studies Conducted

With relatively low natural recharge rates and the dramatic increase in the use of groundwater throughout the region, declining water levels were noticed in parts of the region as early as the 1940's and 1950's. By the 1970's, farmers and officials at all levels of government were expressing a need to more closely examine the issue of aquifer depletion.

In the mid-1970's the U.S. Congress authorized two assessments. The first was a national effort, the Regional Aquifer-System Analysis, which examined the hydrogeology of all the major aquifers in the U.S. The second assessment process brought together federal, state, local government agencies with private consultants within the High Plains region to analyze the potential economic and social impacts of aquifer depletion and management options. This assessment was done in parallel with hydrogeological studies conducted by the U.S. Geological Survey (USGS). Motivation for these studies at the national level centered on national food security issues.[18]

The local and state concerns focused on potential negative local and state economic and demographic impacts of partial or total depletion of the aquifer. At the time, increased pumping costs, due to both the increasing depth of water and the energy price shocks of the mid- and late- 1970's, as well as the potential social disruption due to the abandonment of irrigated farming in the region placed concern for the aquifer high on the public's agenda.

Section 3: Case Studies

This section examines the impacts of the increasing use of the Ogallala – with specific focus on the situation in the Oklahoma and Texas Panhandle regions. These regions were selected for close scrutiny because of their proximity to the Kerr Center.

3.1. Case of the Oklahoma Panhandle

The Oklahoma Panhandle, which is composed of Cimarron, Texas and Beaver counties, is a 5,680 square mile semi-arid area in western Oklahoma. Prior to 1950, crop production in the area was almost exclusively dry-land wheat and grain sorghum. However, with the introduction of irrigation practices, principal crops in the area now include grain sorghum, corn, and alfalfa which are produced to supply feed for the large beef feedlots in the area, and wheat which is produced primarily for the export market.

With the discovery of a significant quantity of high-quality groundwater underlying most of the region, came the development of irrigated production practices. Development of agricultural crop production under irrigated conditions has contributed to increased economic activity in the Oklahoma Panhandle and surrounding regions. Acres irrigated in the Oklahoma Panhandle increased from 11,500 in 1950 to 427,000 in 1973, and totaled 405,700 in 1979 (see Table 2).

Table 2: Irrigation statistics for Oklahoma Panhandle area.

Year	No. of farms	Total acres	No. of farms gravity system	Acres gravity system	No. of farms sprinkler system	Acres sprinkler system	No. of irrigation wells	Total acres irrigated - groundwater
1979	1223	405679	898	297649	350	97215	2227	403619
1977	1155	385900	896	301650	259	85700	2172	384000
1975	1094	404610	901	329460	193	75150	2112	402550
1973	1530	427000	1360	324500	175	102500	2207	422680
1971	1375	356360	1165	302938	255	54422	1846	344040
1969	960	315518	835	282618	141	32900	1634	213518
1967	1150	263000	1010	224850	145	38150	1358	261000
1965	745	138000	586	122000	104	16000	972	135500
1963	304	84500	241	71560	75	11940	409	83020
1959	275	71500	--	65820	46	5680	365	69520
1958	279	69575	--	62623	53	6960	--	67375
1957	267	76500	--	68360	49	8140	359	75225
1956	266	71200	--	64700	41	6500	336	70100
1955	212	34247	--	32030	--	2317	--	32797
1954	--	24680	--	23758	--	922	--	23580
1952	--	13000	--	--	--	--	--	--
1950	53	11500	--	--	--	--	--	--

Source: Mapp, 1980.

The primary sources of irrigation water in the Oklahoma Panhandle is the Ogallala Aquifer, a major underground aquifer supporting irrigation water throughout much of the Great Plains. Continued overdraft of the Ogallala Formation and water level declines of two to three feet per year in many areas, make physical exhaustion of the aquifer a major concern. The characteristics of the aquifer make physical exhaustion a very real possibility – one that has already occurred for some irrigators in parts of the Oklahoma Panhandle.

The rapid development of irrigated crop production has resulted in overdraft of the aquifer, with withdrawals greatly exceeding natural recharge and return percolation of irrigation water. The result has been a gradual decline in the water table within the aquifer. The declining water table interacts with rapidly increasing costs of energy inputs, particularly natural gas being utilized by most irrigation systems in the Oklahoma Panhandle and, other things being equal, reduces the profitability of irrigated crop production. Continued declines in the water level within the aquifer threaten the capital-intensive irrigated agricultural economy of the area.

Several factors are interacting to reduce the economic life of the aquifer. One, rapid water withdrawals lower the water table and increase the vertical lift of the water to the surface. And two, declines in saturated thickness of the aquifer reduces the well yield, measured in gallons per minute, which increases the time required to apply a specified quantity of water onto the crops. Reduced well yield and increased feet of lift interact with the cost of pumping irrigation water and reduce the profitability of irrigated crop production.

