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TNRCC

Protecting Texas by Reducing and Preventing Pollution

Preliminary Assessment Report

Fine Organics Site
Baytown, ~~Chambers~~ Harris County, Texas
TXD 981 606 932

Volume I of II

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI

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

August 1999

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PRELIMINARY ASSESSMENT REPORT

FINE ORGANICS SITE

BAYTOWN, CHAMBERS COUNTY, TEXAS

TXD981606932

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Preliminary Assessment Report

Fine Organics Site
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U.S. Environmental Protection Agency

Prepared by

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AUGUST 1999

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PRELIMINARY ASSESSMENT
NARRATIVE

INTRODUCTION

Under the authority of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980 and the 1986 Superfund Amendments and Reauthorization Act (SARA), the Texas Natural Resource Conservation Commission (TNRCC) has completed a Preliminary Assessment (PA) of the Fine Organics Corporation Site (EPA CERCLA Identification Number TXD981606932) located in Baytown, Chambers County, Texas. The United States Environmental Protection Agency (EPA) Region VI retained TNRCC to complete this investigation under Multi-Site Cooperative Agreement II (MSCA II) Agreement No. V-006461-01-e and h. This document represents the final report for the PA. The purpose of this PA Report is to summarize conditions at the site based on the results of the PA.

Objectives of the Investigation

The PA is generally the first screening investigation in a series of site assessments that EPA may complete at a known or potential hazardous substance site that is being investigated under CERCLA/SARA prior to its possible inclusion on the National Priorities List (NPL). The primary objectives of the PA are to:

- Identify known or potential hazardous waste source areas at the site and evaluate the threat that migration or exposure of hazardous substances from the site may pose to human health and the environment; and

- Collect information that can be used to assess the site using EPA's Hazard Ranking System (HRS) to help determine whether further investigation of the site under CERCLA/SARA is warranted to list the site on the NPL.

EPA will use the information obtained from the PA to help prioritize further work for the site. Based on the results, EPA may decide that additional investigation of the site is required or assign a No Further Remedial Action Planned (NFRAP) status to the site.

Scope of Work

The PA is a screening investigation of the site. The PA Scope of Work is focused on characterizing the site through the completion of limited site-related research and site reconnaissance activities. As part of this PA, TNRCC preformed the following major tasks:

- An on-site reconnaissance was performed to document current site conditions and identify potential sources of hazardous substances at the site. As part of the reconnaissance, a survey of the site's vicinity was completed to identify

potential receptors of hazardous substance migration and potential exposure attributable to the site.

- o Information concerning the environmental setting of the site was obtained to describe the groundwater, surface water, soil exposure and air pathways.

- o Available regulatory compliance files from Federal, State and local government agencies were reviewed, and telephone interviews were conducted with authorities knowledgeable of the site and its surroundings.

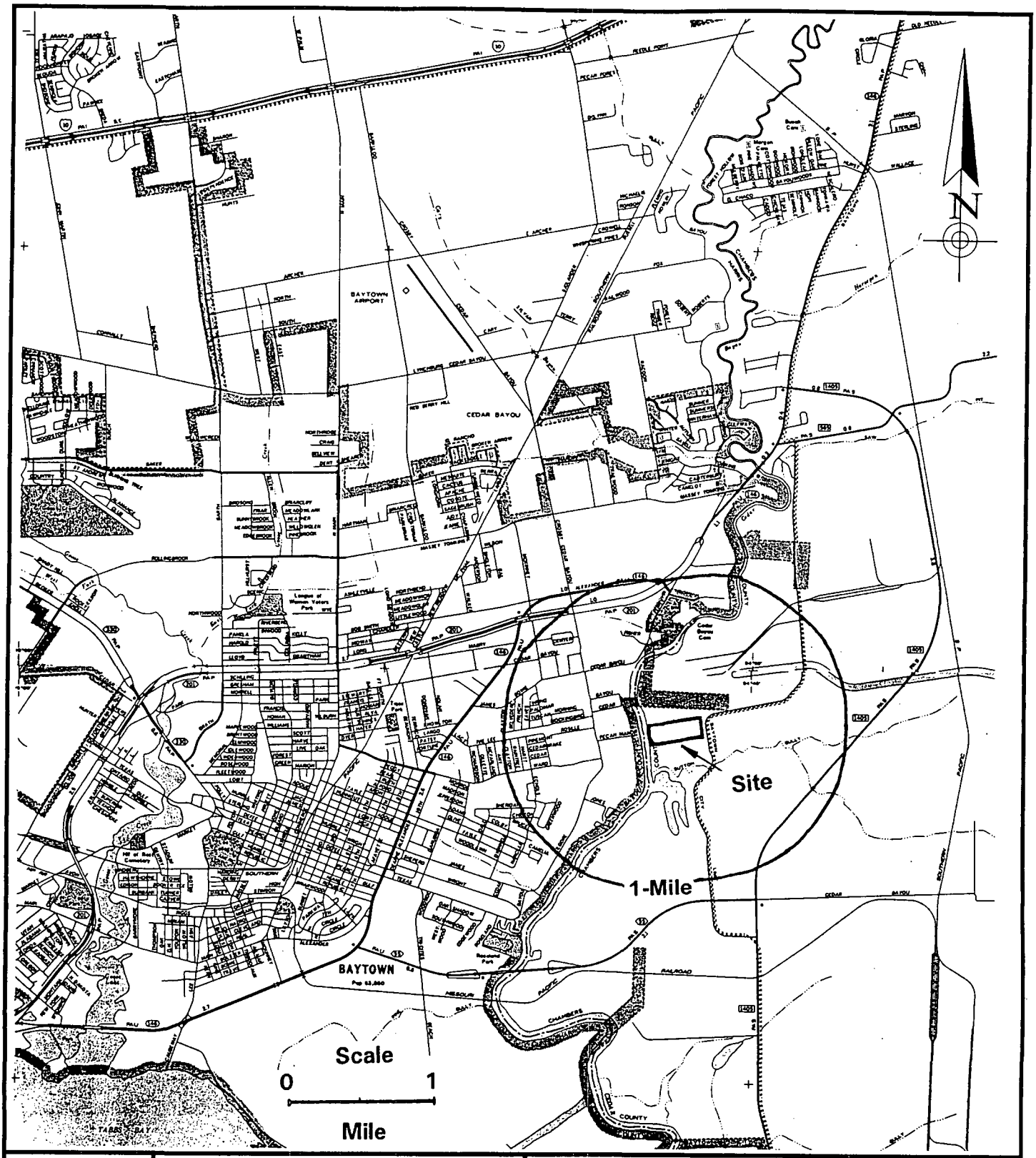
PRELIMINARY ASSESSMENT NARRATIVE

I. Site Information

The Fine Organics Corporation site is located at 6655 West Bay Road, Baytown, Chambers County, Texas. The geographic coordinates for the site are Latitude 29° 44' 34.8" N, Longitude 94° 55' 25.7" W (Ref. 5, p. 1; Ref. 6, p. 90). The site consists of approximately 48.781 acres located on the east bank of Cedar Bayou (Figure 1). About 5 acres of the property were developed for an organics manufacturing plant. The remaining 43 acres remain undeveloped (Ref. 6, p. 11; Ref. 7, p. 17). The developed area consists of the manufacturing plant areas, the office and maintenance areas, a flare, a firewater pond, and a truck loading area. Numerous aboveground storage vessels, piping, and associated equipment are located within the process area (Figure 2).

Fine Organics constructed the organic chemical manufacturing facility at the site from 1994 to 1996. Pilot plant began operations in October 1996 with the entire plant coming on-line in April 1997. The site operated for about 3 months before operations ceased (Ref. 6, p. 11; Ref. 8). Fine Organics subsequently filed for Chapter 7 bankruptcy protection on October 15, 1997. On October 30, 1998, the bankruptcy court approved the sale of the Fine Organics site to West Bay Organics, L. C. (Ref. 7). The sale of the site was finalized on November 13, 1998. With the exception of several days in January 1999, the site has remained inactive due to the expiration of a discharge permit. Current site operations include maintenance and construction of chemical manufacturing facilities. Plant startup is anticipated for August 1999 (Ref. 8). The site is surrounded by a security fence and gates, and access to the site is monitored 24-hours per day (Ref. 6, p. 14; Ref. 9, pgs. 3 and 6).

The area surrounding the site is a mixture of rural and industrial land use with residential areas interspersed. The Houston Lighting & Power Cedar Bayou power generation plant is located north of the site, undeveloped land and residential areas are located to the south, H.P. Gas Products, Inc., West Bay Road, and Triple S Waste Disposal are located to the east, and Cedar Bayou is located to the west. Residential areas predominate across Cedar Bayou to the west (Ref. 6, p. 11 and 2-2; Ref. 9 p. 2).



TNRCC

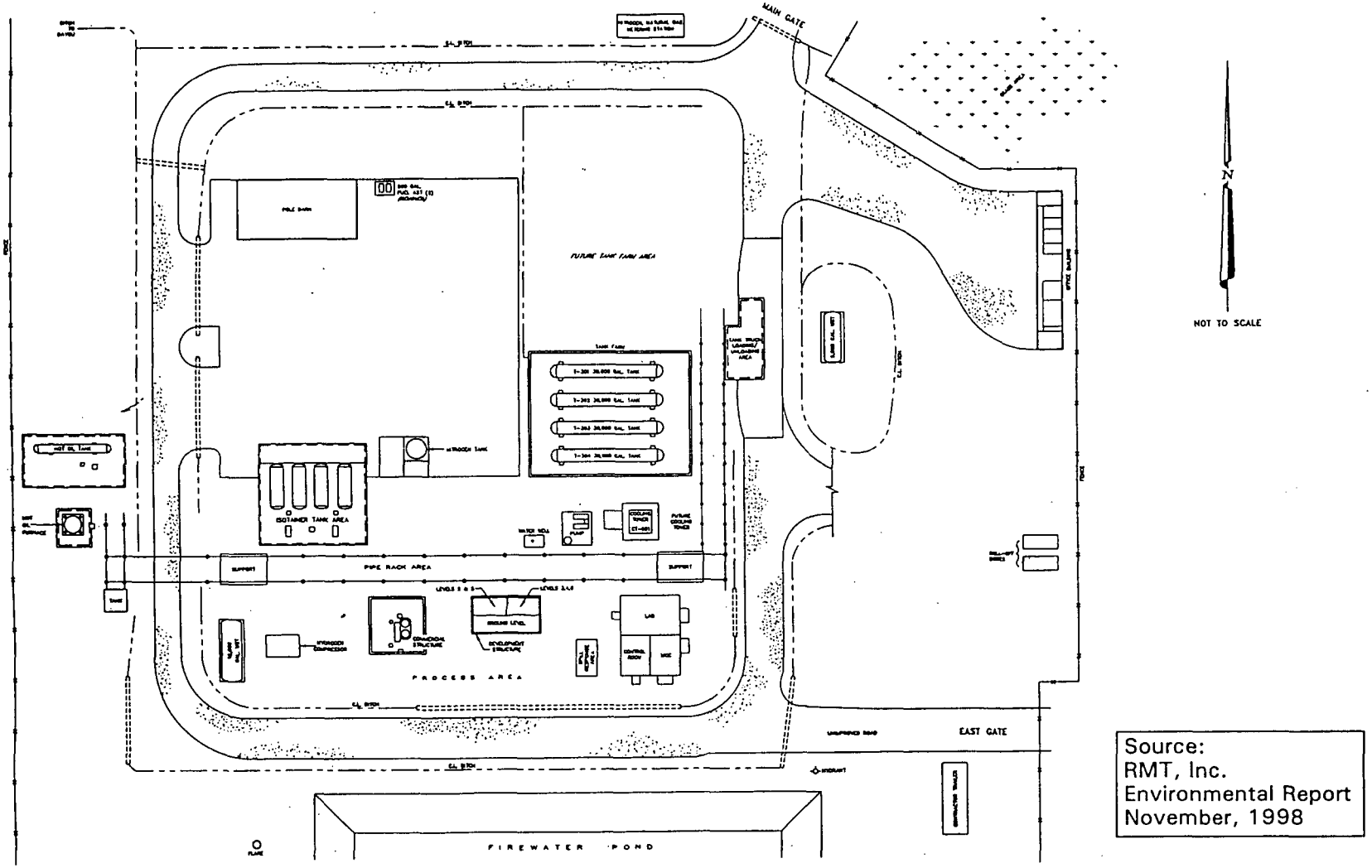
Figure 1

Site Location Map

Fine Organics

Baytown, Harris County, Texas

CERCLIS No. 981606932



Source:
RMT, Inc.
Environmental Report
November, 1998

TNRCC

Figure 2

Site Features Map

Fine Organics Site

Baytown, Texas

CERCLIS No. 981606932

II. Background/Operating History

NOTE: Reference materials used in compiling this background information may be found in Appendix C and Appendix D in the chronological order in which it appears below.

The Fine Organics property was undeveloped prior to the construction of the chemical manufacturing plant in 1994. This area was generally covered by dense scrub brush, although a portion of the property along Cedar Bayou was reportedly used for the disposal of dredge material. A Phase I environmental site assessment completed in 1995 identified a possible residential or farm-related structure on the property during the 1940-1950 time period (Ref. 6, p. 27).

On January 9, 1985, Hansa Manufacturing completed a Texas Department of Water Resources Application for Permit to Discharge, Deposit or Dispose of Waste for proposed hydrocarbon light ends refinery on a 48 acre tract of land on the east bank of Cedar Bayou. This application was withdrawn on July 23, 1985, and resubmitted on August 9, 1985 (Ref. 10, pgs. 1 and 3).

On January 28, 1986, the Texas Department of Water Resources issued Permit No. 02777 to Hansa Manufacturing Company Cedar Bayou Plant. This permit authorized Hansa Manufacturing to treat and dispose of waste generated from the petroleum refinery and organic chemical manufacturing plant to Cedar Bayou Tidal (Segment 0901) of the Trinity-San Jacinto Coastal Basin (Ref. 11, p. 1).

On May 2, 1991, the Texas Water Commission issued a permit renewal (Permit No. 02777) to Hansa Manufacturing Company to treat and dispose of waste from their Cedar Bayou plant (Ref. 11, p. 1).

On August 11, 1992, the USEPA issued NPDES Permit No. TX0098604 to Hansa Manufacturing Company Cedar Bayou Plant (Ref. 12).

On April 30, 1993, the Texas Water Commission transferred Permit No. 02777 from Hansa Manufacturing Company to RDK, L.C. (Ref. 13).

On October 11, 1994, TNRCC staff conducted an inspection at the RDK, L.C. facility (Water Quality Permit No. 02777). At the time of this inspection, the facility had not yet been constructed and all effluent reporting requirements were suspended until plant startup or commencement of discharge (Ref. 14, p. 6). The TNRCC sent a letter to Mr. Rodman Eggen, President of RDK, L.C. on December 6, 1994 requesting RKD, L.C. contact the TNRCC 45 days prior to startup of the facility (Ref. 14, p. 1).

On December 14, 1995, Fine Organics Corporation, 6655 West Bay Road, Baytown, Texas 77520, filed a TNRCC Application for Renewal of Permit (Permit No. 02777) to Discharge, Deposit or Dispose of Industrial Wastewater into or Adjacent to Water in the State (Ref. 15).

On March 5, 1996, the TNRCC transferred Permit No. 02777 from Hansa Manufacturing Company to Fine Organics Corporation, Inc. (Ref. 16).

On September 13, 1996, the TNRCC issued a permit renewal (Permit No. 02777) to Fine Organics Corporation to treat and dispose of waste from their organic chemical and petroleum refining Chambers Plant (Ref. 17, p. 1).

On October 21, 1996, Ms. Cyndy Duff, Administrative Manager, Fine Organics Corporation provided written notice to the TNRCC Program Support Team, Agriculture and Water Shed Management Division of plant startup (Ref. 18).

In January 1997, Fine Organics submitted an Application for Renewal of NPDES Permit No. TX0098604 for the Fine Organics Corporation Chambers Plant (Ref. 19).

On April 2, 1997, Fine Organics commenced commercial operations at its Baytown facility (Ref. 20).

On May 4, 1997, a spill of still bottoms (aniline n-phenyl cyclohexylamine dicyclohexylamine) occurred at the Fine Organics facility after Tank 310 was overfilled from Tank 306. The 50-gallon spill was remediated by deploying adsorbent booms on the ground to contain the spill, followed by excavation of the contaminated soils which were placed into 55-gallon steel drums (Ref. 21).

On May 5, 1997, a second spill occurred at the Fine Organics facility. This spill involved approximately 50 gallons of aniline feedstock which accumulated with approximately 2500 gallons of stormwater. This stormwater was reportedly tested and then released to the discharge ditch. Subsequently, a floating organic layer was observed in the discharge ditch. This material was contained by adsorbent boom, then the soils lining the ditch were excavated and placed within two roll-off containers (Ref. 21).

On May 20, 1997, TNRCC staff conducted a compliance inspection of the wastewater treatment facility at the Fine Organics plant. No outstanding alleged violations/deficiencies were identified during the inspection (Ref. 22).

On October 15, 1997, Fine Organics Corporation filed for Chapter 7 bankruptcy protection. The TNRCC referred the case to the Office of the Attorney General on November 14, 1997 to require the debtor to comply with all environmental laws including the proper disposal of drums located on the debtor's property. The Bankruptcy Trustee reportedly utilized several thousand dollars of estate funds for removal/stabilization of the site. The remaining removal/remedial activities were to be the responsibility of the buyer of the property as per the Order Approving the Sale of Property Free and Clear of Liens signed by Bankruptcy Judge William Greendyke on October 30, 1998 (Ref. 7, p. 1).

On September 30, 1997, the TNRCC provided written notification to the Fine Organics Corporation that Permit No. WQ0002777-000 was to expire on midnight, September 12, 1998. This notice stated that the company was required to file an application for renewal of the existing permit 180 days prior to expiration (Ref. 23).

On October 29, 1997, TNRCC staff conducted an inspection at the Fine Organics facility. The following observation were noted during the inspection (Ref. 24):

- At least 125 55-gallon drums were located at the facility, including drums of hazardous waste, soils contaminated with cyclohexylamine, and deactivated nickel cobalt catalyst,
- One 6,000 gallon tank containing waste heptane,
- One 10,000 gallon underground storage tank used to store stormwater prior to release to Gulf Coast Waste Disposal Authority,
- One 4,000 gallon tank containing "hot oil" used as a heat transfer liquid.

On June 10, 1998, the USEPA conducted an NPDES Compliance Inspection (NPDES Permit No: TX0098604) at the Fine Organics Corporation facility. The inspection report documents that the Fine Organics Corporation had collected no NPDES compliance samples since October 1997. The USEPA inspector recommended a RCRA inspection be conducted at the facility (Ref. 25, pgs. 6, 7, 13).

On October 30, 1998, the USEPA issued a Compliance Order (CWA Docket No. VI-99-0014) to Fine Organics Corporation which identified the following deficiencies/violations (Ref. 26, pgs. 4 and 5):

- Failure to take and analyze effluent samples,
- False "No Discharge" reporting,
- Absence of the required totalizing meter on Outfall 001,
- Inadequate recordkeeping.

On November 13, 1998, The Chapter 7 Bankruptcy Trustee completed the sale of the Fine Organics site free and clear of all liens to West Bay Organics (Ref. 8).

On February 25, 1999, Mr. Rod Eggen sent a letter to Ms. Diana McDonald of the USEPA Region VI outlining the corrective actions taken by West Bay Organics to address the deficiencies/violations noted in the USEPA Compliance Order. Mr. Eggen states in this letter that the facility had not operated since West Bay Organics purchased the site on November 13, 1998, except for a four day period spanning January 13, 1999 through January 17, 1999 (Ref. 27, pgs. 1 and 2).

III. Waste Containment/Hazardous Substance Identification

The Fine Organics site consists of 48.791 acres of land on the east bank of Cedar Bayou. Approximately 5 acres of the site have been developed as an organics

manufacturing plant (Ref. 6, p. 11; Ref. 7, p. 17). The site is surrounded by a security fence and maintains 24-hour controlled access. Buildings located at the Fine Organics site include a control room for the manufacturing plant, two portable buildings, the managerial offices and maintenance office, and a pole-barn structure (Ref. 6, p. 11; Ref. 9, p. 3). The processing facilities depicted on the facility layout map (Figure 2) and from a 1997 aerial photograph provided in the RMT, Inc. Environmental Investigative Report (Figure 1 in Appendix D of Ref. 6) are listed below:

Isotainer tank area - (Photograph 1, background)
nitrogen tank
Tank farm area (4 X 30,000 gallon tanks) - (Photograph 2)
Hot oil tank - (Photograph 2)
Hot oil furnace - (Photograph 2)
Hydrogen compressor
Nitrogen tank
Commercial structure - (Photograph 4)
Cooling tower
Pipe rack area - (Photograph 1, foreground)

A firewater pond is located south of the developed plant area (Photograph 5).

The Fine Organics facility is currently inactive although various raw materials, chemical products, and waste materials remain on-site. Current operations include maintenance and construction of the chemical manufacturing facilities (Ref. 9, pgs. 3 and 4).

The TNRCC Notice of Registration (Solid Waste Registration Number 37507, last amended on 01/27/99) for West Bay Organics (previously Fine Organics Corporation) lists the only active waste generated at the former Fine Organics facility as being lab and general refuse, solid resins or polymerized organics (Ref. 28). Waste listed as no longer being generated at the site include the following:

- catalyst activation (0001203H H), non-halogenated solvent, D001 waste, managed off-site,
- stormwater, washdown water, other aqueous waste with low dissolved solids,
- tank cleanings (943120 H), D001, D002 waste, managed off-site,
- spent catalyst (970210 H), D001, D002 waste, managed off-site.

The following information is provided in the November, 1998 Environmental Investigation Report of the Fine Organics Corporation facility, Baytown, Texas, prepared for West Bay Organics by RMT, Inc. (Appendix D).

Raw materials reportedly handled at the Fine Organics site included the following (Ref. 6, p. 37): hydrogen, amines, nitriles, aromatics, C1 through C4 alcohols, ammonia, natural gas liquids, pipeline condensates, and hydrocarbon feed stocks (crude oil). Products included acetate esters (ethyl, propyl, and butyl acetate), C3 through C5 alcohols, alkyl and/or olefinic amines (not including methylamine), tertiary amyl methyl

ether, ethers, toluene, ethylbenzene, xylenes, aromatic hydrocarbons, pentane, mineral oil, isoparaffins, C8 through C12 olefins, and benzonic acid.

The following raw materials are reportedly stored at the facility (Ref. 6, p. 14):

- 12,387 gallons of cyclohexylamine (99.8 percent)
- 5,531 gallons of cyclohexylamine
- 6,336 gallons of heptane and wax
- 500 gallons of acetonitrile
- 19,250 gallons of cyclohexylamine (99.5 percent)

In addition, manufacturing waste materials are also stored in tanks on the property. These materials includes a cyclohexylamine/acetonitrile/aniline/ acetone mixture (3,986 gallons), and a cyclohexylamine/acetonitrile/methyl-ethyl-ketone/aniline/acetone mixture (1,044 gallons) (Ref. 6, p. 15).

An inventory of the product and raw materials stored at the Fine Organic site in drums and storage tanks is present below in Table 3-1 (Ref. 6, p. 30).

Table 3-1

Description	Type	Amount
Cyclohexylamine, acetonitrile, aniline and acetone	Waste Slop	3,986 gallons
Cyclohexylamine, acetonitrile, methyl-ethyl-ketone, aniline, and acetone	Waste	1,044 gallons
Cyclohexylamine (99.8 % CHA)	Product	5,531 gallons
Cyclohexylamine, aniline, heptane, wax, and ammonia	Waste	6,336 gallons
Heptane and wax	Product	6,336 gallons
Acetonitrile (99.9 %)	Product	500 gallons
Cyclohexylamine, aniline, and ammonia	Product	330 gallons
Methyl-ethyl-ketone, sec-butylamine, ammonia	Product	2,090 gallons
Acetone, mono isopropylamine, ammonia	Product	1,980 gallons
Acetone (99.9 %)	Product	165 gallons
Acetonitrile and MEAM	Product	275 gallons
Heptane and wax	Product	165 gallons
Butanol (100 %)	Product	165 gallons
Heptane (100 %)	Product	110 gallons
CRL drums	Product	220 gallons
Slop amines (MEK, ACE, acetone, CHA, MIPA, and DIPA)	Waste	220 gallons

On October 29, 1997, TNRCC Region 12 staff conducted a site visit at the Fine Organics site. Prior to this site visit, the TNRCC investigator was faxed a copy of the inventory of drums and tanks at the site. This list showed a total of eighty-seven (87) 55-gallon drums containing material (Ref. 24, p. 1). However, during the site visit, additional drums noted at the facility included thirty (30) 55-gallon drums containing soil contaminated with cyclohexylamine and eight (8) 55-gallon drums of deactivated nickel cobalt catalyst. The contaminated soils resulted from a 50-gallon spill of still bottoms (aniline n-phenyl cyclohexylamine dicyclohexylamine) on May 4, 1997. This spill resulted from the overfill of Tank 310 during transfer from Tank 306. Two 20-yard, roll-off containers located at the site contained contaminated soils from a second spill of aniline feedstock on May 5 and 6, 1997. Approximately 50-gallons of this material collected in an underground tank with storm water from the process and truck loading areas. This accumulated 2500-gallons of storm water tested, them pumped to the discharge ditch. Subsequently, a floating organic layer was noted on the water in the ditch. The contaminated soils in the roll-off container resulted from excavation of the discharge ditch (Ref. Ref. 21).

On February 10 and 11, 1999, West Bay Organics transported the following waste materials from the site (Refs. 29):

Table 3-2

Date	Description	Designation	Manifest No.	Quantity/ containers	Waste No
02/10/99	RQ Hazardous Waste Solid NOS Class 9, NA3077, PGIII (aniline)	Disposal Systems, Inc. 2525 Battleground Rd. Deer Park, TX 77536	01298811	25 yards	0009301 H
02/10/99	a) Non Hazardous Waste Solid - Non Regulated b) RQ Hazardous Waste Solid NOS Class 9, NA3077, PGIII (aniline).	Disposal Systems, Inc. 2525 Battleground Rd. Deer Park, TX 77536	01298808	a) 47 drums b) 30 drums	a) 0007031 b) 00093001H
02/10/99	Heptane Waste	TXI 245 Ward Road Midlothian, TX 76065	01298809	4000 gallons	0001203 H
02/10/99	Non Hazardous Waste Solid, Soil Non-regulated	BFI Gulf West 2601 S. Jenkins Rd. Anahuac, TX	01298807	25 yards	00053021
02/11/99	Non Hazardous Waste Solid, Soil Non-regulated	BFI Gulf West 2601 S. Jenkins Rd. Anahuac, TX	01298812	10 yards	00053021

IV. Ground Water Pathway Characteristics

General Regional Geology

Chambers County and the Fine Organics site are located in the Gulf Coastal Plain of Southeast Texas (Ref. 30, p. 4). The stratigraphic units composing the aquifers in

Chambers County range in age from Miocene to Holocene. These units, from oldest to youngest, are the Fleming Formation of Miocene age, Goliad Sand of Pliocene age, the Willis Sand, Bentley Formation, Montgomery Formation and the Beaumont Clay of Pleistocene age, and the alluvial, deltaic, coastal marsh, mudflat, and beach (chenier) deposits of Holocene age (Ref. 30, pgs. 6 and 7). Collectively, these units are estimated to attain a thickness of nearly 2500 feet (ft) in northern Chambers County to about 3300 ft in the southeastern part of the county along the coast (Figure 3 in Ref. 31). Lithologically, these units primarily consist of interbedded sand and clay with subordinate beds of silt and gravel. Post-Miocene age units are lithologically similar making delineation of the stratigraphic and hydrologic sections difficult (Refs. 31, p. 38; Ref. 32, p. 18).

Surface outcrops along the Texas coast generally parallel the coastline. Regionally, these stratigraphic units dip toward the Gulf of Mexico at an angle greater than that of the land surface, and they tend to thicken and occur progressively deeper basinward (Ref. 32, p. 5). Land surface subsidence in Baytown area generally ranges from 3.0 ft to 5.0 ft total subsidence and is approximately 3.5 ft in the Fine Organics site area (Figure 5 in Ref. 33).

Regional Hydrogeologic Setting

Two major aquifers contain fresh to slightly saline waters (waters containing less than 3000 milligrams per liter (mg/l) of dissolved solids) in Chambers County. These aquifers are the Chicot aquifer and the Evangeline aquifer (Ref. 30, p. 7; Figure 3 in Ref. 31).

The Evangeline aquifer is the lowermost unit containing fresh or slightly saline water in Chambers County. This aquifer overlies the Burkeville aquiclude and includes the Goliad Sand and the sands in the upper part of the Flemming Formation. The aquifer primarily yields fresh water to large wells in northwestern Chambers County (Ref. 30, p. 7). Thickness of the Evangline aquifer ranges from about 1800 ft in northern Chambers County to about 2200 ft in the southern part of the county along the coast (Figure 3 in Ref. 31).

The Chicot aquifer includes all deposits from the land surface to the top of the Evangeline aquifer (Ref. 30, p. 7; Ref. 34, p. 10). It consists of the Willis Sand, the Bentley Formation, the Montgomery Formation, the Beaumont Clay, and the Holocene Deposits. Because the Chicot and Evangeline aquifers are geologically similar, subsurface delineation has been accomplished by varied means in different areas. In some areas, the presence of a greater sand-to-clay ratio in the Chicot Aquifer or a prominent clay layer at the base of the Chicot have been used to define the boundary. In other areas, differences in hydraulic conductivity or water levels have been used to differentiate between the Chicot from the Evangeline (Ref. 32, pgs. 23 and 24).

In parts of eastern Jefferson County and western Chambers County, the Chicot aquifer is divided into two units by a clay bed separating an upper sand section from a lower

sand section. There are significant differences in water levels from wells completed in the upper and lower parts of the Chicot aquifer in these areas. In other parts of these counties, the upper and lower units merge into a single massive unit of interbedded and interconnected sand and clay as much as 1600 ft thick (Ref. 30, p. 7).

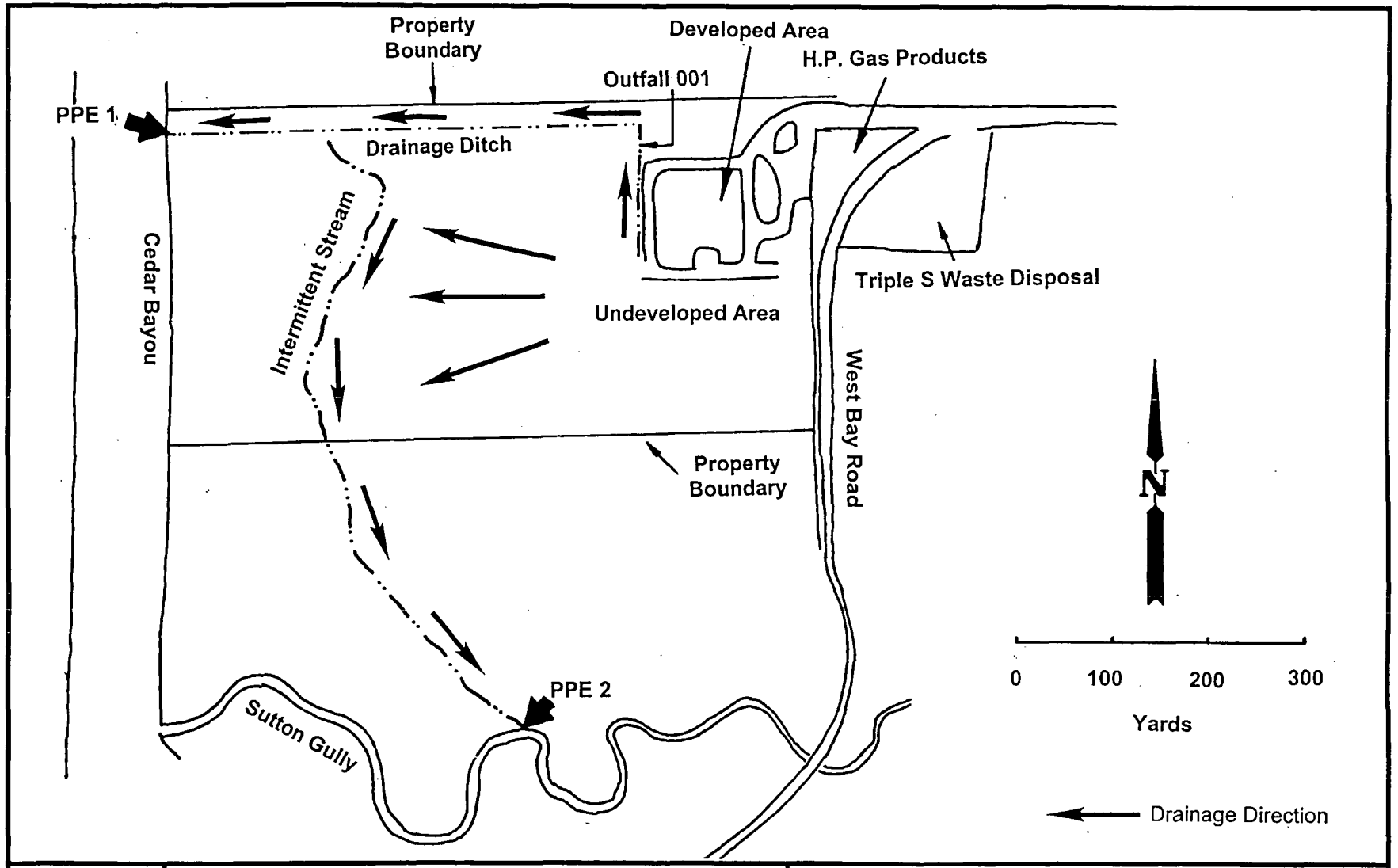
The lower unit of the Chicot aquifer generally forms somewhat of a sedimentary wedge. In the downdip areas (southeast) of Chambers County, the lower unit generally consists of two or more massive sands separated by a clay. Updip (northwest) in Chambers County, the aquifer thins and loses much of the sand found downdip. However, some of the loss of sand is due to facies changes. Fresh water in Chambers County is found in the Houston Point, Mont Belvieu, and Galveston Bay areas. In the western part of the county, the deepest occurrence of fresh water extends to a depth of more than 800 ft below sea level. In these areas, the net thickness of sands containing fresh water is greater than 100 ft (Ref. 30, pgs. 7, 11, and 34).

The upper unit of the Chicot aquifer is the most widespread aquifer containing fresh water in Chambers County. Generally, it consists of a basal sand of the Montgomery Formation, overlain by clay of the Beaumont Formation. In some areas, however, clay of the Montgomery Formation is also present. Only small supplies of fresh water are developed from the upper Chicot in 50 percent of Chambers County. Individual sand beds range in thickness from several feet to about 50 feet. Wells producing up to 1000 gallons per minute (gpm) of fresh water are found in the Houston Point area of western Chambers County, at Anahuac, and in a fairly large area centered at Winnie (Ref. 30, pgs. 11 and 34). The deepest occurrence of fresh water is in the northernmost part of Jefferson County to the east and in western Chambers County, where the base is more than 200 feet below sea level. The base of the fresh water becomes more shallow to the south and is only a few feet below sea level in the central and southern part of Chambers County (Ref. 30, pgs. 11, 34, and Figure 19).

V. Surface Water Pathway Characteristics

The TNRCC Permit to Dispose of Waste (wastewater Permit No. 02777) authorized Fine Organics to dispose of waste from the Chamber Plant through two outfalls, 101 and 001 (Ref. 17, pgs. 4 and 5). Outfall 101 is described as the outlet from the final process wastewater treatment unit prior to commingling with cooling tower blowdown or process area storm water. Outfall 001 is described as the outfall at the flow measuring device on the plant wastewater outfall to Cedar Bayou on the west side of the plant site (Ref. 15, p. 8) (Figure 3). This permit was issued on January 28, 1986, was renewed on May 2, 1991, again renewed on September 13, 1996, and expired on September 12, 1998 (Ref. 11, p. 1; Ref. 17, p. 1).

The USEPA issued a Federal NPDES Permit (Permit No. TX0098604) to Fine Organics on December 12, 1986 (Ref. 6, p. 36). The January 1997 Application for Renewal of the NPDES permit No. TX0098604 for the Fine Organics Corporation, Chambers Plant lists four outfalls for the site (Ref. 19, p. 6):



TNRCC

Figure 3

Off-site Drainage and PPE Identification

Fine Organics Site

Baytown, Texas

CERCLIS No. 981606932

101 - discharge from future process wastewater treatment facilities,
201 - discharge from the developed portion of the plant to include the effluent from Outfall 101, cooling water discharges, and process area storm runoff,
001 - storm water discharge to Cedar Bayou, to include the discharge from Outfall 201, and
002 - storm water discharge to Sutton Gully.

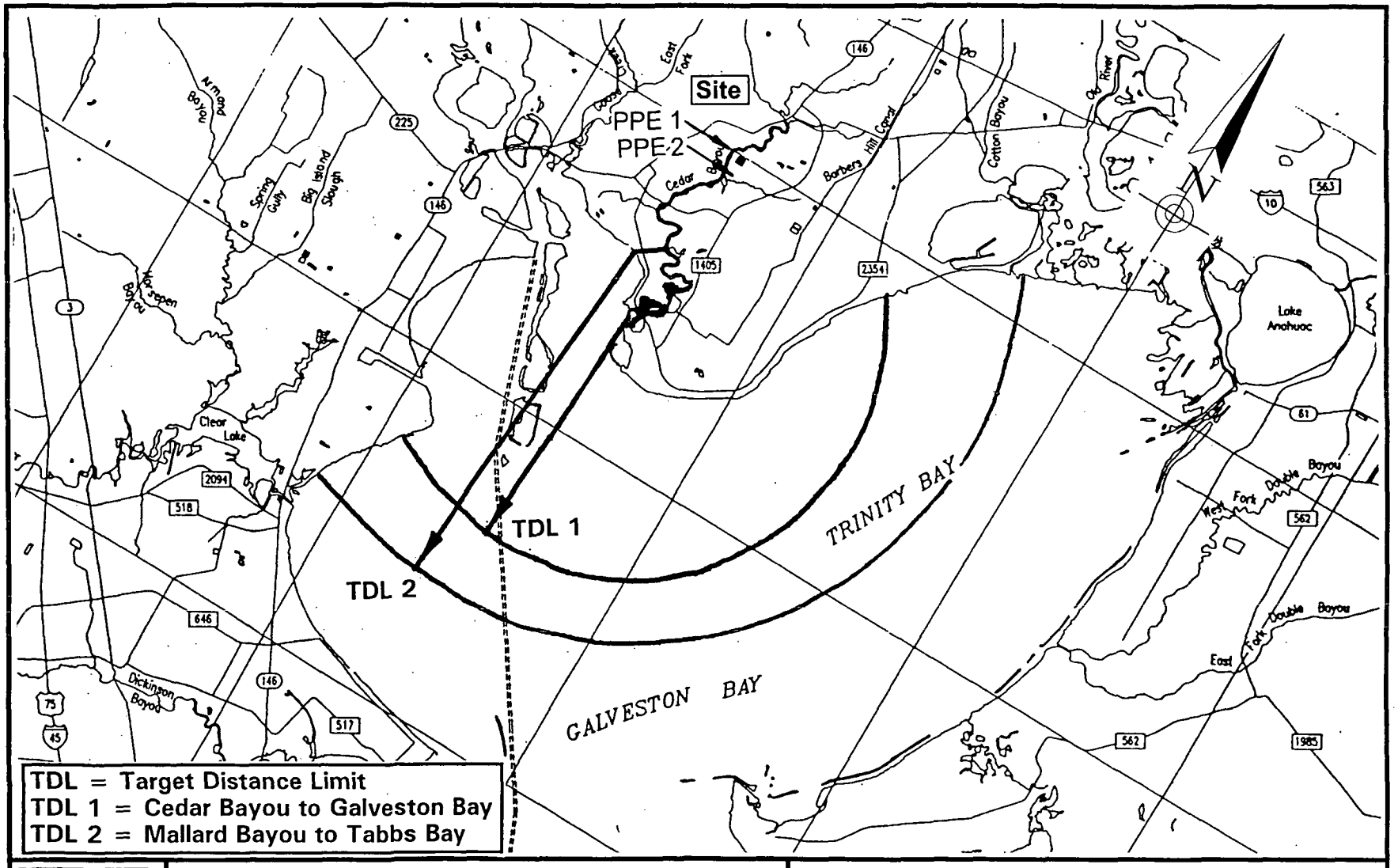
The Fine Organics site is located on the east bank of Cedar Bayou. Off-site migration along the surface water migration pathway follows two primary routes, each eventually discharging to Cedar Bayou. Storm water collected from within the processing, loading and product storage areas is segregated for analysis and treatment, then discharged from internal Outfall 201. This discharge is routed along a north trending drainage ditch to a metering device at Outfall 001 on the west side of the plant (Photograph 6). From this outfall, the discharge flows toward the north for about another 130 feet, then the discharge flows toward the west along a drainage ditch bordering the north side of the property to Cedar Bayou (Photograph 7). Where this drainage ditch empties into Cedar Bayou is defined the first Probable Point of Entry (PPE) (Figure 3).

The second off-site migration route is for storm water collected from within the undeveloped area of the site. This storm water drains toward the west into a north-south trending intermittent stream on the west side of the property. The runoff then flows south through NPDES outfall 002 at the property boundary to Sutton Gully. Sutton Gully is shown on the Morgans Point U.S.G.S. topographic map as a perennial stream (Ref. 35); therefore, where the intermittent tributary empties into Sutton Gully marks a second PPE for the surface water migration pathway. Sutton Gully flows about 1500 feet toward the west and empties into Cedar Bayou (Figure 3).

Both discharge routes from the Fine Organics facility enter the Cedar Bayou Tidal Segment (Segment 0901) of the Trinity-San Jacinto Coastal Basin (Ref. 36a, p. 499). From PPE 1, Cedar Bayou flows approximately 3.8 miles downstream to the confluence with Mallard Bayou. Mallard Bayou flows approximately 1 mile toward the southwest, where it empties into Tabbs Bay (Segment 2426 of the Bays and Estuaries). Cedar Bayou continues for about another 4.6 miles downstream of this confluence and empties into Upper Galveston Bay (Ref. 36b).

Surface Water Pathway In-water Segments

The surface water in-water segment begins at the PPE and extends as an arc for the 15 mile in-water target distance limit. The surface water in-water segment associated with the Fine Organics site is depicted in Figure 4. The State of Texas Water Quality Segments along the surface water migration pathway are described below (Refs. 36a and 36b).



TNRCC

Figure 4

Surface Water Pathway
15-Mile In-Water Segment

Fine Organics Site

Baytown, Texas

CERCLIS No. 981606932

Segment 0901 - Cedar Bayou Tidal

This water quality segment extends from a point 1.4 (2.2 kilometers) miles upstream of IH-10 in Chambers/Harris County, downstream approximately 19 miles (31 kilometers) to the confluence with Galveston Bay 0.6 mile (1.0 kilometer) downstream of Tri-City Beach Road in Chambers County. The Cedar Bayou Tidal segment is classified as being water quality limited due to advanced treatment required, with designated water uses of contact recreation and high quality aquatic habitat. No fish consumption advisories and/or closures are in effect for this segment, however, elevated nitrite plus nitrate, and total and orthophosphorous indicate elevated nutrients are a concern in the lower portion of the segment. There are nine (9) permitted domestic outfall and twenty (20) permitted industrial outfalls along the Cedar Bayou Tidal water quality segment (Ref. 36a, p. 499).

Segment 2426 - Tabbs Bay

Tabbs Bay encompasses approximately 3.6 square miles (9.3 square kilometers). The segment is classified as being water quality limited due to water quality standards violations and advanced waste required. Designated water uses include contact recreation and high aquatic life. Due to elevated levels of dioxin in tissues of blue crabs and catfish, the Texas Department of Health has issued a restricted-consumption advisory for the general population and a no consumption advisory for children and women of child bearing age for Tabbs Bay. Elevated fecal coliform levels cause nonsupport of the contact recreation use. Other water quality standards and designated uses were supported. Elevated levels of manganese are found in the sediments of Tabbs Bay. There are three (3) domestic outfalls and two (2) industrial outfalls permitted in Segment 2426 (Ref. 36b, p. 414).

Segment 2421 - Upper Galveston Bay

The Upper Galveston Bay segment is defined as the segment of the Galveston Bay system north of the Lower Galveston Bay segment and west of the Trinity Bay segment (Segment 2422) (Ref. 36b, p. 361-362). Upper Galveston Bay occupies approximately 108.2 square miles (280.2 square kilometers). The segment is classified as being effluent limited with designated water uses including contact recreation, high aquatic life and oyster waters. Due to elevated levels of dioxin in tissues of blue crabs and catfish, the Texas Department of Health has issued a restricted consumption advisory for the general population and a no consumption advisory for children and women of child bearing age for the upper bay area defined by a line from Red Bluff Point to Five Mile Cut marker to Houston Point, north to Morgan's Point. Upper Galveston Bay also has elevated levels of orthophosphorous. Seventeen (17) percent of the segment is prohibited, thirty-nine (39) percent is restricted, and twenty (20) percent is conditionally approved for oyster harvesting due to elevated fecal coliform densities. There are six (6) domestic outfalls and three (3) industrial outfalls permitted in Segment 2421 (Ref. 36b, p. 376).

Segment 2422 - Trinity Bay

The Trinity Bay segment of the Galveston Bay System lies east of Upper Galveston Bay segment (Segment 2421) (Ref. 36b, p. 361-362). This segment has a surface area of about 130.1 square miles (337.0 square kilometers). Trinity Bay is classified as being effluent limited, with designated water uses being contact recreation, high aquatic life, and oyster waters. Water quality standards and uses, including oyster water use, are supported by TNRCC criterion in this segment. There are no fish consumption advisories and/or closures for Trinity Bay. There are four (4) domestic outfalls and three (3) industrial outfalls permitted in Segment 2422 (Ref. 36b, p. 386).

The Fine Organics site is located within the 100 year flood plain (Ref. 15, p. 12). The 2-year, 24-hour rainfall event in the area of the site is estimated to be 5.3 inches, with an average annual rainfall of about 51.6 inches (Ref. 37, p. 62; Ref. 38, p. 50).

VI. Air Pathway Characteristics

The wind rose for the City of Houston Bush Intercontinental Airport is presented in Figure 5. Winds are predominantly from the south and southeast, approximately 28% of the time, and wind speeds are generally less than 10 knots (11.5 MPH) 75% of the time (Ref. 39).

No air samples have been taken at the site.

VII. On-Site Pathway Characteristics

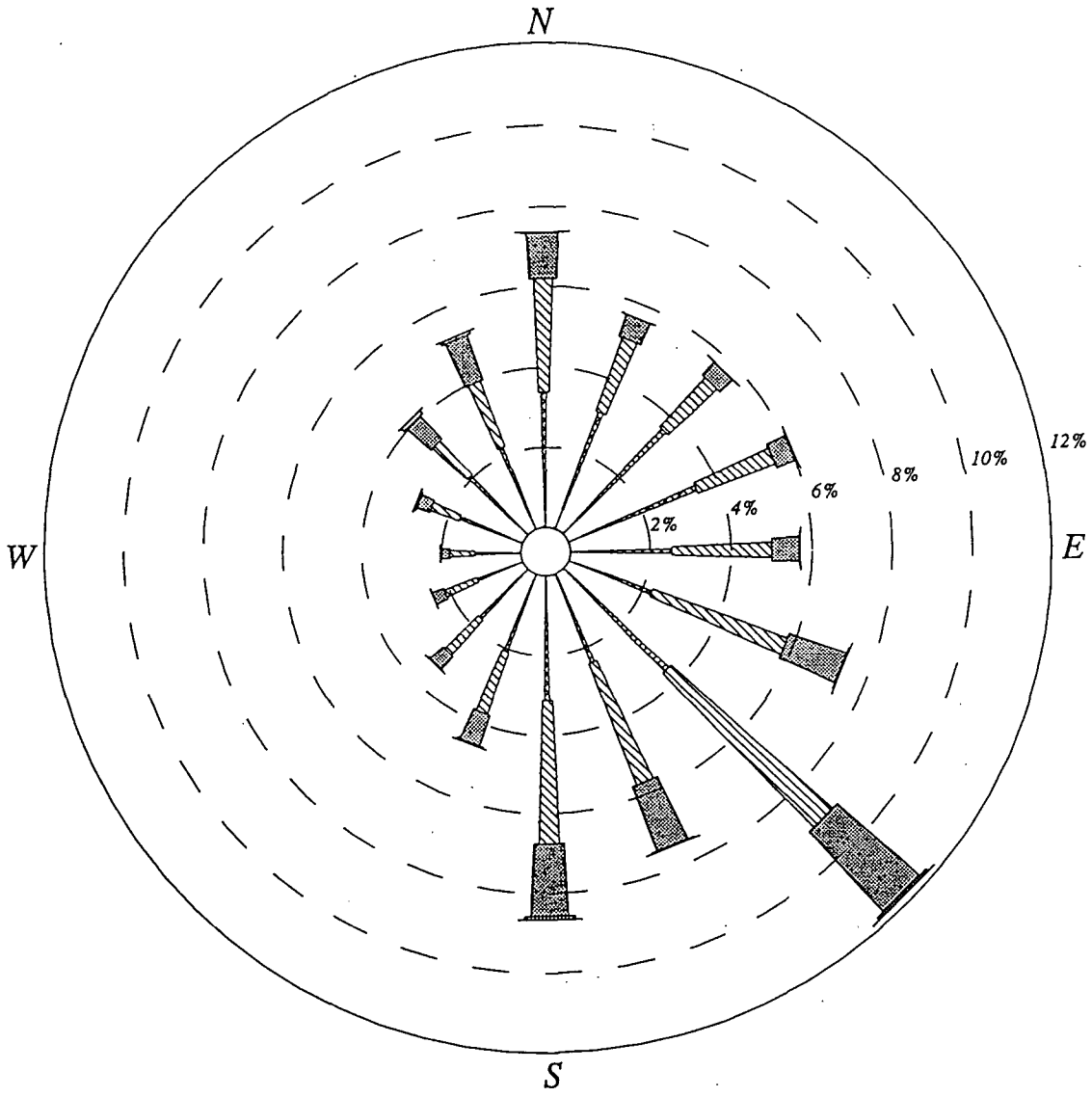
The site consists of approximately 48.791 acres of land on the east bank of Cedar Bayou; however, only about 5 acres have been developed for the organics manufacturing plant. The site is bound by a barbed wire fence and access to the site is restricted 24-hours per day (Ref. 6, pgs. 11 and 29). The site is currently inactive; however, West Bay Organics continue to conduct maintenance and construction operations at the site pending the receipt of a new waste water discharge permit (Ref. 8).

The Fine Organics site is bound on the north by the Houston Lighting and Power's Cedar Bayou power generating station, on the east by H.P. Gas Products, Inc. facility, West Bay Road, and Triple S facility, on the south by undeveloped land, and on the west by Cedar Bayou. Residential housing predominates on the west bank of Cedar Bayou across from the site (Ref. 9, p. 2).

The Fine Organics property is relatively flat, with the eastern part of the site being developed for the manufacturing plant. Storm water within this area is collected and routed through Outfall 001 for final discharge to Cedar Bayou. The remainder of the site to the west is undeveloped. This area generally drains toward the west to a

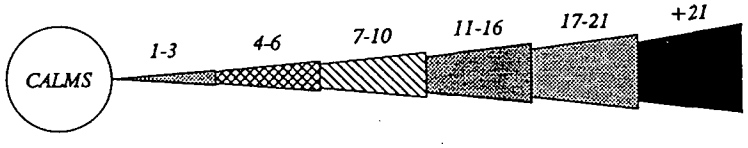
IAH 84-92 ANNUAL

January 1-December 31; Midnight-11 PM



CALM WINDS 9.18%

WIND SPEED (KNOTS)



NOTE: Frequencies indicate direction from which the wind is blowing.

TNRCC

Figure 5

Windrose Map
Houston Intercontinental Airport

Fine Organics

Baytown, Harris County, Texas

CERCLIS No. 981606932

intermittant stream drainage swale, which in-turn drains to the south into Sutton Gully. Both areas of site eventually drain into the Cedar Bayou Tidal segment of the Trinity-San Jacinto Coastal Basin (Segment 0901) (Ref. 36a, p. 499).

A. Ground Water Targets

Public supply, domestic, and industrial water wells have been identified within a 4-mile target distance limit of the Fine Organics site using State of Texas well logs and TNRCC Public Water Supply inspection reports (Ref. 40 and Ref. 41). All well logs for drinking water wells within 1-mile of the site, and well logs and TNRCC inspection reports for public water supply wells within a 4-mile radius of the site are included in Appendix E. Domestic wells have total depths ranging from 76 ft to 547 ft, with corresponding static water levels ranging from 15 ft to 110 ft below the ground surface, respectively. However, one well log was identified for domestic/stock well bored to a depth of 22 ft in 1939 (Ref. 40, p. 15). The plotted location of this well is within the within 0.25-mile radius of the Fine Organics site, but the location of this well could not be verified during the off-site reconnaissance.

One ground water well is located on-site, reportedly drilled to a depth of 400 feet below ground surface (Photograph 8) (Ref. 6, p. 13). However, no State of Texas well log was identified for this well during a review of available file information. Ground water from this well is only utilized for cooling and as process water. Elevated levels of total dissolved solids (TDS) in the ground water requires that the water be treated prior to use due to elevated total dissolved solids. Drinking water for the site is provided by bottled water (Ref. 6, p. 13; Ref. 9, p. 5).

No analytical evidence has been collected to indicate whether or not any drinking wells have been exposed to any hazardous substances from the site.

The Fine Organics site is located on the east bank of Cedar Bayou, which forms the boundary between Harris and Chambers Counties. Since the population per household varies between each county, ground water target populations were calculated separately for each county, then totaled for the respective target distance populations for each radii from the site. These ground water target calculations are shown in Tables 7.1 and 7.2, representing Harris County and Chambers County, respectively.

The City of Baytown's public water supply system (TNRCC ID. No. 1010003) is 100 percent sourced by surface water and serves a population of approximately 70,000 people. The public supply system also has eight (8) ground water wells maintained for demand purpose use only (Ref. 41, pgs. 226-230). A single main line connects Baytown to its surface water source, and should this line fail, within 24 hours the water tanks would be drained and the city would then be required use of the ground water wells. These wells have not yet been put into service, but they are tested once a month without the water being pumped into the actual distribution system (Ref. 42).

The City of Baytown wells are listed in the table of wells identified within the 4-mile radius in Harris County (Table 7-1); however, the population potentially served by these wells has not been incorporated into the target population because the wells have not been used to supply drinking water to the residents of Baytown (Ref. 42).

Table 7.1 - Wells Identified Within 4-Mile Radii in Harris County

Harris County						
Well Type	Target Distance (Miles)					
	0.0 - 0.25	0.25 - 0.5	0.5 - 1.0	1.0 - 2.0	2.0 - 3.0	3.0 - 4.0
Domestic		1	1	21	75	16
Public Supply		3			5	8
Industrial				2	2	3
Irrigation				1	1	
Livestock						
Monitor					1	

Table 7.2 - Wells Identified Within 4-Mile Radii in Chambers County

Chambers County						
Well Type	Target Distance (Miles)					
	0.0 - 0.25	0.25 - 0.5	0.5 - 1.0	1.0 - 2.0	2.0 - 3.0	3.0 - 4.0
Domestic	2	2	6	11	24	14
Public Supply		1			1	3
Industrial				4	11	6
Irrigation					3	1
Livestock				2		1
Monitor				27		

Five (5) of the eight (8) City of Baytown's public water supply system (TNRCC ID. No. 1010003) ground water wells are located within wellhead protection areas. Well 1010003 (A) is located within the 0.25 to 0.5 mile radius; wells 1010003 (B), (I) and (J), are located within the 2.0 to 3.0 mile radius; well 1010003 (C) is located within the 3.0 to 4.0 mile radius (Ref. 43, pgs. 1-3; Ref. 44, pgs. 1-4). However, all the ground water wells within the City of Baytown's public water supply system are for demand purposes only, and have not been used to supply drinking water (Ref. 42).

The 1990 Census data for Harris County indicates an estimated population per household of 2.75 persons (Ref. 45a). The 1990 Census data for Chambers County indicates an estimated population per household of 2.90 persons (Ref. 45b). Based upon these census data and information population served information from TNRCC Public Water Supply inspection reports, the following potential ground water target populations have been identified within a 4-mile radius of the Fine Organics site:

Within 0 - 0.25 miles of the site, two domestic wells have been identified supplying drinking water to approximately 6 people.

Between 0.25 - 0.5 miles of the site, 3 domestic wells and 4 public supply wells have been identified supplying drinking water to approximately 559 people.

Between 0.5 - 1 mile of the site, seven domestic wells have been identified supplying drinking water to approximately 20 people.

There are 32 domestic, 6 industrial, 2 livestock, and 1 irrigation wells in the 1-2 mile radius, supplying drinking water to approximately 90 people.

There are 99 domestic, 6 public supply, 13 industrial, and 4 irrigation wells in the 2-3 mile radius, supplying drinking water to approximately 1,047 people.

There are 30 domestic, 11 public supply, 9 industrial, 1 irrigation, and 1 livestock wells in the 3-4 mile radius, supplying drinking water to approximately 1,492 people.

B. Surface Water Targets

The Fine Organics site is located on the east bank of Cedar Bayou. Off-site migration along the surface water migration pathway follows two primary routes, each eventually discharging to Cedar Bayou. Storm water collected from within the processing, loading and product storage areas is segregated for analysis and treatment, routed through a metering device at Outfall 001 on the west side of the plant, then discharged to Cedar Bayou through a drainage ditch on the north side of the property at PPE 1. Storm water collected within the undeveloped part of the site drains to an intermittent stream on the west side of the property, then flows through Outfall 002 at the southern property boundary and empties into Sutton Gully at PPE 2. Sutton

Gully flows about 1500 ft toward the west, where it empties into Cedar Bayou about 1650 feet downstream of PPE 1.

Both discharge routes from the Fine Organics facility eventually enter the Cedar Bayou Tidal Segment (Segment 0901) of the Trinity-San Jacinto Coastal Basin. From PPE 1, Cedar Bayou flows approximately 3.8 miles downstream to the confluence with Mallard Bayou. Mallard Bayou flow approximately 1 mile to the southwest where it empties into Tabbs Bay (Segment 2426 of the Bays and Estuaries). Cedar Bayou continues for about another 4.6 miles downstream of this confluence and empties into Upper Galveston Bay (Ref. 36b, p. 361-362) .

The National Wetlands Inventory map for Morgans Point, Texas quadrangle shows two wetland areas on the western side of the Fine Organics site. These wetland areas include palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded, excavated (PSSICx), and palustrine, emergent, persistent, temporarily flooded (PEMIA) (Ref. 46).

Downstream from PPE 1 to Galveston Bay, both Estuarine and palustrine wetland areas border the Cedar Bayou Tidal segment. These wetland areas range in size from about 1 acre to about 20 acres in size for the entire 8.6 mile downstream distance (Ref. 46).

The Galveston Bay system constitutes the seventh largest estuary in the United States and is designated as a National Estuary as part of the National Estuary Program. The bay area provides rookeries for colonial nesting birds, contains more than 70 species of waterfowl and shorebirds live or migrate through the bay as do 90 species of amphibians and reptiles. Galveston Bay supports a wide range of commercial and recreational fishing, producing nearly 7 millions pounds of shrimp in 1987 along with oysters, redfish, flounder and many others (Ref. 47, p.9).

No surface water use permits for drinking water are in existence within the 15 mile target distance limit downstream from the site (Ref. 44, p. 1).

C. Soil Exposure Targets

No school or daycare populations were identified within 200 ft. of the site. The nearest school is located across Cedar Bayou, approximately 0.5 mile northwest of the site.

The nearest residents identified during the off-site reconnaissance are located at 2621 and 2719 Pecan Manor, directly across Cedar Bayou from the site (Ref. 9, p. 2; Photograph 9). These residences are located about 375 feet from the west property boundary and about 1750 feet from the organics manufacturing plant at the Fine Organics site. Three residences are also located within 0.5 mile south of the site off West Bay Road (Ref. 9, p. 7). The number of people residing within these houses is unknown.

The nearest business to the site is H.P. Gas Products, Inc. (Photograph 10). There are 4 permanent employees at this business (Ref. 48). Triple S Equipment Company is located east of the Fine Organics site directly across West Bay Road. This company has 20 permanent employees, however, some of the workers are truck drivers and are not present at the facility throughout each day (Ref. 49).

D. Air Targets

Based upon 1990 Census data for Harris and Chambers Counties, the population within a 4-mile radius of the Fine Organics site is 44,253 persons (Ref. 5, p. 1). The nearest residents subject to exposure from a release of hazardous substances through the air are located about 0.33 mile west of the organics manufacturing plant across Cedar Bayou (Ref. 9, p. 2). Three residential houses are also located less than 0.5 mile south of the site off West Bay Road. The estimated population residing within 0 - 1/4 mile of the site is 5 persons; within1/4 to ½ mile is 556 persons; within ½ to 1-mile is 1,812 persons; within 1 to 2 miles is 11,365 persons; within 2 to 3 miles is 17,130 persons; and within 3 to 4 miles is 13,385 persons (Ref. 5, p. 1).

The site is currently inactive; however, employees for West Bay Organics continue maintenance and construction activities on the plant facilities. There are 11 permanent employees working for West Bay Organics at the site (Ref. 8).

Two wetland areas are partially located on the western part of the Fine Organics site. These include palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded, excavated, and palustrine, emergent, persistent, temporarily flooded (Ref. 48).

No air samples have been taken at the site.

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5. Texas Natural Resource Conservation Commission, GIS Section. Population Around Coordinates of Fine Organics Baytown, Chambers County, Texas. Interoffice Memorandum. June 21, 1999. 1 page w/ map. (Appendix C).

6. RMT, Inc. Environmental Investigation Including a Compliance Assessment of Fine Organics Corporation Baytown, Texas. November 1998. 46 pages w/ appendices. (Appendix D).

7. Texas Natural Resource Conservation Commission. Interoffice Memorandum from Denise Espinosa, Bankruptcy Program Manager, to Scott Mayo, Field Operations Division, Region 12. December16, 1998. 1 page w/ attached Order Approving Sale of Property Free and Clear of Liens, Fine Organics Corporation (Debtor), Case No. 97-50165-H4-7. (Appendix C).

8. Kennedy, Johnny W., Site Investigation Manager, Texas Natural Resource Conservation Commission, to Rodman Eggen, West Bay Organics. Telephone Memo. July 1, 1999. I page. (Appendix C).

9. Kennedy, Johnny W., Site Investigation Manager, Texas Natural Resource Conservation Commission. Preliminary Assessment Logbook. Fine Organics Site, Baytown, Chambers County, Texas. CERCLIS No. TXD 981 606 932. March 5, 1999. 10 pages. (Appendix B).

10. Carden, Clair A., Consulting Engineer, Hansa Manufacturing Co., to Mr. Charles E. Nemir, P.E., Executive Director, Texas Department of Water Resources. Letter. August 9, 1985. 1 pages w/ attached Application for Permit to Discharge, Deposit or Dispose of Waste for Hansa Manufacturing Company. (Appendix C).

11. Texas Water Commission. Permit to Dispose of Waste under provisions of Chapter 26 of the Texas Water Code, Hansa Manufacturing Company, Permit No. 02777. May 2, 1991. 24 pages. (Appendix C).

12. U. S. Environmental Protection Agency. Authorization to Discharge under the National Pollutant Discharge Elimination Systems, Hansa Manufacturing Company, Permit TX0098604. Signed and issued June 30, 1992. 7 pages. (Appendix C).

13. Texas Water Commission. Transfer of Texas Water Commission Permit No. 02777 from Hansa Manufacturing Company to RDK, L.C. Issued April 30, 1993. 1 page. (Appendix C).

14. Ward, John R., Team Leader, Water Quality Management, Region 12, Texas Natural Resource Conservation Commission, to Mr. Rodman Eggen, President, RDK, L.C. Letter. December 6, 1994. 1 page w/ attached NPDES Compliance Inspection Report. (Appendix C).

15. Fine Organics Corporation. Application for Renewal of Permit to Discharge, Deposit or Dispose of Industrial Wastewater into or Adjacent to Water in the State. Texas Natural Resource Conservation Commission Permit Application. Notarized December 14, 1995. 21 pages w/ attached Technical Report for Industrial Wastewater Facilities. (Appendix C).

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17. Black, Mamie, M., Acting Chief Clerk, Texas Natural Resource Conservation Commission, to Rodman Eggen, Fine Organics Corporation. Cover Letter. 1 page with attached Texas Natural Resource Conservation Commission Permit to Dispose of Waste, Fine Organics Corporation, Permit No. 02777. (Appendix C).

18. Duff, Cyndy, Administrative Manager, Fine Organics Corporation, to TNRCC Program Support Team, Agriculture and Water Shed Management Division. Letter. October 21, 1996. 1 page. (Appendix C).

19. Cook, Linda Kay, Meridith, Donnell & Abernethy, to Michelle Ruckstuhl, Texas Natural Resource Conservation Commission. Letter. January 26, 1999. 2 pages w/ attached January 1997 Fine Organics Corporation, Chambers Plant, Application for Renewal of the NPDES Permit No. TX0098604. (Appendix C).

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21. Rosengarten, R. L., P.E., President, RSA, Inc., to Scott Mayou, Texas Natural Resource Conservation Commission. Letter. November 12, 1997. 1 page. (Appendix C).

22. Ward, John R., Team Leader, Water Quality Management, Region 12, Texas Natural Resource Conservation Commission, to Mr. Rodman Eggen, President, Fine Organics Corp., Inc. Letter. June 10, 1997. 1 page w/ attached Texas Natural Resource Conservation Commission Domestic or Industrial WWTP Compliance Review Inspection Report. (Appendix C).

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24. Texas Natural Resource Conservation Commission. Interoffice Memorandum, from Scott Mayo, Environmental Investigator, Region 12-Houston Office, to Denise Espinosa. October 30, 1997. 2 pages. (Appendix C).

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28. Texas Natural Resource Conservation Commission. Notice of Registration, Industrial and Hazardous Waste, West Bay Organics, Solid Waste Registration Number 37507: EPA Id: TXD981606932. March 4, 1999. 2 pages. (Appendix C).

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33. Texas Department of Water Resources. Land-Surface Subsidence in the Texas Coastal Region. Report 272. November 1982. 26 pages. (Appendix C).

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35. U. S. Geological Survey. Morgans Point Quadrangle, Texas. 7.5-Minute Series. Topographic Map. 1993. 1 page. (Appendix F).

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36b. Texas Natural Resource Conservation Commission. The State of Texas Water Quality Inventory, 13th Edition. SFR-50. Volume 4. December 1996. 614 pages. (Appendix C).

37. Dunne, Thomas and Leopold, Luna B., Water in Environmental Planning. 1978. W.H. Freeman and Company. New York. 818 pages. (Appendix C).

38. U. S. Department of Agriculture, Soil Conservation Service. Soil Survey of Chambers County, Texas. May 1976. 53 pages with attached map sheets. (Appendix C).

39. National Climatic Data Center. Windrose Plot for Houston Intercontinental Airport, Annual 84-92. 1992. 1 page. (Figure 5).

40. Texas Water Development Board. State of Texas Water Well Reports (located and platted), Harris County and Chambers County. (Appendix E).

41. Texas Natural Resource Conservation Commission, Region 12, Public Water Supply Section. Region 12 Inspection Reports for Public Water Supply Systems within 4-Mile Radius of the Fine Organics Site, Harris County and Chambers County. (Appendix E).

42. Kennedy, Johnny W., Site Investigation Manager, Texas Natural Resource Conservation Commission, to Rodney LeBlanc, Chief Certified Operator, City of Baytown Public Water Supply. Telephone Memo. July 7, 1999. 1 page. (Appendix C).

43. Court, Matt, Water Utilities Division, Texas Natural Resource Conservation Commission, to Johnny Kennedy, Site Investigation Manager, Texas Natural Resource Conservation Commission. Facsimile Document. July 7, 1999. 1 page w/ attached maps. (Appendix C).

44. Court, Matt, Water Utilities Division, Texas Natural Resource Conservation Commission, to Johnny Kennedy, Site Investigation Manager, Texas Natural Resource Conservation Commission. Facsimile Document. July 6, 1999. 4 pages. (Appendix C).

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45b. U. S. Census Bureau. 1990 U. S. Census Data, Chambers County. Internet Webpage http://www.census.gov. 1 page. (Appendix C).

46. U. S. Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory. Morgans Point, Texas Quadrangle. Wetlands Map. 1998. (Appendix F).

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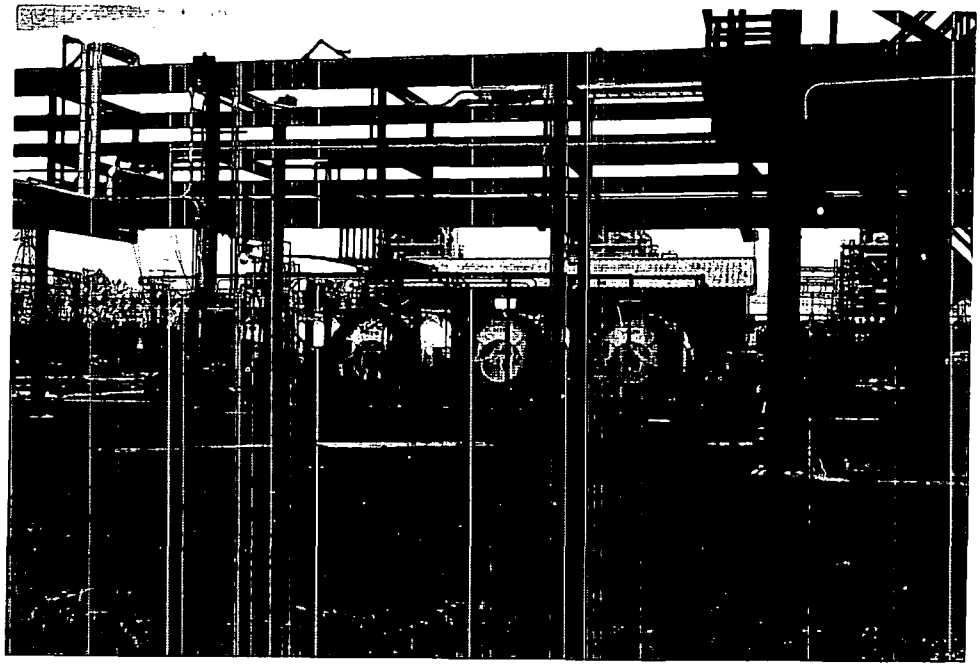
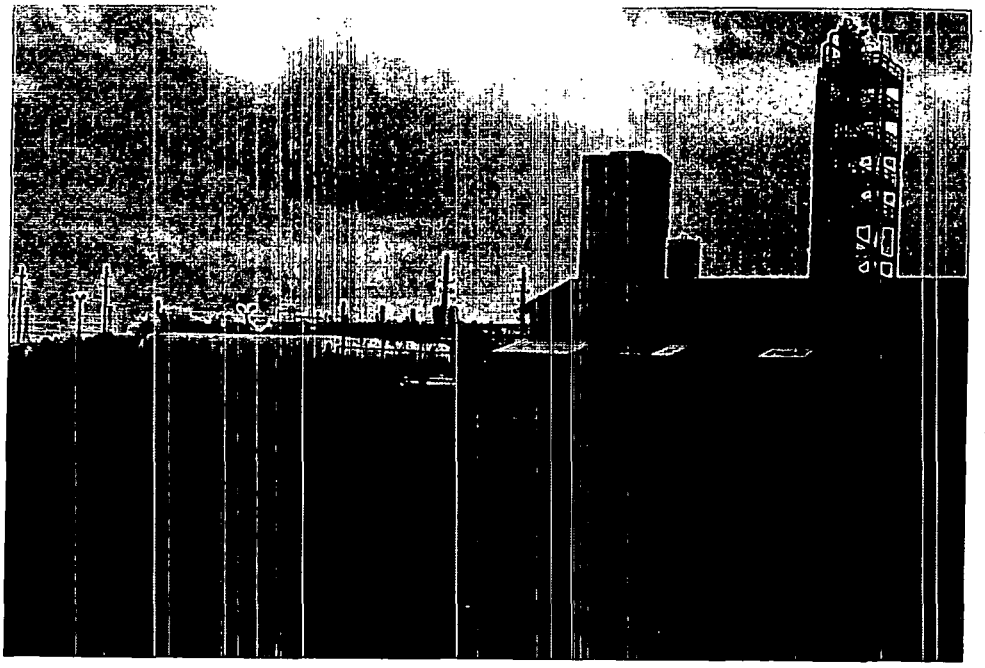
49. Kennedy, Johnny W., Site Investigation Manager, Texas Natural Resource Conservation Commission, to Mary Rakestraw, Triple S Equipment Company. Telephone Memo. July 2, 1999. I page. (Appendix C).

BOOKMARK

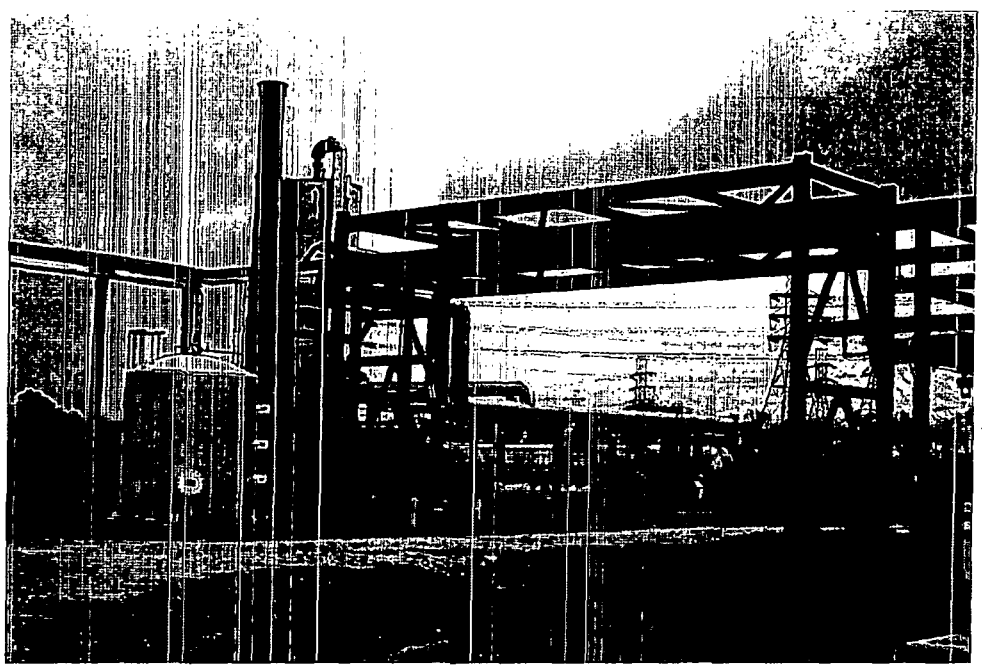
Appendix A
Photographs



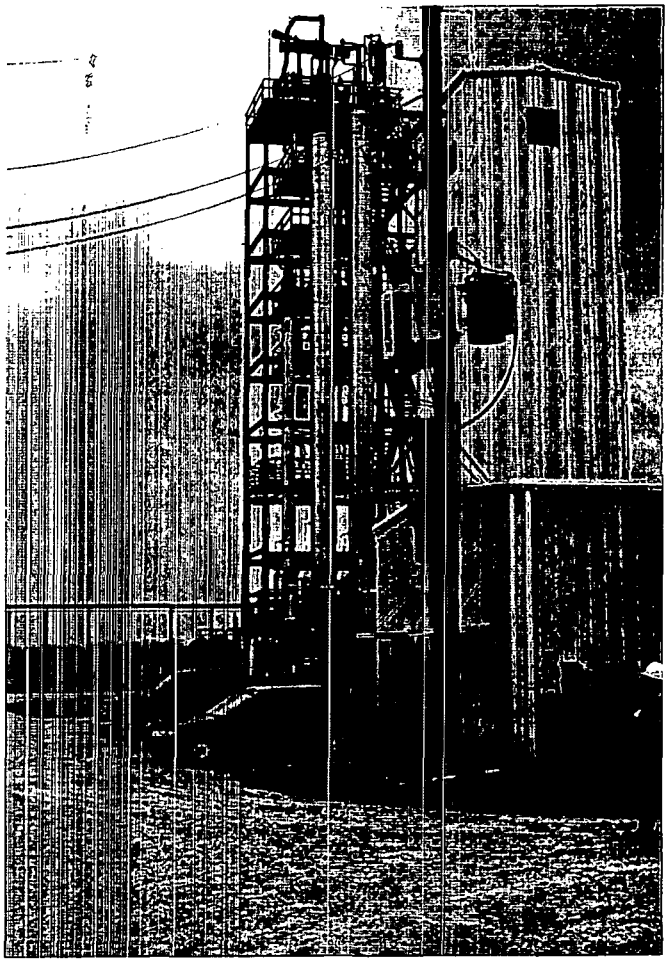
Photograph 1: View toward the north of the Isotainer area. The tank on the right of the photograph was reportedly empty at the time of the inspection, while the others reportedly contained high boiling point amines. Note the seventeen (17) drums of acetone with amines from the spill at the site. Photograph taken by Johnny Kennedy on March 5, 1999.



Photograph 2: View toward the southeast showing the pole barn (low metal building in right of photograph) and the tank farm area. Note the four (4) 30,000 gallon tanks. Photograph taken by Johnny Kennedy on March 5, 1999.

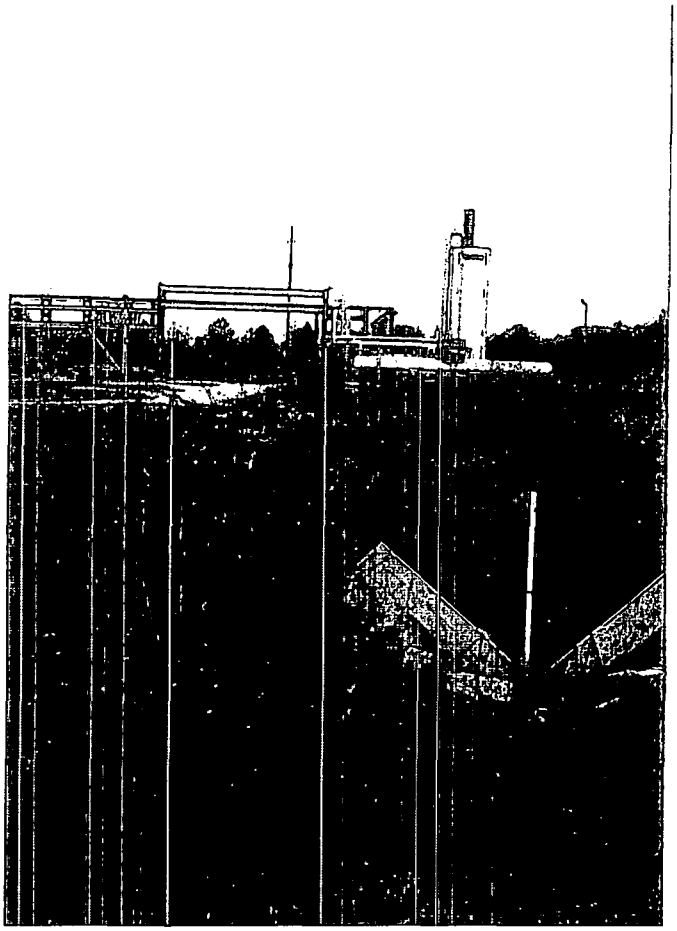


Photograph 3: View toward the northwest of the hot oil furnace (right foreground) and the hot oil tank (center background) on the west side of the developed area. Photograph taken by Johnny Kennedy on March 5, 1999.

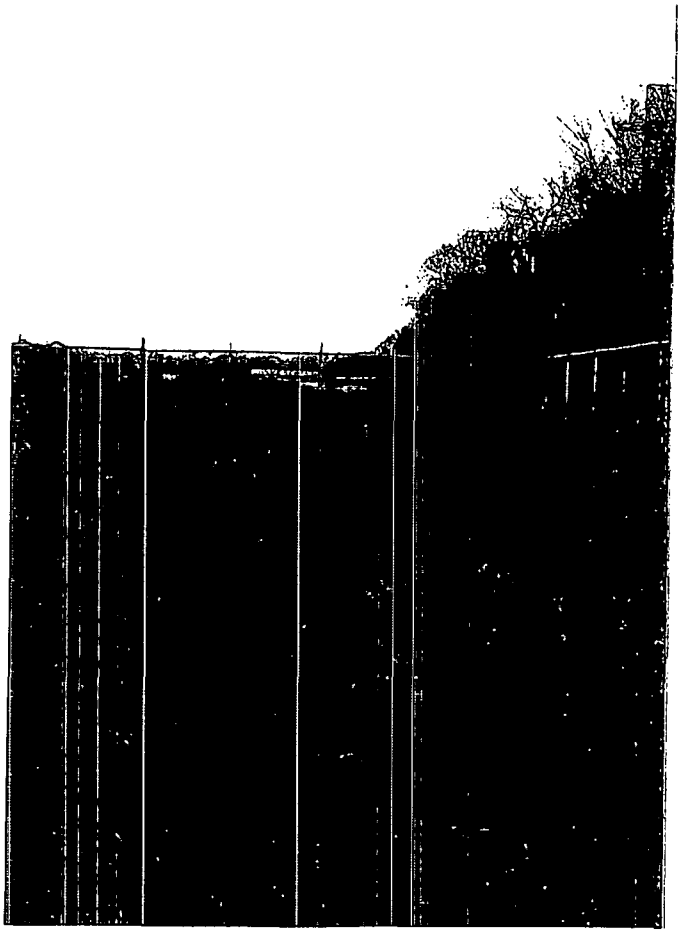


Photograph 4: View toward the west showing the lab and control room building (1 story metal building in foreground), the development structure (multi-story metal building), and the commercial structure. Photograph taken by Johnny Kennedy on March 5, 1999.

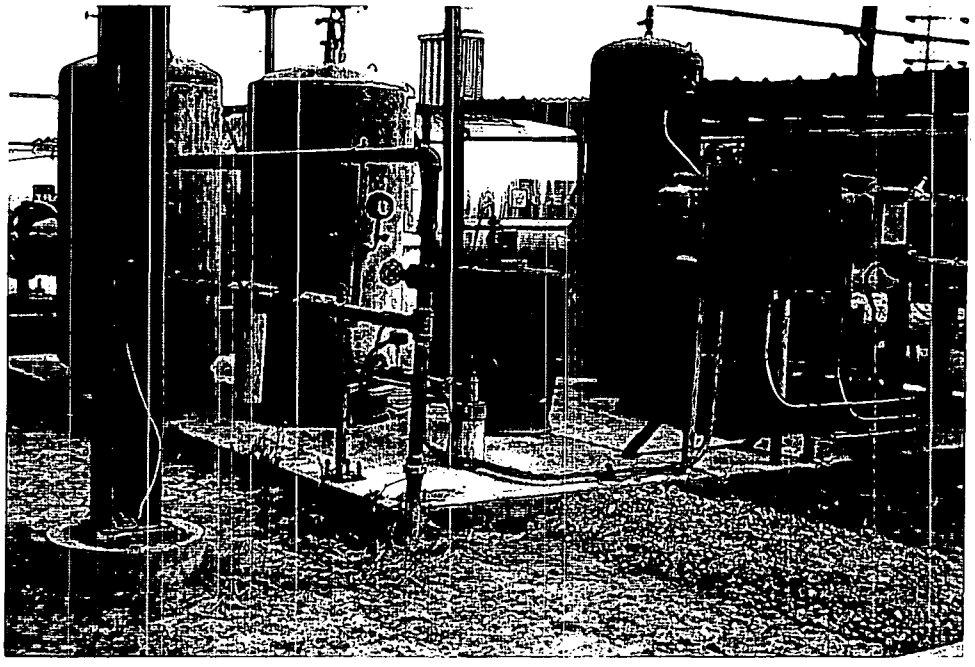
Photograph 5: View toward the south west showing the firewater pond, located south of the process area. In the background center of the photograph the flare can be seen. Photograph taken by Johnny Kennedy on March 5, 1999.



Photograph 6: View toward the south showing the metering device at outfall 001 on the west side of the developed area. Photograph taken by Johnny Kennedy on March 5, 1999.

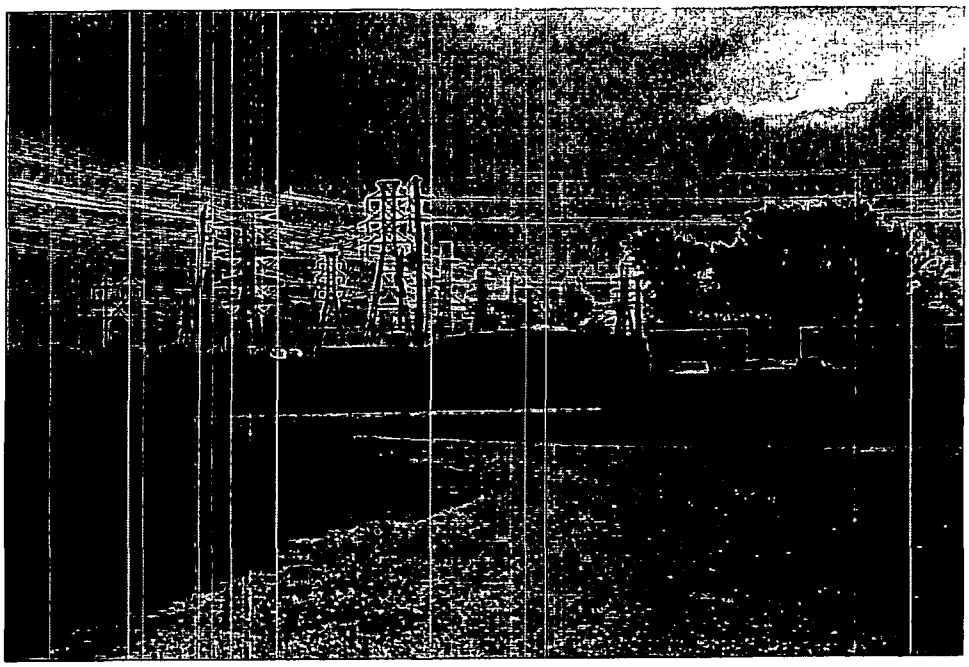


Photograph 7: View toward the west showing the west trending drainage ditch leading to Cedar Bayou. The north property boundary is defined by the metal chain-link fence. Photograph taken by Johnny Kennedy on March 5, 1999.



Photograph 8: View toward the northwest showing the on-site well and holding tanks. Photograph taken by Johnny Kennedy on March 5, 1999.

Photograph 9: View toward the west showing the nearest residences located across Cedar Bayou. The metal fence in the foreground divides the developed area and the undeveloped area. Photograph taken by Johnny Kennedy on March 5, 1999.



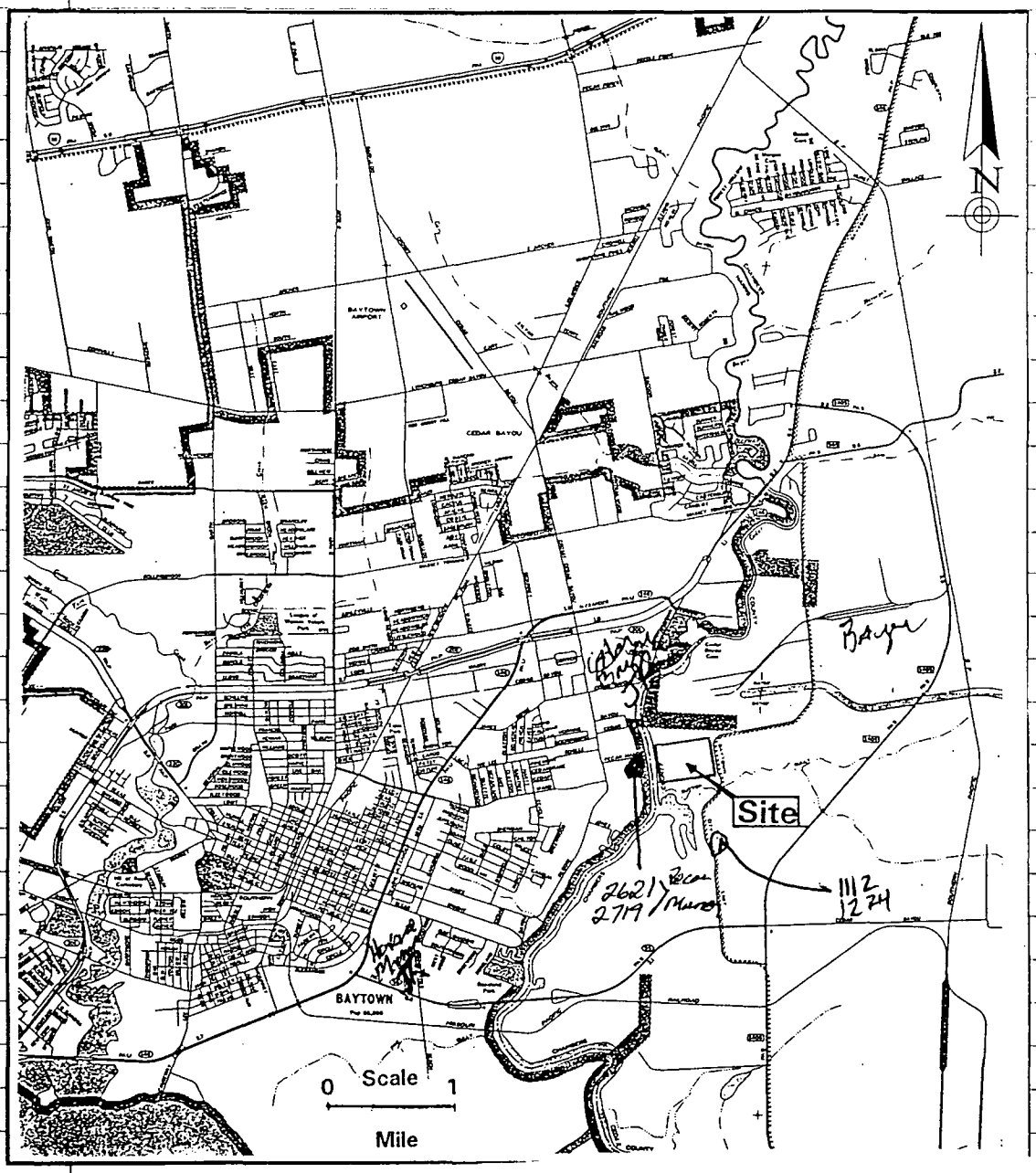
Photograph 10: View toward the east - northeast showing the Fine Organics office buildings on the right, and the nearest business (H.P. Gas Products) in the center background. Photograph taken by Johnny Kennedy on March 5, 1999.

BOOKMARK

Appendix B
Field Logbook

PRELIMINARY
ASSESSMENT

FINE ORGANICS
BAYTOWN, TEXAS
TXD 981 606 932



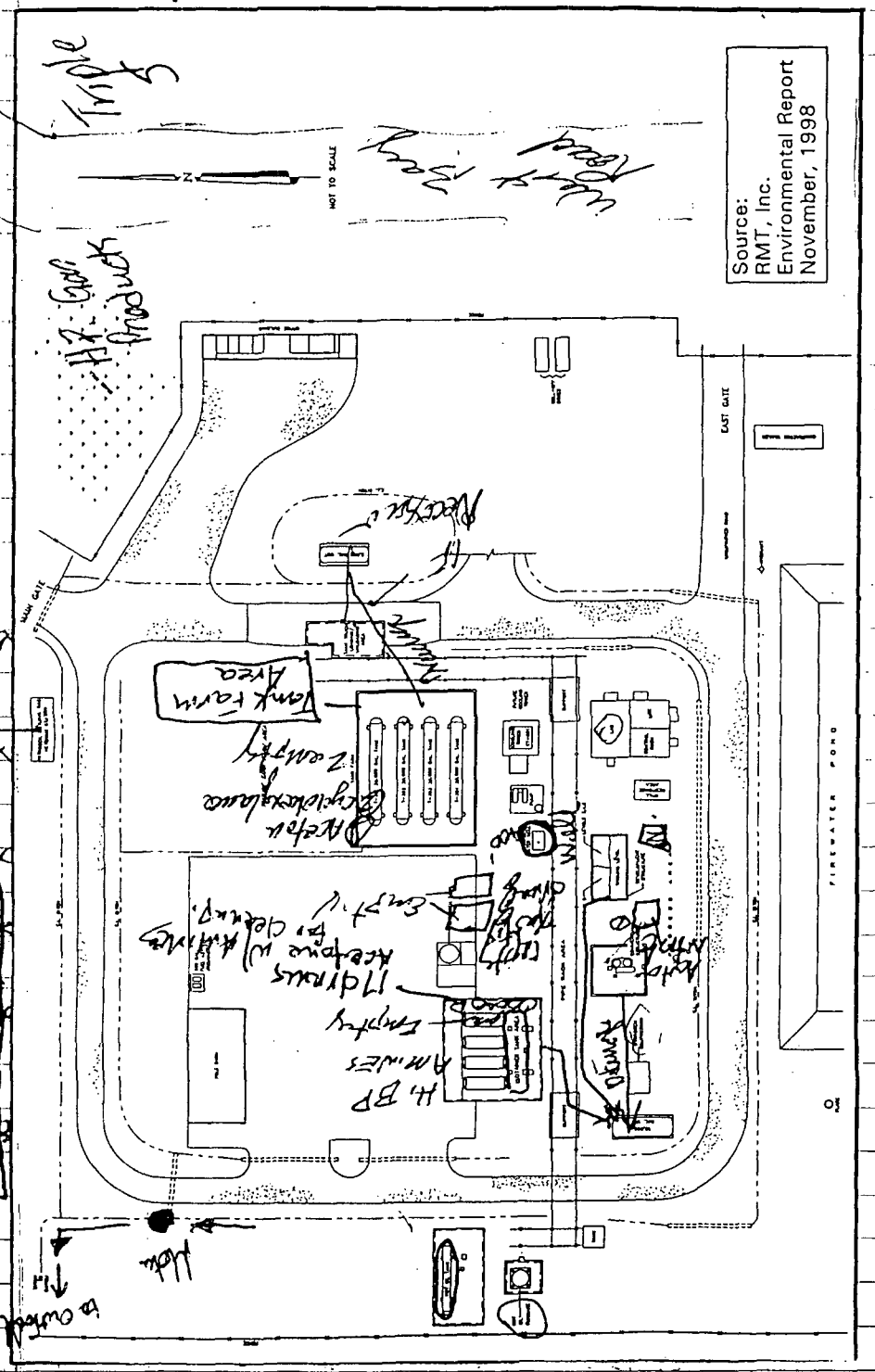
Nearest Resident across Cedar Bayou
2621 & 2719 Pecan Manor
Nearest School - Cedar Bayou Jr. High
To NW across Cedar Bayou.