In a study conducted over the period 1978-80 by Oklahoma State University and the Oklahoma Water Resources Institute, the economic life of the underground water supply in the Oklahoma Panhandle was analyzed. Economic exhaustion is said to occur when net returns from the production of the best dry-land crop alternative exceeds the net returns of the most profitable irrigated crop activity. The study predicts that the decline in the underground water supply and conversion from irrigated to dry-land production would be a part of the future of the Oklahoma Panhandle. The study did not answer the question of exactly when

this conversion will occur and which crops will remain under irrigated production until the economic life of the aquifer is exhausted for agricultural purposes. However, the study concluded on the note that the eventual economic exhaustion of the aquifer appears inevitable unless dramatic and unforeseeable output price increases or institutional or technological changes occur.[19]

An example of the aquifer's water depletion in the Oklahoma Panhandle area is in Texas County. Texas County consumes almost all of its water from the Ogallala Aquifer flowing some 200 feet beneath the Panhandle. In 1990, approximately 363 million gallons per day of groundwater were pumped from the High Plains Aquifer. Throughout the High Plains, the water table dropped 9.9 feet from predevelopment times to 1980, and then dropped another 3.05 feet from 1980 through 1995. Irrigation methods became increasingly efficient with fully automatic center-pivot drop sprinklers. But as efficiency rose, crop acreage rose as well. While there were approximately 54,400 acres in irrigated corn in 1991, there were approximately 90,000 acres in irrigated corn in 1998.[20]

Texas County has more than 380,000 head of feedlot cattle, a ready market for the corn. While corn is a particularly thirsty crop unable to grow without irrigation in Texas County, it yields up to 200 bushels per acre with 22 inches of irrigated water. With an estimated 90,000 acres of corn in 1998 and each acre using approximately two-acre feet per year,[21] Texas County uses approximately 58,653,180,000 gallons of irrigated water a year on corn alone. Corn is fed to both cattle and hogs, and uses some of the nutrients in the hog manure. While livestock water usage is 3% directly, livestock feed requires all that irrigated fields can produce, accounting for 92% of water withdrawal from the High

Plains Aquifer in Texas County.[22] While hogs are not the sole cause of water depletion as well as water quality deterioration in the Panhandle, the large hog operations increase pressure on an already stressed ecosystem. The growth of intensive hog operations contributed to a 66% increase in livestock water use between 1990 and 1995.[23]

3.1.1. Water Quality in the Oklahoma Panhandle

In the Panhandle of Oklahoma, the environmental capital can be easily overlooked with its treeless plains being open and wide as the horizon. But this wide open space is a premier cattle raising and dryland farming area as well as a cornucopia of irrigated corn thanks to the underlying Ogallala Aquifer.

The increased use of confined animal feeding operations for cattle, poultry, and hogs has raised concerns regarding the possibility of groundwater pollution. Full-grown hogs, grown under confined conditions, produce 15 pounds of waste per day. Since hog manure is disposed of as highly-liquid slurry in confinement operations, the cost to transport it are prohibitive. Therefore, it has to be used in the local area. Although there are many systems to handle hog waste, lagoons are the cheapest and least efficient. The current regulations allow lagoons to be constructed to hold the waste and to seep at roughly one-quarter inch per day. The Oklahoma Department of Environmental Quality translates that into a total of more than 500 gallons per acre per day.[24]

Thus more area is put into irrigated corn which is a high user of nitrogen – a key component in manure. Irrigated corn, in the course of consuming enormous amounts of water, produces

nutrient runoff particularly high in phosphorous because of the use of animal manure as a source of nitrogen. Sunflower, milo, and native grass also have effluent spread on them. There is no procedure in Oklahoma to monitor how much and where nutrients are spread on the various crops and grasses grown in the Panhandle. And one does not need to speculate about where this runoff finally travels, i.e., into the Ogallala Aquifer.[25]

3.2. Case of the Texas Panhandle

The period of rapid growth in irrigation in the High Plains of Texas started after World War II and lasted about 20 years. This development triggered a rapid increase in population, employment, farm product sales, and total area income. By the mid-1960's, irrigation development started to taper off mainly due to a decrease in the water table level. The Ogallala Aquifer, which is the source of water for irrigation in this area, was being pumped down faster than it was recharged. And with the decrease in the rate of irrigation development came a decrease in the rate of growth of the area's general economy.

A study conducted by the United States Department of Agriculture's Economic Research Service branch in 1988, found that in the 1940's and following World War II, economic development took sharply different paths in the two study areas. The economy of the dry-land farming area continued to stagnate and periodically worsen, because of inadequate moisture for crops. The area is subject to erratic rainfall, where adverse weather cycles may last several years, and lacks sufficient water for irrigation. In contrast, the irrigated counties, which were fortunate enough to be located in the Ogallala Aquifer basin,

experienced rapid economic growth and development throughout most of this period.[26]

This study found that economic growth in the irrigated area appears to be closely linked to developments in the local agricultural economy, which has passed through three distinctive phases: (1) introduction of irrigation, (2) intensive use of irrigation, and (3) declining water resources. And as the water level in the aquifer declines, the farmers are being increasingly faced with some rather severe decisions: to be more efficient in the use of water, change cropping practices to raise plants that need less water, or revert to a dry-land economy.[27]

The USDA study about the Texas Panhandle concluded on a note similar to that in Mapp's study[28] on the Oklahoma Panhandle area: At some point dry-land agriculture will be the more efficient production method. How soon the transition will be made, says the report, will depend somewhat on the farmers' willingness to change their irrigation practices. Some irrigation will probably continue for a number of years. Development of new technology in irrigation and more drought tolerant plants may delay the absolute end of irrigation. Whatever the time, adjustments must be made so as to be ready if the wells do indeed run dry.