03552

2/5/04

4

3/5/99


NOT TO SCALE
Source:
RMT, Inc.
Environmental Report
November, 1998
MAIN GATE
EAST GATE
FIREWATER POND

3/5/99
9:20 Leave Region 12 office
Johnny Kennedy
Judie Mattock
JoAnn Rudison

Follow Scott Mayo of the TNRCC
Region 12 office to the Fine
Organics Site

Arrive at Site
Meet with Rodman Eggen
Brad Hearn
Dennis Hearn

Conduct H&S Briefing at the job
trailer

Brad Hearn & Mr. Eggen take
Scott Mayo for his inspection
Mr. Dennis Hearn takes Johnny Kennedy
and Judie Mattocks on Site
Tour

Notations on Site Map.
Photographs Starting on page 50

Inactive - Maintenance Now

Johnny Kennedy
3/5/99

00001

3/5/99

Dennis Hearn - V.P.
Brad Hearn (His Son)

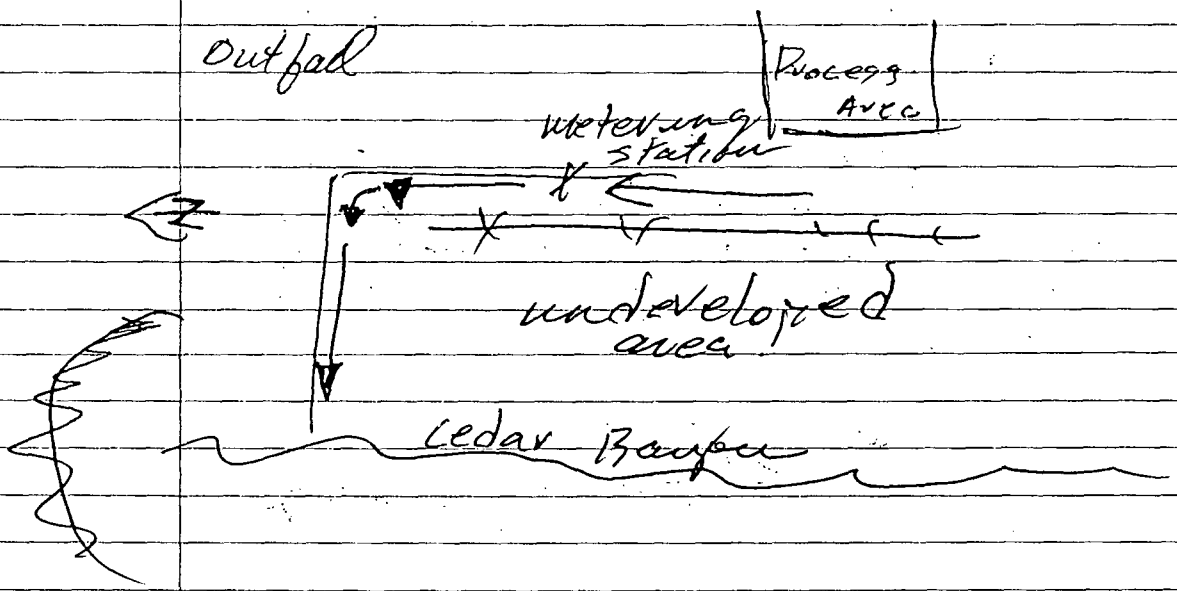
One well on-site - use bottled water for drinking

Tank farm Area - 2 empty 1) Acetone
2) Cyclohexylamine

Drains w/ truck wash area when necessary to 5K UST

Isotainer tank area - One empty -
High boiling pt amines -
17 drum - Acetone w/ Amine from cleaning of Spill.

Process area and the isotainer area drain to 10K UST



00005

John Dennis
3/5/99

Other Features -
Fire water Pond - South of Process area
Flare
Lab & Control Room

East Gate Not Used as shown on the Map. All comes through the main gate

HCP located North of Site

00006

John Dewey
3/5/99

3/5/99

11:00 Leave Site and begin Offsite Reconnaissance

H.P. GAS Products
Triple S Equip. ← Well
Bay Area Shooting
H&P
Bayr

3 Residences < 1/2 mile South of Site on West Bay Rd
6114 West Bay Rd
6022 " " "
other Unknown

11:33 Leave Area

John [illegible]
3/5/99

00007

50

3/5/99

Photo #

1 West towards outfall towards canal 10:15

2 South along outfall 10:16

3 Panoramic view from NW corner of developed property 10:18

4 Isotainer tanks & loading area - SW 10:25

5 SW pond & flain - 10:32

6 W Distillation tower 10:33

7 N Isotaner tank area 10:35

8 NW Hot oil tank 10:36

9 W-NW on-site well 10:38

10 SE transamerica tank #704 10:40

11 W residence across cedar bayou 10:45

12 E Nearest adjacent business 10:47

Mr. Eggan bought this property in 1983 from Cecil Haden.

[signature] 3/5/99

00003

3/5/99

10:55 GPS AT OFFICE

FILE NO. R030516A

3/5/99

BOOKMARK

Appendix C
References

Documentation Record
Preliminary Assessment
Fine Organics Site

Document 1 (Ref. 5): A June 21, 1999 TNRCC Interoffice Memorandum providing the estimated population within the target radii from the Fine Organics site based upon 1990 census population data. The estimated population residing within each radius is provide as well as a census block map showing the four mile radius.

Document 2 (Ref. 7): A TNRCC Interoffice Memorandum (IOM), dated December 16, 1998, from Denise Espinosa, Bankruptcy Program Manager, to Scott Mayo, Field Operations Division, Region 12. This document provides a brief chronological summary of the bankruptcy history of the Fine Organics site. Documents attached with this IOM include:

- A November 5, 1998 letter from Flora A. Fearon, Assistant Attorney General, Bankruptcy & Collections Division, Office of the Attorney General, State of Texas, to Denise Espinosa, Bankruptcy Program Manager, TNRCC forwarding a copy of the *Order Approving Sale of Property Free and Clear of Liens* for the Fine Organics facility.

- An Order Approving Sale of Property Free and Clear of Liens, in regards tot he Chapter 7 bankruptcy of the Fine Organics Corporation, Case No. 97-50165-H4-7, signed by the Honorable William R. Greendyke, United States Bankruptcy Judge on October 30, 1998.

Document 3 (Ref. 8): A July 1, 1999 Telephone Memo to the File from Johnny Kennedy, SSDAT, TNRCC, Region 12-Houston, to Rodman Eggen, West Bay Organics. This document provides information on the history of the Fine Organics facility and the subsequent purchase of the facility by West Bay Organics.

Document 4 (Ref. 10): An August 9, 1985 cover letter from Clair A. Carden, P.E., Consulting Engineer for Hansa Manufacturing Company, to Mr. Charles E. Nemir, P.E., Executive Director, Texas Department of Water Resources, in which, Mr. Carden forwards an application for a waste discharge permit for Hansa Manufacturing. This letter states that the application was revised following its withdrawal on July 23, 1985.

Document 5 (Ref. 11): A Texas Water Commission Permit to Dispose of Waste for Hansa Manufacturing Company, Permit No. 02777 (corresponding to NPDES Permit No. TX0098604). This permit was a renewal of Permit No. 02777, approved January 28, 1986. Provisions of the permit are outlined throughout the document.

Document 6 (Ref. 12): A U.S. Environmental Protection Agency Authorization to Discharge Under the National Pollutant Discharge Elimination System, signed and issued to Hansa Manufacturing Company on June 30, 1992. The provisions outlined within this permit (Permit No. TX0098604) were to become effective on August 11, 1992.

Document 7 (Ref. 13): A Texas Water Commission Transfer of Texas Water Commission Permit No. 02777 from Hansa Manufacturing Company to RDK, L.C. notice issued on April 30, 1993.

Document 8 (Ref. 14): A December 6, 1994 TNRCC letter from John R. Ward, Team Leader, Water Quality Management, Region 12, to Mr. Rodman Eggen, President, RDK, L. C. notifying Mr. Eggen that an inspection had been conducted at the plant site, but the plant had not yet been constructed. Mr. Ward request that the TNRCC be notified 45 days prior to start-up of the facility. The inspection report is attached to this document.

Document 9 (Ref. 15): A TNRCC Application for Renewal of Permit to Discharge, Deposit or Dispose of Industrial Wastewater into or Adjacent to Water in the State for the Fine Organics Corporation (Permit No. 02777). This document, signed on December 14, 1995, and was for renewal of the permit to expire on May 2, 1996.

Document 10 (Ref. 16): A Texas Water Commission Transfer of Texas Water Commission Permit No. 02777 from Hansa Manufacturing Company to Fine Organics Corporation, Inc. notice issued on March 5, 1996.

Document 11 (Ref. 17): A TNRCC Permit to Dispose of Waste for the Fine Organics Corporation, Permit No. 02777 (corresponding to NPDES Permit No. TX0098604), issued on September 13, 1996. This permit was a renewal of Permit No. 02777, approved May 2, 1991. Provisions of the permit are outlined throughout the document.

Document 12 (Ref. 18): An October 21, 1996 letter from Cyndy Duff, Administrative Manager, Fine Organics Corporation, to TNRCC Program Support Team, Agriculture and Water Shed Management Division notifying the agency of the plant start up.

Document 13 (Ref. 19): A January 26, 1999 letter from Linda Kay Cook of the law firm Meredith, Donnell & Abernethy, to Michelle Ruckstuhl, TNRCC concerning the Fine Organics application for renewal of NPDES Permit No. TX0098604. Included with this document is the January 1997 Fine Organics Corporation, Chambers

Document 13 - Continued: Plant, Application for Renewal of the NPDES Permit No. TX0098604 submitted to the U.S. Environmental Protection Agency on February 31, 1997.

Document 14 (Ref. 20): A May 13, 1997 Facsimile Message from Rod Eggen, Fine Organics Corporation, to Michelle Ruckstuhl, TNRCC. Attached to this facsimile coversheet is a letter from Rod Eggen of the Fine Organics Corporation to Cathy Shoemaker, Toxicity Evaluation Team, Water Quality Division, TNRCC in which Mr. Eggen describes commencement of plant operations and Fine Organics handling of stormwater and wastewater.

Document 15 (Ref. 21): A November 12, 1997 letter from R.L. Rosengarten, P.E., President, RSA, Inc. to Scott Mayo, TNRCC in which Mr. Rosengarten describes two separate spill events which occurred at the Fine Organics facility on May 4, 1997 and May 5 and 6, 1997.

Document 16 (Ref. 22): A June 10, 1997 letter from John R. Ward, Team Leader, Water Quality Management, Region 12-Houston, TNRCC , to Rod Eggen, President, Fine Organics Corp., Inc. in which Mr. Ward forwards a copy of a May 20, 1997 compliance inspection report of the wastewater treatment facility at the Fine Organics plant (Permit No. 02777-000).

Document 17 (Ref. 23): A September 30, 1997 TNRCC letter from Janet Wyman, Applications Team/Wastewater Permit Section, Agriculture & Watershed Management Division, to Fine Organics Corporation, notifying Fine Organics that Permit No. WQ0002777-000 was to expire at midnight on September 12, 1998. This letter also states that an application for renewal of the existing permit must be filed 180 days prior to the date of expiration.

Document 18 (Ref. 24): A TNRCC Interoffice Memorandum from Scott Mayo, Environmental Investigator, Region 12-Houston Office, to Denise Espinosa, in which Scott Mayo describes a site visit to the Fine Organics facility on October 29, 1997. He also describes an inventory of all waste materials contained on-site.

Document 19 (Ref. 25): An August 18, 1998 U.S. Environmental Protection Agency NPDES Compliance Inspection Report for the Fine Organics Corporation facility documenting conditions during a June 10, 1998 inspection. Findings of this inspection include:

- Failure to maintain NPDES compliance records
- Failure to sample and analyze uncontaminated stormwater prior to discharge
- Failure to monitor outfall 001 using NPDES permit required totalizing meter

Document 20 (Ref. 26): A U. S. Environmental Protection Agency, Region 6, Findings of Violation and Order for Compliance in the matter of Fine Organics Corporation, Permit No. TX0098604, CWA Docket No. VI-99-0014. This violation and compliance order addresses the violations documented during the U.S. Environmental Protection Agency's compliance inspection conducted on June 10, 1998.

Document 21 (Ref. 27): A February 25, 1999 letter from Rod Eggen of West Bay Organics, L.C., to Ms. Diana McDonald, USEPA (6EN-WC), Region 6, in which Mr. Eggen addresses the deficiencies/violations outlined in the Compliance Order (CWA Docket No. VI-99-0014) issued to Fine Organics on 10/30/98. Also in this letter, Mr. Eggen states that West Bay facility had not operated since its purchase on November 13, 1998, except for the four day period of January 13 through January 17, 1999.

Document 22 (Ref. 28): A TNRCC Notice of Registration, Industrial and Hazardous Waste for West Bay Organics, L.C., Solid Waste Registration Number 37507: EPA Id: TXD981606932.

Document 23 (Ref. 29): This document consists of five (5) TNRCC Uniform Hazardous Waste Manifest for waste materials transported from the West Bay Organics, L.C., facility on February 10 and 11, 1999.

Document 24 (Ref. 30): This document provides information on the geologic and hydrologic units in Chambers and Jefferson Counties, Texas, and the ground water resources for these areas.

Document 25 (Ref. 31): This document provides information on the geologic and hydrologic framework along the Coastal Plain of Texas. There are eleven (11) dip cross sections and one (1) strike cross section included within the report.

Document 26 (Ref. 32): This document provides information on the geologic and hydrologic framework for the Texas Coastal Plain. There are four dip cross sections and one strike cross section showing stratigraphic boundaries, hydrologic boundaries, and the limits of fresh water.

Document 27 (Ref. 33): This document provides contour lines of equal land subsidence for the Houston area including the Baytown area in Harris and Chambers Counties.

Document 28 (Ref. 34): This document provides information on the Evangeline and Chicot aquifer along the Gulf Coast Plain of Texas.

Document 29 (Ref. 35): This document provides information concerning the classified water quality segments along the surface water pathway. These segments include Cedar Creek Tidal (0901), Tabbs Bay (2426), Upper Galveston Bay (2421), and Trinity Bay (2422).

Document 30 (Ref. 36): This document provides information concerning the rainfall in the vicinity of the Fine Organics site.

Document 24 (Ref. 37): This document provides information on the surface and shallow subsurface soils, a general description of the geology, and information concerning the climate of Chambers County.

Document 33 (Ref. 42): A July 7, 1999 Telephone Memo to the File from Johnny Kennedy, SSDAT, TNRCC, Region 12-Houston, to Rodney LeBlanc, Chief Certified Operator, City of Baytown Public Water Supply. This document provides information on the City of Baytown's public water supply system.

Document 34 (Ref. 43): A July 7, 1999 TNRCC Fax Transmittal from Matt Court, Water Utilities Division, TNRCC, to Johnny Kennedy, TNRCC Region 12. This document lists the five (5) wells in public water supply system 1010003 which are wellhead protection areas within a 4-mile radius of the Fine Organics site. Attached maps show the location of each well.

Document 35 (Ref. 44): A July 6, 1999 TNRCC Fax Transmittal from Matt Court, Water Utilities Division, TNRCC, to Johnny Kennedy, TNRCC Region 12. This document states that no surface water intakes are located within the downstream distance of the Fine Organics site, and the only one public water supply system is currently involved in wellhead protection within a 4-mile radius of the Fine Organics site.

Document 36 (Ref. 45): This document consists total county population and population per household data for Harris and Chambers County. This information was downloaded from the U.S. Census Bureau internet webpage: www.census.gov

Document 37 (Ref. 47): This document is published by the Galveston Bay National Estuary Program and provides information on the Galveston Bay System.

Document 38 (Ref. 48): A July 2, 1999 Telephone Memo to the File from Johnny Kennedy, SSDAT, TNRCC, Region 12-Houston, to Becky Power, H.P. Gas Products, Inc., Baytown, Texas. This document provides information on the facility's ground water well and number of permanent employees.

Document 39 (Ref. 49): A July 7, 1999 Telephone Memo to the File from Johnny Kennedy, SSDAT, TNRCC, Region 12-Houston, to Mary Rakestraw, Triple S Equipment Company, Baytown, Texas. This document provides information on the facility's ground water well and number of permanent employees.

Document 1

Texas Natural Resource Conservation Commission

INTEROFFICE MEMORANDUM

Population Around Coordinates of Fine Organics
Baytown, Chambers County, Texas

RECEIVED
JUN 23 1999
REGION 12

Location of site: Latitude 29.7430 degrees N
Longitude 94.9238 degrees W

The following estimated population totals are based on block-level 1990 U.S. Census Bureau data, which is the most current and detailed population data available. Since census blocks vary in size and since some blocks lie only partially within a circle described by a given radius, these numbers were computed by averaging the highest and lowest possible population totals for each radius.

Radius (mi)	Highest	Lowest	Average
.25	11	0	5
.5	1,118	4	561
1	3,377	1,369	2,373
2	15,334	12,143	13,738
3	33,868	27,868	30,868
4	47,435	41,071	44,253

Based on these average statistics, the estimated total population that lives within each distance range from the site can be computed:

Distance Range (mi)	Estimated Population
0 to .25	5
.25 to .5	556
.5 to 1	1,812
1 to 2	11,365
2 to 3	17,130
3 to 4	13,385

01001

Michael McDonough
GIS Section

June 21, 1999
CRF 990617116

fine_organics

01002

1990 Census Block Boundaries and Populations

4 Mile Radius Circle Centered on Latitude 29.743 N, Longitude 94.9238 W

990617116

mmcdonou

Document 2

Texas Natural Resource Conservation Commission

INTEROFFICE MEMORANDUM

To: Scott Mayo,
Field Operations Division, Region 12

Date: December 16, 1998

From: Denise Espinosa
Bankruptcy Program Manager

RECEIVED
DEC 17 1998
REGION 12

Subject: Fine Organics Corporation

As you know, Fine Organics Corporation filed for bankruptcy protection under Chapter 7 on October 15, 1997. We referred this case to the Office of the Attorney General on November 14, 1997 to require the debtor to comply with all environmental laws including the proper disposal of drums located at the debtor's property.

The Trustee used several thousand dollars of estate funds for removal/stabilization of the site. The remaining removal/remediation will be the buyer's responsibility per the attached Order Approving the Sale of Property Free and Clear of Liens which was signed by Judge William Greendyke on October 30, 1998.

It appears that the Bankruptcy Program, working in close contact with you, has taken the necessary actions to have all issues in this case addressed. Accordingly, we are closing our bankruptcy file.

Thank you very much, Scott, for all of your assistance in this case. Because of your efforts, the State avoided the burden and significant costs associated with an Emergency Response action at this site. Well done, Scott!

Attachment

cc: Marsha Hill, Waste Program Manager, Region 12
Nicole Bealle, Field Operations Division, Region 12
Kathy Frew, Financial Administration Division

RECEIVED
NOV 06 1998

Office of the Attorney General
State of Texas

DAN MORALES
ATTORNEY GENERAL

November 5, 1998

Denise Espinosa
Bankruptcy Program Manger
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087

Re: Fine Organics Corp.
filed in the United States Bankruptcy Court for the Southern District of Texas, Houston Division
Case No. 97-50165-H4-7

Dear Denise:

Enclosed is a courtesy copy of the *Order Approving Sale of Property Free and Clear of Liens* that was entered by the Court on October 30, 1998.

Please let me know if I can be of further assistance.

Respectfully,

Flora A. Fearon

Flora A. Fearon
Assistant Attorney General
Bankruptcy & Collections Division

P.O. Box 12548
Austin, Texas 78711-2548
Phone: (512) 463-2173
Fax: (512) 482-8341

02002

United States Courts
Southern District of Texas
ENTERED
OCT 3 0 1998
Michael N. Milby, Clerk of Court

IN THE UNITED STATES BANKRUPTCY COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

IN RE:	§	
	§	
FINE ORGANICS CORPORATION,	§	CASE NO. 97-50165-H4-7
	§	CHAPTER 7
Debtor.	§	

ORDER APPROVING SALE OF PROPERTY FREE AND CLEAR OF LIENS

On the 7th day of October, 1998, came on to be heard before the Court the Trustee's Motion to Sell Property Free and Clear of Liens, Motion to Estimate Certain Lien Claims; and Request for Expedited Hearing (the "Sale Motion") and the Emergency Motion to Assume and Assign Executory Contracts with Catalytic Distillation Technologies ("CD Tech") filed by Rodney Tow, Chapter 7 Trustee ("Trustee"), and the Court having heard evidence and the testimony presented and having taken into consideration the objections filed by Rodman Eggen, Sasol Holdings (Netherlands), B.V., a private liability company, the Texas General Land Office, the Texas Natural Resource Conservation Commission, and Conex International, is of the opinion that the Sale Motion should be GRANTED. It is, therefore,

ORDERED that

1. The Trustee is hereby authorized to sell substantially all of the real and personal property of the Debtor to West Bay Organics, L.C. ("Purchaser") on or before November 14, 1998, for the total purchase price of $875,000 in cash, plus the assumption of all of the obligations and claims of Rodman A. Eggen ("Eggen") and the F.S. Grantor Trust, specifically including, but not limited to, the assumption of the claims arising out of that certain Real Estate Lien Note dated August 7, 1995 in the original principal amount of $711,000, payable to Eggen by Fine Organics Corporation (the "First Lien Note") and secured by that certain Deed of

Trust and Security Agreement of even date therewith, as filed in the Official Public Records of Chambers County, Texas under Clerk's File No. 95-273578, *et seq*. The real property to be sold is described in Exhibit "A," attached hereto and incorporated herein (the "Property"). The personal property to be sold is described in Exhibit "B," attached hereto and incorporated herein (the "Personal Property").

2. On or before 5:00 p.m., Saturday, November 7, 1998, West Bay Organics, L.C. must lodge with the Trustee, in writing, its Notice of Intent to Proceed with Closing and provide the Trustee and his counsel with demonstrable proof of ability to close. In the event that West Bay Organics, L.C. fails to provide adequate assurance of closing and to close the sale herein approved on or before November 14, 1998, the Trustee is hereby authorized to sell the Property and the Personal Property to David A. Swallow ("Swallow") or his nominee for the cash sum of $1,410,000, such bid having been designated herein as the approved Back-Up Bid. The Trustee shall give notice to Swallow of the failure of West Bay Organics, L.C. to close and Swallow shall then have five (5) business days to advise the Trustee and his counsel, in writing, of his objection to proceeding to close on the Back-Up Bid and, absent objection, Swallow shall close the sales transaction herein approved within thirty (30) days of the Trustee's notice that the Back-Up Bid has been designated as the approved sale bid to close under the terms and conditions of this Order. If Swallow does not notify the Trustee of his intention to close the transaction herein approved within the five-day period, the Trustee shall return the Swallow earnest money deposit.

3. The Property and Personal Property are sold free and clear of liens, with the exception that should West Bay Organics, L.C. be the Purchaser, West Bay Organics, L.C. takes the Property subject to its assumption of the Eggen liens. The Court specifically finds that the

Trustee is authorized to sell the Property and Personal Property pursuant to 11 U.S.C. § 363(f)(4) & (5). The terms and conditions of the sale are those stated and announced on the record at the hearing conducted by this Court on October 7, 1998, and which are contained in that certain Asset Purchase Agreement attached hereto as Exhibit "C" and made a part hereof for all intents and purposes, submitted to the Trustee on October 6, 1998, which terms and conditions, to the extent not inconsistent herewith nor conclusive of damages for failure to close, are incorporated herein and made findings of fact and conclusions of law pursuant to Bankruptcy Rule 7052.

4. Upon closing of the sale of the Property and Personal Property, Purchaser shall take the necessary steps to effect the transfer and/or change of ownership with any and all appropriate regulatory authorities, including, but not limited to, taking the necessary steps to effect the transfer and/or change of ownership of any easements on the Property with the Texas General Land Office and any other appropriate regulatory agency within thirty (30) days of this Order becoming a final order.

5. Upon closing of the sale of Property and the Personal Property, the Purchaser shall remedy the following environmental problems and claims of the Texas Natural Resource Conservation Commission (the "TNRCC") within 90 days of the date of closing:

(i) Removal of contaminated dirt;

(ii) Insuring that levels of underground waste water tanks are maintained at levels satisfactory to the TNRCC;

(iii) The removal and proper disposal of all remaining barrels of chemical waste and waste material which are located at the Property, estimated to be approximately 40 to 50 barrels of chemical waste; and

(iv) The sale of the Property and Personal Property free and clear of liens does not extinguish any environmental claims of the TNRCC against Purchaser for failure to remedy existing environmental problems located on the Property.

Notwithstanding anything to the contrary in the Order, the TNRCC may assert any and all liability claims against the Purchaser for any other environmental hazards on the Property, known or unknown.

6. The Purchaser (and Swallow should his Back-Up Bid be designated as the Purchaser) is specifically entitled to the rights and protections afforded pursuant to 11 U.S.C. § 363(m).

7. The Court further specifically finds that there are no warranties attached to the sale of the Property and Personal Property, other than those which may be announced on the record at the October 7, 1998 hearing and that the Property and Personal Property of the Estate are being sold "AS IS, WHERE IS, and WITH ALL FAULTS."

8. Provided that West Bay Organics, L.C. closes the sale herein approved, that certain License Agreement between Catalytic Distillation Technologies and Fine Organics Corporation dated January 1, 1994 (the "License Agreement") and that certain Catalyst Agreement between Catalytic Distillation Technologies and Fine Organics Corporation dated January 1, 1994 (the "Catalyst Agreement") (collectively, the License Agreement and the Catalyst Agreement are referred to as the "CD Tech Agreements") shall be assumed by the Trustee and assigned by him to West Bay Organics, L.C. under the following terms and conditions:

a. The License Agreement is modified effective as of the closing date of the sale transaction, as approved by this Order and as provided in Exhibit "C" attached hereto, and the License Agreement, as modified, constitutes the License Agreement

assumed and assigned by the Trustee on behalf of the Debtor to West Bay Organics, L.C.

b. That West Bay Organics, L.C. be, and hereby is, directed to pay the cure amounts of $85,590 principal, plus accrued interest at the rate of prime plus two percent (2%) based upon the rate quoted by Chase Manhattan Bank of New York, which is owed to CD Tech with respect to the CD Tech Agreements (the "Cure Payment"), and that CD Tech, upon closing of the sale transaction to West Bay Organics, L.C. herein approved, hereby releases its claim filed against the Estate.

c. West Bay Organics, L.C. and CD Tech shall agree by the closing date of the sale transaction to West Bay Organics, L.C., herein approved, as to what constitutes a reasonable time period in which West Bay Organics, L.C. will make the Cure Payment to CD Tech. Absent agreement between West Bay Organics, L.C. and CD Tech as to a reasonable time period for making the Cure Payment, the Bankruptcy Court shall determine such time period on request of either party by motion filed with the Bankruptcy Court.

9. In the event that Swallow is the purchaser that closes the sale transaction approved by this Court, the Trustee shall be deemed to have rejected the executory contracts with CD Tech and CD Tech shall be authorized, and is hereby directed, to undertake the removal of all catalyst from the Property and to effect such removal so that no harm arises to the Property and that the removal shall be in accordance with all applicable environmental and other regulatory authority regulations and shall so indemnify this Estate. The Trustee and Swallow are directed to provide CD Tech with whatever assistance and cooperation that CD Tech may reasonably request in effecting the removal. Further, upon rejection of the CD Tech

Agreements, all documents and technology which have been supplied to or developed by Fine Organics Corporation under or pursuant to the CD Tech Agreements shall be surrendered to CD Tech by the Trustee or any other party in possession of said documents or technology. Prior to the closing of the sale to Swallow, the Trustee shall assist and turn over to CD Tech all technology and documents subject to the CD Tech Agreements.

10. The Court has taken into consideration the objections filed by Sasol Holdings (Netherlands), B.V., a private liability company, Rodman Eggen, the Texas General Land Office, the TNRCC, and Conex International and those objections are hereby overruled and the Court finds that the proposed sale is in the best interests of the Estate and its creditors.

11. Any and all findings of fact and conclusions of law as announced by the Court are specifically incorporated in this order pursuant to Bankruptcy Rule 7052.

12. Any valid and outstanding tax liens are hereby transferred to the proceeds of the sale. In making such a determination, the Court is not presently ruling on the validity or invalidity of any such tax liens, such ruling to be deferred until the appropriate motion or agreement is presented to the Court. The *pro rata* share of 1998 ad valorem taxes to be assessed against Purchaser shall be paid at closing by Purchaser and that *pro rata* share of 1998 ad valorem taxes owed by the Estate shall be transferred to the proceeds of sale to be disbursed in accordance with further order of this Court.

13. The closing of the sale to West Bay Organics, L.C. shall include the assumption of the Eggen claims without Eggen having further recourse against this Estate. However, solely for the purposes of administering the Estate, the withdrawal of Eggen's claim against the Estate on the First Lien Note shall be deemed valued in the amount of $600,000, as if Eggen were receiving an actual disbursement of funds from the Estate. However, nothing contained in

this Order constitutes a waiver of any rights, claims, or causes of action that the Estate may have against Eggen, including, but not limited to, any claim or cause of action with respect to the Fine Organics Corporation purchase of the Property from Eggen in August 1995, and which have not otherwise been raised to date hereof in Adversary No. 98-3488. Should the sale to West Bay Organics, L.C. not close, Eggen's and F.S. Grantor Trust's liens and claims against the Estate and its property shall not be considered altered or in any way affected by this Order.

14. Unless Swallow becomes the purchaser, ~~A~~ Swallow is hereby allowed the sum of $20,000 as the break-up fee to which he is entitled under the terms of the Final Order Approving Competitive Bidding Procedures.

SIGNED: 10/30, 1998

William Greendyke

HONORABLE WILLIAM R. GREENDYKE
UNITED STATES BANKRUPTCY JUDGE

APPROVED AS TO FORM AND SUBSTANCE:

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EXHIBIT "A"

BEING a parcel or tract of land in the CHRISTIAN SMITH LEAGUE, Abstract No. 22, Chambers County, Texas, and being that same parcel conveyed by Fenno D. Ball, et al. to R.D. Haden by Deed, dated March 18, 1878, recorded in Volume "B," Page 578 of the Deed Records of Chambers County, Texas, said to contain 45.25 acres of land, more or less, but found upon a re-survey to contain 48.791 acres of land, and being more particularly described by metes and bounds as follows, to-wit:

BEGINNING at a fence post on the East bank of Cedar Bayou, the Southwest corner of the Lizzie Wilburn Estate 34.95 acre tract and the Northwest corner of this tract;

THENCE a true bearing of North 80° 12' 22" East following the common boundary between the Haden and Wilburn Estates tracts as fenced, at 1942.77 feet passed a 1.0 foot North of, and 0.35 foot West of, a fence corner in the West right-of-way of a County Road at 1975.27 feet passed the Southeast corner of said Wilburn Estate tract, in the center of said Road, and Southwest corner of the Annie Schilling Estate original 360 acre tract, as described in a deed of record in Volume "H," Page 176 of the Deed Records of Chambers County, Texas, in all a total distance of 2155.30 feet to the Northeast corner of this tract in the center of a County Road, said corner is situated 3.29 feet North 10° 17' 08" West of an iron rod found in said road;

THENCE South 10° 17' 08" East with center of a County Road and entering the right-of-way of F.M. Highway No. 1405, and with the center of said latter named Highway, at 3.29 feet passed aforesaid iron rod, and at 991.75 feet to corner in said F.M. Highway No. 1403, the Southeast corner of this tract and the Northeast corner of the C.D. Ehrhardt so-called 45.25 acre tract;

THENCE South 80° 52' 17" West at 40.0 feet crossed the West right-of-way fence of F.M. Highway No. 1405, at a fence corner, and following with a fence, a total distance of 1275.51 feet to a fence corner and angle in the common boundary fence between the Haden tract and the Ehrhardt tract;

THENCE continuing with said common boundary as fenced, South 79° 44' 37" West 886.00 feet to a post on the East bank of Cedar Bayou, the Southwest corner of this tract and the Northwest corner of the C.D. Ehrhardt tract;

THENCE with the meanders of the East bank of Cedar Bayou, North 10° 46' 53" West 591.11 feet and North 08° 39' 38" West 393.10 feet to the PLACE OF BEGINNING, containing within said boundaries, 48.791 acres of land, there being 0.993 acre in the right-of-way of said County Road and F.M. Highway No. 1405, leaving a net acreage of 47.798 acres of land.

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EXHIBIT
A

EXHIBIT "B"

Personal Property to Be Purchased

1. equipment located at the Fine Organics Corporation chemical plan located at 6655 West Bay Road, Baytown, Texas, in Chambers County, Texas, excluding any equipment that is leased and/or rented unless Purchaser seeks to have assigned the lease and agrees to pay all cure costs related to assumption;

2. inventory of chemicals, including those contained in barrels or other containers owned by Fine Organics Corporation;

3. use of the name of Fine Organics Corporation;

4. permits and licenses to the extent of Fine Organics Corporation's rights therein as presently exist, including, but not limited to:

TNRCC Air Emissions Permit No. 9564;
TNRCC Standard Exemption Registration Permit No. 31384;
TNRCC Discharge Permit No. 02777;
USEPA PSD Permit No. PSD-TX-670;
USEPA NPDES Permit No. TX-0098604;
Texas General Land Office Coastal Easement Permit No. LC-89-051;
U.S. Army Corps of Engineers Construction Permit No. 17197;
Port of Houston Authority Permit No. 17197;
Chambers County, Texas Development Permit No. 55; and
Texas Water Development Board Permit No. 368512;

provided, however, that any cure obligations shall be the responsibility of Purchaser;

5. tangible personal property of any nature owned by Fine Organics Corporation and located at 6655 West Bay Road, Baytown, Texas;

6. contract rights of Fine Organics Corporation to the extent that the contract rights can be assumed and assigned by Seller and that cure obligations are paid by Purchaser; and

7. tax abatement with Chambers County and Lee College.

EXHIBIT
B

ASSET PURCHASE AGREEMENT

THIS ASSET PURCHASE AGREEMENT (the "Agreement") is entered into by and between West Bay Organics, L.C. ("Purchaser") and Rodney Tow, Trustee of the Bankruptcy Estate of Fine Organics Corporation, Case No. 97-50165-H4-7 ("Seller").

WHEREAS, Seller owns certain real property, improvements, personal property and intangible property utilized for the production of specialty chemicals (referred to as the "Purchased Assets"); and

WHEREAS, Fine Organics Corporation is currently in a Chapter 7 bankruptcy case being administered by Rodney Tow, Chapter 7 Trustee (the "Trustee"); and

WHEREAS, Purchaser desires to purchase from Seller, and Seller desires to sell to Purchaser, the Purchased Assets upon the terms and conditions hereinafter set forth;

NOW, THEREFORE, in consideration of the premises and of the mutual promises, agreements and covenants herein contained, the parties, intending to be legally bound, hereby agree as follows:

Section 1
Purchase of Assets

1.1 Purchased Assets. At the Closing of the sale and purchase of the Purchased Assets, as contemplated by this Agreement (the "Closing"), subject to the terms and conditions of this Agreement, Seller hereby agrees to sell, assign, convey, transfer and deliver to Purchaser, and Purchaser hereby agrees to purchase, accept and acquire from Seller, all of Seller's rights, title and interest in and to all of the real property, improvements, personal property, and intangible property owned by Seller comprising the Purchased Assets, wherever located. A detailed description of the Purchased Assets is attached hereto as Exhibit "A" and made a part hereof for all purposes.

1.2 Approval of Bankruptcy Court. The Closing shall be contingent upon obtaining a final, non appealable Order and/or an Order acknowledging Purchaser to be a purchaser under Section 363(m) of the Bankruptcy Code from the United States Bankruptcy Court for the Southern District of Texas, Houston Division approving this transaction and authorizing the sale of the Purchased Assets free and clear of all liens, claims and encumbrances, except those specifically provided for in this Agreement, and approving the assumption and assignment of the License Agreement and Catalyst Agreement between Seller and Catalytic Distillation Technologies ("CD Tech") in accordance with 11 U.S.C. § 365 (the "Sale Order"). Purchaser in its sole discretion may waive the requirement that the Sale Order be a final order. The Trustee agrees to submit this Agreement to the Bankruptcy Court and to provide notice to all creditors and parties in interest in accordance with the terms of the Final Order Setting Bidding Procedures, entered by the Clerk of the Court on September 17, 1998 (the "Bid Order").

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EXHIBIT C

1.3 No Assumption of Liability Other Than as Specified.

Except as specified in this Agreement, it is hereby expressly understood and agreed that Purchaser does not assume or agree hereunder to pay, perform or discharge any debt, claim, lien, obligation, contract, agreement, tax or liability, known or unknown, contingent or otherwise, of Seller or the Seller's Chapter 7 bankruptcy estate of any kind or nature whatsoever, including but not limited to those relating to the Purchased Assets.

Section 2
Earnest Money; Purchase Price; Title Matters

2.1 Earnest Money. Purchaser shall deposit with Charter Title Company (the "Title Company"), 4265 San Felipe, Houston, Texas 77027, or such other title company acceptable to the Trustee, the amount of Twenty Thousand and No/100 Dollars ($20,000.00) (the"Earnest Money"). The Earnest Money shall be delivered by Purchaser to the Title company concurrently with Purchaser's execution of this Agreement. The Title Company shall hold the Earnest Money in escrow and deliver same in accordance with the provisions hereof and the Bid Order. Except as otherwise set forth herein, the Earnest Money shall be applied against the Purchase Price on the Closing Date (hereinafter defined). Except as further provided in this Section 2.1, the Earnest Money shall be refundable to Purchaser in the event that:

(a) Seller or Purchaser properly terminates this Agreement pursuant to provisions contained herein;

(b) Seller defaults upon any of its obligations contained in this Agreement.

In the event Purchaser elects to terminate this Agreement by reason of any of the events set forth in clause (a) immediately preceding, $10,000.00 of the Earnest Money shall be delivered by the Title Company to Seller, with the remainder of the Earnest Money to be delivered to Purchaser.

In the event Purchaser elects to terminate this Agreement by reason of any of the event set forth in clause (b) immediately preceding, the Earnest Money shall be delivered by the Title Company to Purchaser.

2.2 Payment at Closing. At the Closing, Purchaser shall pay to Seller cash and assume certain specifically identified claims (collectively, the "Purchase Price"), which shall be paid in the following amounts and manner:

(a) In addition to the $20,000 Earnest Money, cash in immediately available federal funds in the amount of EIGHT HUNDRED FIFTY FIVE THOUSAND AND NO/100 DOLLARS ($855,000.00) (the "Cash Consideration").

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(b) Claims of Rodman A. Eggen and FS Grantor Trust. The Purchaser shall assume and agree to discharge all of the obligations and claims of Rodman A. Eggen ("Eggen") and the FS Grantor Trust. Eggen and the FS Grantor Trust shall release the estate from any and all claims.

(c) CD Tech. The CD Tech License shall be assumed and assigned to Purchaser. Purchaser shall be responsible for the payment of the cure amounts owed to CD Tech under the CD Tech License. Of the Purchase Price, $10,000 is identified as the consideration paid for the CD Tech License.

(d) Environmental Claims. Purchaser agrees, with the approval of the Texas Natural Resource Conservation Commission ("TNRCC"), to remove and dispose of the roll off containers and approximately 40 to 50 barrels of waste from the Property within sixty (60) days of the Closing Date. Purchaser shall assume all ongoing obligations to comply with TNRCC regulations.

2.3 Title Commitment. Promptly after the Effective Date of this Agreement, Seller shall obtain from the Title Company a Commitment for Title Insurance (the "Commitment") issued by the Title Company, covering the real property comprising the Purchased Assets. Promptly after Seller's receipt of the Commitment, Seller shall deliver a copy of same to Purchaser. If Purchaser elects to purchase an Owner Policy of Title Insurance, Purchaser shall be responsible for payment of all premiums associated therewith.

Section 3
Closing

3.1 Place and Date of Closing. The Closing shall take place at the offices of the Title Company or at Russell & Madan, 4265 San Felipe, Suite 250, Houston, Texas 77027, on the later of (i) date that is ten (10) business days after an Order Approving Sale is entered by the Bankruptcy Court or (ii) November 14, 1998 (the "Closing Date"). The Closing shall be effective as of 11:59 p.m. on the Closing Date (the "Effective Time"). The Closing Date may be extended by the written mutual agreement of the parties.

3.2 Deliveries by Seller. At the Closing, Seller shall take the following actions:

(a) Seller shall deliver possession of the Purchased Assets to Purchaser; and

(b) Seller shall deliver to Purchaser deeds, bills of sale and assignments, in forms prepared by Seller and reasonably satisfactory to Purchaser, conveying all of the Purchased Assets free and clear of all mortgages, tax liens, judgment liens, mechanic's liens and claims arising out of the business of Fine Organics Corporation, other than those arising out of governmental regulations.

3.3 Deliveries by Purchaser. At Closing, Purchaser shall deliver to Seller: (a) the Purchase Price and (b) such other documents as may be required by the Title Company to close the transaction contemplated hereby.

3.4 Transition and Post-Closing Cooperation. Seller and Purchaser agree that each will do all things in its power to facilitate the orderly transition and transfer of the Purchased Assets to Purchaser. Each party shall from time to time, at the other's reasonable request and expense, but without further consideration, execute and deliver such additional instruments of transfer, conveyance and assignment or other documents as may be reasonably requested to evidence more effectively the transfer, conveyance and assignment of the Purchased Assets to Purchaser, payment and receipt of the Purchase Price, or otherwise to implement more effectively the terms and conditions of this Agreement.

Section 4
Representations and Warranties of Seller

Seller represents, warrants, covenants and agrees as of the Effective Time as follows:

4.1 Power and Authority of Seller. Subject to approval by the United States Bankruptcy Court, Seller has the right, power and capacity to execute, deliver and perform this Agreement and to consummate the transactions contemplated hereby. This Agreement has been validly executed and delivered by Seller and constitutes Seller's valid and binding obligation, enforceable in accordance with its terms.

4.2 Organization. Subject to entry of an order, which has not been stayed, from the United States Bankruptcy Court, Seller has full power and authority to sell the Purchased Assets to Purchase.

4.3 Absence of Undisclosed Liabilities. The Purchased Assets are not subject to any debts, liabilities or obligations (whether accrued, contingent, absolute or otherwise), including, without limitation, liability for federal, state, local or foreign taxes and liabilities, other than as disclosed and allowed in the Seller's Chapter 7 bankruptcy case; and, to the best knowledge of Seller, there is no basis for the assertion against the Purchased Assets of any such liability other than the liabilities disclosed in the Seller's Chapter 7 bankruptcy case.

4.4 Title to the Purchased Assets. Except as otherwise specified herein:

(a) Seller has good and indefeasible (as to real property) and marketable (as to personal property) title to the Purchased Assets to be conveyed by it at Closing, which after entry of an Order by the Bankruptcy Court shall be free and clear of all mortgages, tax liens, judgment liens, mechanic's liens, and claims arising out of the business of Fine Organics Corporation, other than those arising out of governmental regulations, and Seller will have full right and authority to convey such title and interest to Purchaser;

(b) Other than Purchaser, no person, firm or entity has any right to acquire any of the Purchased Assets or any part thereof;

(c) Other than with respect to the rights of executory contract holders, Seller is not subject to any contract or agreement containing covenants limiting the freedom of Seller to transfer the Purchased Assets to Purchaser hereunder or limiting Purchaser's freedom to operate the Purchased Assets in the manner Purchaser chooses.

4.5 Tax Matters.

(a) Taxes. For purposes of this Agreement, the term "Taxes" shall mean all taxes, assessments, charges, duties, fees, levies or other governmental charges (including interest, penalties, or additions associated therewith), including federal, state, city, county or other income, franchise, capital stock, real property, intangible, withholding, FICA, unemployment compensation, disability, transfer, sales, use, excise and all other taxes of any kind for which the Seller may have any liability imposed by the United States or any state, county, city, country or subdivision or agency thereof, whether disputed or not.

(b) Purchaser will not have any liability for Taxes related to the Purchased Assets for or in respect of any period of periods up to and including the Closing Date, which liability may be assessed or claimed against the Purchaser or the Purchased Assets. At the Closing, taxes for any real or personal property comprising the Purchased Assets shall be prorated to the Effective Time on the Closing Date.

4.6 "AS IS" Clause. As is, Where Is. Except as specifically stated in this Agreement, Seller has not made and hereby specifically disclaims any warranty, guaranty, or representation, oral or written, past, present, or future, of, as to, or concerning (i) the nature and condition of the Purchased Assets, including but not by way of limitation, the water, soil, and geology, and the suitability thereof and of the Purchased Assets for any and all activities and uses which Purchaser may elect to conduct thereon, (ii) the manner, construction, condition, and state of repair or lack of repair of any of the Purchased Assets, (iii) except for any warranties specifically stated in this Agreement or the deed, any representations or warranties as to matters of title, the nature and extent of any right of way, lease, possession, lien, encumbrance, license, reservation, condition or otherwise, (iv) zoning, tax consequences, operating history or projections, valuation, governmental approvals or any other matter or thing relating to or affecting the Purchased Assets, and (v) the compliance of the Purchased Assets or its operation with any laws, rules, ordinances, or regulations of any government or other body. Purchaser hereby expressly acknowledges and agrees that Purchaser has or shall thoroughly inspect and examine the Purchased Assets and its records to the extent deemed necessary by Purchaser in order to enable Purchaser to evaluate the purchase of the Purchased Assets. Purchaser agrees that with respect to the Purchased Assets, Purchaser has not relied upon and will not rely upon, either directly or indirectly, any representation or warranty of Seller except as specifically stated in this Agreement or in the deed. Purchaser hereby further acknowledges and agrees that Purchaser is relying solely upon the inspection, examination, and evaluation of the Purchased Assets by Purchaser and that Purchaser is purchasing the Purchased Assets on an "AS IS," "WHERE IS," and "WITH ALL FAULTS" BASIS AND Purchaser expressly acknowledges that, in consideration of the agreements of Seller herein, except as otherwise specified

herein, Seller makes no warranty or representation, express or implied, or arising by operation of law, including, but in no way limited to any warranty of condition, habitability, merchantability, or fitness for a particular purpose of the Purchased Assets. It is further agreed that Seller has not warranted and does not hereby warrant, that the Purchased Assets or any improvements located thereon now or in the future will meet or comply with the requirements of any safety, environmental and/or other regulation or laws of the State of Texas, the city where the Purchased Assets are located, the county where the Purchased Assets are located, the federal government, or any other authority or jurisdiction. Purchaser hereby assumes all risks and liability (and agrees that Seller shall not be liable for any special, direct, indirect, consequential, or other damages) resulting or arising from or relating to the ownership, use, condition, location, maintenance, repair or operation of the Purchased Assets. Purchaser, upon Closing, hereby acknowledges and agrees to waive, relinquish, and release Seller from and against any and all claims, demands, causes of action, loss, damage, liabilities, costs and expenses (including attorneys' fees and courts costs) of any and every kind of character, known or unknown, fixed or contingent, which Purchaser might have asserted or alleged against Seller at any time and from time to time by reason of or arising out of the violation of any applicable laws and any and all matters arising out of any act, omission, event or circumstances, regardless of whether the act, omission, event or circumstance constituted a violation of any such applicable laws at the time of its existence or occurrence. Notwithstanding anything to the contrary contained elsewhere herein, Purchaser acknowledges and agrees that if Purchaser fails to terminate this Agreement under the terms and provisions hereof after first becoming aware that an adverse physical or environmental condition on the Purchased Assets either currently exists or may have existed in the past, then Purchaser, upon Closing, shall indemnify and hold Seller harmless from and against any and all claims, demands, causes of action, loss, damage, liabilities, costs and expenses (including attorneys' fees and court costs) contingent, asserted against or incurred by Seller at any time and from time to time by reason of or arising out of the violation of any applicable laws pertaining thereto, including but not limited to, those laws relating to health or environment. The provisions of this Section 5.6 shall survive the Closing.

4.7 Brokers. Seller has not entered into and will not enter into any agreement, arrangement or understanding with any person or firm which will result in an obligation of Purchaser to pay any finder's fee, brokerage commission or similar payment in connection with the transactions contemplated by this Agreement.