Water is the limiting factor in farming on the Texas High Plains, with most of it coming from the Ogallala Aquifer. Agriculture accounts for approximately 70% of the water use, while municipal uses account for approximately 20%. Land use and watershed management have the most significant impact on aquifer depletion. Most observers agree that in an area with 17 inches of rain yearly, high-water-use crops like corn cannot be

produced with any sustainability. The irony of the situation is that vast amounts of this finite resource is used to grow crops that only provide farmers a marginal financial return in some years and is simply enough to service debt and meet fixed overhead costs.[29] It is also significant to note that in this situation of extreme distress, an oilman and other wealthy ranchers are buying up water rights in the rural areas of the Texas Panhandle, and are selling them to large Texas cities.[30]

3.2.1. Water Quality in Texas Panhandle

The Texas Panhandle region suffers significant water pollution from confined animal feeding operations. Cattle feedlots and pig farms are frequently located near the numerous "playa" lakes that dot the High Plains. Playa lakes are large, circular, natural depressions where water collects and seeps slowly down into the Ogallala Aquifer, the major source of both drinking and irrigation waters for the region.[31]

The land throughout the Panhandle is also perforated with incompletely plugged wells, test holes, oil and gas wells, and other borings. During rainstorms or when playa lakes or lagoons overflow, water will drain directly through these holes into the Ogallala Aquifer, carrying any polluted animal waste along with it. Residents throughout the Panhandle believe a significant threat to the aquifer is posed by these man-made holes in combination with seepage from the playa lakes, which can act like giant puddles to receive polluted wastewater from overflowing manure lagoons and feedlots.

For years, farmers in the region used playa lakes as retention ponds for wastewater runoff. The state still allows

farmers to use the playa lakes for this purpose if they started doing this prior to September 1, 1993.[32] Of particular concern to local residents in the Texas Panhandle, are the state's design standards for CAFO (Confined Animal Feeding Operations) lagoons allowing clay liners, which can crack after long droughts, and the lack of leak detection and ground water monitoring.

Efforts are now being made in this region to reduce irrigation farming practices. According to the High Plains Underground Water Conservation Service, several factors have contributed to the reduction of pumping of groundwater. Everyone knows that they need to improve water-use efficiency, and as the technology became available, farmers have begun to implement it.

Average water-use efficiency improved in the Water District service area from about 50% in mid 1970s to approximately 75% in 1990. Current state-of-the-art low-pressure, full dropline center pivot systems are about 95% efficient; while buried drip lines approach 100% efficiency. Producers are now irrigating fewer acres. In 1979, 3.95 million acres on the Texas High Plains were irrigated, but by 1989, only 1.39 million acres were irrigated. Land enrolled in the Conservation Reserve Program (CRP), rising energy costs, and declines in well yields and low farm prices also account for part of this reduction.[33]

The Texas portion of the Ogallala Aquifer contained approximately 450 million acre-feet of water in 1990. The Texas Water Development Board in Austin estimated that the net depletion rate of the Ogallala Aquifer is predicted to average about 3.62 million acre-feet per year from 1990 to 2000 as more efficient water-use equipment and practices are being put into place.[34]

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Section 4: Sustainable Development - A Possible Solution

This section explores the possibility of adopting sustainable development practices to curb the increasing aquifer water depletion and deterioration. The importance of implementing sustainable agriculture in place of the existing irrigation practices, which require immense water resources, is emphasized.

4.1. What is Sustainable Development?

Sustainable development is commonly defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The practice of sustainable development may date back to the ancient Greeks, whose laws avoided exploitation of resources and sought environmental balance. The modern discussion started in 1972 when the United Nations Environment Program stressed the importance for Third World nations to build a balance between natural resources and economic development. This emphasis on the maintenance of essential ecological processes continued to receive fresh momentum with the publication in 1987 of *Our Common Future* by the World Commission on Environment and Development.[35]

Sustainable development is extremely important in the context of High Plains farming where the Ogallala water levels have been rapidly declining due to uncontrolled irrigation practices. Not only are the water levels in these regions declining at ten times the rate of recharge, they are also losing topsoil each year. Cattle feedlots that run tens of thousands of cattle through

their pens every year demand a minimum of eight to ten gallons of water per head per day. Today the plains are locked into high water consumption to grow the wheat and water the beef.[36]

According to MacNeil[37] (1989), one objective of sustainable development is to track soil and water consumption as real environmental costs, as compared to the historic treatment of natural resources as a free commons. A second priority is to produce more wheat (and alternative crops) using less water, chemicals, soil, fuel, and capital. Third, sustainable development does not support fixing resources in place as an extreme environmental paradigm might. Instead it argues for a shift that would still allow humanity to live comfortably, but within the world's ecological means. And lastly, sustainable development seeks to integrate the rival interests of the environment and economics.

4.2. Availability of Viable Alternatives to Current Practices

Do our methods of farming conserve water and avoid surface and groundwater pollution? Excessive or improper use of herbicides, other pesticides, and fertilizers, including manure, leads to water pollution. Many of the herbicides, other pesticides, and fertilizers polluting groundwater can be reduced or replaced by skillful management practices without a significant loss in production. A switch to strategies that reduce purchased inputs has the added benefit of reducing costs, increasing profits, and protecting natural resources.