Section 5
Representations and Warranties of Purchaser

Purchaser hereby represents, warrants, covenants and agrees, as of the Effective Time on the Closing Date, as follows:

5.1 Organization. Purchaser is a corporation duly organized, validly existing and in good standing under the laws of the State of Texas, and has full corporate power and authority to enter into this Agreement and to consummate the transactions contemplated hereby.

7.3 Consents. Until the Closing Date, Seller and Purchaser shall each use its best efforts to obtain all approvals and consents and take all actions required by governmental or regulatory authorities, or leases, mortgages, contracts or agreements, permits, or licenses of or affecting the Purchased Assets relative to the transactions contemplated by this Agreement. Nothing in this Agreement shall require Seller to cure any payment defaults in any executory contract which Purchaser wishes to assume.

Section 8
Conditions Precedent to Purchaser's Obligation to Close

The obligation of Purchaser under this Agreement to close shall be subject to the fulfillment by Seller on or prior to the Closing Date of each of the following conditions, any of which may be waived in writing by Purchaser:

8.1 Accuracy of Representations and Compliance with Conditions. All representations and warranties of Seller contained in this Agreement shall be true and accurate as of the Closing Date as though such representations and warranties were then made in exactly the same language. Seller shall have performed and complied with all of the agreements, covenants and conditions required by this Agreement to be performed and complied with by them on or prior to the Closing Date.

8.2 Material Adverse Changes. There shall have been no change in the condition of the Purchased Assets except for changes in the ordinary course of business which are not in the aggregate materially adverse to the Purchased Assets.

Section 9
Conditions Precedent to the Obligations of Seller to Close

The obligations of the Seller under this Agreement to close shall e subject to the fulfillment on or prior to the Closing Date of each of the following conditions, any of which may be waived in writing by Seller:

9.1 Accuracy of Representations and Compliance with Conditions. All representations and warranties of Purchaser contained in this Agreement shall be true and accurate as of the Closing Date as though such representations were then made in exactly the same language. Purchaser shall have performed and complied with all of the agreements, covenants and conditions required by this Agreement to be performed and complied with by it on or prior to the Closing Date.

9.2 Approvals and Consents. Purchaser shall have obtained all requisite approvals and consents from governmental or regulatory authorities, and from other parties to leases, mortgages, contracts or agreements, permits or licenses relative to the transactions contemplated by this Agreement.

Section 10
Miscellaneous

10.1 Notices. Any notice or other communication required or permitted to be given hereunder shall be in writing and shall be (a) mailed by registered or certified mail, return receipt requested, or (b) delivered to the party to whom it is to be given at the following address (or to such other address as the party shall have furnished in writing in accordance with the above):

(a) If to Seller:

Rodney Tow, Trustee
Rodney Tow & Associates
12306 Highway 105 West, Suite 200
Conroe, TX 77304

and to:

Marilee A. Madan, Esq.
Russell & Madan, P.C.
4265 San Felipe, Suite 250
Houston, TX 77027

(b) If to Purchaser:

West Bay Organics, L.C.
Charles R. Schaller
6655 West Bay Road
Baytown, TX 77527

and to:

John F. Higgins
Ware, Snow, Fogel, Jackson & Greene, P.C.
1111 Bagby, 49th Floor
Houston, TX 77002

Any notice given by registered or certified mail shall be deemed given at the time of mailing thereof.

10.2 Assignment. The provisions of this Agreement shall be binding upon and inure to the benefit of the heirs, legal and personal representatives, successors and permitted assigns of Seller and Purchaser. This Agreement is not assignable by Seller or Purchaser.

10.3 Beneficiaries. Except for controlled affiliates of the parties, no other party shall be a third party beneficiary of this Agreement.

10.4 Modification; Waiver. This Agreement sets forth the entire understanding of the parties with respect to the subject matter hereof and may be modified only by a written instrument duly executed by Seller and Purchaser. No breach of any covenant, agreement, representation or warranty shall be deemed waived unless expressly waived in writing by the party who might assert such breach. No waiver of any default on any one occasion shall constitute a waiver of any subsequent or other default.

10.5 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original.

10.6 Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Texas.

10.7 Headings. The headings contained in this Agreement are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement.

10.8 Effective Date. The Effective Date of this Agreement is the date this Agreement, fully executed by Seller and Purchaser, and the Earnest Money are delivered to the Title Company.

IN WITNESS WHEREOF, the parties have duly executed this Agreement on the date(s) set forth below, effective as of the Effective Date.

02027

PURCHASER:

WEST BAY ORGANICS, LC., a Texas Corporation

By: _____

Name: CHARLES R. SCHALLER

Title: GENERAL MANAGER

Dated: _____

SELLER:

_____

RODNEY TOW, TRUSTEE OF THE BANKRUPTCY ESTATE OF FINE ORGANICS CORPORATION

Dated:_____

Received into escrow $_____ for the benefit of Seller this _____ day of _____, 1998.

CHARTER TITLE COMPANY

By:_____

Name:_____

Title:_____

F:\WSFIGDOC\UNIT_48\West3001\assetpur1.agr

EXHIBIT "A"

Purchased Assets

Purchased Assets shall include the Real Property described in Exhibit "1," attached hereto and made a part hereof for all intents and purposes, and the following:

1. equipment located at the Fine Organics Corporation chemical plan located at 6655 West Bay Road, Baytown, Texas, in Chambers County, Texas, excluding any equipment that is leased and/or rented unless Purchaser seeks to have assigned the lease and agrees to pay all cure costs related to assumption;

2. inventory of chemicals, including those contained in barrels or other containers owned by Fine Organics Corporation;

3. use of the name of Fine Organics Corporation;

4. permits and licenses to the extent of Fine Organics Corporation's rights therein as presently exist, including, but not limited to:

TNRCC Air Emissions Permit No. 9564;
TNRCC Standard Exemption Registration Permit No. 31384;
TNRCC Discharge Permit No. 02777;
USEPA PSD Permit No. PSD-TX-670;
USEPA NPDES Permit No. TX-0098604;
Texas General Land Office Coastal Easement Permit No. LC-89-051;
U.S. Army Corps of Engineers Construction Permit No. 17197;
Port of Houston Authority Permit No. 17197; and
Chambers County, Texas Development Permit No. 55;

provided, however, that any cure obligations shall be the responsibility of Purchaser;

5. tangible personal property of any nature owned by Fine Organics Corporation and located at 6655 West Bay Road, Baytown, Texas; and

6. contract rights of Fine Organics Corporation to the extent that the contract rights can be assumed and assigned by Seller and that cure obligations are paid by Purchaser.

EXHIBIT "1"

BEING a parcel or tract of land in the CHRISTIAN SMITH LEAGUE, Abstract No. 22, Chambers County, Texas, and being that same parcel conveyed by Fenno D. Ball, et al. to R.D. Haden by Deed, dated March 18, 1878, recorded in Volume "B," Page 578 of the Deed Records of Chambers County, Texas, said to contain 45.25 acres of land, more or less, but found upon a re-survey to contain 48.791 acres of land, and being more particularly described by metes and bounds as follows, to-wit:

BEGINNING at a fence post on the East bank of Cedar Bayou, the Southwest corner of the Lizzie Wilburn Estate 34.95 acre tract and the Northwest corner of this tract;

THENCE a true bearing of North 80° 12' 22" East following the common boundary between the Haden and Wilburn Estates tracts as fenced, at 1942.77 feet passed a 1.0 foot North of, and 0.35 foot West of, a fence corner in the West right-of-way of a County Road at 1975.27 feet passed the Southeast corner of said Wilburn Estate tract, in the center of said Road, and Southwest corner of the Annie Schilling Estate original 360 acre tract, as described in a deed of record in Volume "II," Page 176 of the Deed Records of Chambers County, Texas, in all a total distance of 2155.30 feet to the Northeast corner of this tract in the center of a County Road, said corner is situated 3.29 feet North 10° 17' 08" West of an iron rod found in said road;

THENCE South 10° 17' 08" East with center of a County Road and entering the right-of-way of F.M. Highway No. 1405, and with the center of said latter named Highway, at 3.29 feet passed aforesaid iron rod, and at 991.75 feet to corner in said F.M. Highway No. 1403, the Southeast corner of this tract and the Northeast corner of the C.D. Ehrhardt so-called 45.25 acre tract;

THENCE South 80° 52' 17" West at 40.0 feet crossed the West right-of-way fence of F.M. Highway No. 1405, at a fence corner, and following with a fence, a total distance of 1275.51 feet to a fence corner and angle in the common boundary fence between the Haden tract and the Ehrhardt tract;

THENCE continuing with said common boundary as fenced, South 79° 44' 37" West 886.00 feet to a post on the East bank of Cedar Bayou, the Southwest corner of this tract and the Northwest corner of the C.D. Ehrhardt tract;

THENCE with the meanders of the East bank of Cedar Bayou, North 10° 46' 53" West 591.11 feet and North 08° 39' 38" West 393.10 feet to the PLACE OF BEGINNING, containing within said boundaries, 48.791 acres of land, there being 0.993 acre in the right-of-way of said County Road and F.M. Highway No. 1405, leaving a net acreage of 47.798 acres of land.

Document 3

TELEPHONE MEMO TO THE FILE

Call To: Rodman Eggen West Bay Organics Baytown, Texas	Call From: Johnny Kennedy SSDAT, TNRCC Region 12 - Houston
Date of Call: 07/01/99	File No: TXD981606932
Phone No: 713/892-5522	Subject: Verification

Information for File:

Mr. Eggen was contacted to verify and clarify information from the TNRCC files. He provided the following information.

Fine Organics pilot plant startup - October 1996
Fine Organics commercial plant startup - April 1997
only active for about 3 months

RDK, L.C. - this is the name of the property owner prior to construction of the Plant. Mr. Eggen has been a part of several groups (Hansa, RDK, L.C., Fine Organics, and West Bay Organics) involved in ownership or operation of the property.

West Bay Organics completed the purchase of the property on November 14, 1998. Prior to that date, West Bay Organics paid for the insurance for approximately one month. From the time that Fine Organics went to bankruptcy until the purchase, the Trustee paid for maintenance of the site.

Since West Bay Organics purchased the site on November 14, 1998, the plant only operated for a short period (several days) in January 1999. They discovered problems with the discharge permit and operations ceased. Since that time, West Bay Organics has only been doing construction type activities in order to try and get the plant ready for operation, probably sometime around August 1999.

West Bay Organics has 11 full-time employees.

Document 4

CLAIR A. CARDEN, P. E.
CONSULTING ENGINEER
11811 NORTH FREEWAY
SUITE 625
HOUSTON, TEXAS 77060

August 9, 1985

JAS
MLB

Mr. Charles E. Nemir, P.E.
Executive Director
Texas Dept. of Water Resources
P. O. Box 13087
Austin, Texas 78711

Attention: Permit Control & Reports

in appl. file

Reference: HANSA Manufacturing Company
Cedar Bayou Plant
Application for Proposed Permit No. 02777

Dear Mr. Nemir:

Transmitted herewith is an application for a waste discharge permit for the above-referenced industrial plant. This application has been revised since it was withdrawn on July 23, 1985, and is now submitted for processing. We understand that no additional application fee is required with this revised application.

If any additional information is needed in this matter, please contact me by telephone at 713/931-6100.

Respectfully submitted,

FOR: HANSA MANUFACTURING CO.

BY: Clair A. Carden

Clair A. Carden, P.E.
Consulting Engineer

CAC:jc

cc: Rodman Eggen
James Hutchison

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DEPT. OF WATER RESOURCES DISTRICT 7

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04001

FOR ...RTMENT USE ONLY	
Application No.	50794
Adm. Review By	ROT
Administratively Complete	
Copies Sent:	DIST. 7, EPA, PCWA, TACB, HGACG,

EXECUTIVE DIRECTOR
TEXAS DEPARTMENT OF WATER RESOURCES
ATTN: Permit Control & Reports Section
P.O. Box 13087, Capitol Station
Austin, Texas 78711

APPLICATION FOR PERMIT TO DISCHARGE, DEPOSIT OR DISPOSE OF WASTE

1-9-85
active corp.

1. Applicant: HANSA Manufacturing Company
(Individual, Corporation or Other Legal Entity)

Address: P. O. Box 1278
(Permanent Mailing Address)

City: Baytown State: Texas Zip: 77522-1278

Telephone Number: (713) 420-2717

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas. 727624
Charter Number

2. (a) List those persons or firms, to include a complete mailing address and telephone number, authorized to act for the applicant during the processing of the permit application.

Busch, Hutchison & Assoc., Inc., 1107 Fleetwood Drive, Baytown, TX 77520 (Jim Hutchison or Johnnie Busch), (713) 422-8213
Clair A. Carden, P.E., 11811 North Freeway, Suite 625, Houston, TX 77060, (713) 931-6100
H. Dixon Montague, First City Tower, Houston, TX 77002-6760, (713) 651-2222

(b) If the application is submitted by a corporation or by a person residing out of state, the applicant must designate an Agent in Service or Agent of Service and provide a complete mailing address for the agent. The agent must be a Texas resident.

N/A

3. List the individual and his/her mailing address that will be responsible for causing notice to be published in the newspaper.

James P. Hutchison, 1107 Fleetwood Drive, Baytown, TX 77520

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4. Type of Permit For Which Application is Submitted:

a. New X Permit Number 02777
(Will Be Assigned By The Department)

*b. Amendment _____ of Permit Number _____

5. List any other permits, existing or pending, which pertain to pollution control activities conducted by this plant or at this location.

TX 0098604
NPDES Permit No. TX 0098604.

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Texas Air Control Board Construction Permit No. 9564

*Refer to item 15

04002

6. Plant or disposal site information:

A. Plant Name: HANSA Manufacturing Company, Cedar Bayou Plant

B. Street Address, if available: FM 1405, Baytown, Texas

C. County: Chambers

D. Are your waste disposal operations within the incorporated limits or extraterritorial jurisdiction of a municipality? Yes If so, what municipality? City of Baytown, Texas

E. Give a verbal description of the plant or disposal site with respect to known or easily identifiable landmarks. A 48 acre ± tract on the east bank of Cedar Bayou fronting on FM 1405 approximately 2.5 miles (along the waterway) south of the SH 146 Cedar Bayou Bridge. It is immediately south of the Houston Lighting & Power Company Cedar Bayou Electric Generating Station.

7. Type of establishment, operation or process from which wastewater(s) will emanate: (For example: sewerage facilities serving a mobile home park, office complex, subdivision/oil refinery/steam electric generating plant/etc.) Facility is a hydrocarbon light ends refinery. Wastewater will consist of boiler blowdown, cooling tower blowdown, runoff from process areas, process water, runoff from clean areas, and a small amount of domestic sanitary sewage.

8. What estimated date will waste disposal operations begin; or if operations have begun, what date did waste disposal operations begin at the site described by this application? If the facility is to be completed in stages, include proposed design flow information for each stage and the estimated completion date for each stage.

Phase	Cooling Water (gpm)	Condensate (gpm)	Other (gpm)	Date
1	30	70	86	7-1-86
2	40	68	70	2-1-87
3	50	60	40	12-31-87
4	70	66	--	12-31-89

9. Disposal Method:

A. **Discharge Into A Watercourse:** Trace the flow of effluent from the plant site to the nearest major watercourse with a word description. (For example: "From the plant site through a six-inch pipe to an unnamed tributary of Doe Creek, then to Doe Creek, then to the Brazos River".)

From the plant treatment system through a discharge pipe into Cedar Bayou

B. **Discharge Other Than Into a Watercourse:** Irrigation N/A, Evaporation Pond N/A, Other N/A. *(Include a **complete** description in the technical report.)*

10. Attach either a USGS Topographic or State Department of Highways & Public Transportation county map and identify on the map the location of the wastewater treatment facilities and/or disposal site, the point(s) of discharge and the effluent routing to the nearest identifiable watercourse. When requesting a "No Discharge" permit, show the location of any ponds and the area to be irrigated. (ALL MAPS MUST INCLUDE THE SCALE).

11. Submit an application map or drawing, with scale, (more than one map or drawing may be submitted) of the site, which includes the following information (Refer to sample application map):

A. The approximate boundaries of the tract of land on which the waste disposal activity is or will be conducted.

B. The location of the point or points of discharge or disposal.

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C. The general character of the areas adjacent to the place or places of disposal; for example, residential, commercial, recreational, agricultural, undeveloped, etc.

D. The boundaries of all tracts of land within a reasonable distance from the point or points of discharge, deposit or disposal. (See page 5, Application Instructions)

*12. Show on the application map or on a separate list properly cross-referenced to item 11D above, the names and mailing addresses of all landowners who might consider themselves affected by the activities described by this application. (Minimum requirements are shown on the sample application map, page 5.)

13. The names and mailing addresses of persons identified as affected persons, item 12 above, were obtained from:

Goose Creek Independent School District tax maps

(Source: City, County, School or Water District Records or Abstract Co.)

14. Complete and attach the technical report associated with the type of permit requested. NOTE: An applicant must provide detailed information concerning plant site location, point(s) of discharge or area of application, description of treatment process, proposed volume and quality of effluent to be disposed of and any other information which would enable the staff to evaluate the application (water balance, dimension of any holding pond(s), for irrigation systems provide: acreage to be irrigated, type crops to be irrigated, application rate, annual average rainfall, measures to be implemented to prevent runoff, buffer zone considerations, etc.).

15. Please, discuss briefly the scope of the changes to the existing permit being requested by this application.

N/A

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16. List and index all attachments to this application.

Attachment 1 - Discharge Route and Discharge Point Map
Attachment 2 - Application Map
Attachment 3 - List of Affected Land Owners
Attachment 4 - Technical Report
Attachment 5 - Confidential Process Information
Attachment 6 - General Plant Layout

*Because of the large volume of cooling water drawn in by the H L & P Co. Cedar Bayou Generating Station immediately up-stream of the HANSA site, the flow of water in Cedar Bayou in that direction during dry weather. The flow of discharge from HANSA then passes property owners numbered 1, 2, 19, 20, 21, 22, 23, 24, 25, 26, and 27. If a rain of any consequence occurs then the flow is downstream and passes property owners numbered 1 thru 18.

SECTION I: To be completed by a[illegible]cant or duly authorized representative (Refer to item No. 3 of General Instructions).

I, James P. Hutchison, Vice President, Busch, Hutchison & Associates, Inc.

Typed or Printed Name — Title

certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of civil penalty and criminal fines.

Signature: James P. Hutchison Date: January 9, 1985

Note: All applications must bear the signature and seal of notary public.

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SECTION II: To be completed by the applicant if the signature above is other than that of the applicant.

I Rodman Eggen, President, HANSA Manufacturing Company

Typed Name and Title of Applicant

hereby designate Busch, Hutchison & Associates, Inc.

Typed Name of Agent

as my agent and hereby authorize said agent to sign any application, submit additional information as may be requested by the Department, and/or appear for me at any hearing or before the Texas Water Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my agent in support of the application and for compliance with the terms and conditions of any permit which might be issued based upon this application.

HANSA Manufacturing Company

Printed or Typed Name of Applicant or Chief Executive Officer

Signature

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Note: All applications must bear the signature and seal of notary public.

Note: The notary is attesting to the signature when only Section I is completed or to the signature is Section II when both sections are completed.

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SUBSCRIBED AND SWORN to before me by the said Rodman Eggen and James P. Hutchison on this 9th day of January, 19 85.

My commission expires on the 30th day of January, 19 89.

(Seal)

Jean Miller
Notary Public in and for Jean Miller

01005 Harris County, Texas

Application Form - Industrial

TECHNICAL REPORT
FOR
INDUSTRIAL WASTEWATER TREATMENT FACILITIES

Technical information shall be furnished covering the items indicated below in appropriate detail to understand the project. (Attach separate reports as necessary)

1. Source of raw water supply: Two on-site water wells will supply water for Phase 1. Phases 2 thru 4 will use this source which may be supplemented by surface water from the Coastal Industrial Water Authority.
2. Proposed effluent volume:*

   Monthly average flow (gallons per day) 950,000

   Daily maximum flow (gallons per day) 1,600,000

   Treatment plant design flow (gallons per day) 1,600,000

3. Sources and characteristics of wastewater:

   A. Submit plot plans and flow diagrams to identify the sources and volumes of the various classes of wastewater (for example: cooling water, wash water, condensate, sanitary, product-contaminated storm water, etc.) and include estimates of total plant area, process area, and material storage areas.

   B. Describe predicted wastewater characteristics for which application is made.

Proposed Quality (as applicable):*

	Monthly Average	NOT TO EXCEED Daily Maximum
Total Suspended Solids, mg/l	30	60
Biochemical Oxygen Demand, mg/l	30	60
Chemical Oxygen Demand, mg/l	200	350
Total Organic Carbon, mg/l	120	200
Oil and Grease, mg/l	10	15
Ammonia-Nitrogen, mg/l	3	5
Phenols, mg/l	0.15	0.30
Sulfides, mg/l	0.10	0.15
pH (max. and min.)	6.0-9.0	-
Total Residue, mg/l	-	-
Chlorides, mg/l	-	-
Sulphates, mg/l	-	-
Chromium, mg/l	0.2	0.5
Zinc, mg/l	-	-
Other Hazardous/Toxic Materials (Arsenic, barium, boron, cadmium, copper, lead, chlorinated hydrocarbons, cyanide, etc.)	Benzene 0.05	0.10
Temperature, °F	-	-
Others (Specify)	-	-

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*If more than one (1) outfall, attach separate report for each outfall.

01006

4. Industrial Technical Report:

A. Describe the product manufactured at this facility: petroleum distillates and solvents

B. Describe the treatment method(s) to be employed (include considerations of segregation of certain wastes, in-plant waste reduction, etc.). Submit the results of treatability studies, if applicable, to define the treatment system to be employed.

C. Define treatment process design. This may be in a preliminary form, but should be comprehensive enough to:

(1) Establish treatment objectives.

(2) Provide flexibility for continuous treatment under conditions of various production cycles and under all expected climatic conditions.

(3) Describe disposal methods for solid wastes including wastewater and water treatment plant sludges, process solid wastes and byproducts.

(4) Describe hydraulic features of the wastewater collection and treatment system, including capacity limitations, control and operating procedures during emergencies, flood protection analysis, flow measurement devices, whether discharge is continuous or intermittent, length and frequency of discharge, whether effluent is pumped or gravity fed, etc.

(5) Describe the method of final disposal, if other than discharge to watercourse. In case of land irrigation, describe the operation procedure for both normal and wet weather conditions, type of crop, acreage available, etc.

(6) Describe storm water handling system, including extent of segregation from process wastewaters, diversion or retention structures and discharge points.

(7) Earthen Structures:

(a) If wastes are held or treated in earthen structure(s), describe the type, dimensions, capacity, and type of lining, if any, of the structure(s) and the type of waste contained by the structure(s).

(b) If any unlined earthen structure(s) contain strong wastes, submit information concerning the possibility of ground-water contamination, including permeability data of soil from which structure is constructed, geology and permeability of underlying layers, and location of known ground-water sources and wells in the vicinity.

5. Are the proposed facilities to be located above the 100-year frequency flood level? Yes X No ___ If not, what protective measures are to be used?

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HANSA MANUFACTURING COMPANY
CEDAR BAYOU PLANT
BAYTOWN, TEXAS

TECHNICAL REPORT IN SUPPORT OF APPLICATION FOR WASTE DISCHARGE PERMIT

I. INTRODUCTION

HANSA Manufacturing Company is proposing to construct and operate a crude oil and condensate processing facility on a 48-acre tract on the east side of Cedar Bayou, northeast of the City of Baytown in Chambers County, as shown on the enclosed Location Map. The Company has retained Busch, Hutchison & Associates, Inc., Consulting Engineers, and Clair Carden, Consulting Engineer, to assist with preparation of applications for various construction and operating permits needed for this plant and to design wastewater treatment, stormwater management and other facilities required for plant development.

The wastewater volumes and characteristics described in this report have been estimated from preliminary design data on the various processing units and by comparison with data from refineries of similar type and size. Due to the fact that wastewater characteristics are influenced by the refining processes, operating practices and the feedstock, the volume and contaminant loading estimates are intended to be on the conservative side until more data are available.

The conceptual design for wastewater treatment facilities, as presented herein, is based on application of good current treatment technology for the petroleum refining and petrochemical industries. The quality of effluent to be produced by this system is intended to be consistent with effluent limitations guidelines established by the Environmental Protection Agency, for this class of industry, and to be totally compliant with effluent limitations propounded by the Texas Department of Water Resources for discharges into Cedar Bayou.

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II. WASTE CHARACTERISTICS

A. Facilities Description

1. Refinery & Light Ends Processing Plant

The proposed Cedar Bayou Plant is designed to be a crude topping refinery and light ends processing plant with processing units designed for the production of some 17,000 barrels per day of petroleum solvents and specialty chemicals. Feedstocks will include pipeline condensates, natural gas liquids and any other hydrocarbon feedstock, and will be processed at a rate of up to 25,400 barrels per stream day. The various production processes and processing units are discussed in the attached Detailed Process Description and are illustrated in the Detailed Process Flow Diagram (See Attachment 5). The Plant is divided into six process areas which are generally described below along with the wastewaters generated in each area.

a. Feedstock Area. The feedstock processing area receives crude oil and condensate at the rate of 19.0 MBSD (thousand barrels per stream day) to produce light and heavy naphthas, distillate and fuel oil. Most of the fuel oil and distillate are utilized as fuel within the plant, while the other products of the feedstock area are routed to other areas for further processing.

This area of the refinery includes a crude desalter and an atmospheric distillation unit, together with heaters and heat exchangers. Contaminated steam condensate from the overhead receiver will be utilized as makeup water for the desalter, which will conserve water and will enhance waste treatment operations. The total process wastewater produced in the Feedstock Area is estimated at 38 gpm. Miscellaneous wastewaters from this area will include washdown water, process area storm runoff, and a small percentage of blowdown from the cooling towers and from the boiler feedwater treatment operations.

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b. Light Paraffins Area. The light paraffins processing area receives the light naphtha stream from the atmospheric distillation unit, incoming natural gas liquids at 1000 BPD, and a 1000 BPD stream of incoming normal hexane to produce a total of some 1.25 million pounds per day of pentane, hexane, aromatic products, C_7 & C_8 normal paraffins, C_9 & C_{10} paraffins and other paraffinic products. The units comprising this section of the Hansa plant include:

(1) Light Ends Fractionator (Flow Diagram Nos. 2, 3, 5, 8, 9 & 10). This unit includes six distillation columns which process an incoming charge of some 4600 BPD of naphtha, paraffins and natural gas liquids to produce pentane product and paraffinic materials which are charged to other units for further processing. As shown in the process flow diagram, most of the feedstocks are distilled three or four times in this unit. In all, some 14,000 BPD of the various feedstocks and intermediates are vaporized in these six columns, resulting in the production of approximately 28 gpm of contaminated condensate and requiring a large volume of cooling water.

(2) C_6 Extraction Unit (Flow Diagram No. 4). A stream of 2000 BPD of mixed C_6 material is vaporized in this unit and processed to produce a C_6 aromatic product. A light paraffins stream is also produced for further processing. The 4 gpm of contaminated condensate from this unit is routed through a water stripper to remove volatile hydrocarbons prior to entering the process sewer system.

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(3) Naphtha Sweetener and Molecular Sieves. A stream of light naphtha from the LE fractionator is fed through the Naphtha Sweetener (Diagram No. 6) at a rate of

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800 BPD, producing paraffinic C_6 and another paraffinic product. Since this unit produces no process wastewater, it is regarded as a "non-contributing unit." Similarly, a total charge of 2600 BPD is fed into the Molecular Sieves (Flow Diagram Nos. 7 and 12) to produce normal hexane from one and normal C_7 and C_8 paraffins from the other. With no condensate produced, these units are classed as "non-contributing units."

(4) Hydrotreater/Caustic Sweetener (Flow Diagram No. 11). The Hydrotreater/Caustic Sweetener processes a charge of C_7 to C_{10} paraffins to produce C_7 & C_8 normal paraffins and C_9 & C_{10} paraffinic products. As a result of vaporizing a total of 4000 BPD of feedstocks, 6 gpm of process wastewater is produced by this unit and is routed through the sour water stripper for sulfide removal prior to entering the process sewer system.

In summary, the Light Paraffins Area vaporizes feedstocks totalling some 20,000 BPD to produce about 1.25 million lb/day of organic chemical products. Process wastewaters from this area include 38 gpm of contaminated condensates plus its contingent of boiler feedwater treatment waste, cooling tower blowdown, washdown, process area runoff and utility wastewaters.

c. Heavy Paraffins Area. This area includes light ends fractionators (Flow Diagram Nos. 13 & 14) process heavy napthas and mixed paraffins in sequence and their heavy paraffin output is processed by the Hydrofiner Unit (Flow Diagram No. 15). In this area, a total feedstock of some 14,000 BPD is vaporized, producing about 1.1 million lb/day of heavy paraffinic products. Byproducts include 24 gpm of contaminated

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condensates, 6 gpm of which is routed through a sour water stripper for sulfide removal prior to entering the process sewer system, plus utility wastewaters and process area runoff.

d. Aromatics Area. The Aromatics Area receives light naphtha from the Feedstock Area, along with aromatic naphtha and other aromatic streams, to produce some 1.03 million lb/day of aromatic products. This area includes a reformer, aromatics fractionators and a reformate extraction unit, with the following design capabilities:

(1) Reformer (Flow Diagram No. 16). The Reformer converts a 5000 BPD charge of naphtha to aromatics. Other than its proportionate share of cooling tower blowdown, this unit produces no process wastewater.

(2) Aromatics Fractionators (Flow Diagram Nos. 17, 18, 20, 21, 22, 23 & 24). These seven distillation columns process an incoming charge of 5000 BPD of aromatics from the Reformer and, as indicated in the process flow diagram, process the feedstock through the several columns in a series of distillation steps. A total of 22,000 BPD of feedstock is vaporized in the columns to produce various aromatic products. As is the case with the paraffins areas, the multiple distillation steps result in high volumes of process condensates and relatively large cooling loads. About 46 gpm of process wastewater is generated by these units, with a portion of it being routed through a water stripper to remove volatile hydrocarbons before the stream enters the process sewers.

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(3) Reformate Extraction Unit (Flow Diagram No. 19). This unit receives a charge of up to 5000 BPD from the initial Aromatics Fractionator column and produces a stream of mixed aromatics and one of paraffins for further processing. This unit produces 20 gpm of condensate, some of which is routed to the water stripper for pretreatment before it is combined with other process wastewaters for treatment.

In summary, the Aromatics Area vaporizes feedstocks totalling some 27,000 BPD to produce an estimated 1.03 million lb/day of aromatic products. Contaminated steam condensates from the various units will amount to 66 gpm, with 32 gpm to be routed through the water stripper to remove volatile hydrocarbons prior to releasing the wastewater to the process sewer for further treatment. About 40 percent of the total cooling tower blowdown is attributable to this process area, along with roughly 25 percent of the other utility wastewaters

e. Isoparaffins Area. In this area, incoming streams of isobutane and C_3-C_5 olefins are processed through alkylation and hydrogenation units to produce isoparaffinic products at the rate of some 1.01 million lb/day. The operating units comprise:

(1) Alkylation Unit (Flow Diagram No. 25). The Alkylation Unit receives 2000 BPD of incoming isobutane and 2400 BPD of incoming C_3 to C_5 olefins and produces an alkylate stream for further processing. A process wastewater stream of 20 gpm is produced in this unit, plus spent acids which will be disposed offsite.

(2) Alkylate Fractionator (Flow Diagram No. 26). The alkylate from the initial processing step, about 4200 BPD

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is charged to the Alkylate Fractionator to split the stream into several isoparaffinic fractions. An estimated 8 gpm of contaminated condensate is produced by this unit.

(3) Hydrogenation Unit (Flow Diagram No. 27). The isoparaffins from the Alkylate Fractionator are charged to the Hydrogenation Unit and the refined isoparaffins are routed to product storage for sale. The 42 gpm of condensate produced in this unit is routed through the sour water stripper for pretreatment, then to the process sewer system.

Summarizing the charge and products of the Isoparaffins Area, a total of 12,800 BPD of feedstocks are vaporized in these units, producing about 1.01 million lb/day of marketable products. Wastewaters from the area comprise some 70 gpm of contaminated condensates along with a proportionate share of utility wastewaters, cooling tower blowdown and process area washdown.

f. Mineral Oils Area. Distillate from the Feedstock Area is processed in this area of the plant to produce distillate fuel product and mineral oil at an estimated 1.04 million lb/day. The process units comprise the following:

(1) Distillate Extraction Unit (Flow Diagram No. 28). This unit receives the distillate stream from the Crude Fractionator, at the rate of up to 4000 BPD, and separates mineral oil from the distillate fuel product. About 16 gpm of process wastewater is produced by the extraction process.

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(2) Hydrotreater (Flow Diagram No. 29). The semi-finished mineral oil is routed through the Hydro-treater at a rate of some 3000 BPD to produce the mineral oil product for sale. The 12 gpm of contaminated condensate from this unit is routed to the sour water stripper for pretreatment prior to entering the process sewer system.

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2. Offsites and Utilities

In addition to the process units, support facilities will include raw material and product handling facilities, dock facilities, tankage, water utilities, cooling water system, wastewater treatment facilities, air systems, flares and fire fighting facilities. The effects of these support facilities and utilities on plant wastewaters are generally described below.

a. Raw Material and Product Handling. Truck loading areas will be curbed for spill containment and storm runoff will be routed to the process sewers for treatment. The barge docks will be equipped with curbs, pans and other spill control devices as will be defined in detail in the operations manual for this facility.

b. Storage Tanks. All feedstock and product storage tanks will be enclosed by firewalls and dikes. Tank water draws will be routed to the process sewer system for treatment. The spill control and countermeasure plan for the plant will define operational and spill control procedures for the tank farms, along with facilities for managing stormwater which collects within the diked areas. The policy for operation of the tank farm drainage system will provide for analysis of all collected waters, with supervised release of uncontaminated waters. The contaminated waters will be pumped to the process sewer system for treatment.

c. Water Utilities and Steam Generation. Water supplies for the plant will utilize both surface and groundwater sources. Wastewaters from the boiler feedwater treatment system will amount to an estimated 50 gpm, which will be routed to the process sewer system for treatment. Another source of wastewater is the solids or sludge which is flushed from the steam boilers, amounting to some 30 gpm of blowdown to the process sewers.

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d. Cooling Water System. Due to the unusually high cooling load imposed by the process units, the plant will require significantly larger cooling towers than would typically be required for a 25 MBSD crude topping plant. It is anticipated that the cooling towers will be constructed in four phases, with the ultimate system producing some 190 gpm of cooling tower blowdown. The 30 gpm from the initial phase will be routed to the process sewer system for treatment; however, the 160 gpm produced in subsequent additions to the cooling system will be routed separately to a coagulation/clarification unit for treatment prior to release to Cedar Bayou with other plant effluents.

B. Characterization of Process Wastes

The sources and volumes of the various wastewaters are indicated on the attached Water Flow Schematic. The total wastewater volume to be generated by the process units is estimated at 408 gpm, including the initial increment of cooling tower blowdown. Another significant source of wastewater from the plant is process area storm runoff, which is estimated to average up to 75 gpm. Adding another 7 gpm for water draws and contaminated runoff in the tank farm area, the process sewer volume will average about 490 gpm. The total effluent volume, including the balance of cooling tower blowdown streams, will average some 650 gpm, or about 0.95 million gallons per day.

The process wastewater flows are summarized as follow:

(1)	Process condensate	=	162 gpm
(2)	Water stripper bottoms	=	36 gpm
(3)	Sour water stripper bottoms	=	66 gpm
(4)	Boiler feedwater treatment wastes	=	50 gpm
(5)	Boiler blowdown	=	30 gpm
(6)	Cooling tower blowdown (Phase I)	=	30 gpm

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(7)	Cooling tower blowdown (Phase II, III & IV)	=	160 gpm
(8)	Process area washdown	=	32 gpm
(9)	Sanitary wastewater treatment plant effluent	=	2 gpm
(10)	Tank farm water draws	=	7 gpm
(11)	Process area storm runoff (average)	=	75 gpm
	Total	=	650 gpm

The raw wastewater is expected to be similar in quality to that of crude topping plant wastewater. By routing the condensates from the aromatics processing units through a steam stripper, the concentrations of light aromatic hydrocarbons in the process wastewater stream will be maintained low enough to produce essentially no effect on wastewater treatment process design and effluent quality. Thus, the wastewater treatment system will be designed on the basis of typical crude topping plant process waste contaminant concentrations. Estimates of contaminant removal efficiencies and wastewater quality at various points in the system will follow in the treatment process design analysis.

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III. PLANT WASTEWATER MANAGEMENT SYSTEM

A. Stormwater Management

The basic concept for management of stormwater on the refinery property is to provide separate storm drainage facilities for process and non-process areas in the plant. The storm drainage from process areas, which could be contaminated with various processing chemicals and process materials, will be routed into process sewers for complete treatment. Storm runoff from administrative areas, roads and buffer areas will be routed into drainage ditches along the central access road for release into Cedar Bayou. Stormwater collected in the storage tank farm area will be contained within the firewall dikes and will be released, under supervisory control, after analysis for contamination. Tank water draws and contaminated tank farm runoff will be pumped to the process sewer for treatment.

As indicated on the Refinery Layout, the plant is divided into halves, lengthwise, by the central access road, with the land sloping toward Cedar Bayou on the west boundary. In order to contain spillage or any contaminated runoff from the plant site, the western end of the site will be diked and drains will be valved so that runoff from the north and the south halves of the plant can be contained independently. By this method, any contaminated runoff can be contained and routed to the wastewater treatment system.

Stormwater facilities will be designed for a 25-year, 24-hour rainfall of 10.3 inches and a maximum monthly rainfall total of 16 inches. Process area storm drainage will be routed through the process sewer system and will be pumped into stormwater surge tanks, from which it will be fed into the treatment system at an average rate of up to 75 gpm. The treatment system will also be designed to accommodate up to 500 gpm of contaminated storm runoff from the tank farm area impoundments.

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B. Cooling Tower Blowdown

As indicated in the Facilities Description, this plant will require a much greater cooling capacity than that of the typical topping plant. In order to avoid unnecessary dilution of organic components in the process waste stream, only the first increment-- some 30 gpm-- of cooling tower blowdown will be discharged into the process sewer. The blowdown from subsequent phases of cooling system expansion, totalling about 150 gpm, will be piped directly to a separate cooling water treatment system. Since a non-chromate corrosion inhibitor will be used in the cooling towers, it is anticipated that this waste stream will only require clarification, possibly preceeded by chemical coagulation, prior to release into the plant effluent stream.

C. Process Wastewater Treatment

As indicated on the Water Flow Schematic, the proposed wastewater treatment system will provide facilities for equalization of process waste flows, gravity separators for removal of floating oils, chemical coagulation and dissolved air flotation for removal of emulsified oils, and biological treatment for conversion of soluble organics to biological solids. The clarified effluent from this system will be combined with the cooling water treatment system effluent, routed through a flow measurement and effluent sampling station, and discharged to Cedar Bayou.

Oil which is recovered from the separators will be returned to the fuels area for plant use. Bottom sludges from the separators, float from the air flotation unit, and excess biological sludges will be collected and hauled off-site for disposal in accordance with industrial solid waste regulations of the Texas Department of Water Resources.

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D. Sanitary Wastewaters

The plant will have a total work force of approximately 40 personnel. Based on a factor of 20 gallons per capita, the average daily sanitary wastewater volume is estimated at 800 gallons per day. This wastewater will be collected and treated in an extended-aeration sewage treatment plant. After treatment and disinfection, this effluent will be discharged into the process sewer.

E. Hydraulic Design and Flood Protection

Based on Soil Conservation Service hydrology methods, the peak flow rate for storm runoff in the process sewer system is about 9,000 gpm, which establishes the hydraulic design criteria for pumps lifting the wastewaters into the storm surge tanks. From these tanks, the water will flow at controlled rates, up to 1200 gpm, into the other treatment units.

Plant facilities will be protected from flooding by levees built to elevation 16.0 M.S.L. Wastewater treatment plant effluent discharge facilities will be above the level of the protective levees; also, storm drainage structures will be valved to prevent backflow into the plant during flood events in Cedar Bayou.

F. Groundwater Protection

As indicated by reconnaissance surveys of the plant site, there is an abundance of clay soils in the area which provides protection against contamination of groundwaters in the vicinity. In order to further protect groundwater resources, all process areas will be constructed with concrete paving and curbs, process sewers will be steel or concrete conduits, and all process wastewaters will be contained in steel or concrete tankage. No earthen impoundments will be used to contain plant process wastewaters and the tank farm enclosures will be maintained free from contamination by process wastewaters and/or products.

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IV. EFFLUENT QUALITY OBJECTIVES

A. Effluent Limitation Guidelines

Application of EPA effluent limitations guidelines to the Hansa Manufacturing Company plant involves consideration of the facility as a petroleum refinery, in the Feedstocks section, and as an organic chemicals plant in the Specialty Chemicals sections. The Feedstock Area is operated as a crude topping plant to produce naphthas and distillates for use as charge materials in the Specialty Chemicals units, where these materials are redistilled an average of four or five times to produce the finished chemicals. The Specialty Chemicals areas are further grouped with organic chemicals by Standard Industrial Classification (SIC) 2865, "Industrial Organic Chemicals," which include benzene, naphthalene, toluene, light oils, etc.

One alternative approach to application of EPA "Guidelines" would be to equate all six process areas to the Topping Subcategory of 40 CFR Part 419, Petroleum Refining Category. This approach would be based on the volume of feedstocks vaporized in each contributing unit, i.e., each process unit which produces a contaminated condensate from stripping steam. This approach would allow credit for the several distillation steps and for the relatively large volumes of both utility and process wastewaters produced by the Cedar Bayou Plant.

The following analysis of effluent guidelines for this Plant is based on the July, 1985, revisions of 40 CFR Part 419, Petroleum Refining Category, and on applicable portions of the March, 1983, and July, 1985, proposed effluent limitations for Organic Chemicals, Plastics and Synthetic Fibers, 40 CFR Part 414.

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B. Effluent Limitations Analysis

1. Feedstock Area Process Wastewaters

For the Feedstock Area, reference is made to EPA effluent limitations guidelines representing best practicable control technology (BPT) and best available technology (BAT) for the Petroleum Refining Point Source Category, 40 CFR Part 419, Subpart A, Topping Subcategory.

Process Configuration:

	MBSD	Cap/Thruput	W.F.	Proc. Config.
Crude Distillation	19.	1.00	1	1.00
Desalting	19.	1.00	1	1.00

Process Configuration = 2.00

Size Factor for 19.0 MBSD = 1.02

Process Factor for 2.00 Process Configuration = 0.62

Multiplier = 19.0 x 1.02 x 0.62 = 12.02

Process Wastewater Limitations

Parameter	Daily Max.		Daily Avg.	
	lb/MBSD	lb/day	lb/MBSD	lb/day
BOD	8.0	96	4.25	51
TSS	5.6	67	3.6	43
COD	41.2	495	21.3	256
Oil & Grease	2.5	30	1.3	16
Phenolic Compounds	0.06	0.7	0.027	0.3
Ammonia-N	0.99	12	0.45	5.4
Sulfide	0.053	0.6	0.024	0.3
Total Chromium	0.122	1.5	0.071	0.85
Hexavalent Chromium	0.010	0.12	0.0044	0.05

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2. Specialty Chemicals Area Process Wastewaters

For the paraffins, aromatics and mineral oils processing areas, reference is made to EPA's effluent limitations guidelines for Organic Chemicals, Plastics and Synthetic Fibers, 40 CFR Part 414, Subpart D, Type I Subcategory, as proposed in March, 1983, for new sources. These guidelines suggest effluent concentrations for BOD, TSS, phenol, benzene and chromium, with no specific limitations for other parameters -- COD, ammonia, oil & grease, and sulfide -- which are listed for the petroleum refining industry. Therefore, estimated values for these latter parameters are shown below, based on approximate COD/BOD relationships and data from similar wastewater treatment systems.

Process wastewater volumes generated by the specialty chemicals units are allocated in proportion to the process condensates shown on the attached Wastewater Flow Schematic. In other words, the condensates, utility wastewaters, tank water draws and process area washdown comprise about 85 percent of the Plant's process wastewater volume. The total process wastewater volume from the specialties chemicals areas is estimated at 328 gpm.

Process Wastewater Limitations

Parameter	Daily Max.		Daily Avg.	
	mg/L	lb/day*	mg/L	lb/day*
BOD	100	394	40	157
TSS	137	539	47	185
COD	400	1574	200	787
Oil & Grease	15	59	10	39
Phenolic Compounds	0.2	0.8	0.1	0.4
Ammonia-N	5	20	3	12
Sulfide	0.2	0.8	0.1	0.4
Total Chromium	0.19	0.8	0.09	0.4
Hexavalent Chromium	0.10	0.4	0.05	0.2
Benzene	0.125	0.5	0.075	0.3

*Based on flow rate of 328 gpm.

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3. Storm Runoff Limitations

Effluent limitations for contaminated storm runoff are based on EPA effluent limitations quidelines for the Petroleum Refining Point Source Category, 40 CFR Part 419, as amended July 12, 1985. Process area storm runoff and contaminated tank farm runoff will be commingled with process wastewaters and routed through the treatment system at rates of 75 gpm, for the wet-weather monthly average, and up to 500 gpm for the maximum daily rate.