Crops can be grown under both dry-land conditions or under irrigated conditions. In either case adequate soil moisture

is necessary for optimal growth[38], as water can be detrimental to crops if the soil becomes saturated and literally suffocates roots by decreasing the oxygen in the soil. It is therefore in the best interest of the farmer to keep the right amount of water available to his plants. One way to do this is by increasing the organic matter in order to make the soil more spongy and able to absorb water. Conservation tillage and green manures also improve soil structure, and cover crops slow down water movement. Retiring highly erodible land also conserves water quality by conserving soil.[39]

Some classic soil conservation/water quality preservation measures include contour farming (which is farming with row patterns nearly level around the hill, not up and down the hill) and strip cropping (which is planting strips of corn or soybeans alternated with strips of oats, grass, or legume). Contour strip cropping[40], planting fiber strips (which are strips of grass trees or shrubs that filter run off and remove contaminants before they reach the water), and established grass waterways (which prevent gullies from forming in the way of natural drainage), are other soil conservation/water quality preservation techniques. Most of these strategies are intended to slow water or trap sediment and chemicals before they reach bodies of water or wells. In effect, they act as filters to the farm waters. When these filter strips are planted in permanent vegetation they fall under the rubric of "conservation buffers" and "buffer strips."[41]

Besides the time tested conservation techniques, new strategies such as integrated pest management (IPM) practices can help protect water supplies. IPM is a planned program that coordinates economically- and environmentally-acceptable methods of pest control with judicious and minimal use of toxic

pesticides. IPM programs assess local conditions, including climate, crop characteristics, the biology of the pest species, and soil quality, to determine the best method of pest control. Tactics employed include better tillage to prevent soil erosion and introduction of beneficial insects that eat harmful species.[42]

Adopting the above practices can make a real difference. These practices have been tried out effectively at the Kerr Center in Poteau, Oklahoma, to protect water quality. First, attempts were made to keep the soil in place with heavy vegetation. Since just a few small plots of vegetables and fruits are raised there at the Horticulture Farm, no problems such as those faced by farmers who grow crops like wheat and corn season to season, were encountered. But even on a cattle ranch, there are areas around water sources that are trampled by cattle. Efforts were taken to keep the areas especially favored by the cattle seeded and covered with grasses and clovers. Grazing pastures in rotation allows the pastures to "rest" for periods of time and plants to grow densely. Installation of water tanks and the fencing out of ponds keeps cattle away from them. This strategy was found to be an effective one because cows normally trample tender vegetation around water and can also erode the banks of waters, stir up the muddy bottom, and burden the water with wastes.[43]

Conservation is urgently needed. According to many scientists, 70% of the water used never reaches the crops. Conventionally used sprinkler irrigation has been found to allow too much water to escape during evaporation. Techniques such as drip irrigation have been implemented at the Kerr Center to conserve water and to apply water where it is needed. This reduces the evaporation rate and places the water next to the plant root zone.[44]

4.3. Barriers to Adoption of More Sustainable Practices

It is widely prophesied that sustainable agriculture would result in a heavy financial loss. This is however a misconception. Sustainable agriculture need not be less profitable than conventional agriculture. The farms using alternative-methods had lower yields initially, but this was offset by lower costs for fertilizers and pesticides. Even when increased labor costs were included there was still little difference. In a drier region like the High Plains, sustainably- or organically- farmed soils offer the advantage of greater water-holding capacity than conventionally farmed soils.[45] And even though water may be essentially a free good, a farmer would still need to invest his money in machinery to irrigate his fields.

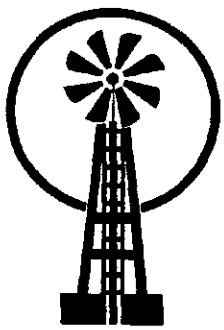
Farmers also worry that sustainable farming will mean a return to hard labor. Sustainable agriculture needs to be seen more clearly not as a throwback to hundred-year-old agricultural practices. Instead, it requires the farmer to be more knowledgeable about his farm's ecosystem and recognize its place in his life and society's. In most cases, sustainable agriculture simply implies diversification rather than specialization. The objective is long-term self-sufficiency to sustain the farm environment and to reduce economic as well as environmental costs.

Many farmers do acknowledge that access to Ogallala water will gradually become too expensive as water levels decline and pumping costs increase. In the case of the Ogallala Aquifer, the immediate need is physical sustainability, i.e., implementation of practices such as planting more wheat or other alternative crops using less water, chemicals, soil, fuel, and capital.

Low-input sustainable agriculture is hampered by federal programs that do not recognize it – for example, the rotational system used by alternative-method farmers, who end up sacrificing income support payments available to conventional farmers. For decades conventional farmers have received federal economic incentives that distort their profit picture. What they need instead are economic incentives to change their current unsustainable practices.[46]

It is worth noting at this point that low-input sustainable agriculture (LISA) became a small part of the farm policy with the passage of the 1985 farm bill, significantly entitled the Food Security Act. LISA was later expanded and renamed SARE (Sustainable Agriculture Research and Education Program). It evolved mainly as a reaction to two factors:

1. Modern industrial agriculture has not protected the environment well, and
2. Economic failure continues to bedevil most independent farmers who practice conventional agriculture.



Section 5: Conclusion

> *"A Faustian bargain with the water is now coming due; it created a prosperous irrigation economy based on levels declining ten times faster than any recharge. But we have no historical experience from which to predict the future of high-production industrial agriculture or the small-time farmer on the High Plains without the continuous massive infusions of groundwater. Nor have pragmatic alternatives been devised, much less tested. Pumping the Ogallala remains a one-time experiment."*[47]

There is justifiable cause for concern over the adequacy of our water supplies. We have limited control over the resource, most opportunities for increasing supplies are financially and environmentally not cost effective, and current uses are depleting or contaminating some valued supplies. While demands for the many services provided by water are growing, institutions have been slow to adapt to the challenges of growing scarcity, supply vulnerability, and rising instream values.