Storm Runoff Limitations

Parameter	Daily Max.		Daily Avg.	
	lb/m.gal	lb/day@500gpm	lb/m.gal	lb/day@75gpm
BOD	0.40	288	0.22	23
TSS	0.28	198	0.18	19
COD	3.0	2160	1.5	162
Oil & Grease	0.13	90	0.067	7
Phenolic Compounds	0.0029	2.1	0.0014	0.2
Total Chromium	0.0060	4.4	0.0035	0.4
Hexavalent Chromium	0.00052	0.37	0.00023	0.03

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4. Combined Process Wastewater & Storm Runoff Limitations

Parameter	Daily Max.		Daily Avg.	
	lb/day	mg/L*	lb/day	mg/L**
BOD	778	60	231	30
TSS	804	62	247	32
COD	4229	328	1205	154
Oil & Grease	179	14	62	8
Phenolic Compounds (4AAP)	3.6	0.28	0.9	0.12
Ammonia-N	32	2.5	17.4	2.2
Sulfide	1.4	0.11	1.0	0.13
Total Chromium	6.7	0.5	1.65	0.2
Hexavalent Chromium	0.9	0.07	0.28	0.04
Benzene	0.5	0.04	0.3	0.04
pH	Range of 6.0 to 9.0			

*Concentration at flow rate of 1075 gpm
**Concentration at flow rate of 650 gpm

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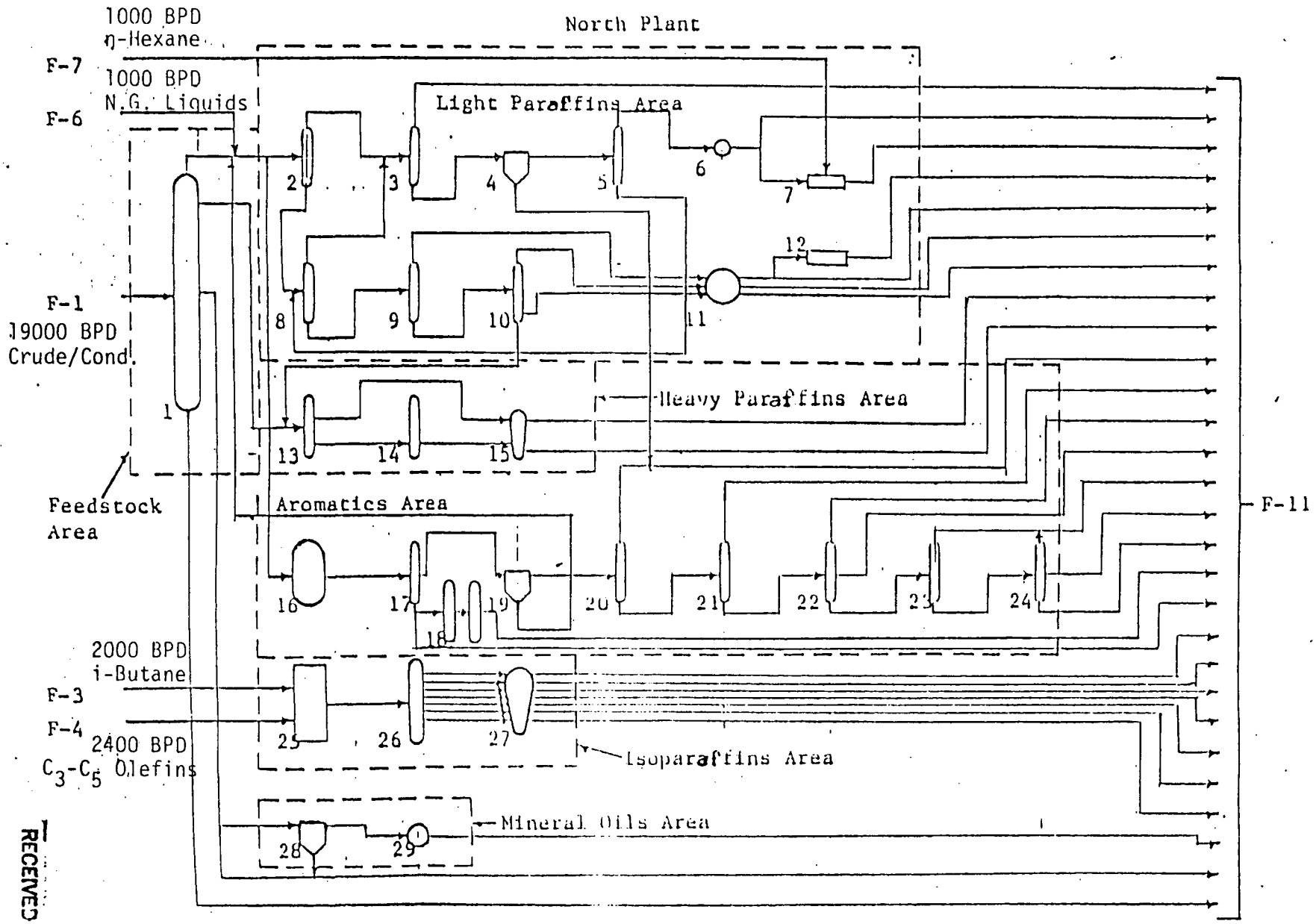
Detailed Process Flow Diagram

North Plant



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Attachment #5

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Process Flow Diagram Legend

# From Process Flow Diagram	Unit Name	Pt. Source #'s
1	Crude/condensate unit	8561,8562,8617
2	LE Fract[1]	8501,8601
3	LE Fract[2]	8502,8601
4	C_6 Extr	8512,8513,8514,8515,8605
5	LE Fract[3]	8503,8601
6	Naph sweetener	8510,8603
7	Sieve(1)	8530,8610
8	LE Fract[4]	8504,8601
9	LE Fract[5]	8505,8601
10	LE Fract[6]	8506,8601
11	Hydrotreat[1], Caustic sweet.	8547,8614
12	Sieve(2)	8549,8615
13	LE Fract[7]	8507,8601
14	LE Fract[8]	8508,8601
15	Hydrofine	8511,8604
16	Reformer	8516,8517,8518,8519,8520, 8521,8606
17	Aromatics dist[1]	8526,8608
18	Aromatics dist[2]	8527,8528,8608
19	Reformate ext	8522,8513,8524,8525,8607
20	Aromatics dist[3]	8529,8608

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Process Flow Diagram Legend (cont'd)

# From Process Flow Diagram	Unit Name	Pt. Source #'s
21	Aromatics dist[4]	8529A,8608
22	Aromatics dist[5]	8529B,8608
23	Aromatics dist[6]	8529C,8608
24	Aromatics dist[7]	8529D,8608
25	Alkylation	8531,8624
26	Alkylate dist	8537,8533,8534,8535,8536, 8537,8538,8539,8611
27	Hydrogenation	8540,8541,8542,8612
28	Distillate extraction	8543,8544,8545,8546,8613
29	Hydrotreat	8548,8614A
30	Recovery unit	8509,8623
31	Oils unit	8558,8616
32	Oils unit	8559,8616
33	Oils unit	8560,8616
34	Specialties unit 1	8563,8618
35	Specialties unit 1	8564,8618
36	Specialties unit 1	8565,8618
37	Specialties unit 1	8566,8618
38	Specialties unit 2	8567,8619
39	Specialties unit 2	8568,8619
40	Specialties unit 2	8569,8619
41	Specialties unit 2	8570,8619

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Process Flow Outline

Floor diagram #	Description	Pt. Source #s	Fugitive #	Energy input/purpose		#/hr steam	Fuel	Remarks
1	Crude/condensate fractionator	8561,8562	8617	2-30mm BTU/hr process heaters	/distillation	8330	F-8	Airborne wastes F-22, F-25,
2	LE fractionator (1)	8501	8601	1-34mm BTU/hr process heater	/distillation	2560	F-8	Airborne wastes F-22, F-25,
3	LE fractionator (2)	8502	8601	1-12mm BTU/hr process heater	/distillation	904	F-8 F-9	Airborne wastes F-22, F-25, 8502 Scrubber removes particulate. Liquid wastes Solid wastes F-16, F-17.
4	C_6 extraction unit	8512,8515	8605	2-20mm BTU/hr process heaters (8512,15) 2-60mm BTU/hr process heaters (8513,14)	/process heat /distillation-solvent recovery (raffinate & extract)	3750	F-8	Airborne wastes F-22, F-25,
5	LE fractionator (3)	8503	8601	1- 5mm BTU/hr process heater	/distillation	377	F-8	Airborne wastes F-22, F-25,
6	Naphtha sweetner	8510	8603	1-12mm BTU/hr process heater	/process heat	0	F-8	Airborne wastes F-22, F-25,
7	Molecular seive (1)	8530	8610	1-10mm BTU/hr process heater	/process heat	0	F-8	Airborne wastes F-22, F-25,
8	LE fractionator (4)	8504	8601	1- 5mm BTU/hr process heater	/distillation	377	F-8	Airborne wastes F-22, F-25,
9	LE fractionator (5)	8505	8601	1- 5mm BTU/hr process heater	/distillation	377	F-8	Airborne wastes F-22, F-25,
10	LE fractionator (6)	8506	8601	1- 5mm BTU/hr process heater	/distillation	377	F-8	Airborne wastes F-22, F-25,
11	Hydrotreater (1)/caustic sweetner	8547	8614	1-20mm BTU/hr process heater	/process heat	3330	F-8	Airborne wastes F-22, F-25,
12	Molecular seive (2)	8549	8615	1-10mm BTU/hr process heater	/process heat	0	F-8	Airborne wastes F-22, F-25,
13	LE fractionator (7)	8507	8601	1- 5mm BTU/hr process heater	/distillation	377	F-8	Airborne wastes F-22, F-25,
14	LE fractionator (8)	8508	8601	1-12mm BTU/hr process heater	/distillation	904	F-8	Airborne wastes F-22, F-25,
15	Hydrofiner	8511	8604	1-10mm BTU/hr process heater	/process heat	3996	F-8	Airborne wastes F-22, F-25,

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HANSA Manufacturing Company
Process Flow Outline

	Description	Pt. Source #s	Fugitive #	Energy input/purpose	#/hr steam	Fuel	Remarks
16	Reformer	8516,8521	8606	1-30,5-20mm BTU/hr process heaters /process heat	0	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
17	Aromatics fractionator (1)	8526	8608	1-40mm BTU/hr process heater /distillation	3333	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
18	Aromatics fractionator (2)	8527,8528	8608	2-10mm BTU/hr process heaters /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
19	Reformate extraction unit	8522,852	8607	2-20mm BTU/hr process heaters (8522,25) /process heat 2-60mm BTU/hr process heaters (8523,24) /distillation solvent recovery (raffinate & extract)	6240	F-8	Airborne wastes F-22,F-23,F-24 F-25,F-26
20	Aromatics fractionator (3)	8529	8608	1-10mm BTU/hr process heater /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
21	Aromatics fractionator (4)	8529A	8608	1-10mm BTU/hr process heater /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
22	Aromatics fractionator (5)	8529B	8608	1-10mm BTU/hr process heater /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
23	Aromatics fractionator (6)	8529C	8608	1-10mm BTU/hr process heater /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
24	Aromatics fractionator (7)	8529D	8608	1-10mm BTU/hr process heater /distillation	833	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
25	Alkylation unit	8531	8624	1-40mm BTU/hr process heater /process heat	2500	F-8	Airborne wastes F-22,F-23,F-24 F-25,F-26
26	Alkylate fractionator	8532,8539	8611	1-40mm,7-6mm BTU/hr process heaters /distillation	1250	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
27	Hydrogenation unit	8540,8542	8612	3-10mm BTU/hr process heaters /process heat	2080	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
28	Distillate extraction unit	8543,8546	8613	2-20mm BTU/hr process heaters /process heat 2-60mm BTU/hr process heaters /distillation solvent recovery (raffinate & extract)	9990	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
29	Hydrotreater (2)	8548	8614A	1-20mm BTU/hr process heater /process heat	3330	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26
30	Recovery unit	8509	8623	1-12mm BTU/hr /distillation	630	F-8	Airborne wastes F-22,F-23,F-24, F-25,F-26 Liquid waste F-21

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HANSA Manufacturing Company
Process Flow Outline

loor agram #	Description	Pt. Source #s	Fugitive #	Energy input/purpose		#/hr steam	Fuel	Remarks
31	Oils fractionator (1)	8558	8616	1-20mm BTU/hr process heater	/distillation	1500	F-8	Airborne wastes F-22,F-23, F-25,F-26
32	Oils fractionator (2)	8559	8616	1-20mm BTU/hr process heater	/distillation	1500	F-8	Airborne wastes F-22,F-23, F-25,F-26
33	Oils fractionator (3)	8560	8616	1-20mm BTU/hr process heater	/distillation	1500	F-8	Airborne wastes F-22,F-23, F-25,F-26
34	Specialties fractionator (1)	8563	8618	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
35	Specialties fractionator (2)	8564	8618	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
36	Specialties fractionator (3)	8565	8618	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
37	Specialties fractionator (4)	8566	8618	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
38	Specialties fractionator (5)	8567	8619	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
39	Specialties fractionator (6)	8568	8620	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
40	Specialties fractionator (7)	8569	8621	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
41	Specialties fractionator (8)	8570	8622	1-20mm BTU/hr process heater	/distillation	2000	F-8	Airborne wastes F-22,F-23, F-25,F-26
NA	Boiler (1)	8551	8602	100mm BTU/hr	/plant steam	NA	F-8	Airborne wastes F-22,F-23, F-25,F-26 Liquid waste F-18.
NA	Boiler (2)	8551A	8602A	100mm BTU/hr	/plant steam	NA	F-8	Airborne wastes F-22,F-23, F-25,F-26 8551A Scrubber removes [illegible] late. Liquid wastes F-18, [illegible] Solid waste F-17.
NA	Boiler (3)	8574	8602B	15mm BTU/hr	/plant steam	NA	F-8 F-10	Airborne wastes F-22,F-23, F-25,F-26 Liquid waste F-18
NA	Water stripper	8556	8609	1mm BTU/hr	/waste water stripping	NA	F-8 F-10	Airborne wastes F-22,F-23, F-25,F-26

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HANSA Manufacturing Company

Process Flow Outline- misc.

Pt. Source #	Name	Description
8550	North flare	Flaring of process gasses from North Plant during upset conditions. Airborne wastes F-22,F-23,F-24,F-25,F-26
8552	Truckrack	A positive displacement vapor recovery system is utilized for the loading of all VOCs. Trucks being loaded with non VOCs are vented.
8553	Truckrack	A positive displacement vapor recovery system is utilized for the loading of all VOCs. Trucks being loaded with non VOCs are vented.
8572	Truckrack	A positive displacement vapor recovery system is utilized for the loading of all VOCs. Trucks being loaded with non VOCs are vented.
8573	Truckrack	A positive displacement vapor recovery system is utilized for the loading of all VOCs. Trucks being loaded with non VOCs are vented.
8554	Barge dock	Hydrocarbon emmissions are generated during the loading and unloading of barges. Airborne waste F-23.
8555	Barge dock	Hydrocarbon emmissions are generated during the loading and unloading of barges. Airborne waste F-23.
8557	South flare	Flaring of process gasses from South Plant during upset conditions. Airborne wastes F-22,F-23,F-24,F-25,F-26
8571	Water separator	Hydrocarbon emmissions generated at separator outfall. Airborne waste F-23

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Detailed Process Description

The HANSA Manufacturing Co., Baytown facility consists of the following process units grouped according to product line "Areas" of the Process Flow Diagram.

NORTH PLANT

-Feedstock Area

Unit	Process Flow Diagram #
Crude/condensate fractionator	1

-Light Parrafins Area

Unit	Process Flow Diagram #
LE fractionator	2,3,5,8,9,10
C_6 extraction unit	4
Naphtha sweetener/caustic wash	6
Hydrotreater	11
Sieve unit (1)	7
Sieve unit (2)	12

-Heavy Parrafins Area

Unit	Process Flow Diagram #
LE fractionator	13,14
Hydrofiner	15

-Aromatics Area

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Unit	Process flow diagram #
Reformer	16
Aromatics distillation unit	17,18,20,21,22,23,24
FR/Reformate extraction unit	19

-Isoparrafins Area

Unit	Process flow diagram #
Alkylation unit	25
Alkylate distillation unit	26
Hydrogenation unit	27

-Mineral Oils Area

Unit	Process flow diagram #
Distillate extraction unit	28
Hydrotreater	29

-Fuels Area

Unit	Process flow diagram #
Recovery unit	30

SOUTH PLANT

-Purification Area

Unit	Process flow diagram #
Oils unit	31,32,33
Specialties unit (1)	34,35,36,37
Specialties unit (2)	38,39,40,41

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This Process Flow Diagram is supplemented by the Process Flow Diagram-Legend and the Process Flow Outline which have been included in earlier portions of this application. The Process Flow Diagram-Legend relates the code numbers from the Process Flow Diagram with the unit name and point source numbers from Tables 1 and 6. The Process Flow Outline lists in greater detail the type of equipment involved, the steam requirement, and (in particular) the emissions point #s from Table 2

-Feedstock Area

Incoming feed, #F-1 is fed to an atmospheric fractionator (#1) where the overhead or light naphtha fraction is sent, as feedstock, to the light ends fractionator. Middle distillate and residuum from this Area become fuel products (F-11).

-Light Parrafins Area

Feedstock #F-6 supplements the light naphtha going to the light ends fractionator. As can be seen from the Process Flow Diagram, the light ends fractionator consists of six distillation columns numbered 2,3,5,8,9,10, along with an extraction unit (#4), a naphtha sweetener (#6), a caustic wash and hydrotreater (#11), and two molecular sieve units (#s 7 and 12). Each distillation column serves a specific purpose, namely to separate narrow boiling range fractions as semi-finished products to be treated and/or extracted and treated prior to being sent to product storage (F-11).

The overhead fraction from distillation unit #5 is sent to the naphtha sweetener/caustic wash (#6) and the treated material subsequently

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goes to product storage and sieve unit 1 (#7). Make up feed (F-7) supplements the incoming volumes for sieve unit 1. The bottoms fraction from distillation unit #5 becomes feed make up for distillation unit #8.

Distillation units #8,#9, and #10 produce fractions which are hydrotreated (#11) or hydrotreated and sieved (#12) before being sent to product storage (F-11).

-Heavy Parrafins Area

From the Feedstock Area, a heavy naphtha stream is taken as a sidedraw off the upper section of the column and is sent to the Heavy Parrafins Area. Two fractionators (#13,14) encompass this area along with a downstream hydrofiner (#15). This unit is primarily intended to manufacture relatively higher boiling range aliphatic materials in the 300- 450° F range (F-11). The bottom stream from distillation unit #10 in the Light Parrafins Area supplements the heavy naphtha feed to this unit.

-Aromatics Area

Full range naphtha from the Feedstock Area (in addition to the light fractionation unit) is fed to the Aromatics Area which consists of, roughly speaking, three components: (1) a catalytic reformer (#16), (2) aromatics distillation unit (#17,18,20,21,22,23,24), and (3) an FR/reformate (#19) extraction unit. The purpose of the reformer is to enhance the conditions for the transition of parrafinic to aromatic hydrocarbon molecular structures. The reformate is fed to an initial distillation column (#17) whose overhead fraction is sent to the FR/

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reformate extraction unit (#19). The raffinate stream from the extraction unit is sent back to the Light Parrafins Area and the aromatic stream is fed to the aromatics distillation unit. The bottoms fraction from distillation unit (#17) is a naphtha product. Subsequent distillation steps following the extraction unit in this Area generally serve to produce narrow boiling range aromatic products (F-11). Approximately seven products are produced here.

-Isoparrafins Area

Iso-butane (F-3) and C_3-C_5 olefins (F-4) are fed to an alkylation unit (#25), the alkylate from which is sent to a distillation unit (#26) producing seven fairly well defined fractions which are hydrogenated (#27) and ultimately become isoparrafinic products (F-11).

-Mineral Oils Area

The middle distillate fraction from the Feedstock Area is fed to a distillate extraction unit (#28) and the raffinate off this unit is subsequently hydrotreated (#29) to produce a mineral oil product (F-11). The extract from the distillate extraction unit becomes a portion of the distillate fuel product (F-13), along with a straight run distillate from the Feedstock Area.

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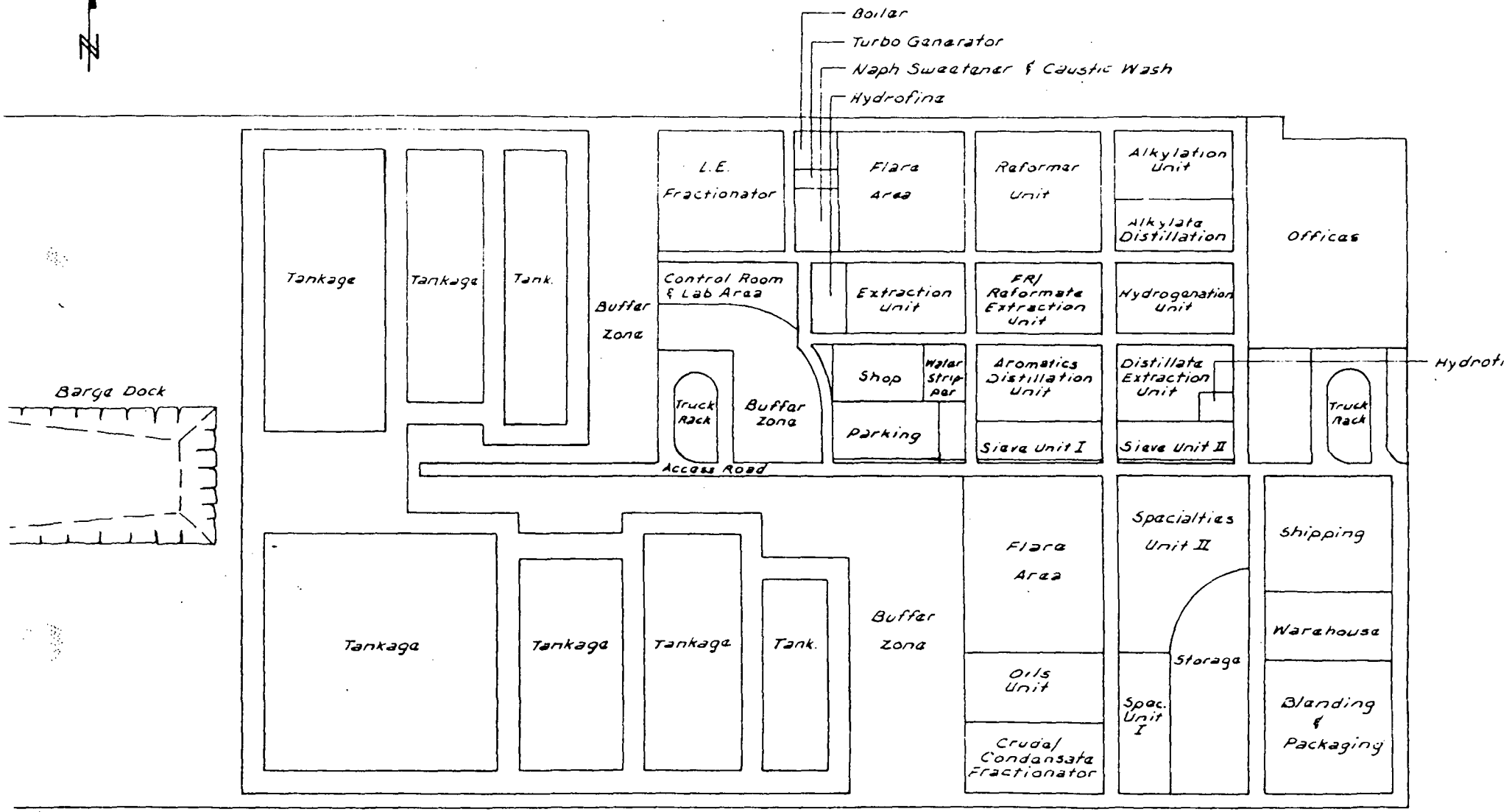
-Fuels, Utilities, Wastes

All processing units requiring energy input incorporate one or more fired process heaters listed as point sources in Table 6 and in the Process Flow Outline. All heaters are of horizontal configuration with radiant and convection sections and are equipped with low NO_x burners.

Residual fuel oil (F-8) is the primary plant fuel and supplemental natural gas is utilized as makeup and for starting pilots. Approximately 50% of the fuel requirement for heater #8502 is amorphous polypropylene. In combustion, airborne wastes listed as F-22 through F-26 (Table 2- Material Balance) are generated. Heater #8502 is equipped with a quench collar and wet venturi scrubber and, consequently, generates solid wastes F-16

Attachment



General Plant Layout

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and F-17 (neutralization salts and scrubber ash) as well as liquid waste F-19 (scrubber blowdown).

Steam boilers (#8551, #8551A, and 8574) generate general purpose plant steam. Airborne wastes F-22 through F-26 are generated along with liquid waste F-18 (boiler blowdown). Additionally, boiler #8551A is equipped with a quench collar and wet venturi scrubber generating F-16, F-17, and F-19 wastes (neutralization salts, scrubber ash, and scrubber blowdown, resp.).

Two flare systems burn off excess process gases during upset conditions. Airborne wastes F-22 through F-26 are generated.

Tank storage at the facility generates airborne hydrocarbon emissions (F-23) as well as liquid waste F-21 (contact water) and solid waste F-15 (tank bottoms). Ongoing activity at the site generates packaging/paper refuse (F-24) which is to be handled by commercial disposal. Stormwater falling on process areas is handled as potentially dirty sewer water and thus is noted in Table 2 as liquid waste F-20 (stormwater runoff).

-Other

As listed in the Process Flow Outline- Misc, several other phases of the operation contribute to air emissions. These include the fugitive emissions listed in Table I as well as the following items listed as point sources.

1) Storage tank/sphere hydrocarbon emissions
2) Vapor recovery system for truck loading VOC's
3) Non-VOC truck rack loading
4) Barge dock hydrocarbon emissions

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Document 5

PERMIT NO. 02777
(corresponds to
NPDES PERMIT NO. TX0098604)

This is a renewal of Permit No. 02777, approved January 28, 1986.

TEXAS WATER COMMISSION
Stephen F. Austin State Office Building
1700 N. Congress Ave.
Austin, Texas 78711

PERMIT TO DISPOSE OF WASTES
under provisions of Chapter 26
of the Texas Water Code

Hansa Manufacturing Company

whose mailing address is

P.O. Box 1278
Baytown, Texas 77522

is authorized to treat and dispose of wastes from their Cedar Bayou Plant, a petroleum refinery and organic chemical manufacturing plant (SIC 2911 and 2869)

located adjacent and east of Cedar Bayou, approximately 2-1/2 stream miles south of the State Highway 146 Cedar Bayou Bridge and northeast of the City of Baytown, Chambers County, Texas

to Cedar Bayou Tidal in Segment No. 0901 of the Trinity-San Jacinto Coastal Basin

only in accordance with effluent limitations, monitoring requirements and other conditions set forth herein, as well as the rules of the Texas Water Commission ("Commission"), the laws of the State of Texas, and other orders of the Commission. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the herein described discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the herein described discharge route.

This permit and the authorization contained herein shall expire at midnight, five years after the date of Commission approval.

APPROVED, ISSUED AND EFFECTIVE this 2nd day of May, 1991.

ATTEST: Gloria A. Vasquez

For the Commission

05001

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number 001

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater, treated cooling tower blowdown and uncontaminated stormwater runoff subject to the following effluent limitations:

   The daily average flow of effluent shall not exceed 0.95 million gallons per day (MGD). The total volume discharged during any 24-hour period shall not exceed 1.60 million gallons.

Effluent Characteristic	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (mg/l)	Daily Max lbs/day (mg/l)	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow (MGD)	Report *	Report *	N/A	One/op. shift	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (5-day)	158 (20)	317 (40)	45	Two/week	Composite
Total Suspended Solids	158 (20)	317 (40)	45	Two/week	Composite
Chemical Oxygen Demand	1426 (180)	2535 (320)	350	Two/week	Composite
Oil and Grease	79 (10)	119 (15)	20	Two/week	Grab
Phenolic Compounds	0.8 (0.1)	1.6 (0.2)	0.25	Two/week	Grab
Ammonia Nitrogen	16 (2)	32 (4)	5	Two/week	Composite
Sulfides	0.8 (0.1)	1.6 (0.2)	0.25	Two/week	Grab
Total Chromium	4.0 (0.5)	8.0 (1.0)	1.5	Two/week	Composite

* Flow measurements shall be taken prior to commingling the treated process and cooling tower blowdown with untreated stormwater runoff.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day, by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

4. Effluent monitoring samples shall be taken at the following location(s): Following the commingling of the different waste streams and prior to entering Cedar Bayou.

050050

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number 101

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater subject to the following effluent limitations:

   The daily average flow of effluent shall not exceed 0.71 million gallons per day (MGD). The total volume discharged during any 24-hour period shall not exceed 1.32 million gallons.

Effluent Characteristic	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow (MGD)	(Report)	(Report)	N/A	One/op. shift	Totalizing meter
Benzene	0.17 (37)	0.62 (136)	0.156	Two/week	Composite
Toluene	0.12 (26)	0.36 (80)	0.092	Two/week	Composite
Naphthalene	0.10 (22)	0.27 (59)	0.068	One/year	Composite
Acenaphthene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Acrylonitrile	0.44 (96)	1.10 (242)	0.278	One/Year	Composite
Carbon Tetrachloride	0.08 (18)	0.17 (38)	0.044	One/Year	Composite
Chlorobenzene	0.07 (15)	0.13 (28)	0.032	One/Year	Composite
1,2,4-Trichlorobenzene	0.31 (68)	0.64 (140)	0.161	One/Year	Composite
Hexachlorobenzene	0.07 (15)	0.13 (28)	0.032	One/Year	Composite
1,2-Dichloroethane	0.31 (68)	0.96 (211)	0.243	One/Year	Composite
1,1,1-Trichloroethane	0.10 (21)	0.25 (54)	0.062	One/Year	Composite
Hexachloroethane	0.10 (21)	0.25 (54)	0.062	One/Year	Composite
1,1-Dichloroethane	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
1,1,2-Trichloroethane	0.09 (21)	0.25 (54)	0.062	One/Year	Composite
Chloroethane	0.47 (104)	1.22 (268)	0.308	One/Year	Composite
Chloroform	0.10 (21)	0.21 (46)	0.053	One/Year	Composite
2-Chlorophenol	0.14 (31)	0.44 (98)	0.113	One/Year	Composite
1,2-Dichlorobenzene	0.35 (77)	0.74 (163)	0.187	One/Year	Composite
1,3-Dichlorobenzene	0.14 (31)	0.20 (44)	0.051	One/Year	Composite
1,4-Dichlorobenzene	0.07 (15)	0.13 (28)	0.032	One/Year	Composite
1,1-Dichloroethylene	0.07 (16)	0.11 (25)	0.029	One/Year	Composite
1,2-trans Dichloroethylene	0.10 (21)	0.25 (54)	0.062	One/Year	Composite

* ug/l = microgram per liter, ppb.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number 101 (continued)

Effluent Characteristic	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
2,4-Dichlorophenol	0.18 (39)	0.51 (112)	0.129	One/Year	Composite
1,2-Dichloropropane	0.69 (153)	1.04 (230)	0.264	One/Year	Composite
1,3-Dichloropropylene	0.13 (29)	0.20 (44)	0.051	One/Year	Composite
2,4-Dimethylphenol	0.08 (18)	0.16 (36)	0.041	One/Year	Composite
2,4-Dinitrotoluene	0.51 (113)	1.29 (285)	0.328	One/Year	Composite
2,6-Dinitrotoluene	1.16 (255)	2.91 (641)	0.737	One/Year	Composite
Ethylbenzene	0.15 (32)	0.49 (108)	0.124	One/Year	Composite
Fluoranthene	0.11 (25)	0.31 (68)	0.078	One/Year	Composite
Methylene Chloride	0.18 (40)	0.40 (89)	0.102	One/Year	Composite
Methyl Chloride	0.39 (86)	0.86 (190)	0.218	One/Year	Composite
Hexachlorobutadiene	0.09 (20)	0.22 (49)	0.056	One/Year	Composite
Nitrobenzene	0.12 (27)	0.31 (68)	0.078	One/Year	Composite
2-Nitrophenol	0.19 (41)	0.31 (69)	0.079	One/Year	Composite
4-Nitrophenol	0.33 (72)	0.56 (124)	0.143	One/Year	Composite
2,4-Dinitrophenol	0.32 (71)	0.56 (123)	0.141	One/Year	Composite
4,6-Dinitro-o-cresol	0.35 (78)	1.26 (277)	0.318	One/Year	Composite
Phenol	0.07 (15)	0.12 (26)	0.030	One/Year	Composite
Bis(2-ethylhexyl) phthalate	0.47 (103)	1.27 (279)	0.321	One/Year	Composite
Di-n-butyl phthalate	0.12 (27)	0.26 (57)	0.066	One/Year	Composite
Diethyl phthalate	0.37 (81)	0.92 (203)	0.233	One/Year	Composite
Dimethyl phthalate	0.09 (19)	0.21 (47)	0.054	One/Year	Composite
Benzo(a)anthracene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Benzo(a)pyrene	0.10 (23)	0.28 (61)	0.070	One/Year	Composite
3,4-Benzofluoranthene	0.10 (23)	0.28 (61)	0.070	One/Year	Composite
Benzo(k)fluoranthene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Chrysene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Acenaphthylene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Anthracene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Fluorene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite
Phenanthrene	0.10 (22)	0.27 (59)	0.068	One/Year	Composite

* ug/l = microgram per liter, ppb.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 101 (continued)

Effluent Characteristic	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Pyrene	0.11 (25)	0.30 (67)	0.077	One/Year	Composite
Tetrachloroethylene	0.10 (22)	0.25 (56)	0.064	One/Year	Composite
Trichloroethylene	0.10 (21)	0.25 (54)	0.062	One/Year	Composite
Vinyl Chloride	0.47 (104)	1.22 (268)	0.308	One/Year	Composite

* ug/l = microgram per liter, ppb.

2. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

3. Effluent monitoring samples shall be taken at the following location(s): Following the biological treatment facilities, prior to mixing with treated cooling tower blowdown and uncontaminated stormwater runoff for discharge to Cedar Bayou.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 31 Texas Administrative Code (TAC) Chapter 305 certain regulations appear as standard conditions in waste discharge permits. All definitions contained in Section 26.001 of the Texas Water Code shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

   a. Daily average flow - the arithmetic average of all determinations of the daily discharge within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily discharge, the determination shall be the average of all instantaneous measurements taken during a 24-hour period or during the period of daily discharge if less than 24 hours. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

   b. Instantaneous flow - the measured flow during the minimum time required to operate the flow measuring device.

   c. 2-hour peak (domestic wastewater treatment plants) - the maximum flow sustained for a two hour period during the period of daily discharge. Multiple measurements of instantaneous maximum flow within a two-hour period may be compared to the permitted 2-hour peak flow.

   d. Daily maximum flow - the highest total flow permitted for a 24-hour period.

2. Concentration Measurements

   a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements. (i) For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration. (ii) For all other wastewater treatment plants - When four samples are not available in calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

   b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab, within a period of one calendar week, consisting of at least three separate measurements.

   c. Daily maximum concentration - the maximum concentration measured on a single day (by composite sample).

   d. Fecal Coliform bacteria-the number of colonies per 100 milliliters effluent.

3. Sample Type

   a. Composite sample - a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow collected no closer than two hours; or a sample continuously collected, proportional to flow, in a continuous 24-hour period or during the period of daily discharge if less than 24 hours.

   b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - Wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of municipal sewage, industrial wastes, agricultural wastes, recreational wastes or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term "sludge" shall mean the solids and precipitates separated from wastewater by unit processes, which are not regulated as hazardous waste.

MONITORING AND REPORTING

1. Self-Reporting

   31 TAC §305.125(17) Monitoring results shall be provided at the intervals specified in the permit.

   Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 31 TAC §§319.4-319.7.

   Unless otherwise specified, a monthly effluent report must be submitted each month by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month. Knowingly making any false statement on any such report may result in the imposition of criminal and/or civil penalties as provided by State law.

2. Test Procedures

Test procedures for the analysis of pollutants shall comply with procedures specified in 31 TAC §§319.10-319.11. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.

3. Records of Results

31 TAC §305.125(11) Monitoring and reporting requirements are as follows:

(a) Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

(b) Monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by the permit, and the certification required by 40 Code of Federal Regulations §264.73(b)(9) shall be retained at the facility site for a period of three years from the date of the record or sample, measurement, report, or certification. This period may be extended at the request of the executive director.

(c) Records of monitoring activities shall include the following:

(i) date, time and place of sample or measurement;
(ii) identity of individual who collected the sample or made the measurement;
(iii) date of analysis;
(iv) identity of the individual and laboratory who performed the analysis;
(v) the technique or method of analysis; and
(vi) the results of the analysis or measurement.

The period during which records are required to be kept shall be automatically extended to and through the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, the results of such monitoring that indicate permit noncompliance shall be included in the calculation and reporting of the value submitted on the required monthly effluent report. The results of such monitoring that indicate permit compliance may also be reported and included in calculations. Increased frequency of sampling shall be indicated on the report.

5. Calibration of Instruments

All automatic flow measuring and/or recording devices and/or totalizing meters required by the permit for measuring permit limited flows shall be accurately calibrated by a trained person at plant startup and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be kept at the plant site for at least three years.

6. Compliance Schedule Reports

31 TAC §305.125(18) Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date.

7. Noncompliance Notification

a. 31 TAC §305.125(9) Unless specified otherwise, the permittee shall report any noncompliance to the executive director which may endanger human health or safety, or the environment. Report of such information shall be provided orally within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission of such information shall also be provided within five working days of the time the permittee becomes aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and, steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

b. Any noncompliance which is 40% over the permitted effluent limitation shall be reported orally within 24 hours and in writing to the District Office within 5 working days of becoming aware of the condition.

c. 31 TAC §305.125(12) Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the executive director as promptly as possible. (This requirement means to report these types of noncompliance on the monthly self-report form)

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8. Signatories To Reports

31 TAC §305.125(14) All reports and other information requested by the executive director shall be signed by the person and in the manner required by 31 TAC §305.128 (relating to Signatories to Reports).

PERMIT CONDITIONS

1. General

a. 31 TAC §305.125(19) Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the executive director, it shall promptly submit such facts or information.

b. This permit is granted on the basis of the information supplied and representations made by the permittee during the application process and in reliance upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part in accordance with 31 TAC 305.61-305.68, during its term for cause including, but not limited to, the following:

(i) Violation of any terms or conditions of this permit;

(ii) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

(iii) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

c. 31 TAC §305.125(6) The permittee shall furnish to the executive director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking or, suspending, or terminating the permit. The permittee shall also furnish to the executive director, upon request, copies of records required to be kept by the permit.

2. Compliance

a. 31 TAC §305.124 Acceptance of the permit by the person to whom it is issued constitutes an acknowledgement and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the commission.

b. 31 TAC §305.125(1) The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Solid Waste Disposal Act, and is grounds for enforcement action, for permit amendment, revocation or suspension, or for denial of a permit renewal application or of an application for a permit for another facility.

c. 31 TAC §305.125(3) It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

d. 31 TAC §305.125(4) The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with the permit and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

e. 31 TAC §305.125(8) Authorization from the commission is required before beginning any change in the permitted facility or activity that would result in noncompliance with other permit requirements.

f. 31 TAC §305.125(15) A permit may be amended, suspended and reissued, or revoked for cause. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

g. There shall be no unauthorized bypasses of wastewater. For purposes of this permit a bypass is considered the discharge of untreated or partially treated wastewater which exceeds the permit limits and is not caused solely by an act of God. Routing wastewater around a treatment unit or units resulting in a discharge which does not exceed permit limits is not a bypass. In the event that a discharge of partially or untreated wastewater is anticipated to cause a violation of permit limits application shall be submitted to the Commission for authorization to discharge untreated or partially treated wastewater pursuant to Section 26.0191 of the Texas Water Code and 31 TAC 305.21-305.30.

3. Inspections and Entry

a. 31 TAC §305.125(10) Inspection and entry shall be allowed as prescribed in the Texas Water Code, Chapters 26, 27 and 28, and the Texas Solid Waste Disposal Act, Texas Civil Statutes, Article 4477-7, §7.

b. The members of the commission and employees and agents of the commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state. Members, employees, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, or agent is refused the right to enter in or on public or private property under this authority, the executive director may invoke the remedies authorized in Texas Water Code Section 26.123.

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4. Permit Amendment

a. 31 TAC §305.125(7) The permittee shall give notice to the executive director prior to physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements.

b. Prior to any facility modifications, additions and/or expansions of a permitted facility that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.

c. 31 TAC §305.125(2) The permittee must apply for an amendment or renewal prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. Authorization to continue such activity will terminate upon the effective denial of said application.

d. Prior to accepting wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.

e. Texas Water Code §26.029(b) After a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, to conform to new or additional conditions. The Commission shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Commission may grant additional time.

5. Permit Transfer

a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified, in writing, of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Permit Application Unit in the Water Quality Division.

b. 31 TAC §305.125(13) A permit may be transferred only according to the provisions of 31 TAC §305.64 (relating to Transfer of Permits) and 31 TAC 305.97 (relating to Action on Application for Transfer).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous solid waste storage, processing, or disposal which requires a permit or other authorization pursuant to the Texas Solid Waste Disposal Act, Article 4477-7, Vernon's Annotated Texas Civil Statutes.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to the waters in the state must be specifically authorized in this permit and may require a permit pursuant to Chapter 11 of the Texas Water Code.

8. Property Rights

31 TAC §305.125(16) A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

OPERATIONAL REQUIREMENTS

1. 31 TAC §305.125(5) The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit.

2. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all provisions of 31 TAC §§319.21 - 319.29 concerning the discharge of certain hazardous metals, and upon request of the executive director, the permittee shall take samples of the final effluent and provide proper analysis of such samples in order to demonstrate compliance with these rules.

3. In accordance with 31 TAC §335.6:

a. The permittee shall notify the Executive Director in writing of any closure activity or facility expansion at least 90 days prior to conducting such activity.

b. Closure activities include those associated with any pit, pond, lagoon, or surface impoundment regulated by this permit.

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4. The permittee is responsible for installing prior to plant startup, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.

5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or a means by which effluent flow may be determined based upon influent measuring.

6. The permittee shall remit an annual waste treatment inspection fee to the Commission as required by 31 TAC 50 (Subchapter M). Failure to pay this fee may result in revocation of this permit.

7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification, upon the same basis as self-monitoring data are required to be kept and made available.

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OTHER REQUIREMENTS

1. Reporting requirements pursuant to 31 TAC Sections 319.1-319.12 and any additional effluent reporting requirements contained in the permit are suspended from the effective date of the permit until plant start-up or discharge, whichever comes first, from the facility described by this permit. The permittee shall provide written notice to the Texas Water Commission, Austin and District Offices, forty-five (45) days prior to plant start-up or anticipated discharge.

2. Rainfall runoff discharged from any point source from the plant area not identifiable by outfall shall not: (a) contain floating solids, visible oil or visible foam in other than trace amounts, (b) have a pH less than 6.0 nor greater than 9.0 standard units at any time, or (c) exceed a chemical oxygen demand of 200 mg/l nor an oil and grease concentration of 15 mg/l on a grab sample.

3. All domestic sewage shall be given complete treatment (both primary and secondary) and chlorinated sufficiently to maintain a minimum 1.0 mg/l chlorine residual and a 4.0 mg/l maximum chlorine residual after at least 20 minutes contact time (based on peak flow) prior to mixing with any other waters. Effluent shall not exceed a biochemical oxygen demand (5-day) content or a total suspended solids content of 65 mg/l on a grab sample. The permittee shall provide a readily accessible sampling point for discharges from the sewage treatment facilities.

4. A flow measuring device and a readily accessible sampling point shall be provided by the permittee for Outfall 001 and 101.

5. All sludges and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with Chapter 361 of the Health and Safety Code of Texas.

6. Within 60 days following plant start up or commencement of discharge, whichever occurs first, the permittee shall collect a representative 24-hr. composite sample from discharge from Outfall 001 and perform the following analysis:

   A. A Gas Chromatography/Mass Spectrometry analysis for volatiles, acid compounds and base/neutral fractions as specified in 40 CFR 122 Appendix D.

   B. An analysis for the following metals and pentachlorophenol. The analysis shall be sensitive enough to detect the constituents at the Minimum Analytical Level (MAL) as specified below:

Parameter	MAL (ug/l)*	Parameter	MAL (ug/l)*
Total Arsenic	10	Total Nickel	10
Total Cadmium	1	Pentachlorophenol	5.9
Hexavalent Chromium	10	Total Selenium	20
Total Lead	10	Total Silver	2
Total Mercury	2	Total Zinc	0.5

* ug/l = micrograms per liter (ppb)

7. The results of the analysis required above shall be submitted to the TWC Water Quality Division, Program Support Unit and the Industrial Permit Unit within 60 days of sample collection. The TWC may require further sample collection and analysis based on the results of the initial analysis required above. As a result of the further analysis, the TWC may initiate a permit amendment.

8. Chronic toxic criteria apply at the edge of the mixing zone. The mixing zone for Outfall 001 is defined as a volume within a radius of 200 feet extending over the receiving water from the point where the discharge reaches Cedar Bayou.

9. The permittee shall provide written notice of all of the chemical additives to be made to the cooling towers to the Texas Water Commission, Water Quality Division, Program Support Unit and the Industrial Permit Unit, as well as the District 7 Office forty-five (45) days prior to plant start-up or anticipated discharge of cooling tower blowdown. The TWC may initiate a permit amendment, or may prohibit the usage of certain chemical additives as a result of the notification.

10. Subsequent to this permit issuance date, all process wastewater ponds shall be lined in compliance with one of the following requirements:

    (a) Soil Liner: The soil liner shall contain at least 3 feet of clay-rich (liquid limit greater than or equal to 30 and plasticity index greater than or equal to 15) soil material along the sides and bottom of the pond compacted in lifts of no more than 9 inches, to 95% standard proctor density at the optimum moisture content to achieve a permeability equal to or less than 1×10^{-7} cm/sec.

    (b) Synthetic/Plastic/Rubber Liner: The liner shall be either a plastic or rubber membrane liner at least 30 mils in thickness which completely covers the sides and the bottom of the pond and which is not subject to degradation due to reaction with wastewater with which it will come into contact. If this lining material is vulnerable to ozone or ultraviolet deterioration it should be covered with a protective layer of soil of at least 6 inches. A leak detection system is also required.

    (c) Alternate Liner: The permittee shall submit plans for any other pond lining method. Pond liner plans must be approved in writing by the Executive Director of the Texas Water Commission prior to pond construction.

    The permittee shall notify the TWC District Office upon completion of construction of the pond and at least a week prior to its use. Certification of the lining specifications shall be provided by a registered professional engineer and shall be available for inspection by Texas Water Commission personnel upon request.

CHRONIC BIOMONITORING REQUIREMENTS: MARINE

a. The provisions of this section apply to Outfall(s) 001.

b. The permittee shall test the effluent for toxicity in accordance with the provisions in this section. Such testing will determine if an appropriately dilute effluent sample affects the survival and/or reproduction or growth of the appropriate test organism.

Toxicity is herein defined as a statistically significant difference at the 95% confidence level between survival and/or reproduction or growth of the appropriate test organism in a specified effluent concentration and the control (0% effluent).

Lethality, a component of toxicity, is herein defined as a statistically significant difference at the 95% confidence level between survival of the appropriate test organism in a specified effluent concentration and the control (0% effluent).

Significant nonlethal effect, a component of toxicity, is herein defined as a statistically significant difference at the 95% confidence level between reproduction or growth of the appropriate test organism in a specified effluent concentration and the control (0% effluent).

The permittee shall initiate the following series of tests within 60 days following plant start up or commencement of discharge, whichever occurs first. All test organisms, procedures, and quality assurance requirements used shall be in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA 600/4-87/028)," or the latest revision of this document. The TWC may require the permittee to repeat a test, including the control and all effluent dilutions, if the test acceptability criteria, procedures, and quality assurance requirements defined in the test methods are not satisfied. The following tests shall be used:

1) Chronic static renewal 7-day survival, growth and fecundity test using Mysidopsis bahia (Method 1007.0).

2) Chronic static renewal 7-day larval survival and growth test using sheepshead minnow (Cyprinodon variegatus) (Method 1004.0).

c. Five effluent concentrations in addition to an appropriate control (0% effluent) shall be used in the toxicity test. These additional effluent concentrations shall be 4%, 8%, 16%, 32%, and 64%. The low-flow effluent concentration (critical dilution) is defined as 8% effluent, and the 1/2 low-flow effluent concentration (2 times the critical dilution) is defined as 16% effluent. If more than 20% of the test organisms in any control die, that test, including the control and all effluent dilutions, shall be repeated.

d. The samples shall be collected at a point following the last treatment unit. Dilution water used in the toxicity tests will be the receiving water collected as close to the point of discharge as possible but unaffected by the discharge.

If the receiving water is unsatisfactory as a result of preexisting instream toxicity (greater than 20% mortality in the control), the permittee shall substitute synthetic dilution water for the receiving water in the retest required in item c. above provided the following stipulations are met: (a) a synthetic dilution water control was run in addition to the receiving water control; (b) the synthetic dilution water had 20% or less mortality, whereas the receiving water control had greater than 20% mortality; (c) the permittee submits all test results on the receiving water with the report and information required by items k. and l. below and the Biomonitoring Report Forms for the reporting period; and (d) the synthetic dilution water has a pH, and salinity similar to that of the receiving water.

The permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water if approved by the permitting authority. Synthetic dilution water may be used exclusively for the control in all subsequent tests provided all of the above stipulations are met.

e. Flow-weighted 24-hour composite samples representative of dry weather flows during normal operation will be collected from Outfall(s) 001. The 24-hour composite sample consists of a minimum of twelve (12) effluent portions collected at equal time intervals and combined proportional to flow or a sample continuously collected proportional to flow over a 24-hour operating day.

A minimum of three 24-hour composite samples must be collected so that the maximum holding time for effluent samples shall not exceed 72 hours. The toxicity test must be initiated within 36 hours after collection of the last portion of the first 24-hour composite sample. Samples shall be chilled to 4 degrees centigrade when collected, shipped and/or stored.

f. The toxicity tests specified above shall be conducted once per quarter.

g. Lethality Testing - Special Conditions

1. If any toxicity test at the 8% effluent concentration demonstrates lethality, the permittee shall resample and again conduct the toxicity test(s) for the species that showed lethality within fifteen (15) days of test completion. There shall be a total of three (3) consecutive toxicity tests during a forty-five (45) day period. If one or more of the retests show lethality in the 8% effluent concentration, the permittee may suspend additional retesting for this reporting period and shall notify the TWC in writing and submit all test results within fifteen (15) days.