Concerns regarding the safety of drinking water are also rapidly growing. Legislative reforms are needed that would:

(1) allow local communities to target their resources to the most pressing problems;

(2) require the Water Resources Boards in the concerned states to assign more value and to focus more on the contaminants that pose the greatest health risks; and

(3) give greater emphasis to protecting drinking water supplies from contamination in the first place.

The various societal and individual responses to growing water scarcity suggest that farming regions may adapt well to a slowly changing climate. Still, despite the positive changes that have occurred in this region, one should not be overly optimistic. Groundwater depletion continues in much of the aquifer, even though at reduced rates in some regions, and many farmers face a reduction in future farm income as they decrease their water use.

Without irrigation, the High Plains region would have remained a hostile and unproductive frontier environment. Even today dry-land farming remains high-risk farming about which the producers in the region have doubts. But while the Dust Bowl label is appropriate, the High Plains has become one of the most productive farming regions of the world. However, now as groundwater levels decline, workable alternatives for sustainable development have to be further explored.

While past changes were gradual, spontaneous, and largely unconscious, changes now will have to be specific, and carefully planned. The abuse of the Ogallala Aquifer for the last thirty years together with the wasteful depletion of soil symbolized by the Dust Bowl, matched by the decline of America's historic independent farmer, signals that today's conventional farming cannot continue indefinitely into the future. The need of the hour is to identify a workable farm model or paradigm that avoids both environmental and human (social, economic, political) pitfalls, such as the ones American farming has already fallen into.

The following are some recommendations that policy makers need to urgently adhere to and implement to ensure the future availability of the Ogallala waters:

- Support to make small, as well as moderate-size farms economically viable, because they can ensure social, economic, and environmental diversity (for example, the family farm);
- Ensure rural community and institutional viability because it provides a working social "surround" of goods and services as well as an extended lifestyle;
- Implement policies that provide incentives to farmers to adopt sustainable practices;
- Promote long-term environmental integrity together with long-term productivity by supporting policies for conserving soil and water, and reducing dependence on capital intensive equipment and chemicals;
- Introduce new crops more suited to the soil conditions, and encourage diversity of crops as good environmental stewardship is based on locally specific knowledge;
- Promote individualized on-site response to climate and geography;
- Ensure that trade and agriculture policy take into account total-cost accounting.

Notes

1. N. H. Darton is credited with naming the aquifer in 1899 after the town of Ogallala, Nebraska.

2. *Aquifer Close Up.* Published by Center for Biological Computing, Indiana State University, Department of Life Sciences. [http://mama.indstate.edu/users/johannes/aquifer/htm].

3. Precipitation is the principal sources of natural groundwater recharge in the High Plains. Recharge from precipitation is quite variable in the High Plains, both in time and in space. Factors that affect this variability include the precipitation regime, evapo-transpiration, soils, vegetation, and land-use practices, and the characteristics of the unsaturated zone between the soil zone and water table. In a few areas, however, natural recharge can result from seepage losses from streams and lakes. This recharge is particularly important along parts of the Platte River system in Colorado, Nebraska, and Wyoming, where substantial seepage losses of stream flow originating outside the High Plains result in recharge to the High Plains Aquifer. (*High Plains Aquifer Background Information.* http://www-ne.cr.usgs.gov/highplains/bckgrnd.html).

4. Cunningham, W.P., & B.W. Saigo. *Environmental Science: A Global Concern.* William C. Brown publication. Dubuque, Iowa. 1990.

5. *The Ogallala Aquifer.* High Plains Underground Water Conservation District No.1. [http://www.hub.ofthe.net/hpwd/ogallala.html].

6. Glantz, M. *The Ogallala Aquifer Depletion.* 1989.

7. See Note 3.

8. USGS. *Characteristics of the High Plains Aquifer.* [http://www-ne.cr.usgs.gov/highplains/hpchar.html].

9. *Id.*

10. The aquifer is porous and filled with water; lying between a water table and a bedrock bottom.

11. The aquifer is replaced by precipitation and surface streams. It is recharged primarily by direct infiltration of precipitation falling on the overlying soils. When the amount of water withdrawn from the aquifer continually exceeds the recharge, a mining situation results.

12. Opie, J. *OGALLALA: Water for a Dry Land.* University of Nebraska Press. 1993, p. 294.

13. It has in fact been known to cause the "blue baby syndrome." Nitrates can be changed to nitrites by bacteria in our bodies and reduce the oxygen carrying ability of blood especially in babies and young children. Also, nutrients can not only form nitrosamines that are suspected of causing stomach cancer, but can cause excessive algae

growth in lakes and estuaries.

14. Non-point refers to sources of pollution that are scattered, with no specific place or point where they discharge into a body of water. This makes them more difficult to identify, monitor, and regulate. Such sources include run off from farm fields, golf courses, lawns, roads, parking lots, etc. Point sources, on the other hand, are specific locations such as drainpipes, or sewers. (USGS. *High Plains Regional Ground Water (HPGW) Study.* National Water-Quality Assessment (NAWQA) Program. [http://webserver.cr.usgs.gov/nawqa/hpgw/HPGW_home.html]).