The permittee may be required to conduct further monitoring studies if biomonitoring data indicate multiple numbers of unconfirmed toxicity events.

2. If the testing frequency in item f above is monthly, the permittee may substitute the biomonitoring conducted during a retest for the next monthly routine biomonitoring if the time of the retest coincides with the next monthly biomonitoring. Concurrently with the retest, the permittee must also conduct the next month's required biomonitoring for the species that did not demonstrate significant lethality at the 8% effluent concentration.

3. Within thirty (30) days after submitting the test results which demonstrate lethality in one or more of the retests, the permittee shall submit to the TWC a general outline for initiating a Toxicity Reduction Evaluation (TRE). The outline shall include, but is not limited to, such things as: assigning project personnel; a time schedule for obtaining consultants, if needed; a discussion of available influent/effluent data available for review, and specify an initiation date for the TRE with a proposed schedule of specified activities/testing.

4. Ninety (90) days after initiating the TRE, the permittee shall submit a specific detailed plan and schedule for performing the TRE. The TRE shall be designed to determine the general cause of toxicity, possible action to eliminate or reduce the toxicity and develop a corrective action schedule. The permittee is required to implement the TRE with due diligence and shall submit quarterly summaries to the TWC concerning the project results.

   If after initiating the TRE, the effluent ceases to induce lethal responses in the test organisms, the permittee may discontinue the TRE requirements and continue with the remainder of the biomonitoring testing required in sections f. through j. A cessation of lethality is defined as no lethality at the 8% effluent concentration, using the test procedures required in sections b. through e., for a period of four (4) consecutive months with at least monthly sampling and testing. Such evidence shall be submitted to the TWC with a statement of intent to cease the TRE.

   This permit may be amended to require a compliance schedule for implementation of corrective actions and/or permit limits based upon the results of the TRE and proposed corrective actions.

5. The provisions of g.1. and g.3. are suspended upon submittal of the TRE Plan.

6. If any retest in item g.1 indicates lethality at the 8% effluent concentration, the permittee shall continue biomonitoring quarterly (as a minimum) during the TRE, using the most sensitive species. The biomonitoring procedures specified in items b through e above shall be utilized.

h. Nonlethal Effects Testing - Special Conditions

1. If the testing frequency specified in item f. above is quarterly and if any toxicity test required in items b.-f. above demonstrates a significant nonlethal effect at the 8% effluent concentration, the permittee shall biomonitor once per month, for an additional twelve (12) consecutive months following the toxicity test initially showing significant nonlethal effects. If only one species demonstrated a significant nonlethal effect at the 8% effluent concentration, the permittee may perform the additional 12 consecutive biomonitoring tests utilizing that species only. In this event, the permittee shall continue the first year's quarterly biomonitoring tests for the species that did not demonstrate a significant nonlethal effect. Upon completion of the additional testing requirements, the permittee shall continue biomonitoring utilizing both species specified in item b. once per six (6) months until the expiration date of the permit. The same procedures specified in items b. - e. above shall be used during the monthly, quarterly, and twice-yearly testing.

   This permit may be amended to require effluent limits, additional testing and/or other appropriate action to address non-lethal toxic effects.

2. If the testing frequency specified in item f. above is monthly and if any toxicity test required in items b. - f. above demonstrates a significant nonlethal effect at the 8% effluent concentration during the first year of testing, the permittee shall continue biomonitoring after the first year of testing at a frequency of once per six (6) months until the expiration date of the permit. The same procedures specified in items b.- e. above shall be used.

i. If lethality is shown at the 16% effluent concentration and toxicity is not shown at the 8% effluent concentration during the first year of testing, the permittee shall continue biomonitoring after the first year of testing at a frequency of once every six (6) months until expiration of this permit utilizing the same procedure as specified in b. - e. above.

   This permit may be amended to require effluent limits, additional testing and/or other appropriate action to address toxic effects.

j. If the toxicity tests do not indicate toxicity at the 8% effluent concentration and lethality at the 16% effluent concentration during the first year, the permittee shall certify this information in writing to the TWC and these biomonitoring requirements shall expire.

k. The permittee shall prepare a full report of the results according to EPA 600/4-87/028, Section 10, Report Preparation. The full report must be submitted with the first biomonitoring test results, but need not be submitted for subsequent testing unless requested and shall be retained for 3 years at the plant site.

l. The permittee shall submit the toxicity testing information contained in Table 1 of this permit to the Wastewater Permits Section of the Water Quality Division.

m. If monthly biomonitoring is required, the biomonitoring test reports are due on or before the 20th day of the month following sampling.

n. If quarterly biomonitoring is required, the biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th, for biomonitoring conducted during each calendar quarter.

o. If semi-annual biomonitoring is required, test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6 month period.

p. The percent coefficient of variation (standard deviation x 100/ mean) for the mean percent survival shall be 40% or less for the control (0% effluent), low flow dilution and 1/2 low flow dilution. Should the percent coefficient of variation be greater than 40%, the toxicity test, including control and all effluent dilutions shall be repeated. If significant lethality was shown at the low flow effluent dilution or half low flow effluent dilution, this coefficient of variation requirement shall not apply.

TABLE 1 (SHEET 1 OF 6)

MYSIDOPSIS BAHIA SURVIVAL, GROWTH AND FECUNDITY

Date Composites Collected No. 1 FROM:_____ TO: _____

No. 2 FROM:_____ TO: _____

No. 3 FROM:_____ TO: _____

Test initiated:_____am/pm _____date

Dilution water used: _____Receiving water _____Reconstituted water

PERCENT SURVIVAL

Time of Reading	Percent Effluent 0%	4%	8%	16%	32%	64%
24h						
48h						
7 day						

DATA TABLE FOR GROWTH OF M. BAHIA

Average Dry Weight in milligrams in replicate chambers

Effluent Conc. (%)	A	B	C	D	E	F	G
0%							
4%							
8%							
16%							
32%							
64%							

05018

Table 1 (SHEET 2 OF 6)

MYSIDOPSIS BAHIA SURVIVAL, GROWTH AND FECUNDITY

DATA TABLE FOR GROWTH OF M. BAHIA

	0%	4%	8%	16%	32%	64%
Mean Dry Weight (mg)						
CV (%)*						

* coefficient of variation = standard deviation x 100/mean

NUMBER OF FEMALES WITH EGGS @ 7 DAYS

Percent effluent (%)

REP	0%	4%	8%	16%	32%	64%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Mean % Fecundity						

05019

TABLE 1 (SHEET 3 OF 6)

MYSIDOPSIS BAHIA SURVIVAL, GROWTH AND FECUNDITY

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

   Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

   a.) LOW FLOW OR CRITICAL DILUTION (8%): _____ YES _____ NO
   b.) 1/2 LOW FLOW OR 2 x CRITICAL DILUTION (16%): _____ YES _____ NO

2. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

   Is the mean dry weight (growth) at 7 days significantly less (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

   a.) LOW FLOW OR CRITICAL DILUTION (8%): _____ YES _____ NO
   b.) 1/2 LOW FLOW OR 2 x CRITICAL DILUTION (16%): _____ YES _____ NO

3. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

   Is the mean number of females with eggs (fecundity) significantly less (p=0.05) than the control's number of females with eggs for the % effluent corresponding to (significant non-lethal effects):

   a.) LOW FLOW OR CRITICAL DILUTION (8%): _____ YES _____ NO
   b.) 1/2 LOW FLOW OR 2 x CRITICAL DILUTION (16%): _____ YES _____ NO

4. Enter percent effluent corresponding to each NOEL (no observed effect level) below and circle lowest number:

   a.) NOEL survival = _____% effluent

   b.) NOEL growth = _____% effluent

   c.) NOEL fecundity= _____% effluent

TABLE 1 (SHEET 4 OF 6)

SHEEPSHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST
(Cyprinodon variegatus)

Date Composites Collected
No. 1 FROM:_____ TO: _____
No. 2 FROM:_____ TO: _____
No. 3 FROM:_____ TO: _____

Test initiated:_____am/pm _____date

Dilution water used: _____Receiving water _____Reconstituted water

DATA TABLE FOR SHEEPSHEAD MINNOW SURVIVAL

Effluent Conc. %	Percent Survival in Replicate Chambers				Mean Percent Survival			CV%*
	A	B	C	D	24h	48h	7 days	
0%								
4%								
8%								
16%								
32%								
64%								

* coefficient of variation = standard deviation x 100/mean

05021

TABLE 1 (SHEET 5 OF 6)

BIOMONITORING REPORTING

SHEEPSHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST
(Cyprinodon variegatus)

DATA TABLE FOR GROWTH OF SHEEPSHEAD MINNOWS

Effluent Conc (%)	Average Dry Weight in milligrams in replicate chambers				MEAN DRY WEIGHT	CV%*
	A	B	C	D	(MG)	
0%						
4%						
8%						
16%						
32%						
64%						

* coefficient of variation standard deviation x 100/mean

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

   Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

   a.) LOW FLOW OR CRITICAL DILUTION (8%): _____ YES _____ NO

   b.) 1/2 low flow or 2 x CRITICAL DILUTION (16%): _____ YES _____ NO

TABLE 1 (SHEET 6 OF 6)

BIOMONITORING REPORTING

SHEEPSHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST
(Cyprinodon variegatus)

2. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

   Is the mean dry weight (growth) at 7 days significantly less (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

   a.) LOW FLOW OR CRITICAL DILUTION (8%): _____ YES _____ NO

   b.) 1/2 LOW FLOW OR 2 x CRITICAL DILUTION (16%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEL (no observed effect level) below and circle lowest number:

   a.) NOEL survival = _____% effluent

   b.) NOEL growth = _____% effluent

Document 6

Permit No. TX0098604

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C... 1251 et. seq; the "Act"),

Hansa Manufacturing Company
Cedar Bayou Plant
P.O. Box 1278
Baytown, Texas 77522

is authorized to discharge from a facility located adjacent and east of Cedar Bayou, approximately 2-1/2 stream miles south of State Highway 146 Cedar Bayou Bridge northeast of the City of Baytown, Chambers County, Texas

to Cedar Bayou Tidal in Segment No. 0901 of the Trinity-San Jacinto Coastal Basin

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I (7 pages), II (16 pages), and III (6 pages) hereof.

This permit shall become effective on August 11, 1992

This permit and the authorization to discharge shall expire at midnight, August 10, 1997

Signed and issued this 30th day of June 1992

for Oscar Carlson Jr.

Myron O. Knudson, P.E.
Director
Water Management Division (6W)

06001

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number(s) 001

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater, treated cooling tower blowdown and uncontaminated stormwater runoff, subject to the following effluent limitations:

Effluent Characteristic	Discharge Limitations Daily Avg lbs/day (mg/l)	Discharge Limitations Daily Max lbs/day (mg/l)	Minimum Self-Monitoring Requirements Measurement Frequency	Minimum Self-Monitoring Requirements Sample Type
Flow (MGD)	Report *	Report *	One/op. shift	Totalizing meter
Carbonaceous Biochemical Oxygen Demand (5-day)	158 (20)	317 (40)	Two/week	Composite
Total Suspended Solids	158 (20)	317 (40)	Two/week	Composite
Chemical Oxygen Demand	1426 (180)	2535 (320)	Two/week	Composite
Oil and Grease	79 (10)	119 (15)	Two/week	Grab
Phenolic Compounds	0.8 (0.1)	1.6 (0.2)	Two/week	Grab
Ammonia Nitrogen	16 (2)	32 (4)	Two/week	Composite
Sulfides	0.8 (0.1)	1.6 (0.2)	Two/week	Grab
Total Chromium	4.0 (0.5)	8.0 (1.0)	Two/week	Composite
Biomonitoring	N/A	N/A	1/quarter	**

Report Daily Avg. & Daily Max.

* Flow measurements shall be taken prior to commingling the treated process and cooling tower blowdown with untreated stormwater runoff.

** See Part II, Paragraphs H and I.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day, by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

4. Effluent monitoring samples shall be taken at the following location(s): Following the commingling of the different waste streams and prior to entering Cedar Bayou.

00023

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number(s) 101

During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater subject to the following effluent limitations:

Effluent Characteristic	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow (MGD)	(Report)	(Report)	One/op. shift	Totalizing meter
Benzene	0.17 (37)	0.62 (136)	Two/week	Composite
Toluene	0.12 (26)	0.36 (80)	Two/week	Composite
Naphthalene	0.10 (22)	0.27 (59)	One/year	Composite
Acenaphthene	0.10 (22)	0.27 (59)	One/Year	Composite
Acrylonitrile	0.44 (96)	1.10 (242)	One/Year	Composite
Carbon Tetrachloride	0.08 (18)	0.17 (38)	One/Year	Composite
Chlorobenzene	0.07 (15)	0.13 (28)	One/Year	Composite
1,2,4-Trichlorobenzene	0.31 (68)	0.64 (140)	One/Year	Composite
Hexachlorobenzene **	0.0013 (0.0029)	0.0026 (0.0062)	One/Year	Composite
1,2-Dichloroethane	0.31 (68)	0.96 (211)	One/Year	Composite
1,1,1-Trichloroethane	0.10 (21)	0.25 (54)	One/Year	Composite
Hexachloroethane	0.10 (21)	0.25 (54)	One/Year	Composite
1,1-Dichloroethane	0.10 (22)	0.27 (59)	One/Year	Composite
1,1,2-Trichloroethane	0.09 (21)	0.25 (54)	One/Year	Composite
Chloroethane	0.47 (104)	1.22 (268)	One/Year	Composite
Chloroform	0.10 (21)	0.21 (46)	One/Year	Composite
2-Chlorophenol	0.14 (31)	0.44 (98)	One/Year	Composite
1,2-Dichlorobenzene	0.35 (77)	0.74 (163)	One/Year	Composite
1,3-Dichlorobenzene	0.14 (31)	0.20 (44)	One/Year	Composite
1,4-Dichlorobenzene	0.07 (15)	0.13 (28)	One/Year	Composite
1,1-Dichloroethylene	0.07 (16)	0.11 (25)	One/Year	Composite
1,2-trans Dichloroethylene	0.10 (21)	0.25 (54)	One/Year	Composite

* ug/l = microgram per liter, ppb.

** If the analytical test result is less than 10 ug/l, a value of zero (0) may be reported for that individual test result for the Discharge Monitoring Report (DMR) calculation and reporting requirements.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number 101 (continued)

Effluent Characteristic	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
2,4-Dichlorophenol	0.18 (39)	0.51 (112)	One/Year	Composite
1,2-Dichloropropane	0.69 (153)	1.04 (230)	One/Year	Composite
1,3-Dichloropropylene	0.13 (29)	0.20 (44)	One/Year	Composite
2,4-Dimethylphenol	0.08 (18)	0.16 (36)	One/Year	Composite
2,4-Dinitrotoluene	0.51 (113)	1.29 (285)	One/Year	Composite
2,6-Dinitrotoluene	1.16 (255)	2.91 (641)	One/Year	Composite
Ethylbenzene	0.15 (32)	0.49 (108)	One/Year	Composite
Fluoranthene	0.11 (25)	0.31 (68)	One/Year	Composite
Methylene Chloride	0.18 (40)	0.40 (89)	One/Year	Composite
Methyl Chloride	0.39 (86)	0.86 (190)	One/Year	Composite
Hexachlorobutadiene	0.09 (20)	0.22 (49)	One/Year	Composite
Nitrobenzene	0.12 (27)	0.31 (68)	One/Year	Composite
2-Nitrophenol	0.19 (41)	0.31 (69)	One/Year	Composite
4-Nitrophenol	0.33 (72)	0.56 (124)	One/Year	Composite
2,4-Dinitrophenol	0.32 (71)	0.56 (123)	One/Year	Composite
4,6-Dinitro-o-cresol	0.35 (78)	1.26 (277)	One/Year	Composite
Phenol	0.07 (15)	0.12 (26)	One/Year	Composite
Bis(2-ethylhexyl) phthalate	0.47 (103)	1.27 (279)	One/Year	Composite
Di-n-butyl phthalate	0.12 (27)	0.26 (57)	One/Year	Composite
Diethyl phthalate	0.37 (81)	0.92 (203)	One/Year	Composite
Dimethyl phthalate	0.09 (19)	0.21 (47)	One/Year	Composite
Benzo(a)anthracene	0.10 (22)	0.27 (59)	One/Year	Composite
Benzo(a)pyrene	0.10 (23)	0.28 (61)	One/Year	Composite
3,4-Benzofluoranthene	0.10 (23)	0.28 (61)	One/Year	Composite
Benzo(k)fluoranthene	0.10 (22)	0.27 (59)	One/Year	Composite
Chrysene	0.10 (22)	0.27 (59)	One/Year	Composite
Acenaphthylene	0.10 (22)	0.27 (59)	One/Year	Composite
Anthracene	0.10 (22)	0.27 (59)	One/Year	Composite
Fluorene	0.10 (22)	0.27 (59)	One/Year	Composite
Phenanthrene	0.10 (22)	0.27 (59)	One/Year	Composite

* ug/l = microgram per liter, ppb.

060004

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 101 (continued)

Effluent Characteristic	Discharge Limitations		Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day (ug/l)*	Daily Max lbs/day (ug/l)*	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Pyrene	0.11 (25)	0.30 (67)	One/Year	Composite
Tetrachloroethylene	0.10 (22)	0.25 (56)	One/Year	Composite
Trichloroethylene	0.10 (21)	0.25 (54)	One/Year	Composite
Vinyl Chloride	0.47 (104)	1.22 (268)	One/Year	Composite

* ug/l = microgram per liter, ppb.

2. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

3. Effluent monitoring samples shall be taken at the following location(s): Following the biological treatment facilities, prior to mixing with treated cooling tower blowdown and uncontaminated stormwater runoff for discharge to Cedar Bayou.

06005

SECTION B. SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

None

c. REPORTING OF MONITORING RESULTS

Monitoring results shall be reported in accordance with the provisions of Part III.D.4 of the permit. Monitoring results obtained during the previous month shall be summarized and reported on a Discharge Monitoring Report form postmarked no later than the 25th day of the month following the completed reporting period.

The first report is due on September 25, 1992 .

Document 7

John Hall, Chairman
Pam Reed, Commissioner
Peggy Garner, Commissioner

Jim

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

RECEIVED
MAY 05 1993
DISTRICT 7

TRANSFER OF TEXAS WATER COMMISSION PERMIT NO. 02777

FROM HANSA MANUFACTURING COMPANY

TO RDK, L.C.

Ownership of the facilities covered by the above-referenced permit, approved May 2, 1991, has changed. That part of the signature page pertaining to the name and mailing address of the permit holder is hereby changed so that the same shall hereinafter be and read as follows:

"RDK, L.C.
3 West Garden Street, Suite 374
Pensacola, Florida 32501"

The transferee is financially responsible for the proper maintenance and operation of the facility so as to comply with the terms and conditions of the permit. The failure to operate the facility in accordance with the terms and conditions of the permit may be good cause for revocation of the permit.

This transfer is in accordance with 31 Texas Administrative Code Section 305.97.

Issued Date: APR 30 1993

Gloria A. Vásquez

Gloria Vasquez, Chief Clerk
Texas Water Commission

07001

Document 8

02777

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

December 6, 1994

Mr. Rodman Eggen, President
RDK, L.C.
3 West Garden Street, Suite 374
Pensacola, Florida 32501

Re: RKD, L.C.
Permit NO. 02777

Dear Mr. Eggen:

On October 11, 1994, a representative of our office conducted an inspection of your plant site. At the time of inspection, the plant had not been built. We ask that you contact this office 45 days prior to start-up of your facility. A copy of the report is available upon request.

If you or your staff have any questions, please feel free to contact Ms. Stacy Pentecost at (713) 625-7355.

Sincerely,

John R. Ward
Team Leader
Water Quality Management
Region 12

JRW/SSP/djb

Enclosure

03001

United States Environmental Protection Agency
Washington, D. C. 20460

EPA NPDES Compliance Inspection Report

Form Approved.
OMB No. 2040-0057
Approval expires 4-30-88

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N 2 5	3 TX0098604 11	12 94 10 11 17	18 C (SSP)	19 S	20 2

Remarks

21 66

Reserved	Facility Evaluation Rating	BI	OA	Reserved
67 69	70 3	71 N	72 N	73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time ☐ AM ☒ PM	Permit Effective Date
ROK, L.C. West Bay Road Baytown, TX	3:00 pm	08-11-92
	Exit Time/Date: 3:15 pm 10-11-94	Permit Expiration Date: 08-10-97

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Rodman Eggen	President	(713) 872-3061

Name, Address of Responsible Official	Title	Phone No.	Contacted
Rob Eggen 3 West Garden Street, Suite 374 Pensacola, Florida 32501	President	(904) 432-3345	☒ Yes ☐ No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	N	Flow Measurement	N	Pretreatment	N	Operations & Maintenance
N	Records/Reports	N	Laboratory	N	Compliance Schedules	N	Sludge Disposal
S	Facility Site Review	N	Effluent/Receiving Waters	N	Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

This facility has not been built yet.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Stacy S. Pentecost Stacy S. Pentecost	TNRCC / Region 12 Houston / (713) 625-7355	11-30-94

Signature of Reviewer	Agency/Office	Date
John R. Wank	TNRCC Region 12 Houston	12-1-94

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		☐ Noncompliance ☐ Compliance

EPA Form 3560-3 (Rev. 3-85) Previous editions are obsolete.

08002

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

DOMESTIC OR INDUSTRIAL WWTP
ANNUAL INSPECTION REPORT

( ) ORIGINAL
( ) CODE SHEET

PERMITTEE: RDK, L.C.
WQ 0277-001

ADDRESS: 3 West Garden Street Suite 374
Pensacola, FL 32501
TX0098604 ( ) NA

FACILITY NAME: NA

TYPE WASTE
( ) DOM - Domestic
(X) IND - Industrial

CLASSIFICATION
(X) Major
( ) Non-major

RETENTION CODE
(X) D - Discharge to surface water
( ) R - Retained (land disposal)

REGION: 12 | COUNTY: 036 | BASIN: 09 | SEGMENT: 0901

OPERATIONAL STATUS
( ) A - Active
(X) I - Inactive

TYPE INSPECTION
(X) ACI - Annual Compliance Inspection

DATE INSPECTED 10/11/94
DATE REPORT 11/01/94
DATE LETTER 12/06/94

FIELD MEASUREMENTS TAKEN
( ) Yes (X) No

TYPE LAB SAMPLE
( ) COM - Composite
( ) GRB - Grab
(X) NON - None

CSI (GRANT MAJORS ONLY)
( ) Yes (X) No
( ) NA

CHAIN OF CUSTODY TAG NUMBER(S) (X) NA

VIOLATIONS/SUBSTANTIAL DEFICIENCIES NOTED
( ) Yes (X) No

TECHNICAL ASSISTANCE PROVIDED
( ) Yes (X) No

RESPONSE DUE
( ) Yes (X) No

DATE RESPONSE DUE __/__/__ (X) NA

ENFORCEMENT REFERRAL WITH THIS REPORT
( ) Yes (X) No

DATE ENFORCEMENT REFERRAL __/__/__ (X) NA

INSPECTOR: Stacy S. Pentecost.

INITIALS: SSP.

COMMENTS RELATED TO CODE SHEET DATA: This facility has not been built yet.

ROUTE TO:
__ Permit Applications
__ Municipal Permits
__ Industrial Permits
__ Sludge and Transporter Review
__ Toxicity Evaluation
__ Pretreatment
__ WMD Enforcement
__ Operator Certification
__ Self-reporting
X Central Records
__ Other: _____

03003

A. CONTACT NAME/TITLE: | PHONE: | CONTACTED YES NO

Robinson Eggen / President	(304) 432-3345 or (713) 872-3011	(X)	( )
		( )	( )
		( )	( )

B. TREATMENT SYSTEM: List units and/or attach schematic. If land disposal, include description of disposal method.

The facility has not been built. Therefore, there is no treatment system and no schematic.

If the permit has interim and final limits, indicate phase in effect.
( ) Applicable (X) NA

Describe any plant modifications since the last annual inspection.
( ) Applicable (X) NA

C. INSPECTION SAMPLE RESULTS:

Outfall & Parameter	Measured Value	Permit Limit	Type Sample	COC Tag No.	Primary Source of Wastewater
There are no outfalls, therefore, no discharge					
					03001

D. FACILITY EVALUATION: S = Satisfactory M = Marginal U = Unsatisfactory NE = Not Evaluated NA = Not Applicable

Provide comments in Sections E or G for all M and U ratings.

NA Compliance with 75/90 rule

NA Infiltration/Inflow

NA Compliance with flow limits

NA Unauthorized discharges

NA Certified operator

NA Industrial waste contribution for domestic WWTP

NA Operations and maintenance

NA Flow measurement accuracy
Type:_____
Field check attached: ( )Yes ( ) No

NA Self-monitoring procedures

NA Laboratory
( ) Commercial
_____
( ) In-house

NA Self-monitored effluent quality

NA Region-documented effluent quality

NA Receiving stream

NA Sludge disposal

NA Irrigation practices

NA Compliance schedule

___ Other:_____

E. VIOLATIONS AND DEFICIENCIES: ( ) Applicable (X) NA

03005

F. BIOMONITORING: ( ) Applicable (X) NA

Were any problems noted with the following items? If yes, provide comments.

( ) Yes ( ) No Sample holding time
( ) Yes ( ) No Sample collection
( ) Yes ( ) No Sample type
( ) Yes ( ) No Unauthorized sample dechlorination

G. OTHER COMMENTS: (X) Applicable ( ) NA

This facility has not been built yet. The effluent reporting requirements are suspended until plant startup or discharge.

The permittee plans to start construction on this facility in 1995. They also plan on submitting a permit amendment.

H. REGIONAL OFFICE ACTION TAKEN: SSP (X) Applicable ( ) NA

The facility has not been built yet and there are no reporting requirements. A letter was sent to the permittee regarding the inspection.

I. CENTRAL OFFICE ACTION REQUESTED: ( ) Applicable (X) NA

Stacy S. Pentecost
Inspector

John Rudd
Regional Water Program Manager

Signature Date 12-1-94

08006

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

MANDATORY ENFORCEMENT REFERRAL CRITERIA
FOR DOMESTIC AND INDUSTRIAL WWTPs

Comment: Referral to the Enforcement Section of the Watershed Management Division for formal enforcement action is mandatory if any of the following criteria are met. Other violations may be referred at the discretion of the Region.

Entity: RDK, L.C.

Permit No. 02777 Region: 12 Office: Houston

APP	N/A	N/E		
			APP = Applicable	N/A = Not Applicable
			N/E = Not Evaluated	
___	X	___	1.	Facility operating without a permit when a permit is required. [Texas Water Code Section 26.123(f)(1) necessitates this mandatory referral.]
___	X	___	2.	Failure to submit for approval plans and specifications for a domestic wastewater treatment system after one Region schedule deadline unless an extension of time is granted due to extenuating circumstances.
___	X	___	3.	Violations that will take longer than one year to correct, excluding collection system bypasses/overflows.
___	X	___	4.	Documented ground water contamination.
___	X	___	5.	Falsification of data, documents, or reports.

Type: _____

03007

Designated violations listed below (numbers 6-15) that: (1) are corrected by the due date in a compliance schedule established by the Region but recur within a two-year period, or (2) are not corrected after one extension of an original due date in a compliance schedule established by the Region.

APP	N/A	N/E		
___	X	___	6.	Region-documented effluent violation which exceeds the permit limit by 40% or more for any single parameter of a conventional pollutant.
				Parameter: _____
___	X	___	7.	Region-documented effluent violation which exceeds the permit limit by 20% or more for any single parameter for heavy metals or toxics, excluding chlorine residual.
				Parameter: _____
___	X	___	8.	Region-documented unauthorized discharge from the same location or site.
___	X	___	9.	Failure to employ one or more domestic treatment plant operator(s) or collection system operator(s) holding valid certificates of competency.
___	X	___	10.	Failure to employ certified treatment plant operator(s) or collection system operator(s) possessing the <u>level</u> of certification required by 30 TAC Chapter 325.
___	X	___	11.	Failure to dispose of sludge in accordance with the <u>method</u> required by the permit.
___	X	___	12.	Stockpiling dried sludge without taking measures to prevent contaminated runoff.
				<u>Note</u>: Although this requirement is not specifically stated in the permit, it can be enforced through Texas Water Code Section 26.121(a)(3), i.e., engaging in an activity which causes or will cause pollution of water in the State.
___	X	___	13.	Failure to meet limits/conditions for rainfall runoff discharged from any point source from the plant area not identifiable by outfall.
___	X	___	14.	Failure to meet limits/conditions for rainfall runoff segregated from the wastewater treatment facilities for discharge.
___	X	___	15.	Failure to comply with irrigation application rate.

03008

Document 9

JPN WQ R-12- 02777

SEND ORIGINAL AND 3 COPIES TO:

EXECUTIVE DIRECTOR
TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
ATTN: Watershed Management Division
Applications Team
P.O. Box 13087
Austin, Texas 78711

FOR COMMISSION USE ONLY:

Admin Review by _____
Admin Complete Date _____
County _____
Segment _____
Region _____
ExpirationDate _____
Proposed/Current Permit No. _____

RECEIVED
JAN 05 1996
REGION 12

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

APPLICATION FOR RENEWAL OF PERMIT TO DISCHARGE, DEPOSIT OR DISPOSE OF INDUSTRIAL WASTEWATER INTO OR ADJACENT TO WATER IN THE STATE

1. Applicant(s): FINE ORGANICS CORPORATION
(Individual, Corporation or Other Legal Entity)

If partnership or joint venture, submit a copy of the agreement.

Address: 6655 West Bay Road
(Permanent Mailing Address)

City: Baytown State: Texas Zip: 77520

Telephone number: 713/573-1366

If the application is submitted on behalf of a corporation, identify the Charter Number and the Tax Identification Number as recorded with the Office of the Secretary of State for Texas.

1303780
Charter Number

76-0445819
Tax Identification Number

2. Pursuant to House Bill 1021, please supply the following information if the applicant is an individual:

Applicant(s): N/A
(Full Legal Name)

Business Name: _____
(Assumed Business or Professional Name of Individual Applicant filed under Chapter 36, Business & Commerce Code)

Address: _____
(Street Address of the Individual applicant's place of residence)

City: _____ State: _____ Zip: _____

State Identification No. _____
(Driver's License or Personal Identification Certificate)

Date of Birth: _____ Sex: _____

09001

3. a. List those persons with titles or firms, including a complete mailing address and telephone number, authorized to act for the applicant during the processing of the permit application.

Clair A. Carden, P.E.
Clair A. Carden, Inc.
Consulting Engineer
P. O. Box 7322
Tyler, Texas 75711-7322
903/535-9266

Jeffrey Civins
Attorney at Law
Kelly, Hart & Hallman
301 Congress Ave., Suite 2000
Austin, Texas 78701
512/495-6400

b. List the individual, including his/her mailing address and telephone number, responsible for causing notice to be published in a newspaper of general circulation in the county or counties where the waste management activities are to occur.

Rodman A. Eggen
Fine Organics Corporation
6655 West Bay Road
Baytown, Texas 77520

c. Identify those persons who have represented your company, or received compensation for services, regarding this application, and who participated on this application during their period of state employment either through personal involvement or because the matter was within their official responsibility. Any violation of §382.0591 of the Texas Health and Safety Code or §26.0283 of the Texas Water Code may result in denial of the application. Criminal sanctions may also be taken against an individual, former state officer or employee, who attempts to represent an individual in violation of §572.054 of the Texas Government Code.

N/A

4. Existing permit number 02777 Expiration date 5/2/96
mo/ day/ year

00002

5. List any other permits, existing or pending, which pertain to pollution control activities conducted at this facility and any other TNRCC permits or licenses.

NPDES Permit No. TX0098604 Expiration date: August 10, 1997

Solid Waste Notice of Registration No. 37507

Hazardous Waste Management Permit No. EPA I.D. NO. TXD981606932

National Emission Standards for Hazardous Pollutants Permit No. N/A

Underground Injection Permit No. N/A

Prevention of Significant Deterioration Permit No. PSD-TX-670

TDH Bureau of Radiation Control License No. N/A

Nonattainment Permit No. N/A

TNRCC Air Quality Permit No. 9564

Water Use Permit No. N/A

Secondary Use Permit No. N/A

TNRCC Certificate of Adjudication No. N/A

TNRCC Certificate of Convenience and Necessity N/A

Ocean Dumping Permit No. N/A

Dredge and Fill Permit No. 17197

Other General Land Office Coastal Easement No. LC-95-012
Port of Houston Authority Permit No. 17197

6. Site Information:

a. Is the facility located on Indian Lands? Yes____ No_x_

b. Ownership:

(1) Treatment plant site: Fine Organics Corporation
(Individual, Corporation or Other Legal Entity)

Address, if different from Question No. 1:

09003

(2) Disposal area for land application systems:

N/A
(Individual, Corporation or Other Legal Entity)

Address, if different from Question No. 1: _____

(3) To be Acquired (Purchase, Lease, Eminent Domain): N/A

If leased or to be leased, submit a copy of lease and/or purchase agreement.

c. Plant Name: Fine Organics Corporation, Chambers Plant

d. Street Address, if available: 6655 West Bay Road, Baytown, TX 77520

e. County: Chambers

f. Are your waste disposal operations within the incorporated limits? Yes____ No____ or extraterritorial jurisdiction Yes X No____ of a municipality? If yes, what municipality?

City of Baytown

g. Give a written description of the plant or disposal site with respect to known or easily identifiable landmarks (e.g. highways, FM roads, cities, etc.) which can be found on a USGS Topographic map:

a 48-acre (±) tract on the east bank of Cedar Bayou, approximately 2.5 miles south (along the waterway) from the S.H.146 Cedar Bayou Bridge, immediately south of the Houston Lighting & Power Company Cedar Bayou Electric Generating Station, and at 6655 West Bay Road, east of the City of Baytown in Chambers County.

7. Disposal route:

a. Discharge permit applications: Provide a written description that traces the flow of effluent from the plant site to the nearest major watercourse. (For example: "From the plant site through a six-inch pipe to a county drainage ditch, to an unnamed tributary of Doe Creek, then to Doe Creek, then to the Brazos River.")

From the plant wastewater treatment system through a discharge pipe and into Cedar Bayou.

03004

SIGNATURE PAGE

Signature on Application:

An application submitted by a corporation must be signed by a principal executive officer of at least the level of vice president or by his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge(s) described in the form originates. An application signed by a person other than vice president or above must provide a letter of authorization, signed by an executive officer of at least the level of vice president.

An application submitted by an individual must be signed by the individual himself. A person signing an application on behalf of the applicant must provide a letter of authorization signed by the applicant. In all cases, the person signing the form must be authorized to do so by the applicant.

In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor, respectively. In the case of a municipal, state, federal or other public facility, the application must be signed by a principal executive officer, a ranking elected official or another duly authorized employee.

I, Rodman A. Eggen (Typed or Printed Name), President (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: 12/14/95

Note: All applications must bear the signature and seal of a notary public.

SUBSCRIBED AND SWORN to before me by the said

President on this 14 day of December, 19 95

My commission expires on the 22ND day of September, 19 96

(Seal)

Cynthia N. Duff
Notary Public

Chambers County, Texas

00005

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

APPLICATION FOR PERMIT
TO DISCHARGE, DEPOSIT OR DISPOSE OF INDUSTRIAL WASTEWATER
INTO OR ADJACENT TO WATER IN THE STATE

TECHNICAL REPORT

The following information must be provided as a minimum to support an industrial wastewater permit application. Do not refer to supplemental reports in lieu of filling out these minimum requirements. If an item does not apply to your facility write N/A to indicate that you have considered it.

1. Describe the type of facility and industrial activity at the plant. Also, describe the process or treatment system. Your description should include information such as any raw materials or products handled at your facility that might affect the nature or quantity of the discharge, any modifications to your process water/stormwater handling facilities, the start-up or shutdown of any process or treatment units, any wastewater recycle projects, or any changes in production throughput.

(See Attachment II, Technical Report)

2. As part of the permit renewal process the applicant may request minor changes to the permit which do not cause a potential deterioration of water quality or affect adjacent or downstream landowners. (Examples of such changes would be replacing an effluent limitation for total organic carbon with one for chemical oxygen demand, adding authorization to discharge wastestreams such as hydrostatic test water, and, in some cases, designating additional stormwater outfalls to maintain consistency with an NPDES permit.) List any such requested changes below:

A Catalytic Distillation Cluster for production of amines, alkylated aromatics, alcohols, ethers and esters from organic chemical feedstocks is to be developed, replacing the Light Paraffins and Heavy Paraffins units described in the previous permit applications. The small volume of process area wastes from the first phase of this Cluster will be transported off-site for disposal by permitted disposal services.

09036

3. Describe the general nature of your business and list any Standard Industrial Classification codes that apply.

SIC Code(s) 2911 , 2865 , 2869 , _____ , _____ , _____

Business operates 24 hours/day 7 days/week 12 months/year.

4. Describe the location of each discharge outfall (e.g. Outfall 001; at the outlet weir of the treatment plant prior to entering the river: Outfall 002; at the outlet of the pond in the northeast corner of company property.) Be specific.

OUTFALL	LATITUDE DEG	MIN	SEC	LONGITUDE DEG	MIN	SEC	DESCRIPTION OF LOCATION
101	29	44	39	94	55	22	At the outlet from the final process wastewater treatment unit prior to com mingling with cooling tower blowdown or process area storm water.
001	29	44	40	94	55	41	At the flow measuring device on the plant wastewater outfall to Cedar Bayo on the west side of the plant site.

5. Do you discharge or plan to discharge wastewater other than stormwater offsite? X Yes ___ No. If no, skip to item no. 10. If yes, complete the table below and the following questions.

Outfall	Flow (hrs/day)	Daily Average Flow (MGD)	Daily Maximum Flow (MGD)	I or C*	P or G**	Type of Flow Measurement Device
101	24	0.75	1.50	C	G	Totalizing Meter
001	24	0.95	1.60	C	G	Totalizing Meter

* Intermittent or continuous flow.
** Pumped or gravity flow. If pumped, indicate pump capacity (gpm).

6. Will the discharge be seasonal? _____ Yes X No. If yes, explain.

00007

7. Table 1 is a list of effluent limitation guidelines as found in Title 40 Code of Federal Regulations, Parts 400 - 471. Check the category(s) that applies to your facility. Check N/A if your business or industry is not covered by an effluent limitation guideline.

TABLE 1

	INDUSTRY	40 CFR PART
____	Dairy Products Processing	405
____	Grain Mills	406
____	Canned and Preserved Fruits and Vegetables	407
____	Canned and Preserved Seafood Processing	408
____	Sugar Processing	409
____	Textile Mills	410
____	Cement Manufacturing	411
____	Feedlots	412
____	Electroplating	413
X	Organic Chemicals, Plastics, and Synthetic Fibers	414
____	Inorganic Chemicals	415
____	Soap and Detergent Manufacturing	417
____	Fertilizer Manufacturing	418
X	Petroleum Refining	419
____	Iron and Steel Manufacturing	420
____	Nonferrous Metals Manufacturing	421
____	Phosphate Manufacturing	422
____	Steam Electric Power Generating	423
____	Ferroalloy Manufacturing	424
____	Leather Tanning and Finishing	425
____	Glass Manufacturing	426
____	Asbestos Manufacturing	427
____	Rubber Manufacturing	428
____	Timber Products Processing	429
____	Pulp, Paper, and Paperboard	430
____	Builders' Paper and Board Mills	431
____	Meat Products	432
____	Metal Finishing	433
____	Coal Mining	434
____	Oil and Gas Extraction	435
____	Mineral Mining and Processing	436
____	Pharmaceutical Manufacturing	439
____	Ore Mining and Dressing	440
____	Paving and Roofing Materials	443
____	Paint Formulating	446
____	Ink Formulating	447
____	Gum and Wood Chemicals Manufacturing	454
____	Pesticide Chemicals	455
____	Explosives Manufacturing	457
____	Carbon Black Manufacturing	458
____	Photographic	459
____	Hospital	460
____	Battery Manufacturing	461
____	Plastics Molding and Forming	463
____	Metal Molding and Casting	464
____	Coil Coating	465
____	Porcelain Enameling	466
____	Aluminum Forming	467
____	Copper Forming	468
____	Electrical and Electronic Components	469
____	Nonferrous Metals Forming and Metal Powders	471
____	N/A	

00008

8. For wastewater discharge permits, it is the practice of the Commission's Permitting Section to require that industrial wastewater be treated to levels that meet the requirements of the USEPA Effluent Limitation Guidelines - Title 40 of the Code of Federal Regulations, Parts 400 - 471. Therefore, the permit application must contain all information necessary to calculate permit limits based on these guidelines.

If limitations in the above referenced guidelines that apply to your facility are expressed in terms of production (e.g. lbs of pollutant/1000 lbs of production), provide a quantity representative of the actual level of production over the last three years, if available, for each category or subcategory. For refineries (Part 419), please include the size of each process unit, the throughput of the refinery, and the throughput of each unit.

SUBCATEGORY	ACTUAL QUANTITY/DAY	DESIGN QUANTITY/DAY	UNITS
Topping & Light Ends Refinery	Not operational at this time	25.4	MBSD

For facilities subject to effluent limitation guidelines for organic chemicals, plastics and synthetic fibers manufacturing, provide the fraction of total plant production that falls into each subpart (for instance, 45% commodity chemicals, 35% bulk chemicals, and 30% specialty chemicals.) Also identify processes in Appendices A and B to Part 414 that are utilized and provide the flow of metal bearing waste streams and cyanide bearing waste streams, if any. See 40 CFR 414.

SUBCATEGORY	% of Total Production	APPENDIX A AND B Metal	Process
Specialty Organic Chemicals	3*	Nickel	Alkyl amines/ Amination of alcohols
	3*	Nickel	Diisobutyl amine/ Ammonolysis of isobutanol
	3*	Nickel	Isopropyl amines/Reductiv amination of isopropanol

*Production percentages relative to crude charge of 25,400 BPSD to light ends refinery.

9. If the facility is subject to the USEPA Effluent Limitation Guidelines, provide a breakdown of process wastewater flow and non-process wastewater flow as defined for the industry in the appropriate guideline category.

Part 419, Petroleum Refining --
Process wastewater flow = 202 gpm
Non-process wastewater flow = 302 gpm
Part 414, Organic Chemicals, Plastics & Synthetic Fibers --
Process wastewater flow = 62 gpm
Non-process wastewater flow = 82 gpm

03009

10. Provide a list of raw materials, major intermediates, and products handled at your facility. Provide corresponding Chemical Abstracts Systems (CAS) numbers. Be specific and avoid trade names.(Attach additional pages if necessary.)

RAW MATERIALS	INTERMEDIATES	PRODUCTS
Hydrogen (CAS 1333-74-0)		Acetate Esters (ethyl, propyl, and butyl acetate)
Amines		C_3 through C_5 Alcohols
Nitriles		Alkyl and/or Olefinic Amines (not including methylamine)
Aromatics		Tertiary Amyl Methyl Ether
C_1 thru C_4 Alcohols (CAS 67-56-1, 64-17-5, 71-36-3 & 67-64-1)		Ethers
		Toluene
Ammonia (CAS 7664-41-7)		Ethylbenzene
Natural gas liquids, pipeline condensates, and hydrocarbon feed stocks (Crude oil CAS 8002-05-9)		Xylenes
		Aromatic Hydrocarbons
		Pentane
		Mineral Oil
		Isoparaffins
		C_8 through C_{12} Olefins
		Benzoic Acid

11. List any physical, chemical, and/or biological treatment processes that you use for the treatment of wastewater at your facility. This list should be specific and include each unit in the treatment process and dimensions (e.g. dissolved air floatation, chemical precipitation, equalization, pH control, aeration, steam stripping, clarification, anaerobic lagoon.)

Treatment Units (Proposed):

Steam stripping of process condensates,
Gravity oil/water separation,
Equalization & storm water surge tanks,
Chemical coagulation,
Dissolved air flotation,
Activated sludge biological treatment with clarification,
Chemical coagulation and clarification of cooling tower blowdown,
Sludge thickening and dewatering,
(See Attachment II, page II-1, for description of proposed wastewater treatment processes)

12. Attach a flow schematic showing each treatment unit (including any lagoons, ponds or impoundments) and all sources of wastewater flow into the treatment plant and to each outfall. This schematic should include process wastewater, cooling water, domestic wastewater, and stormwater. A water balance using average flows for each waste stream must be included. (See Attachment 2.)

a. Is the treated process wastewater chlorinated prior to discharge?
_____ Yes _X_ No

03010

13. How is the disposal of domestic sewage handled at your facility?

Sanitary wastewater will be collected and treated in an extended-aeration-process treatment plant, effluent from which will be disinfected by chlorination and will be disposed on-site by spray irrigation over an area of approximately 0.3 acres. The system will be designed, permitted, and operated in accordance with TNRCC policies and standards for on-site sewerage facilities.

14. Attach a facility map (drawn to scale) showing:
(See Attachment IV, General Plant Layout)
    a. Production areas, maintenance areas, materials handling areas, and waste disposal areas.

    b. The location of each unit of the wastewater treatment plant including the location of sumps and impoundments.

    c. The accurate location of water supply wells and ground water monitoring wells.

    d. The location of outfalls and the outline of the drainage area that flows to each outfall that contains stormwater.

15. For each outfall that discharges stormwater runoff, provide the following information:

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
001	*17.0 Acres	*18.9 Acres
Non-Process Area Runoff	* 6.3 Acres	*21.6 Acres

*Areas estimated for ultimate plant development

16. Describe any treatment for stormwater runoff for each outfall.

(See Attachment II, Technical Report)

17. List the local area rainfall and your source of information.

Average rainfall for wettest month. 5.8 in/month
25-year 24-hour rainfall. 10.3 inches
Source: National Oceanic and Atmospheric Administration, Climatological Data Annual Summary - Texas, and Tech. Paper No. 40, Rainfall Frequency Atlas of the United States

18. Is your treatment facility located above the 100-year frequency flood level?
___Yes X No

Source of information: Federal Emergency Management Agency data for Chambers County

If no, then what protective measures are in use or planned to prevent flooding of the treatment facility?

Facilities will be protected from flooding by levees built to elevation 16.0 M.S.L., and storm drainage structures will be valved to prevent backflow into the plant during flood events in Cedar Bayou.

26. Table 5A is a list of primary industrial categories with a breakdown of Gas Chromatography/ Mass Spectrometry testing requirements for Priority Pollutants. Categories are defined in 40 CFR Parts 400 - 471. Check any category(s) that apply to your facility and provide the indicated analysis for Priority Pollutants listed in Table 5B.