15. *Id.*

16. Cash, D. *Assessing and Addressing Cross-Scale Environmental Risks: Information and Decision Systems for the Management of the high Plains Aquifer.* GEA Discussion Paper E-98-17.

17. See Note 13.

18. *Id.*

19. Mapp. H.P. Jr. *Impact of Availability of Water and Cost of Energy Inputs on Agricultural Production in the Oklahoma Panhandle.* Oklahoma Water Resources Research Institute. 1980.

20. Oklahoma Agricultural Statistics Services, Oklahoma Department of Agriculture. [http://www.usda.gov/nass/].

21. One acre foot equals 325,851 gallons.

22. *Bringing Home the Bacon: The myth of the role of corporate hog farming in rural communities.* Research provided by The North Central Regional Center for Rural Development. Sponsored by The Kerr Center. 1999. p. 37.

23. *Id.* p.38

24. Schepers, J.S., D.D. Francis, and M.F. Vigil. *Nutrient management and utilization from manures.* pp. 686-88. Proceedings of "Agricultural Research to Protect Water Quality " Conference. Held in Minneapolis, MN on February 21-24, 1993.

25. *Id.*

26. Holmes, W., and M. Petrulis. *Groundwater Irrigation: Declining Water Levels in the Texas High Plains Translate to Declining Economic Performance.* USDA/ ERS. Agriculture and Rural Economy Division. August 1988.

27. *Id.* p. 3.

28. See Note 15.

29. *Agriculture Policy Project.* By Henry A. Wallace Center for Agricultural and Environmental Policy and Winrock International. [http://www.hawiaa.org/wagpoldocs/tx.html].

30. *Pickens buying water rights.* Edited by Max Albright. Web posted Tuesday, January 25, 2000. [Available at http://www.amarillonet.com/stories/012500/new_touts.shtml/news/].

31. J.M. Sweeten, "Groundwater Quality Near Two Cattle Feedlots in Texas High Plain: A Case Study," *ASAE*, Vol. 11, No. 6 (November 1995), p. 845.

32. America's Animal Factories: How States Fail to Prevent Pollution from Livestock Waste. Natural Resources Defense Council, Inc. 1998.

33. High Plains Underground Water Conservation District No.1, 1997-98. *The Ogallala Aquifer.* [http://www.hub.ofthe.net/hpwd/ogallala.html].

34. *Id.*

35. World Commission on Environment and Development, Our Common Future. New York: Oxford University Press, 1987).

36. *Id.*

37. MacNeill, J. Strategies for Sustainable Economic Development. *Scientific American*, Volume 261, no. 3 (September 1989): 158-59, 163-64.

38. There is a strong link between high levels of photosynthesis and high transpiration rates.

39. See Note 4.

40. Contour strip cropping is a combination of contour farming and strip cropping.

41. Horne, J. *Ecological Approach: Our Approach.* The Kerr Center for Sustainable Agriculture, Inc. 1993.

42. The Concise Columbia Electronic Encyclopedia. Third Edition. Copyright © 1994. Columbia University Press. [Available at: http://www.encyclopedia.com/articles/06407.html].

43. Horne, J., & M. McDermott. *The Next Green Revolution: Essential Steps to a Healthy, Enduring Agriculture.* Manuscript version. To be published by Haworth Press, Binghamton, NY. Jan. 2001.

44. See Note 39.

45. Opie, 1990, p. 11

46. Schroeder, L. Low-input agriculture: Overcoming the impediments. *Journal of Soil and Water Conservation.* Volume 45, no.1. (January/February 1990). P. 40.

47. Opie (1993), p. 286.

REFERENCE 15

City of Lubbock
Water Quality Report 2006

July 2007

Conservation - Even in a Wet Year

Sitting high atop the Caprock, the City of Lubbock is the largest city on the Great Plains. Extending from Canada to Mexico this large, arid expanse of grasslands and agriculture is dependant on the limited surface water found upon it and the Ogallala Aquifer located below it.

This year the City of Lubbock has benefited from high levels of precipitation. As of June 6, 2007, the city has received almost three times the normal amount of precipitation with 15.75 inches of rain. However, as we enjoy our green lawns and spectacular roadside wildflowers, it is important to keep conservation in mind.

For a number of years drought has impacted area water supplies. Even with recent rains, Lake Meredith has not recovered and is currently only about 14 percent full. The steady decline of water stored in Lake Meredith has resulted in decreased water allocations for Lubbock and the other ten Canadian River Municipal Water Authority (CRMWA) member cities. Beginning in 2002, CRMWA has made up the difference with Roberts County groundwater. The City owned Bailey County Well Field, like the CRMWA Roberts County well field, pumps water from the Ogallala Aquifer. The City desires the Bailey County Well Field to last another 50 years, so conservation is a must to minimize the continued decline of water in the aquifer.

Routinely checking your home for leaks and replacing water fixtures and appliances with more efficient models is important to limiting water waste. Even more water can be saved just outside your home. During summer months, Americans use twice as much water as they do during other times of the year. Water consumption can be greatly reduced by applying a few conservation minded gardening practices to your landscape. Select native and drought tolerant plants that are well suited to our climate. A list of such plants can be found at www.txsmartscape.com. Water grass and turf areas infrequently and deeply and use mulch in flower beds to maintain soil moisture and discourage water hungry weeds. Applying 1 inch of water to Bermuda grass and 1.5 inches to fescue each week should be sufficient. For more conservation tips visit the City of Lubbock's Water Utilities website at http://water.ci.lubbock.tx.us.