N/A -- Plant not operational at this time

TABLE 5A

		GC/MS Testing Required			
___	N/A	Volatile	Acid	Base/Neutral	Pesticides
___	Adhesives and Sealants	Yes	Yes	Yes	No
___	Aluminum Forming	Yes	Yes	Yes	No
___	Auto and Other Laundries	Yes	Yes	Yes	Yes
___	Battery Manufacturing	Yes	No	Yes	No
___	Coal Mining	No	No	No	No
___	Coil Coating	Yes	Yes	Yes	No
___	Copper Forming	Yes	Yes	Yes	No
___	Electric and Electronic Components	Yes	Yes	Yes	Yes
___	Electroplating	Yes	Yes	Yes	No
___	Explosives Manufacturing	No	Yes	Yes	No
___	Foundries	Yes	Yes	Yes	No
___	Gum and Wood Chemicals				
	___ Subparts A,B,C,E	Yes	Yes	No	No
	___ Subparts D,F	Yes	Yes	Yes	No
___	Inorganic Chemicals	Yes	Yes	Yes	No
___	Iron and Steel Mfg.	Yes	Yes	Yes	No
___	Leather Tanning & Finishing	Yes	Yes	Yes	No
___	Mechanical Products Mfg.	Yes	Yes	Yes	No
___	Nonferrous Metals Mfg.	Yes	Yes	Yes	Yes
___	Ore Mining(Subpart B)	No	Yes	No	No
X	Organic Chemicals, Plastics and Synthetic Fibers	Yes	Yes	Yes	Yes
___	Paint and Ink Formulation	Yes	Yes	Yes	No
___	Pesticides	Yes	Yes	Yes	Yes
X	Petroleum Refining	Yes	Yes	Yes	No
___	Pharmaceutical Preparations	Yes	Yes	Yes	No
___	Photographic Equipment and Supplies	Yes	Yes	Yes	No
___	Plastic Processing	Yes	No	No	No
___	Porcelain Enameling	No	No	No	No
___	Printing and Publishing	Yes	Yes	Yes	Yes
___	Pulp and Paperboard Mills				
	___ Subparts A,B,C,D,R	*	Yes	*	Yes
	___ Subparts F,G,H,I, K,L,M,N,O,P,	Yes	Yes	*	Yes
	___ Subparts E,Q,S,T	Yes	Yes	*	Yes
	___ Subparts J,U	Yes	Yes	Yes	*
___	Rubber Processing	Yes	Yes	Yes	No
___	Soap and Detergent Mfg.	Yes	Yes	Yes	No
___	Steam Electric Power Plants	Yes	Yes	No	No
___	Textile Mills(Not Subpart C)	Yes	Yes	Yes	No
___	Timber Products Processing	Yes	Yes	Yes	Yes

*** Test if "believed present"**

32. Does your facility use any cooling towers or boilers that discharge blowdown or other wastewater streams to the outfall(s)? _X_ YES _____ NO
(Under construction)

If yes, the following information on all chemical additives including biocides must be submitted for cooling towers and boilers. If aquatic toxicity information is not available, additional effluent biomonitoring may be required. If the MSDS sheets do not contain the information specified below, it will be necessary to obtain the information from the manufacturer.
(Data will be furnished after receipt from chemical suppliers).

a. Manufacturers Product Identification Number.
b. Product Use. (e.g., biocide, fungicide, corrosion inhibitor, etc.)
c. Chemical Composition including Chemical Abstracts System (CAS) number for each ingredient.
d. Product toxicity data specific to fish and aquatic invertebrate organisms. Specify if data is for the whole product or for an active ingredient.
e. Classify product as non-persistent, persistent, or bioaccumulative.
f. Product or active ingredient half-life.
g. If data in Item d., above is for the whole product, indicate the concentration of the whole product in the blowdown stream.
If data in Item d., above is for the active ingredient, indicate the concentration of the active ingredient in the blowdown stream.
h. Frequency of product use (e.g., 2 hr/day once every two weeks).
i. The number of cooling towers on site is _____ (e.g., 2,3,4, etc.) and the total blowdown volume is:
Not known at present time.

Daily Average 275,000 gallons/day, Daily Maximum _____ gallons/day
(Maximum proposed for full plant development)

j. The number of boilers on site is _____ (e.g., 2,3,4, etc.) and the total blowdown volume is:
Not known at present time.

Daily Average _____ gallons/day, Daily Maximum _____ gallons/day

33. Does your facility discharge once-through cooling water to the outfall(s)?
____ Yes _X_ No

If yes, the following information on all chemical additives including chlorine and bromine must be submitted. If aquatic toxicity information is not available, additional effluent biomonitoring may be required. If the MSDS sheets do not contain the information specified below, it will be necessary to obtain the information from the manufacturer.

a. Manufacturers Product Identification Number.
b. Product Use. (e.g., biocide, fungicide, corrosion inhibitor, etc.)
c. Chemical Composition including Chemical Abstracts System (CAS) number for each ingredient.
d. Product toxicity data specific to fish and aquatic invertebrate organisms. Specify if data is for the whole product or for an active ingredient.
e. Classify product as non-persistent, persistent, or bioaccumulative.
f. Product or active ingredient half-life.
g. If data in Item d., above is for the whole product, indicate the concentration of the whole product in the once-through cooling water stream.
If data in Item d., above is for the active ingredient, indicate the concentration of the active ingredient in the once-through cooling water stream.
h. Frequency of product use (e.g., 2 hr/day once every two weeks).

ATTACHMENT 1

RECEIVING WATERS

All applicants must submit U.S.G.S. quadrangle maps showing the location of the facility and the discharge point(s) and/or the land treatment/land application area, as appropriate. If this is an application for a discharge permit, U.S.G.S. quadrangle maps must be submitted that depict the discharge route for three (3) miles from the point of discharge (or until a classified segment as defined in 30 TAC 307 Appendix C is reached.)

Applications for a permit to dispose of wastewater by land treatment/land application (no discharge permits) are not required to complete ATTACHMENT 1, SECTION A or B.

SECTION A

DESCRIPTION OF RECEIVING WATERS

If all outfalls do not enter the same receiving water, SECTION A must be completed for each receiving water. The outfalls that flow into each receiving water should be listed.

OUTFALL NUMBER(S) 001

1. Is there a surface water intake for domestic drinking water supply located within 3 (three) miles downstream from the point/proposed point of discharge? ____Yes X No. If Yes, identify owner of the drinking water supply and accurately locate it on the U.S.G.S. Map.

2. For discharges into marine waters,

   a) What is the width of the receiving water at the outfall? Approx. 300'

   b) Are there oyster reefs in the vicinity of the discharge? If yes, give approximate distance from outfall(s). None

3. Is the discharge directly into (or within 300 feet of) a classified segment as defined in Appendix C of the Texas Surface Water Quality Standards (30 TAC 307)?

   X Yes If yes, stop here. SECTION A is complete.

   ____ No

The following questions refer to the immediate receiving water (e.g., a drainage ditch, a stream, a lake, a bay, etc.). Check the box which best describes the first receiving water into which the discharge will flow after it leaves the outfall and answer any associated questions.

TECHNICAL REPORT FOR

INDUSTRIAL WASTEWATER FACILITIES

Application Page 7, Item 1, Description of Industrial Facility and Treatment System

a. Description of Industrial Facility

Fine Organics Corporation is constructing an organic chemical and petroleum processing facility on its 48-acre plant site in Chambers County, as shown in Attachment I, Location Map. The Texas Water Commission issued Permit No. 02777 on January 28, 1986, and approved a renewal of the permit on May 2, 1991, covering the facilities described in the permit application of August 9, 1985. Due to economic and various other factors, the original schedule for construction of the process facilities has been delayed until recent months. The first phase of process units is currently under construction, with operations scheduled to commence by early 1996.

Since the time of submittal of the application for the initial permit for the Chambers Plant, the proposed group of processes and products has been changed to respond to market conditions for this sector of industry. Consequently, the initial process unit is to be a catalytic distillation unit (CD Cluster) for production of a group of specialty organic chemicals including amines, alcohols, alkylated aromatics, ethers, and esters. The CD Cluster replaces the Light and Heavy Paraffins Areas described in the initial permit application and will utilize a new-generation process technology which will result in a cleaner and more efficient operation than conventional processes for production of this group of organic chemicals.

b. Wastewater Treatment System

The conceptual design of wastewater treatment facilities, as developed in the original permit application and as described herein, is based

on good current treatment technology for the petroleum refining and petrochemical industries. The effluent limitations set forth by the Texas Water Commission in Permit No. 02777 were predicated on the fact that the proposed processing plant was a light ends refinery producing various high purity products, with a significantly higher water use than that of a conventional petroleum refinery; therefore, the limitations were based on best professional judgement. With no significant changes in the total production proposed for this plant, the Commission's determinations regarding effluent limitations for this facility appear to remain valid.

During the initial development of the CD Cluster, the wastes from this unit will be totally contained in a concrete vessel with waste-resistant lining and will be transported off-site for disposal by a permitted commercial waste disposal contractor. The off-site disposal operation will be continued until sufficient volumes of wastewaters are produced to warrant development of appropriate treatment processes to provide the degree of waste treatment required. Cooling tower blowdown from the CD Cluster will be routed to a clarifier for sedimentation of suspended solids prior to release to Outfall 001, as is currently permitted. Over the five-year horizon of this permit renewal, the contact and synthesis waters and condensates to be produced in the CD Cluster are estimated as follow:

Phase I -- Hydrogenation reaction using Ni-based catalyst	= 20 gpm
Phase II -- Amination reaction using Ni-based catalyst	= 22 gpm
Phase III -- Etherification-related reactions using ion exchange resin catalyst	= 20 gpm
Total waste from CD Cluster	= 62 gpm

Prior to construction of additional process units in subsequent phases of plant development, wastewater treatment facilities will be installed to provide primary treatment, secondary biological treatment, and any additional treatment processes as needed to attain the desired effluent

quality prior to discharging the treated water to Cedar Bayou. The proposed process wastewater treatment system is illustrated in the Wastewater Flow Schematic, Attachment III. Waste control techniques which will be utilized where applicable in units processing organic chemicals, including the CD Cluster, will emphasize waste minimization by stripping of condensates for product recovery and isolation of concentrated waste streams for separate treatment at the source or off-site disposal. The treatment system for dilute waste streams and contaminated storm runoff will include facilities for equalization of process waste flows, gravity separators for removal of floating oils, chemical coagulation and dissolved air flotation for removal of emulsified oils, and biological treatment for conversion of soluble organics to biological solids in an activated sludge process. The effluent from this system will be discharged through a monitoring and sampling point, as Outfall 101, prior to commingling with the wastewater streams.

As indicated in the Wastewater Flow Schematic, Attachment III, cooling tower blowdown will be routed through coagulation and clarification processes, as may be needed for removal of suspended solids. The effluent from these treatment units will be combined with the effluent from the process wastewater treatment system (Outfall 101) and will be routed through a flow measuring device and the effluent will be sampled, as required, prior to discharging to Cedar Bayou through Outfall 001. Non-process-area storm runoff which is collected and discharged through an outfall point other than Outfall 001 will be subjected to monitoring and quality limitations as defined in the TNRCC Permit.

Oil which is recovered from oil-water separators will be transported off-site for disposal by permitted contractors. Bottom sediments from the separators, float from the air flotation unit, and excess biological solids will be dewatered and hauled off-site for disposal in accordance with industrial solid waste regulations of the TNRCC.

0907

Application Page 12, Item 16, Stormwater Management

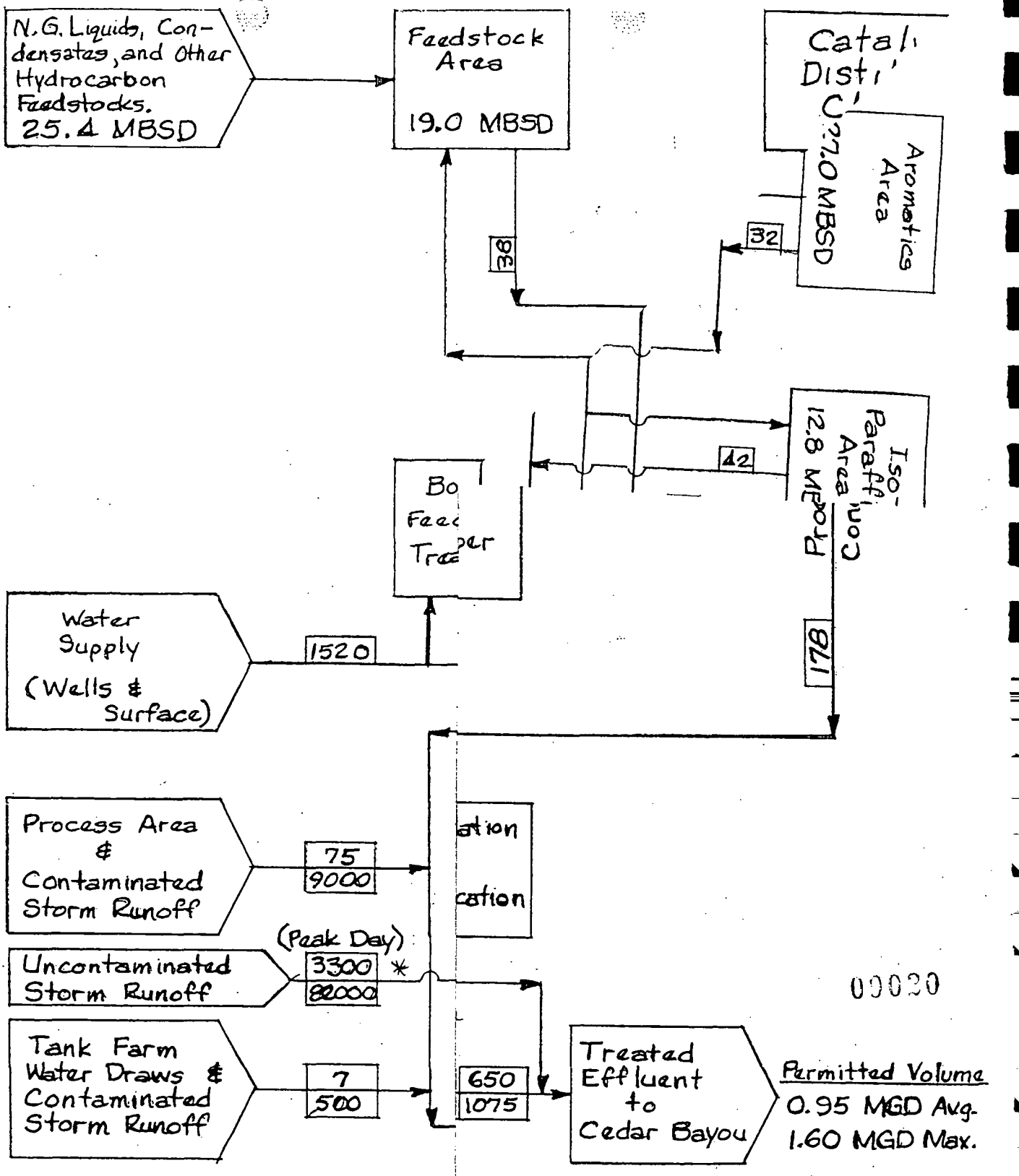
The basic concept for management of stormwater on the plant property is to provide separate storm drainage facilities for process and non-process areas in the plant. The storm drainage from process areas, which could be contaminated with various processing chemicals and process materials, will be routed into process sewers for complete treatment or off-site disposal. Storm runoff from administrative areas, roads and buffer areas will be routed into drainage ditches along the central access road for release into Cedar Bayou. Stormwater collected in the storage tank farm area will be contained within the firewall dikes and will be released, under supervisory control, after analysis for contamination. Tank water draws and contaminated tank farm runoff will be pumped to the process sewer for treatment or off-site disposal.

As indicated on the General Plant Layout, Attachment IV, the initial stages of plant development will generally occupy the northeastern quadrant of the plant property. Non-process area and uncontaminated storm runoff from the developed area will be collected by drainage ditches and will be routed to a culvert through the levee near the northwest corner of the property, from which this storm water will be released into Cedar Bayou. Storm runoff from the undeveloped area will flow into a tributary to Sutton Gully, following the natural drainage patterns, and will continue into Sutton Gully, south of the plant property.

Stormwater facilities will be designed for a 25-year, 24-hour rainfall of 10.3 inches and a maximum monthly rainfall total of 16 inches. Process area storm drainage will be routed through the process sewer system and will be pumped into stormwater surge tanks, from which it will be fed into the treatment system at an average rate of up to 75 gpm. The treatment system will also be designed to accommodate up to 500 gpm of contaminated storm runoff from the tank farm area impoundments.

Based on Soil Conservation Service hydrology methods, the peak flow rate for storm runoff in the process sewer system is about 9,000 gpm, which establishes the hydraulic design criteria for pumps lifting the wastewaters into the storm surge tanks. From these tanks, the water will flow at controlled rates, up to 1200 gpm, into the other treatment units.

00019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Treated Effluent to Cedar Bayou
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1.60 MGD Max.
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Max Flow Rate, gpm
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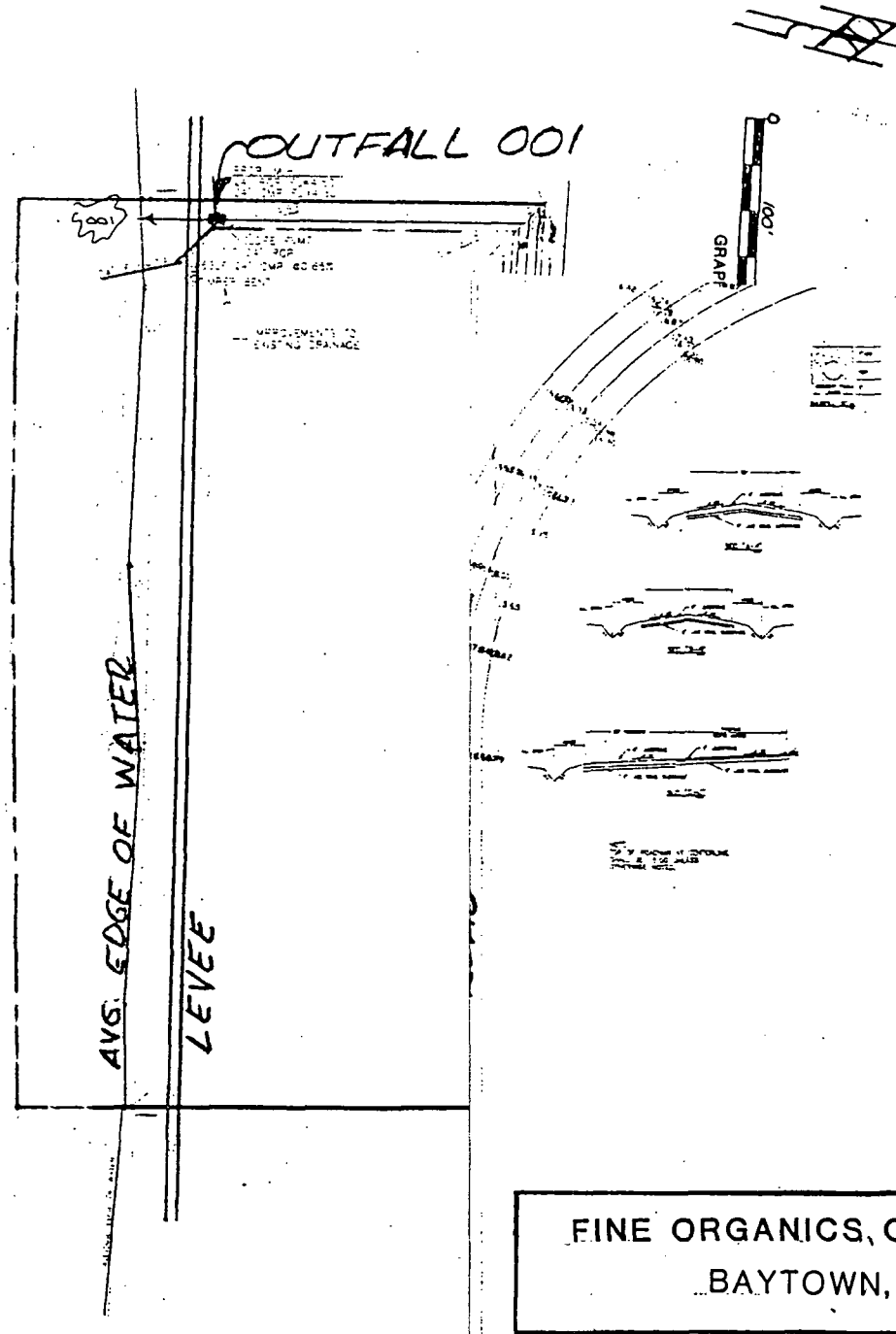
FINE ORGANICS CORPORATION
BAYTOWN, TEXAS
TNRCC PERMIT APPLICATION
ATTACHMENT III
WASTEWATER FLOW SCHEMATIC



09021

FINE ORGANICS, CORPORATION
BAYTOWN, TEXAS

TNRCC PERMIT APPLICATION

ATTACHMENT IV
GENERAL PLANT LAYOUT

CARDEN/CONSULTING ENGINEER

Document 10

02771 E

RECEIVED
MAR 12 1996
REGION 12

ENTERED

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

TRANSFER OF

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

PERMIT NO. 02777

FROM Hansa Manufacturing Company

TO Fine Organics Corporation, Inc.

Ownership of the facilities covered by the above-referenced permit, approved May 2, 1991, has changed. That part of the signature page pertaining to the name and mailing address of the permit holder is hereby changed so that the same shall hereinafter be and read as follows:

"Fine Organics Corporation, Inc.
6655 West Bay Road
Baytown, Texas 77520"

The transferee is financially responsible for the proper maintenance and operation of the facility so as to comply with the terms and conditions of the permit. The failure to operate the facility in accordance with the terms and conditions of the permit may be good cause for revocation of the permit.

This transfer is in accordance with 30 Texas Administrative Code Section 305.97.

Gloria A. Vasquez

Gloria Vasquez, Chief Clerk
Texas Natural Resource Conservation Commission

Issued Date: MAR 05 1996

10001

Changed 3-22-96 gp

Document 11

02777-010E

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

10/03/96

RODMAN A EGGEN
FINE ORGANICS CORPORATION INC
6655 WEST BAY ROAD
BAYTOWN TX 77520

Re: FINE ORGANICS CORPORATION, Docket #: None,
Permit Type: Renewal, Permit #: 02777,
SOAH Docket #: None.

Enclosed is a copy of:
(X) a Print for a wastewater treatment facility issued pursuant to Chapter 26 of the Texas Water Code.
In order that you may comply with monitoring requirements for your wastewater permit, self-reporting forms and instructions will be forwarded to you from the Agriculture and Watershed Management Division. For existing facilities, revised self-reporting forms will be forwarded if monitoring requirements have changed. For further information, please contact Mary Taylor at (512) 239-4570.
When a facility is first placed in operation or goes into a new phase, please use the attached "Notification of Completion of Wastewater Treatment Facilities" form. This form will serve as notice to the agency of the completion or placement in operation of proposed facilities in accordance with the special provision incorporated into the permit.
( ) a Permit for a hazardous or solid waste facility issued pursuant to Art. 4477-7, Texas Revised Civil Statutes. Your attention is directed to Commission Rule 335.5 which may be applicable to your facility.
( ) a Permit for a waste disposal well or an injection well issued pursuant to Chapter 27 of the Texas Water Code. In accordance with the Texas Water Code, you must file a copy of the permit with the city and county health authorities.
( ) a Permit for a municipal solid wasted facility issued pursuant to Chapter 361, Texas Health and Safety Code. The Site Development Plan, the Site Operating Plan, and all other documents and plans prepared and submitted to support the permit application shall be considered as a part of this and shall be considered as operational requirements of this permit.
( ) a Radioactive Material License issued pursuant to 30 Texas Administrative Code, Chapter 336.

Sincerely,

Mamie M. Black
Mamie M. Black
Acting Chief Clerk

MMB:de

cc: Region #('s): 12

11001

Mailing List for:
FINE ORGANICS CORPORATION
Permit #: 02777
TNRCC Docket #:
SOAH Docket #:

CC:

CLAIR A CARDIN PE
P O BOX 7322
TYLER TX 75711-7322

FINE ORGANICS CORPORATION INC
RODMAN A EGGEN
6655 WEST BAY ROAD
BAYTOWN TX 77520

KELLY HART AND HALEMAN
JEFFREY CIVINS ATTORNEY AT LAW
301 CONGRESS AVENUE
STE 2000
AUSTIN TX 78701

PERMIT NO. 02777
(corresponds to
NPDES PERMIT NO. TX0098604)

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
P. O. Box 13087
Austin, Texas 78711-3087

This is a renewal of Permit No. 02777, approved May 2, 1991.

PERMIT TO DISPOSE OF WASTES
under provisions of Chapter 26
of the Texas Water Code

Fine Organics Corporation

whose mailing address is

6655 West Bay Road
Baytown, Texas 77520

is authorized to treat and dispose of wastes from the Chambers Plant, an organic chemical and petroleum refining facility (SIC 2911, 2865, 2869)

located at 6655 West Bay Road, adjacent and east of Cedar Bayou, approximately 2.5 stream miles south of the State Highway 146 Cedar Bayou Bridge, and northeast of the City of Baytown, Chambers County, Texas

directly to Cedar Bayou in Segment No. 0901 of the Trinity-San Jacinto Coastal Basin

only in accordance with effluent limitations, monitoring requirements and other conditions set forth herein, as well as the rules of the Texas Natural Resource Conservation Commission ("Commission"), the laws of the State of Texas, and other orders of the Commission. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the herein described discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the herein described discharge route.

This permit and the authorization contained herein shall expire at midnight on September 12, 1998.

ISSUED DATE: SEP 13 1996

ATTEST: Mamie M. Black

For the Commission

11053

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS — Outfall Number 001

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater, cooling tower blowdown, and storm water subject to the following effluent limitations:

   The daily average flow of effluent shall not exceed 0.95 million gallons per day (MGD). The total volume discharged during any 24-hour period shall not exceed 1.60 million gallons.

Effluent Characteristic	Discharge Limitations					Minimum Self-Monitoring Requirements	
	Daily Avg		Daily Max		Single Grab	Report Daily Avg. & Daily Max.	
	lbs/day	(mg/l)	lbs/day	(mg/l)	mg/l	Measurement Frequency	Sample Type
Flow (MGD)	(Report)	(*1)	(Report)	(*1)	N/A	1/operating shift	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	158	(20)	317	(40)	45	2/week	Composite
Total Suspended Solids	158	(20)	317	(40)	45	2/week	Composite
Chemical Oxygen Demand	1426	(180)	2535	(320)	350	2/week	Composite
Oil and Grease	79	(10)	119	(15)	15	2/week	Grab
Phenolic Compounds	0.8	(0.1)	1.6	(0.2)	0.2	2/week	Grab
Ammonia-Nitrogen	16	(2.0)	32	(4.0)	5.0	2/week	Composite
Sulfides	0.8	(0.1)	1.6	(0.2)	0.2	2/week	Grab
Total Chromium	4.0	(0.5)	8.0	(1.0)	1.5	2/week	Composite
Hexavalent Chromium	3.6	(0.45)	7.5	(0.95)	1.5	2/week	Composite
Hexachlorobenzene	0.002	(0.0002)	0.004	(0.0005)	0.01	1/year	Composite
Phenanthrene	0.072	(0.009)	0.152	(0.019)	0.03	1/year	Composite

(*1) Flow measurements shall be taken prior to commingling the treated process and cooling tower blowdown with untreated storm water runoff.

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/day, by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

4. Effluent monitoring samples shall be taken at the following location: At Outfall 001, following commingling of all wastestreams at the outfall flow measuring device on the west side of the plant, and prior to discharging to Cedar Bayou.

1. During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater subject to the following effluent limitations:

   The daily average flow of effluent shall not exceed 0.71 million gallons per day (MGD). The total volume discharged during any 24-hour period shall not exceed 1.32 million gallons.

Effluent Characteristic	Discharge Limitations					Minimum Self-Monitoring Requirements	
	Daily Avg		Daily Max		Single Grab	Report Daily Avg. & Daily Max.	
	lbs/day	(mg/l)	lbs/day	(mg/l)	mg/l	Measurement Frequency	Sample Type
Flow (MGD)	(Report)		(Report)		N/A	1/operating shift	Totalizing Meter
Total Nickel	0.69	(1.69)	1.64	(3.98)	5.0	2/week	Composite
Benzene	0.17	(0.037)	0.62	(0.136)	0.156	2/week	Composite
Toluene	0.12	(0.026)	0.36	(0.080)	0.092	2/week	Composite
Acenaphthene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Acenaphthylene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Acrylonitrile	0.44	(0.096)	1.10	(0.242)	0.278	1/year	Composite
Anthracene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Benzo(a)anthracene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
3,4-Benzofluoranthene	0.10	(0.023)	0.28	(0.061)	0.070	1/year	Composite
Benzo(k)fluoranthene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Benzo(a)pyrene	0.10	(0.023)	0.28	(0.061)	0.070	1/year	Composite
Bis(2-ethylhexyl) phthalate	0.47	(0.103)	1.27	(0.279)	0.321	1/year	Composite
Carbon Tetrachloride	0.08	(0.018)	0.17	(0.038)	0.044	1/year	Composite
Chlorobenzene	0.07	(0.015)	0.13	(0.026)	0.032	1/year	Composite
Chloroethane	0.47	(0.104)	1.22	(0.268)	0.308	1/year	Composite
Chloroform	0.10	(0.021)	0.21	(0.046)	0.053	1/year	Composite
2-Chlorophenol	0.14	(0.031)	0.44	(0.098)	0.113	1/year	Composite
Chrysene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Di-n-butyl phthalate	0.12	(0.027)	0.26	(0.057)	0.066	1/year	Composite
1,2-Dichlorobenzene	0.35	(0.077)	0.74	(0.163)	0.187	1/year	Composite
1,3-Dichlorobenzene	0.14	(0.031)	0.20	(0.044)	0.051	1/year	Composite
1,4-Dichlorobenzene	0.07	(0.015)	0.13	(0.028)	0.032	1/year	Composite
1,1-Dichloroethane	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
1,2-Dichloroethane	0.31	(0.066)	0.96	(0.211)	0.243	1/year	Composite
1,1-Dichloroethylene	0.07	(0.016)	0.11	(0.025)	0.029	1/year	Composite

Effluent Characteristic	Discharge Limitations					Minimum Self-Monitoring Requirements	
	Daily Avg		Daily Max		Single Grab	Report Daily Avg. & Daily Max.	
	lbs/day	(mg/l)	lbs/day	(mg/l)	mg/l	Measurement Frequency	Sample Type
1,2-trans-Dichloroethylene	0.10	(0.021)	0.25	(0.054)	0.062	1/year	Composite
2,4-Dichlorophenol	0.18	(0.039)	0.51	(0.112)	0.129	1/year	Composite
1,2-Dichloropropane	0.69	(0.153)	1.04	(0.230)	0.264	1/year	Composite
1,3-Dichloropropylene	0.13	(0.029)	0.20	(0.044)	0.051	1/year	Composite
Diethyl phthalate	0.37	(0.081)	0.92	(0.203)	0.233	1/year	Composite
2,4-Dimethylphenol	0.08	(0.018)	0.16	(0.036)	0.041	1/year	Composite
Dimethyl phthalate	0.09	(0.019)	0.21	(0.047)	0.054	1/year	Composite
4,6-Dinitro-o-cresol	0.35	(0.078)	1.26	(0.277)	0.318	1/year	Composite
2,4-Dinitrophenol	0.32	(0.071)	0.56	(0.123)	0.141	1/year	Composite
2,4-Dinitrotoluene	0.51	(0.113)	1.29	(0.285)	0.328	1/year	Composite
2,6-Dinitrotoluene	1.16	(0.255)	2.91	(0.641)	0.737	1/year	Composite
Ethylbenzene	0.15	(0.032)	0.49	(0.108)	0.124	1/year	Composite
Fluoranthene	0.11	(0.025)	0.31	(0.068)	0.078	1/year	Composite
Fluorene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Hexachlorobutadiene	0.09	(0.020)	0.22	(0.049)	0.056	1/year	Composite
Hexachloroethane	0.10	(0.021)	0.25	(0.054)	0.062	1/year	Composite
Methyl Chloride	0.39	(0.086)	0.86	(0.190)	0.218	1/year	Composite
Methylene Chloride	0.18	(0.040)	0.40	(0.089)	0.102	1/year	Composite
Naphthalene	0.10	(0.022)	0.27	(0.059)	0.068	1/year	Composite
Nitrobenzene	0.12	(0.027)	0.31	(0.068)	0.078	1/year	Composite
2-Nitrophenol	0.19	(0.041)	0.31	(0.069)	0.079	1/year	Composite
4-Nitrophenol	0.33	(0.072)	0.56	(0.124)	0.143	1/year	Composite
Phenol	0.07	(0.015)	0.12	(0.026)	0.030	1/year	Composite
Pyrene	0.11	(0.025)	0.30	(0.067)	0.077	1/year	Composite
Tetrachloroethylene	0.10	(0.022)	0.25	(0.056)	0.064	1/year	Composite
1,2,4-Trichlorobenzene	0.31	(0.068)	0.64	(0.140)	0.161	1/year	Composite
1,1,1-Trichloroethane	0.10	(0.021)	0.25	(0.054)	0.062	1/year	Composite
1,1,2-Trichloroethane	0.09	(0.021)	0.25	(0.054)	0.062	1/year	Composite
Trichloroethylene	0.10	(0.021)	0.25	(0.054)	0.062	1/year	Composite
Vinyl Chloride	0.47	(0.104)	1.22	(0.268)	0.308	1/year	Composite

2. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

3. Effluent monitoring samples shall be taken at the following location: At Outfall 101, following the biological treatment facilities, prior to mixing with treated cooling tower blowdown and storm water runoff for discharge to Cedar Bayou.

11007

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC §§305.121-305.129, Subchapter F, "Permit Characteristics and Conditions" as promulgated under the Texas Water Code, §§5.103 and 5.105, and §§361.017 and 361.024(a) of the Texas Solid Waste Disposal Act establish the characteristics and standards for waste discharge permits, including sewage sludge. The following text includes these conditions and incorporates them into this permit. All definitions contained in Section 26.001 of the Texas Water Code shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

   a. Daily average flow - the arithmetic average of all determinations of the daily discharge within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily discharge, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

   b. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

   c. 2-hour peak (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. Multiple measurements of instantaneous maximum flow within a two-hour period may be compared to the permitted 2-hour peak flow.

   d. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.

2. Concentration Measurements

   a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit within a period of one calendar month, consisting of at least four separate representative measurements. When four samples are not available in a calendar month, the arithmetic average of the four most recent measurements or the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

   b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab, within a period of one calendar week, Sunday through Saturday, consisting of at least three separate measurements.

   c. Daily maximum concentration - the maximum concentration measured on a single day, by composite sample, unless otherwise specified elsewhere in this permit.

   d. Fecal Coliform bacteria - the number of colonies per 100 milliliters effluent.

3. Sample Type

   a. Composite sample - a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow collected no closer than two hours for domestic sewage. For industrial wastewater a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow collected no closer than one hour.

   b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids separated from wastewater by unit processes which have not been classified as hazardous waste.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

   Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§319.4 - 319.12. Unless otherwise specified, a monthly effluent report shall be submitted each month by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month.

   As provided by State Law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act, the Texas Water Code, Chapters 26, 27, and 28, and Texas

Health and Safety Code, Chapter 361, including but not limited to knowingly making any false statement on any report or document, falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§319.11 - 319.12. Measurements, tests and calculations shall be accurately accomplished in a representative manner.

3. Records of Results

a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, and the certification required by 40 Code of Federal Regulations §264.73(b)(9) shall be retained at the facility site and/or shall be readily available for review by a TNRCC representative for a period of three years from the date of the record or sample, measurement, report or certification. This period may be extended at the request of the Executive Director.

c. Records of monitoring activities shall include the following:

i. date, time and place of sample or measurement;
ii. identity of individual who collected the sample or made the measurement.
iii. date and time of analysis;
iv. identity of the individual and laboratory who performed the analysis;
v. the technique or method of analysis; and
vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to and through the final disposition of any administrative or judicial enforcement action that maybe instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the required monthly effluent report. Increased frequency of sampling shall be indicated on the monthly effluent report.

5. Calibration of Instruments

All automatic flow measuring and/or recording devices and/or totalizing meters required by the permit for measuring permit limited flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be kept at the plant site for at least three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the appropriate Regional Office and the Manager, Water Section, Enforcement Division.

7. Noncompliance Notification

a. Unless specified otherwise, any noncompliance which may endanger human health or safety, or the environment shall be reported to the TNRCC. Report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided to the Regional Office and the Manager, Water Section, Enforcement Division within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

b. Unauthorized discharges as defined in Permit Condition 2(g) of this permit shall be reported under Part a of this noncompliance notification provision.

c. Notwithstanding any of the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported in writing to the Regional Office and the Manager, Water Section, Enforcement Division within 5 working days of becoming aware of the noncompliance.

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d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Program Support Team of the Agriculture & Watershed Management Division as promptly as possible. This requirement means to report these types of noncompliance on the monthly self-report form.

8. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

PERMIT CONDITIONS

1. General

a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.

b. This permit is granted on the basis of the information supplied and representations made by the permittee during the application process, relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part in accordance with 30 TAC 305.61 - 305.62, during its term for cause including but not limited to, the following:

i. Violation of any terms or conditions of this permit;

ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required by the permit.

2. Compliance

a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgement and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.

b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation or suspension, or for denial of a permit renewal application or of an application for a permit for another facility.

c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation which has a reasonable likelihood of adversely affecting human health or the environment.

e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.

f. A permit may be amended, suspended and reissued, or revoked for cause. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to waters in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements of this permit.

h. A temporary diversion of wastewater around a unit or units to a permitted outfall for the purposes of maintenance or repair is not a violation of this permit as long as the wastewater complies with all other standards, terms and conditions of this permit. Notice shall be provided to the Regional Office at least 24 hours in advance of any temporary diversion, where practical. Where prior notice for a temporary diversion is not practical, notice shall be provided to the Regional Office as soon as possible but at least within 24 hours after beginning the temporary diversion. Not withstanding any of the above, the Commission may require that an application be submitted for formal authorization.

3. Inspections and Entry

a. Inspection and entry shall be allowed as prescribed in the Texas Water Code, Chapters 26, 27, and 28, and Texas Health and Safety Code, Chapter 361.

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b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state. Members, employees, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his or her presence and shall exhibit proper credentials. If any member, employee, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in Texas Water Code Section 26.123.

4. Permit Amendment

a. The permittee shall give notice to the Executive Director prior to physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements.

b. Prior to any facility modifications, additions and/or expansions of a permitted facility that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.

c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. Authorization to continue such activity will terminate upon the effective denial of said application.

d. Prior to accepting wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.

e. Texas Water Code §26.029(b) After a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, to conform to new or additional conditions. The Commission shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Commission may grant additional time.

5. Permit Transfer

a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified, in writing, of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Commission Wastewater Permits Application Team.

b. A permit may be transferred only according to the provisions of 30 TAC §305.64 (relating to Transfer of Permits) and 30 TAC 305.97 (relating to Action on Application for Transfer).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal which requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to the waters in the state must be specifically authorized in this permit and may require a permit pursuant to Chapter 11 of the Texas Water Code.

8. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

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OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all its systems of collection, treatment, and disposal are properly operated. This includes the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control such as the Commission's "Recommendations for Minimum Process Control Tests for Domestic Wastewater Treatment Facilities." Process control records shall be retained at the facility site and/or shall be readily available for review by a TNRCC representative for a period of three years.

2. Upon request of the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all provisions of 30 TAC §312.1-§312.13 concerning sewage sludge use and disposal and §§319.21 - 319.29 concerning the discharge of certain hazardous metals.

3. Domestic wastewater treatment facilities shall comply with the following provisions:

   a. The permittee shall notify the Executive Director in care of the Commission Wastewater Permits Section, in writing of any closure activity or facility expansion at least 90 days prior to conducting such activity.

   b. Closure activities include those associated with any pit, tank, pond, lagoon, or surface impoundment regulated by this permit.

   c. As part of the notification, the permittee shall submit to the Municipal Wastewater Permits Team in Austin, a closure plan which has been developed in accordance with the "Closure Guidance Documents" available through Record System Services for the Office of Waste Management & Pollution Cleanup.

4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.

5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.

6. The permittee shall remit an annual waste treatment fee to the Commission as required by 30 TAC Chapter 305 (Subchapter M) and an annual water quality assessment fee to the Commission as required by 30 TAC Chapter 320. Failure to pay either fee may result in revocation of this permit.

7. Documentation

   For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification upon the same basis as self-monitoring data are required to be kept and made available.

8. Facilities which generate domestic wastewater shall comply with these provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.

   a. Whenever flow measurements for any domestic sewage treatment facility reach 75 percent of the permitted average daily flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion and/or upgrading of the domestic wastewater treatment and/or collection facilities. Whenever, the average daily flow reaches 90 percent of the permitted average daily flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment and/or collection facilities. In the case of a domestic wastewater treatment facility which reaches 75 percent of the permitted daily average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission. If in the judgement of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Manager, Water Section, Enforcement Division of the Commission or an authorized agent, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.

   b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission, and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.

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c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 325.

10. Facilities which generate industrial solid waste as defined in 30 Texas Administrative Code (TAC) §335.1 shall comply with these provisions:

    a. Any solid waste generated by the permittee during the management and treatment of wastewater, as defined in 30 Texas Administrative Code (TAC) §335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid) must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.

    b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.

    c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC §335.6(g), to the Corrective Action Section of the Commission's Industrial and Hazardous Waste Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.

    d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Waste Evaluation Section of the Commission's Industrial and Hazardous Waste Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC §335.5.

    e. The term "industrial solid waste management unit" means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.

    f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC Chapter 335 and must include the following, as it pertains to wastewater treatment and discharge:

        i. Volume of waste and date(s) generated from treatment process;
        ii. Volume of waste disposed of on-site or shipped off-site;
        iii. Date(s) of disposal;
        iv. Identity of hauler or transporter;
        v. Location of disposal site; and
        vi. Method of final disposal.

    The above records shall be maintained on a monthly basis and be available at the plant site for inspection by authorized representatives of the Texas Natural Resource Conservation Commission for at least five years.

11. For facilities to which the requirements of 30 Texas Administrative Code (TAC) Chapter 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with Chapter 361 of the Health and Safety Code of Texas.

11013

OTHER REQUIREMENTS

1. Rainfall runoff discharged from any point source from the plant area not identified in this permit by outfall shall not: (a) contain floating solids, visible oil or visible foam in other than trace amounts, (b) have a pH less than 6.0 nor greater than 9.0 standard units at any time, or (c) exceed a chemical oxygen demand of 200 mg/l nor an oil and grease concentration of 15 mg/l on a grab sample.

2. Chronic toxic criteria apply at the edge of the mixing zone. The mixing zone for Outfall 001 is defined as a volume of water within a radius of 150 feet extending over the receiving water from the point where the discharge reaches Cedar Bayou.

3. This permit does not regulate the treatment and disposal of domestic sewage. Domestic sewage is proposed to be treated by an above ground mechanical package plant and disposed of on-site by sprinkler irrigation of landscaped areas. The permittee shall seek to have the disposal of domestic sewage permitted by the Chambers County Environmental Health Department. Should a permit from the Chambers County Environmental Health Department not be obtained for the disposal of domestic sewage, this permit shall be required to be amended to authorize the on-site disposal of domestic sewage.

4. Reporting requirements pursuant to 30 TAC Sections 319.1 -319.12 and any additional effluent reporting requirements contained in the permit are suspended from the effective date of the permit until plant start-up or discharge, whichever comes first, from the facility described by this permit. The permittee shall provide written notice to the Texas Natural Resource Conservation Commission, Program Support Team, Agriculture & Watershed Management Division and Regional Office, forty-five (45) days prior to plant start-up or anticipated discharge.

   Monitoring results shall be provided at the intervals specified in the permit. For pollutants which are monitored annually, effluent reports shall be submitted in September of each year.

5. Following plant start-up and discharge through Outfall 001, the permittee shall provide analytical results from testing Outfall 001 effluent. Outfall 001 shall be sampled after all process units have been started-up and are contributing wastewater to treatment units which subsequently discharge through Outfall 001. Testing requirements shall consist of four composite samples collected from Outfall 001 at a frequency of once per week at a duration of four weeks. Analyses shall be provided for all parameters listed in 40 CFR Part 122, Appendix D, Tables II, III, and IV. Results of these analyses shall be submitted to the TNRCC's Industrial Permits Team (Agriculture & Watershed Management Division), and the Program Support Team (Agriculture & Watershed Management Division).

6. Permit compliance/noncompliance determinations will be based on the minimum analytical level (MAL) for toxic organic and inorganic parameters. Effluent concentrations measured as less than the MAL are deemed to be compliant with the permit limitations. When an analysis of an effluent sample for the following parameters results in a measurement of less than the MAL, that parameter shall be reported as "< (MAL value)" and this shall be interpreted as a value of zero (0) for compliance purposes.

COMPOUNDS	MAL (µg/L)
Hexachlorobenzene	10

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OTHER REQUIREMENTS (continued)

Test methods utilized to determine compliance with the permit limitations shall be sensitive enough to detect the following parameters at the Minimum Analytical Level (MAL).

COMPOUNDS	MAL (µg/L)
Acenaphthene	10
Acrylonitrile	50
Benzene	10
Carbon Tetrachloride	10
Chlorobenzene	10
1,2,4-Trichlorobenzene	10
1,2-Dichloroethane	10
1,1,1-Trichloroethane	10
Hexachloroethane	20
1,1-Dichloroethane	10
1,1,2-Trichloroethane	10
Chloroethane	10
Chloroform	10
2-Chlorophenol	10
1,2-Dichlorobenzene	10
1,3-Dichlorobenzene	10
1,4-Dichlorobenzene	10
1,1-Dichloroethylene	10
1,2-trans-Dichloroethylene	10
2,4-Dichlorophenol	10
1,2-Dichloropropane	10
1,3-Dichloropropylene	10
2,4-Dimethylphenol	10
2,4-Dinitrotoluene	10
2,6-Dinitrotoluene	10
Ethylbenzene	10
Fluoranthene	10
Methylene Chloride	20
Methyl Chloride	20
Hexachlorobutadiene	10
Naphthalene	10
Nitrobenzene	10
2-Nitrophenol	20
4-Nitrophenol	50
2,4-Dinitrophenol	50
4,6-Dinitro-o-Cresol	--
Phenol	10
Bis(2-Ethylhexyl) Phthalate	10
Di-n-Butyl Phthalate	10
Diethyl Phthalate	10
Dimethyl Phthalate	10
Benzo(a)anthracene	10
Benzo(a)pyrene	10

11015

OTHER REQUIREMENTS (continued)

COMPOUNDS	MAL (µg/L)
3,4-Benzofluoranthene	10
Benzo(k)fluoranthene	10
Chrysene	10
Acenaphthylene	10
Anthracene	10
Fluorene	10
Phenanthrene	10
Pyrene	10
Tetrachloroethylene	10
Toluene	10
Trichloroethylene	10
Vinyl Chloride	10

METALS	MAL (µg/L)
Chromium (Total)	10
Chromium (6+)	10
Nickel (Total)	10

7. The permittee shall protect wastewater treatment units from the 100-year frequency flood level. Levees shall be built to a minimum elevation of 16.0 feet above mean sea level. Storm water drainage structures shall be valved to prevent storm water backflow into the plant during flood events.

8. This requirement is applicable to the treatment and disposal of domestic wastewater from the package treatment plant.

   On-site disposal of sewage sludge is not authorized. The permittee shall ensure that all sewage sludge which is not a hazardous waste (as defined in Chapter 335 of this title) is handled, transported, and disposed of in compliance with the applicable provisions of Chapter 312 of this title. The permittee shall ensure that all sewage sludge which is a hazardous waste (as defined in Chapter 335 of this title) is handled, transported, and disposed of in compliance with the applicable provisions of Chapter 335 of this title. The permittee shall keep records of all sludges removed from the wastewater treatment plant site. Such records will include the following information:

   (a) Volume (dry weight basis) of sludge disposed
   (b) Date of disposal
   (c) Identity and registration number of hauler
   (d) Location and registration or permit number of disposal site
   (e) Method of final disposal

   The above records shall be maintained on a monthly basis and be available at the plant site for inspection by authorized representatives of the Texas Natural Resource Conservation Commission for at least five years.

11016

CHRONIC BIOMONITORING REQUIREMENTS: MARINE

The provisions of this Section apply to Outfall 001 for whole effluent toxicity testing (biomonitoring).