Where Does Our Water Come From?

The City of Lubbock's drinking water comes from both surface and groundwater sources. The Canadian River Municipal Water Authority (CRMWA) provides 75-85 percent of Lubbock's water supply from Lake Meredith and from Roberts County well field. Lake Meredith is located by Sanford, Texas about 164 miles north of Lubbock, and the Roberts County well field is located about 40 miles east of Lake Meredith. The City owned Bailey County Well Field (BCWF) provides 15-25 percent of the City's water supply and is located about 65 miles northwest of Lubbock. During 2006, the citizens of Lubbock used 13.9 billion gallons of water with 10.5 billion gallons supplied by CRMWA and 3.5 billion gallons from BCWF.

Information on Backflow

Simply put, backflow means there is a potential for contamination in the water distribution system. Common causes for backflow are main breaks and high rates of water withdrawal (fire fighting), however these incidents can be avoided with the use of backflow prevention devices. The City of Lubbock works hard to prevent backflow through ordinances requiring backflow prevention devices on home irrigation systems and at commercial businesses.

Preventing backflow is an important part of maintaining a healthy water supply. The City of Lubbock's water distribution system is designed to carry water from the water treatment plant to the consumer. Cross connections, or connections between potable water in the distribution system to any non-potable water, exist. These connections make the water distribution system susceptible to backflow, which is the reversal of water flow from its intended direction.

There are two types of backflow: Backpressure backflow, which occurs when the pressure outside the water distribution system exceeds the pressure within the system and backsiphonage, which occurs when a partial vacuum is created in the system drawing non-potable water back into it. For more information, please visit the City of Lubbock Water Utilities website at http://water.ci.lubbock.tx.us or call 806-775-2589.

Source Water Assessment

TCEQ completed an assessment of your source water and results indicate that some of our sources are susceptible to certain contaminants. The sampling requirements for your water system are based on this susceptibility and previous sample data. Any detection of these contaminants will be found in this Water Quality Report. For more information on source water assessments and protection efforts in our system, contact the numbers located on the back of this report.

Este reporte incluye informacion importante sobre el agua potable. Para asistencia en espanol, favor de llamar al telefono 775-2592.

Drinking Water Meets or Exceeds All Federal (EPA) Drinking Water Requirements

This report is a summary of the quality of the water Lubbock provides to its customers. The analysis was made by using data from the most recent EPA required tests and is presented in the attached pages. We hope this information helps you become more knowledgeable about what is in your drinking water. This report represents data for the year 2006.

Helpful Definitions for Reading this Report

Maximum Contaminant Level Goal (MCLG) – The level of a contaminant, or substance, in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Contaminant Level (MCL) – The highest level of a contaminant, or substance, that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available technology.

Action Level (AL) – The concentration of a contaminant, or substance, which, if exceeded, triggers treatment or other requirement which a water system must follow.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water.

Part per million (ppm) – One part per million. For example, if you had one million dollars, one part per million would equal one dollar.

Part per billion (ppb) – One part per billion. For example, if you had one billion dollars, one part per billion would equal one dollar.

mrem/year – millirems per year (a measure of radiation absorbed by the body)

NTU – nephelometric turbidity units (a measure of turbidity)

pCi/L – picocuries per liter (a measure of radioactivity)

MRDL – Maximum Residual Disinfection Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG – Maximum Residual Disinfection Level Goal. The level of a drinking water contaminant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.

Important Information for Your Consideration

Special Information for People with Weakened Immune Systems

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons - such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants - can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

What Do You Know About Bottled Water?

When drinking water meets federal standards there may not be any health-based benefits to purchasing bottled water or point of use devices. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. Contaminants may be found in drinking water that may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. For more information about on taste, odor or color of drinking water, please call 775-2587. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Este reporte incluye informacion importante sobre el agua potable. Para asistencia en espanol, favor de llamar al telefono 775-2592.

SUBSTANCE	MONITORING DATE	RANGE DETECTED	HIGHEST LEVEL DETECTED	MCL	MCLG	SOURCES OF CONTAMINATION
[redacted]						
ARSENIC	2004 - 2005	2.1 – 3.9 ppb	3.9 ppb	10 ppb**	0	Erosion of natural deposits; runoff from orchards
BARIUM	2004 - 2005	0 – 0.15 ppm	0.15 ppm	2 ppm	2 ppm	Erosion of natural deposits
FLUORIDE	2005 - 2006	0.77 – 1.21 ppm	1.21 ppm	4 ppm	4 ppm	Erosion of natural deposits
NITRATE	2006	0.85 -1.17ppm	1.17 ppm	10 ppm	10 ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion
NITRITE	2005	0.01 – 0.13 ppm	0.13 ppm	1 ppm	1 ppm	Runoff from fertilizer use; leaching from sptic tanks, sewage; erosion
TURBIDITY	2006	0.02 -0.23 NTU	0.23 NTU	TT = 5 NTU	0	Soil runoff
			100 %	TT = % of samples <0.3 NTU		
TOTAL ORGANIC CARBON	2006	1.7 –3.0 ppm	3.0 ppm	TT	TT	Naturally present in environment
CHLORAMINES	2004	2.4-3.1 ppm	2.5 ppm annual avg	MRDL = 4 ppm	MRDLG = 4 ppm	Disinfectant used to control microbes
ALPHA EMITTERS	2002-2005	N/A	5 pCi/L	15 pCi/L	0	Erosion of natural deposits.
BETA/ PHOTON EMITTERS	2002-2005	N/A	6.5 pCi/L	50 pCi/L	0	Decay of natural and manmade deposits.
COMBINED RADIUM	2004-2005	N/A	0.7 pCi/L	5 pCi/L	0	Erosion of natural deposits
[redacted]						
TOTAL TRIHALOMETHANES	2006	0 – 26.8 ppb	12.8 ppb average	80 ppb	N/A	By-product of drinking water chlorination
TOTAL COLIFORM	2006	0 – 1 %	1 %	(Systems that collect greater than or equal to 40 samples per month) 5 % of monthly samples are positive.	0	Naturally present in environment
HALOACETIC ACIDS (5)	2006	0 – 14.4 ppb	1.8 ppb average	60 ppb	N/A	By-product of drinking water chlorination
[redacted]						
LEAD	2006	< 0.3-5.7 ppb	1.1 ppb (90th percentile) No sites exceeded AL	15 ppb AL	0	Erosion of natural deposits; corrosion of household plumbing systems
COPPER	2006	0.008-0.302 ppm	0.108 ppm (90th percentile) No sites exceeded AL	1.3 ppm AL	1.3 ppm	Erosion of natural deposits; corrosion of household plumbing systems
[redacted]						
CHLOROFORM	2006	0-1.52 ppb	0.76 ppb average	Not Regulated	Not Regulated	Component of Total Trihalomethanes
BROMODICHLOROMETHANE	2006	0 -4.96 ppb	2.48 ppb average	Not Regulated	Not Regulated	Component of Total Trihalomethanes
DIBROMOCHLOROMETHANE	2006	0 -12.3 ppb	6.14 ppb average	Not Regulated	Not Regulated	Component of Total Trihalomethanes
BROMOFORM	2006	0 – 7.05 ppb	3.53 ppb average	Not Regulated	Not Regulated	Component of Total Trihalomethanes
SULFATE	2005 - 2006	27 – 215 ppm	215 ppm	300 ppm^	Not Regulated	Mineral and Nutrient

The state allows us to monitor for some substances less than once per year because the concentrations of these substances do not change frequently.
Some of our data, though representative, are more than one year old.
*The MCL for Beta/Photon Emitters is 4 mrem/year. The EPA considers 50 pCi/L to be a level for concern.
**These arsenic values are effective January 23, 2006. Until then, the MCL is 50 ppb and there is no MCLG.
^Secondary Constituent Levels set by the Texas Commission of Environmental Quality.
^^Exceed Secondary Constituent Levels . Substances that exceed secondary levels generally pose no health risks but may cause aesthetic problems relating to taste, odor, and other nuisance conditions.

SUBSTANCE	MONITORING DATE	RANGE DETECTED	HIGHEST LEVEL DETECTED	MCL	MCLG	SOURCES OF CONTAMINATION
Additional Monitoring						
ALUMINUM	2004-2005	0 – 0.06 ppm	0.06 ppm^^	0.05-0.2 ppm^	N/A	Water Treatment Chemical
CHLORIDE	2005 - 2006	10.2 -319 ppm	319 ppm	300 ppm^	N/A	Naturally occurring
TOTAL DISSOLVED SOLIDS	2005 - 2006	372 – 998 ppm	998 ppm	1000 ppm^	N/A	Naturally occurring
AMMONIA	2006	0.169-0.485 ppm	0.485 ppm	Not Regulated	N/A	Water Treatment Chemical
CALCIUM	2004 - 2005	59 -62 ppm	62.4 ppm	Not Regulated	N/A	Naturally occurring
MAGNESIUM	2004 – 2005	14.1 – 35 ppm	35 ppm	Not Regulated	N/A	Naturally occurring
SODIUM	2004 -2005	33.1 - 232 ppm	232 ppm	Not Regulated	N/A	Naturally occurring
NICKEL	2004- 2005	0.002 ppm	0.002 ppm	Not Regulated	N/A	Erosion of Natural Deposits
ZINC	2004- 2005	0 - 0.004 ppm	0.004 ppm	5 ppm^	N/A	Naturally occurring
HARDNESS	2005 – 2006	214 – 273 ppm	273 ppm	Not Regulated	N/A	Naturally occurring
CONDUCTANCE	2006	N/A	1740 micromhos/cm	Not Regulated	N/A	Naturally occurring
TOTAL ALKALINITY	2005 – 2006	177 – 233 ppm	233 ppm	Not Regulated	N/A	Naturally occurring

We Welcome Your Comments

If you have any questions regarding water quality issues, please contact:

- The Safe Drinking Water Hotline at 1-800-426-4791
- For questions about Lubbock's water quality, call 775-2614
  Monday – Friday between 7:30 am and 4:30 pm
- For general questions about Lubbock Water Utilities, or additional copies of this brochure, call 775-2592
  Monday – Friday between 8 am and 5 pm
- City Council meetings are held the 2nd and 4th Thursday of each month.
- Este reporte incluye informacion importante sobre el agua potable. Para asistencia en espanol, favor de llamar al telefono 775-2592.

We're on the Web!!!
http://water.ci.lubbock.tx.us

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