1. Scope, Frequency and Methodology

   a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organism(s). Toxicity is herein defined as a statistically significant difference at the 95% confidence level between the survival, reproduction, or growth of the test organism(s) in a specified effluent dilution compared to the survival, reproduction, or growth of the test organism(s) in the control (0% effluent).

   b. The permittee shall conduct all toxicity tests utilizing the test organisms, procedures, and quality assurance requirements specified below and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition" (EPA-600-4-91-003), or the most recent update thereof:

      1) Chronic static renewal 7-day survival and growth test using Mysidopsis bahia (Method 1007.0 or the most recent update thereof). This test shall be conducted once per six months.

      2) Chronic static renewal 7-day larval survival and growth test using the Inland Silverside (Menidia beryllina) (Method 1006.0 or the most recent update thereof). A minimum of five (5) replicates with eight (8) organisms per replicate shall be used for this test. This test shall be conducted once per six months.

      The permittee may be required to repeat an invalid test, including the control and all effluent dilutions. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods or in this permit. An invalid test shall be repeated within the required reporting period.

   c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These additional effluent concentrations shall be 4%, 6%, 8%, 10%, and 13% effluent. The critical dilution, defined as 10% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.

   d. This permit may be amended to require a Whole Effluent Toxicity (WET) limit, chemical-specific effluent limits, a Best Management Practice (BMP), additional toxicity testing, and/or other appropriate actions to address toxicity. The permittee may be required to conduct additional biomonitoring tests if biomonitoring data indicate multiple numbers of unconfirmed toxicity events.

2. Required Toxicity Testing Conditions

   a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fails to meet any of the following criteria:

      1) a mean survival equal to or greater than 80% for the control;

      2) a minimum mean dry weight in the control of 0.20 mg or greater per surviving mysid at the end of seven days;

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3) a minimum mean dry weight in the control of 0.50 mg or greater per surviving unpreserved Inland Silverside larva at the end of the 7 days and 0.43 mg or greater per surviving preserved larvae at the end of 7 days.mg per larva or greater; and

4) a percent Coefficient of Variation (CV%, the standard deviation x 100/mean) between replicates of 40% or less in the control and critical dilution in the survival tests. The CV% requirements shall not apply at the critical dilution when statistically significant lethality occurs.

b. Statistical Interpretation

For the Mysidopsis bahia and the Inland Silverside minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution (10% effluent) shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition" (EPA-600-4-91-003), or the most recent update thereof.

c. Dilution Water

1) Dilution water used in the toxicity tests shall be the receiving water collected as close to the point of discharge as possible but unaffected by the discharge.

2) Where the receiving water proves unsatisfactory as a result of preexisting instream toxicity (i.e. fails to fulfill the test acceptance criteria of item 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of item 2.a;

b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days);

c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3 of this Section.

Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

d. Samples and Composites

1) The permittee shall collect a minimum of three flow-weighted 24-hour composite samples from Outfall 001. The second and third 24-hour composite samples will be used for the renewal of the dilution concentrations for each toxicity test. A 24-hour composite sample consists of a minimum of twelve (12) effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportionally to flow, or a sample continuously collected proportionally to flow over a 24-hour operating day.

2) The permittee shall collect the 24-hour composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

110.3

3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first 24-hour composite sample. The holding time for any subsequent 24-hour composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 4 degrees Centigrade during collection, shipping, and storage.

4) If flow from the outfall being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time, are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with daily renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Part 3 of this Section.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Toxicity Evaluation Team (MC 150) of the Water Planning and Assessment Division.

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this permit in accordance with the Report Preparation Section of "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition" (EPA-600-4-91-003), or the most recent update thereof, for every valid and invalid toxicity test initiated whether carried to completion or not. All full reports shall be retained for 3 years at the plant site and shall be available for inspection by TNRCC personnel.

b. A full report must be submitted with the first valid biomonitoring test results for each test species and with the first test results any time the permittee subsequently employs a different test laboratory. Full reports need not be submitted for subsequent testing unless specifically requested. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit. All Table 1 reports must include the information specified in the Table 1 form attached to this permit.

c. Where monthly biomonitoring is required, test results (Table 1 reports) are due on or before the 20th day of the month following sampling.

d. Where quarterly biomonitoring is required, test results (Table 1 reports) are due on or before April 20th, July 20th, October 20th, and January 20th, for biomonitoring conducted during the previous calendar quarter.

e. Where semiannual biomonitoring is required, test results (Table 1 reports) are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6 month period.

f. Where annual biomonitoring is required, test results (Table 1 reports) are due on or before January 20th for biomonitoring conducted during the previous 12 month period.

11019

4. Persistent Lethality

The requirements of this Part apply only when a toxicity test demonstrates significant lethal effects at the critical dilution. Significant lethal effects are defined as a statistically significant difference, at the 95% confidence level, between the survival of the test organism in a specified effluent dilution when compared to the survival of the test organism in the control.

a. The permittee shall conduct a total of two (2) additional tests (retests) for any species that demonstrates significant lethal effects at the critical dilution. The two retests shall be conducted monthly during the next two consecutive months, unless monthly testing is specified for the species demonstrating significant lethal effects. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within twenty (20) days of test completion. Test completion is defined as the last day of the test.

b. If one or both of the two retests specified in item 4.a. demonstrates significant lethal effects at the critical dilution, the permittee shall initiate the TRE requirements as specified in Part 5.

c. The provisions of item 4.a. are suspended upon completion of the two retests and submittal of the TRE Action Plan and Schedule defined in Part 5 of this Section.

5. Toxicity Reduction Evaluation

a. Within forty-five (45) days of the last test day of the retest that confirms significant lethal effects at the critical dilution, the permittee shall submit a General Outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and/or effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.

b. Within ninety (90) days of the last test day of the retest that confirms significant lethal effects at the critical dilution, the permittee shall submit a TRE Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethal effects at the critical dilution for both test species defined in item 1.c. As a minimum, the TRE Action Plan shall include the following:

1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and/or alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluent, Phase I" (EPA/600/6-91/005F), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

11020

2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality.

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity;

3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and

4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.

c. Within thirty (30) days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.

d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:

1) results and interpretation of any chemical specific analyses for the identified and/or suspected pollutant(s) performed during the quarter;

2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

3) any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;

5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution; and

6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office (6WQ-PI) and the TNRCC Region 12 office.

e. The permittee shall continue routine biomonitoring quarterly (as a minimum) during the TRE, using the most sensitive species unless, after initiating the TRE, the effluent ceases to induce lethal responses. A cessation of lethality is defined as no significant lethality at the critical dilution for a period of twelve (12) consecutive months with at least monthly sampling and testing. Such evidence shall be submitted with a statement of intent to cease the TRE. The permittee may then resume routine biomonitoring testing.

11021

This provision does not apply as a result of corrective actions taken. Corrective actions which eliminate or reduce effluent toxicity include source reduction or elimination, housekeeping improvements, changes in chemical usage, and modifications of influent or effluent treatment.

f. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than twenty-eight (28) months from the last test day of the retest that confirmed significant lethal effects at the critical dilution. The permittee may petition the Executive Director (in writing) for an extension of the 28-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE. The report shall provide information pertaining to the specific control mechanism(s) selected that will, when implemented, result in reduction of effluent toxicity to no significant lethality at the critical dilution. The report will also provide a specific corrective action schedule for implementing the selected control mechanism(s).

   Copies of the Final Report on the TRE Activities shall also be submitted to the U.S. EPA Region 6 office (6WQ-PI) and the TNRCC Region 12 office.

g. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and/or to specify chemical-specific effluent limits.

11022

TABLE 1 (SHEET 1 OF 4)

Mysidopsis bahia SURVIVAL AND GROWTH

		Date Time	Date Time
Dates and Times Composites Collected	No. 1	FROM: _____	TO: _____
	No. 2	FROM: _____	TO: _____
	No. 3	FROM: _____	TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving Water _____ Synthetic Dilution Water

Mysidopsis bahia SURVIVAL

Percent Effluent	Percent Survival in Replicate Chambers								Mean Percent Survival			CV (%)*
	A	B	C	D	E	F	G	H	24h	48h	7 day	
0%												
4%												
6%												
8%												
10%												
13%												

* coefficient of variation = standard deviation x 100/mean

DATA TABLE FOR GROWTH OF Mysidopsis bahia

Replicate	Mean dry weight in milligrams in replicate chambers					
	0%	4%	6%	8%	10%	13%
A						
B						
C						
D						
E						

11023

Table 1 (SHEET 2 OF 4)

Mysidopsis bahia SURVIVAL AND GROWTH

DATA TABLE FOR GROWTH OF Mysidopsis bahia (Continued)

Replicate	Mean dry weight in milligrams in replicate chambers					
	0%	4%	6%	8%	10%	13%
F						
G						
H						
Mean Dry Weight (mg)						
CV(%)*						

* coefficient of variation = standard deviation x 100/mean

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

   CRITICAL DILUTION (10%): _____ YES _____ NO

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean dry weight (growth) at 7 days significantly less (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

   CRITICAL DILUTION (10%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

   a.) NOEC survival = _____% effluent

   b.) NOEC growth = _____% effluent

11034

TABLE 1 (SHEET 3 OF 4)

INLAND SILVERSIDE MINNOW (Menidia beryllina) LARVAL SURVIVAL AND GROWTH TEST

		Date Time	Date Time
Dates and Times Composites Collected	No. 1	FROM: _____	TO: _____
	No. 2	FROM: _____	TO: _____
	No. 3	FROM: _____	TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving Water _____ Synthetic Dilution Water

INLAND SILVERSIDE MINNOW SURVIVAL

Percent Effluent	Percent Survival in Replicate Chambers					Mean Percent Survival			CV(%)*
	A	B	C	D	E	24h	48h	7 days	
0%									
4%									
6%									
8%									
10%									
13%									

* coefficient of variation = standard deviation x 100/mean

11035

TABLE 1 (SHEET 4 OF 4)

INLAND SILVERSIDE MINNOW (Menidia beryllina) LARVAL SURVIVAL AND GROWTH TEST

INLAND SILVERSIDE MINNOW GROWTH

Percent Effluent	Average Dry Weight in milligrams in replicate chambers					Mean Dry Weight (mg)	CV(%) *
	A	B	C	D	E		
0%							
4%							
6%							
8%							
10%							
13%							

* coefficient of variation = standard deviation x 100/mean

Weights are for: ___ preserved larvae, or ___ unpreserved larvae

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean survival at 7 days significantly less (p=0.05) than the control survival for the % effluent corresponding to (lethality):

   CRITICAL DILUTION (10%): _____ YES _____ NO

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

   Is the mean dry weight (growth) at 7 days significantly less (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

   CRITICAL DILUTION (10%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC (no observed effect concentration) below and circle the lowest number:

   a.) NOEC survival = _____% effluent

   b.) NOEC growth = _____% effluent

11026

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: MARINE

The provisions of this Section apply individually and separately to Outfall 001 for whole effluent toxicity testing (biomonitoring). No samples or portions of samples from one outfall may be composited with samples or portions of samples from another outfall. The provisions of this Section are in addition to other biomonitoring requirements in this permit.

1. Scope, Frequency and Methodology

a. The permittee shall test the effluent for lethality in accordance with the provisions in this Section. Such testing will determine compliance with the Surface Water Quality Standard, 30 TAC §307.6(e)(2)(B), of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.

b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fourth Edition" (EPA 600/4-90/027F), or the most recent update thereof:

1) Acute 24-hour static toxicity test using Mysidopsis bahia. A minimum of five (5) replicates with eight (8) organisms per replicate be used for this test.

2) Acute 24-hour static toxicity test using the Inland Silverside minnow (Menidia beryllina). A minimum of five (5) replicates with eight (8) organisms per replicate shall be used for this test.

The permittee may be required to repeat an invalid test, including the control (0% effluent). An invalid test is herein defined as any test failing to satisfy test acceptability criteria, procedures, and quality assurance requirements specified in the test methods or in this permit. An invalid test shall be repeated within the required reporting period.

c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. Except as discussed in item 2.b., the control and/or dilution water shall consist of a standard, synthetic, moderately hard, reconstituted water.

d. This permit may be amended to require a Whole Effluent Toxicity (WET) limit, a Best Management Practice (BMP), chemical-specific effluent limits, additional toxicity testing, and/or other appropriate actions to address toxicity. The permittee may be required to conduct additional biomonitoring tests if biomonitoring data indicate multiple numbers of unconfirmed toxicity events.

f. If the biomonitoring dilution series specified elsewhere in the permit (Chronic Biomonitoring Requirements) includes a 100% effluent concentration, the results from those tests may fulfill the requirements of this 24-Hour Acute Biomonitoring section. If the Chronic or 48-Hour Acute biomonitoring testing frequency is greater than that specified in item c, any tests performed in the proper time interval may be substituted. Compliance will be evaluated as specified in item b. The 50% survival in 100% effluent for a 24-hour period standard applies to all tests utilizing a 100% effluent dilution, regardless of whether the results are submitted to comply with the minimum testing frequency defined in item c.

11037

2. Required Toxicity Testing Conditions

a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.

b. Dilution Water - In accordance with item 1.c., the control and/or dilution water shall normally consist of a standard, synthetic, reconstituted seawater. If the permittee is utilizing the results of a 48-Hour Acute test or a Chronic test to satisfy the 24-Hour Acute Biomonitoring requirements, in accordance with item 1.e., the permittee may use the receiving water as the control and dilution water if the control meets the requirements of item 2.a.

c. Samples and Composites

1) The permittee shall collect one flow-weighted 24-hour composite sample from Outfall 001. A 24-hour composite sample consists of a minimum of twelve (12) effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportional to flow, or a sample continuously collected proportional to flow over a 24-hour operating day.

2) The permittee shall collect the 24-hour composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the 24-hour composite sample. Samples shall be maintained at a temperature of 4 degrees Centigrade during collection, shipping, and storage.

4) If the Outfall ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report required in Part 3 of this Section.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Toxicity Evaluation Team (MC 150) of the Water Planning and Assessment Division.

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this permit in accordance with the Report Preparation Section of "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fourth Edition" (EPA 600/4-90/027F), or the most recent update thereof, for every valid and invalid toxicity test initiated. All full reports shall be retained for three (3) years at the plant site and shall be available for inspection by TNRCC personnel.

b. A full report must be submitted with the first valid biomonitoring test results for each test species and with the first test results any time the permittee subsequently employs a different test laboratory. Full reports need not be submitted for subsequent testing unless specifically requested. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit. All Table 2 reports must include the information specified in the Table 2 form attached to this permit.

11035

c. If semi-annual biomonitoring is required, the test results (Table 2 reports) are due on the sixth (6th) month and annual anniversary dates of permit issuance. The results of the initial toxicity tests are due six (6) months from the permit issue date.

d. If quarterly biomonitoring is required, the test results (Table 2 reports) are due on the third (3rd), sixth (6th), and ninth (9th) month and annual anniversary dates of permit issuance. The results of the initial toxicity tests are due three (3) months from the permit issue date.

4. Persistent Mortality

The requirements of this Part apply when a toxicity test demonstrates significant lethality, here defined as a mean mortality of 50% or greater to organisms exposed to the 100% effluent concentration after 24-hours.

a. The permittee shall conduct two (2) additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for two (2) weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These additional effluent concentrations shall be 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within twenty (20) days of test completion of the second retest. Test completion is defined as the 24th hour.

b. If one or both of the two retests specified in item 2.a. demonstrates significant lethality, the permittee shall initiate the Toxicity Reduction Evaluation (TRE) requirements as specified in Part 5 of this Section.

5. Toxicity Reduction Evaluation

a. Within forty-five (45) days of the retest that demonstrates significant lethality, the permittee shall submit a General Outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and/or effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.

b. Within ninety (90) days of the retest that demonstrates significant lethality, the permittee shall submit a TRE Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethality for both test species defined in item 1.b. As a minimum, the TRE Action Plan shall include the following:

1) Specific Activities - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and/or alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the

documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

2) Sampling Plan - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality.

Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity;

3) Quality Assurance Plan - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and

4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.

c. Within thirty (30) days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.

d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly TRE Activities Reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:

1) results and interpretation of any chemical-specific analyses for the identified and/or suspected pollutant(s) performed during the quarter;

2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

3) any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;

4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;

5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and

6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

11000

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office (6WQ-PI) and the TNRCC Region 12 office.

e. The permittee shall continue routine biomonitoring quarterly (as a minimum) during the TRE, using the most sensitive species unless, after initiating the TRE, the effluent ceases to induce significant lethality for twelve (12) consecutive weeks with at least weekly sampling and testing. Such evidence shall be submitted with a statement of intent to cease the TRE. The permittee may then resume testing as required by this Section.

This provision does not apply as a result of corrective actions taken. Corrective actions which eliminate or reduce effluent toxicity include source reduction or elimination, housekeeping improvements, changes in chemical usage, and modifications of influent or effluent treatment.

f. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than eighteen (18) months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE.

The report shall specify the control mechanism(s) that will, when implemented, reduce effluent toxicity as specified in item 5.g. The report will also specify a corrective action schedule for implementing the selected control mechanism(s). The permittee shall also submit copies of the Final Report on the TRE Activities to the U.S. EPA Region 6 office (6WQ-PI) and the TNRCC Region 12 office.

g. Within three (3) years of the last day of the test confirming toxicity, the permittee shall comply with 30 TAC 307.6.(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE.

The requirement to comply with 30 TAC 307.6.(e)(2)(B) may be exempted upon proof that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g. metals) form a salt compound. Following the exemption, the permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.

h. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and/or to specify a chemical-specific effluent limit(s).

11031

TABLE 2 (SHEET 1 OF 2)

Mysidopsis bahia SURVIVAL

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

1. Enter percent effluent corresponding to the LC50 below:

24 hour LC50 (Mysidopsis) = _____% effluent

95% confidence limits: _____

Method of LC50 calculation:_____

11032

TABLE 2 (SHEET 2 OF 2)

INLAND SILVERSIDE MINNOW SURVIVAL
(Menidia beryllina)

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

1. Enter percent effluent corresponding to the LC50 below:

24 hour LC50 (Menidia) = _____% effluent

95% confidence limits: _____

Method of LC50 calculation:_____

11033

Document 12

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FINE ORGANICS

FINE ORGANICS CORPORATION
6655 West Bay Road
Baytown, Texas 77520
Phone: (713) 573-1366
Fax: (713) 573-9102

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OCT 24 1996
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October 21, 1996

TNRCC Program Support Team
Agriculture and Water Shed Management Division
(MC 158) PO Box 13087
Austin, TX 78711-3087

RE: TNRCC permit No. 02777 (NPDES No. TX0098604)

Pursuant to "Other Requirements" No. 4 of page 9 of the above reference permit, this letter is to provide written notice of plant start up.

Please do not hesitate to call if you have any questions or need additional information.

Sincerely,

Cyndy Duff

Cyndy Duff
Administrative Manager

cc TNRCC
Region 12
5425 Polk
Houston, TX 77023-1423

12001

Document 13

MEREDITH, DONNELL & ABERNETHY
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McALLEN OFFICE
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ADDRESS REPLY TO:
HOUSTON

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2964/970767

January 26, 1999

VIA US MAIL

Ms. Michelle Ruckstuhl
Texas Natural Resource Conservation Commission
Waste Water Section
5425 Polk Avenue, Suite H
Houston, Texas 77023

RE: **Fine Organics Corporation, Inc.**
Application for Renewal of the NPDES Permit No. TX0098604

Dear Michelle:

Pursuant to your request today, enclosed please find a copy of the January 1997 Fine Organics Corporation, Chambers Plant, Application for Renewal of the NPDES Permit No. TX0098604 which was submitted on February 31, 1997 to the U.S. Environmental Protection Agency, Region 6, Dallas, Texas.

Also, enclosed is the cover letter executed by Clair A. Carden, P.E., Consulting Engineer for the Fine Organics Corporation at the time of the submission for the permit application as well as a letter dated March 10, 1997 from Jackie Greensage of the U.S. Environmental Protection Agency, Region 6, Dallas, Texas. Mr. Greensage's letter states the permit application was administratively complete in accordance with the Environmental Permit Regulations, (40 CFR 124.3(c), 54 FR 18785, May 2, 1989). Randy Rosengarten, P.E. of Rosengarten, Smith & Associates, Inc. is our environmental consultant. As we discussed today, Mr. Rosengarten did file the Discharge Monitoring Reports ("DMR's") for the Fine Organics plant with the U.S. Environmental Protection Agency, Region 6, Dallas, Texas.

Mr. Rosengarten did contact the Austin TNRCC office to request the "self-monitoring report" forms to comply with the TNRCC waste water discharge monitoring

report requirement. The TNRCC advised him that due to computer problems they were unable to provide the report forms. Otherwise, we would have filed the "self-monitoring report" forms for the October 1997 to November 1998 time period. He has assured me that upon receipt of the "self-monitoring report" print outs from your Austin TNRCC office, he will complete them as quickly as possible for submission to the TNRCC.

Should you have any questions and/or require additional information please contact our office. You assistance is greatly appreciated.

Sincerely,

MEREDITH, DONNELL & ABERNETHY

Linda Kay Cook

Linda Kay Cook

enclosures

cc: Marilee A. Madan, Esq. (w/enclos.)
Russell & Madan, P.C.
4265 San Felipe, Suite 250
Houston, Texas 77027

Rodney Tow, Esq. (w/enclos.)
Rodney Tow & Associates
12603 Highway 105 West, Suite 200
Conroe, Texas 77304

Adrian R. Martinez, Esq. (firm)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

March 10, 1997

REPLY TO: 6WQ-C

Mr. Rodman A. Eggen
President
Fine Organics Corporation
6655 West Bay Road
Baytown, TX 77520

Re: NPDES Application No. TX0098604
Fine Organics Corporation

Dear Mr. Eggen:

Your application for a NPDES permit was received and, in accordance with the Environmental Permit Regulations, (40 CFR 124.3(c), 54 FR 18785, May 2, 1989), was reviewed and determined to be administratively complete. Please note that at the time your permit is processed for issuance, we may request additional information including effluent testing.

Thank you for your cooperation. If you have questions concerning this submittal, please contact me at (214) 665-7518.

Sincerely,

Jackie Greensage
Environmental Protection Assistant
Customer Service Branch

13003

CLAIR A. CARDEN, INC.
CONSULTING ENGINEER
805 SOUTH BROADWAY
P.O. BOX 7322
TYLER, TEXAS 75711

CLAIR A. CARDEN, P.E.
ENVIRONMENTAL ENGINEER
TELEPHONE (903) 535-9268

February 3, 1997

Mr. Rodman Eggen
President
Fine Organics Corporation
6655 West Bay Road
Baytown, Texas 77520

RE: FINE ORGANICS CORPORATION
Chambers Plant
Application for Renewal of
NPDES Permit No. TX0098604

Dear Mr. Eggen:

Transmitted herewith are two executed copies of the above-referenced permit application which was submitted to the Environmental Protection Agency on January 31, 1997. The application was submitted without the analytical data on the two storm water outfalls, so this information will need to be forwarded to the agency as soon as it is compiled.

If you have any questions in this matter, or if I can be of any further assistance, please let me know.

Sincerely yours,

Clair A. Carden

Clair A. Carden, P.E.
Consulting Engineer

Enclosures

CAC:jc

13004

FINE ORGANICS CORPORATION

CHAMBERS PLANT

APPLICATION FOR RENEWAL OF

NPDES PERMIT NO. TX0098604

JANUARY, 1997

Submitted to

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Prepared by

Clair A. Carden, Inc., Consulting Engineer
P. O. Box 7322
Tyler, Texas 75711-7322

13095

CLAIR A. CARDEN, INC.
CONSULTING ENGINEER
805 SOUTH BROADWAY
P.O. BOX 7322
TYLER, TEXAS 75711

CLAIR A. CARDEN, P.E.
ENVIRONMENTAL ENGINEER
TELEPHONE (903) 535-9266

January 31, 1997

Mrs. Jenaie Franke
Operations Support Office (6WQ-O)
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

RE: FINE ORGANICS CORPORATION
Chambers Plant
Baytown, Texas
Application for Renewal of
NPDES Permit No. TX0098604

Dear Mrs. Franke:

Transmitted herewith is an application for renewal of the waste discharge permit for the above-referenced plant in Chambers County. Materials included are a Form 1 (General Information), a Form 2C (Industrial Wastewater Application), a Form 2F (Industrial Storm Water Application), and a copy of the Technical Report for Industrial Wastewater Treatment Facilities which was submitted to the Texas Natural Resource Conservation Commission in support of a wastewater discharge permit renewal.

This application describes four outfalls, as follows:

101 -- the discharge from future process wastewater treatment facilities,

201 -- the discharge from the developed portion of the plant, to include the effluent from Outfall 101, cooling water discharges, and process area storm runoff,

001 -- a storm water discharge to Cedar Bayou, to include the discharge from Outfall 201, and

002 -- a storm water discharge to Sutton Gully.

As noted in the application, the analytical data required in Form 2F are not included but will be submitted after runoff from an appropriate rainfall event can be sampled and analyzed. Also, it should be noted that the wastewaters from the process facilities currently in operation are to be contained on-site for transportation to a permitted treatment facility for disposal.

13096

If you have any questions regarding these materials, please give me a call at 903/535-9266.

Very truly yours,

FOR: FINE ORGANICS CORPORATION

BY: Clair A. Carden
Clair A. Carden, P.E.
Consulting Engineer

Enclosures

cc: Rodman Eggen

CAC:jc

CERT. NO. P 335 977 140

13007

1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F T X 0 0 9 8 6 0 4 D

LABEL ITEMS

EPA I.D. NUMBER

II. FACILITY NAME

FACILITY MAILING ADDRESS

I. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? ([redacted])	X		2C;2F	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3) 2D+2C		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4) 2D+2C		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4) 2C+2D		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5) 2C+2D		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

NAME OF FACILITY

SKIP FINE ORGANICS CORPORATION

FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: RODMAN A. EGGEN, PRESIDENT

B. PHONE *(area code & no.)*: 281 573 1366

FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 6655 WEST BAY ROAD

B. CITY OR TOWN: BAYTOWN

C. STATE: TX

D. ZIP CODE: 77520

FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 6655 WEST BAY ROAD

B. COUNTY NAME: CHAMBERS

C. CITY OR TOWN: BAYTOWN

D. STATE: TX

E. ZIP CODE: 77520

F. COUNTY CODE *(if known)*:

13003

Form 3510-1 (Rev. 10-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
2865 (specify) Cyclic Organic Crudes & Intermediates	2869 (specify) Industrial Organic Chemicals, not elsewhere classified
C. THIRD	**D. FOURTH**
2911 (specify) Petroleum Refining	(specify)

VIII. OPERATOR INFORMATION

A. NAME

FINE ORGANICS CORPORATION

B. Is the name listed in Item VIII-A also owner? ☒ YES ☐ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL; S = STATE; P = PRIVATE; M = PUBLIC (other than federal or state); O = OTHER (specify)

P (specify)

D. PHONE (area code & no.) 281 573 1366

E. STREET OR P.O. BOX

6655 WEST BAY ROAD

F. CITY OR TOWN

BAYTOWN

G. STATE TX

H. ZIP CODE 77520

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	**D. PSD** (Air Emissions from Proposed Sources)	TNRCC Air Quality Permit No. 9564
9 N TX0098604	9 P PSD-TX-670	
B. UIC (Underground Injection of Fluids)	**E. OTHER** (specify)	
9 U	9 02777	(specify) TNRCC Waste Discharge Permit
C. RCRA (Hazardous Wastes)	**E. OTHER** (specify)	
9 R TXD981606932	9 37507	(specify) TNRCC Industrial Solid Waste Registration

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements. (See Attachment No. 1, Location Map)

XII. NATURE OF BUSINESS (provide a brief description)

Crude topping refinery and light ends processing plant for production of petroleum solvents and specialty chemicals; and a catalytic distillation unit for production of a group of specialty organic chemicals.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
RODMAN A. EGGEN, PRESIDENT		Jan. 23, 1997

COMMENTS FOR OFFICIAL USE ONLY

C

☆ U.S. Government Printing Office : 1983 - 486-785/333

13099

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1) TX0098104

OMB No. 2040-0086
Approval expires 5-31-92

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
101	29	44	45	94	55	15	Affluent to Outfall 201
201	29	44	45	94	55	30	Affluent to Outfall 001
001	29	44	45	94	55	45	Cedar Bayou
002	29	44	30	94	55	30	Sutton Gully, thence to Cedar Bayou

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
101	Iso-Paraffins & Mineral Oils				
	Processing Areas	54 gpm	Sour Water Stripper	1-D	
	Aromatics				
	Processing Areas	32 gpm	Water Stripper	1-D	
	Feedstock, Iso-Paraffins,				
	Aromatics, CD Cluster &				
	Mineral Oils Processing Areas	178 gpm			
	Cooling Tower Blowdown, Boiler				
	Blowdown & Boiler Water				
	Treatment Wastewaters	110 gpm	Equalization	XX	
	Process Area Washdown & Storm		Oil/Water Separation	XX	
	Runoff	109 gpm	Coagulation & Flotation	2-D	1-H
	Tank Water Draws	7 gpm	Activated Sludge	3-A	
			Gravity Thickening	5-L	
201	Cooling Tower Blowdown	160 gpm	Coagulation & Clarification	2-D	1-U
001	Non-Process Area Storm				
	Runoff				
		3300 gpm	(See Form 2F)		
002	Non-Process Area				
	Storm Runoff				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

13010

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES *(complete the following table)* ☒ NO *(go to Section III)*

1. OUTFALL NUMBER *(list)*	2. OPERATION(s) CONTRIBUTING FLOW *(list)*	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK *(specify average)*	b. MONTHS PER YEAR *(specify average)*	a. FLOW RATE *(in mgd)*		b. TOTAL VOLUME *(specify with units)*		c. DURATION *(in days)*
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES *(complete Item III-B)* ☐ NO *(to to Section IV)*

B. Are the limitations in the applicable effluent guideline expressed in terms of production *(or other measure of operation)*?

☐ YES *(complete Item III-C)* ☐ NO *(go to Section IV)*

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS *(list outfall numbers)*
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	
25.4 (Design Quantity)	MBSD	Topping & Light Ends Refinery	101 & 001
9% of Crude Charge (Design Quantity)		Specialty Organic Chemicals	101,201 & 001

V. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES *(complete the following table)* ☒ NO *(go to Item IV-B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

OPTIONAL. You may attach additional sheets describing any additional water pollution control programs *(or other environmental projects which may affect your discharges)* you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession. N/A

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☒ YES (list all such pollutants below) ☐ NO (go to Item VI-B)

Ethylbenzene
Toluene
Acrylonitrile

13012

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES (identify the test(s) and describe their purposes below) ☒ NO (go to Section VIII)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below) ☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
MBA Laboratories	P. O. Box 9461 Houston, Texas 77261	713/928-2701	Organics, Oil & Grease, Inorganics, Suspended Solids, Other Laboratory analyses as required

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
Rodman A. Eggen, President	218/573-1366
C. SIGNATURE	**D. DATE SIGNED**
	January 23, 1997

13013

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TX0098604

OUTFALL NO: 101

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from Page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*												
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

No data collected. All wastes from initial processing unit, currently under startup, will be contained on-site for transportation to commercial disposal facility.

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual		X												
c. Color		X												
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)		X												
f. Nitrate-Nitrite *(as N)*	X								0					

130-4

1. POLLUTANT AND CAS NO. (If available)	2. MARK 'X' a. BELIEVED PRESENT	2. MARK 'X' b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	3. EFFLUENT a. MAXIMUM DAILY VALUE (2) MASS	3. EFFLUENT b. MAXIMUM 30 DA. VALUE (If available) (1) CONCENTRATION	3. EFFLUENT b. MAXIMUM 30 DA. VALUE (If available) (2) MASS	3. EFFLUENT c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	3. EFFLUENT c. LONG TERM AVRG. VALUE (If available) (2) MASS	3. EFFLUENT d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X								0					
h. Oil and Grease	X								0					
i. Phosphorus (as P), Total (7723-14-0)	X								0					
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)	X								0					
l. Sulfide (as S)	X								0					
m. Sulfite (as SO_3) (14265-45-3)		X												
n. Surfactants		X												
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)		X												
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)	X								0					
t. Magnesium, Total (7439-95-4)	X								0					
u. Molybdenum, Total (7439-98-7)		X												
v. Manganese, Total (7439-96-5)		X												
w. Tin, Total (7440-31-5)		X												
x. Titanium, Total (7440-32-6)		X												

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(If available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TEST-ING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)			X												
6M. Copper, Total (7440-50-8)			X												
7M. Lead, Total (7439-92-1)			X												
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)		X								0					
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)		X								0					
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total		X								0					
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

(if available)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	a. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X		X												
2V. Acrylonitrile (107-13-1)	X		X												
3V. Benzene (71-43-2)	X		X												
4V. Bis (Chloromethyl) Ether (542-88-1)	X		X												
5V. Bromoform (75-25-2)	X		X												
6V. Carbon Tetrachloride (56-23-5)	X		X												
7V. Chlorobenzene (108-90-7)	X		X												
8V. Chlorodibromomethane (124-48-1)	X		X												
9V. Chloroethane (75-00-3)	X		X												
10V. 2-Chloroethylvinyl Ether (110-75-8)	X		X												
11V. Chloroform (67-66-3)	X		X												
12V. Dichlorobromomethane (75-27-4)	X		X												
13V. Dichlorodifluoromethane (75-71-8)	X		X												
14V. 1,1-Dichloroethane (75-34-3)	X		X												
15V. 1,2-Dichloroethane (107-06-2)	X		X												
16V. 1,1-Dichloroethylene (75-35-4)	X		X												
17V. 1,2-Dichloropropane (75-87-5)	X		X												
18V. 1,3-Dichloropropylene (542-75-6)	X		X												
19V. Ethylbenzene (100-41-4)	X	X								0					
20V. Methyl Bromide (74-83-9)	X		X												
21V. Methyl Chloride (74-87-3)	X		X												

CONTINUE ON PAGE V

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CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X		X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X		X												
24V. Tetrachloroethylene (127-18-4)	X		X												
25V. Toluene (108-88-3)	X	X								0					
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X		X												
27V. 1,1,1-Trichloroethane (71-55-6)	X		X												
28V. 1,1,2-Trichloroethane (79-00-5)	X		X												
29V. Trichloroethylene (79-01-6)	X		X												
30V. Trichlorofluoromethane (75-69-4)	X		X												
31V. Vinyl Chloride (75-01-4)	X		X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X		X												
2A. 2,4-Dichlorophenol (120-83-2)	X		X												
3A. 2,4-Dimethylphenol (105-67-9)	X		X												
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X		X												
5A. 2,4-Dinitrophenol (51-28-5)	X		X												
6A. 2-Nitrophenol (88-75-5)	X		X												
7A. 4-Nitrophenol (100-02-7)	X		X												
8A. P-Chloro-M-Cresol (59-50-7)	X		X												
9A. Pentachlorophenol (87-86-5)	X		X												
10A. Phenol (108-95-2)	X	X								0					
11A. 2,4,6-Trichlorophenol (88-06-2)	X		X												

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. ANALYSES
GC/MS FRACTION — BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X		X												
2B. Acenaphtylene (208-96-8)	X		X												
3B. Anthracene (120-12-7)	X		X												
4B. Benzidine (92-87-5)	X		X												
5B. Benzo (a) Anthracene (56-55-3)	X		X												
6B. Benzo (a) Pyrene (50-32-8)	X		X												
7B. 3,4-Benzo-fluoranthene (205-99-2)	X		X												
8B. Benzo (ghi) Perylene (191-24-2)	X		X												
9B. Benzo (k) Fluoranthene (207-08-9)	X		X												
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X		X												
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X		X												
12B. Bis (2-Chloroiso-propyl) Ether (102-60-1)	X		X												
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X		X												
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X		X												
15B. Butyl Benzyl Phthalate (85-68-7)	X		X												
16B. 2-Chloro-naphthalene (91-58-7)	X		X												
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X		X												
18B. Chrysene (218-01-9)	X		X												
19B. Dibenzo (a,h) Anthracene (53-70-3)	X		X												
20B. 1,2-Dichloro-benzene (95-50-1)	X		X												
21B. 1,3-Dichloro-benzene (541-73-1)	X		X												

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EPA I.D. NUMBER (copy from Item 1 of Form 1): TX0098604 | OUTFALL NUMBER: 101

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. WATER QUALITY	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION — BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)	X		X												
23B. 3,3'-Dichlorobenzidine (91-94-1)	X		X												
24B. Diethyl Phthalate (84-66-2)	X		X												
25B. Dimethyl Phthalate (131-11-3)	X		X												
26B. Di-N-Butyl Phthalate (84-74-2)	X		X												
27B. 2,4-Dinitrotoluene (121-14-2)	X		X												
28B. 2,6-Dinitrotoluene (606-20-2)	X		X												
29B. Di-N-Octyl Phthalate (117-84-0)	X		X												
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X		X												
31B. Fluoranthene (206-44-0)	X		X												
32B. Fluorene (86-73-7)	X		X												
33B. Hexachlorobenzene (118-74-1)	X		X												
34B. Hexachlorobutadiene (87-68-3)	X		X												
35B. Hexachlorocyclopentadiene (77-47-4)	X		X												
36B. Hexachloroethane (67-72-1)	X		X												
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X												
38B. Naphthalene (79-88-1)	X		X												
39B. Naphthalene (91-20-3)	X		X												
40B. Nitrobenzene (98-95-3)	X		X												
41B. N-Nitrosodimethylamine (62-75-9)	X		X												
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X		X												

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT									5. INTAKE (optional)		
								LONG TERM AVRG. VALUE (if available)					LONG TERM AVERAGE VALUE		
								(1) CONCENTRATION	(2) MASS			D. MASS	(1) CONCENTRATION	(2) MASS	ANAL. FREQ.
GC/MS FRACTION — [illegible]															
43B. N-Nitrosodiphenylamine (86-30-6)	X		X												
44B. Phenanthrene (85-01-8)	X		X												
45B. Pyrene (129-00-0)	X		X												
46B. 1,2,4-Trichlorobenzene (120-82-1)	X		X												
GC/MS FRACTION — PESTICIDES															
1P. Aldrin (309-00-2)	X		X												
2P. α-BHC (319-84-6)	X		X												
3P. β-BHC (319-85-7)	X		X												
4P. γ-BHC (58-89-9)	X		X												
5P. δ-BHC (319-86-8)	X		X												
6P. Chlordane (57-74-9)	X		X												
7P. 4,4'-DDT (50-29-3)	X		X												
8P. 4,4'-DDE (72-55-9)	X		X												
9P. 4,4'-DDD (72-54-8)	X		X												
10P. Dieldrin (60-57-1)	X		X												
11P. α-Endosulfan (115-29-7)	X		X												
12P. β-Endosulfan (115-29-7)	X		X												
13P. Endosulfan Sulfate (1031-07-8)	X		X												
14P. Endrin (72-20-8)	X		X												
15P. Endrin Aldehyde (7421-93-4)	X		X												
16P Heptachlor (76-44-8)	X		X												

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CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TX0098604	101

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. RELIEVED PRESENT	c. RELIEVED ABSENT	3. EFFLUENT a. MAXIMUM 30 DAY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION — PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)	X		X												
18P. PCB-1242 (53469-21-9)	X		X												
19P. PCB-1254 (11097-69-1)	X		X												
20P. PCB-1221 (11104-28-2)	X		X												
21P. PCB-1232 (11141-16-5)	X		X												
22P. PCB-1248 (12672-29-6)	X		X												
23P. PCB-1260 (11096-82-5)	X		X												
24P. PCB-1016 (12674-11-2)	X		X												
25P. Toxaphene (8001-35-2)	X		X												

U.S. G.P.O.:1992-312-020:63176

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(from ... of Form ...)*: TX0098604

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from Page 3 of Form 2-C)*

OUTFALL NO: 201

PART A - You must provide the results of at least one analysis for each pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS (specify if blank) b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	< 2	< 1					7	mg/L	lb/day	Note; These data are		
b. Chemical Oxygen Demand (COD)	10	< 1					7	mg/L	lb/day	from cooling water		
c. Total Organic Carbon (TOC)										discharged from pilot		
d. Total Suspended Solids (TSS)	19	< 1					7	mg/L	lb/day	plant, prior to		
e. Ammonia (as N)	0.3	< 1					7	mg/L	lb/day	process unit start-up.		
f. Flow	VALUE		VALUE 3.		VALUE		7	gpm		VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE		0	°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE		0	°C		VALUE		
i. pH	MINIMUM 8.0	MAXIMUM 8.0	MINIMUM	MAXIMUM			28	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X" a. PRESENT	b. ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual		X												
c. Color		X												
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)		X												
f. Nitrate-Nitrite (as N)	X								0					

1. POLLUTANT AND CAS NO. (If available)	2. MARK 'X'		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DA. VALUE (If available)		c. LONG TERM AVG. VALUE (If available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	X								0					
h. Oil and Grease	X								0					
i. Phosphorus (as P), Total (7723-14-0)	X								0					
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)	X								0					
l. Sulfide (as S)	X								0					
m. Sulfite (as SO_3) (14265-45-3)		X												
n. Surfactants		X												
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)		X												
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)	X								0					
t. Magnesium, Total (7439-95-4)	X								0					
u. Molybdenum, Total (7439-98-7)		X												
v. Manganese, Total (7439-96-5)		X												
w. Tin, Total (7440-31-5)		X												
x. Titanium, Total (7440-32-6)		X												

CONTINUE ON PAGE V-3

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(If available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total, 7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)			X												
6M. Copper, Total (7440-50-8)			X												
7M. Lead, Total (7439-92-1)			X												
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)		X								0					
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)		X								0					
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total		X								0					
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

NUMBER (if available)	[illegible]	[illegible]	[illegible]	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				[illegible]	[illegible]	[illegible]	[illegible]	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. [illegible] (107-02-8)	X		X												
2V. Acrylonitrile (107-18-1)	X		X												
3V. [illegible] (71-43-3)	X		X												
4V. Bis (Chloromethyl) Ether (542-88-1)	X		X												
5V. Bromoform (75-25-2)	X		X												
6V. Carbon Tetrachloride (56-23-5)	X		X												
7V. Chlorobenzene (108-90-7)	X		X												
8V. Chlorodibromomethane (124-48-1)	X		X												
9V. Chloroethane (75-00-3)	X		X												
10V. 2-Chloroethylvinyl Ether (110-75-8)	X		X												
11V. Chloroform (67-66-3)	X		X												
12V. Dichlorobromomethane (75-27-4)	X		X												
13V. Dichlorodifluoromethane (75-71-8)	X		X												
14V. 1,1-Dichloroethane (75-34-3)	X		X												
15V. 1,2-Dichloroethane (107-06-2)	X		X												
16V. 1,1-Dichloroethylene (75-35-4)	X		X												
17V. 1,2-Dichloropropane (78-87-5)	X		X												
18V. 1,3-Dichloropropylene (542-75-6)	X		X												
19V. Ethylbenzene (100-41-4)	X	X								0					
20V. Methyl Bromide (74-83-9)	X		X												
21V. Methyl Chloride (74-87-3)	X		X												

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CONTINUE ON PAGE V

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TEST-ING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)	X		X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X		X												
24V. Tetrachloroethylene (127-18-4)	X		X												
25V. Toluene (108-88-3)	X	X								0					
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X		X												
27V. 1,1,1-Trichloroethane (71-55-6)	X		X												
28V. 1,1,2-Trichloroethane (79-00-5)	X		X												
29V. Trichloroethylene (79-01-6)	X		X												
30V. Trichlorofluoromethane (75-69-4)	X		X												
31V. Vinyl Chloride (75-01-4)	X		X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X		X												
2A. 2,4-Dichlorophenol (120-83-2)	X		X												
3A. 2,4-Dimethylphenol (105-67-9)	X		X												
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X		X												
5A. 2,4-Dinitrophenol (51-28-5)	X		X												
6A. 2-Nitrophenol (88-75-5)	X		X												
7A. 4-Nitrophenol (100-02-7)	X		X												
8A. P-Chloro-M-Cresol (59-50-7)	X		X												
9A. Pentachlorophenol (87-86-5)	X		X												
10A. Phenol (108-95-2)	X	X								0					
11A. 2,4,6-Trichlorophenol (88-06-2)	X		X												

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X		X												
2B. Acenaphtylene (208-96-8)	X		X												
3B. Anthracene (120-12-7)	X		X												
4B. Benzidine (92-87-5)	X		X												
5B. Benzo (a) Anthracene (56-55-3)	X		X												
6B. Benzo (a) Pyrene (50-32-8)	X		X												
7B. 3,4-Benzo-fluoranthene (205-99-2)	X		X												
8B. Benzo (ghi) Perylene (191-24-2)	X		X												
9B. Benzo (k) Fluoranthene (207-08-9)	X		X												
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X		X												
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X		X												
12B. Bis (2-Chloroiso-propyl) Ether (102-80-1)	X		X												
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X		X												
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X		X												
15B. Butyl Benzyl Phthalate (85-68-7)	X		X												
16B. 2-Chloro-naphthalene (91-58-7)	X		X												
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X		X												
18B. Chrysene (218-01-9)	X		X												
19B. Dibenzo (a,h) Anthracene (53-70-3)	X		X												
20B. 1,2-Dichloro-benzene (95-50-1)	X		X												
21B. 1,3-Dichloro-benzene (541-73-1)	X		X												

CONTINUE ON PAGE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT									5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	[illegible]	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION — BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)	X		X												
23B. 3,3'-Dichlorobenzidine (91-94-1)	X		X												
24B. Diethyl Phthalate (84-66-2)	X		X												
25B. Dimethyl Phthalate (131-11-3)	X		X												
26B. Di-N-Butyl Phthalate (84-74-2)	X		X												
27B. 2,4-Dinitrotoluene (121-14-2)	X		X												
28B. 2,6-Dinitrotoluene (606-20-2)	X		X												
29B. Di-N-Octyl Phthalate (117-84-0)	X		X												
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X		X												
31B. Fluoranthene (206-44-0)	X		X												
32B. Fluorene (86-73-7)	X		X												
33B. Hexachlorobenzene (118-74-1)	X		X												
34B. Hexachlorobutadiene (87-68-3)	X		X												
35B. Hexachlorocyclopentadiene (77-47-4)	X		X												
36B. Hexachloroethane (67-72-1)	X		X												
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X		X												
38B. Isophorone (78-59-1)	X		X												
39B. Naphthalene (91-20-3)	X		X												
40B. Nitrobenzene (98-95-3)	X		X												
41B. N-Nitrosodimethylamine (62-75-9)	X		X												
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X		X												

CC TINUE ON REVERSE

EPA Form 3510-2C (8-90)

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			EFFLUENT										5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE			b. MAXIMUM 30 DAY VALUE		c. LONG TERM AVG. VALUE (if available)		d. NO. OF EXCEEDANCES		e. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(3) UNITS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL AND ACID																
43B. N-Nitrosodiphenylamine (86-30-6)	X		X													
44B. Phenanthrene (85-01-8)	X		X													
45B. Pyrene (129-00-0)	X		X													
46B. 1,2,4-Trichlorobenzene (120-82-1)	X		X													
GC/MS FRACTION – PESTICIDES																
1P. Aldrin (309-00-2)	X		X													
2P. α-BHC (319-84-6)	X		X													
3P. β-BHC (319-85-7)	X		X													
4P. γ-BHC (58-89-9)	X		X													
5P. δ-BHC (319-86-8)	X		X													
6P. Chlordane (57-74-9)	X		X													
7P. 4,4'-DDT (50-29-3)	X		X													
8P. 4,4'-DDE (72-55-9)	X		X													
9P. 4,4'-DDD (72-54-8)	X		X													
10P. Dieldrin (60-57-1)	X		X													
11P. α-Endosulfan (115-29-7)	X		X													
12P. β-Endosulfan (115-29-7)	X		X													
13P. Endosulfan Sulfate (1031-07-8)	X		X													
14P. Endrin (72-20-8)	X		X													
15P. Endrin Aldehyde (7421-93-4)	X		X													
16P. Heptachlor (76-44-8)	X		X													

CONTINUE ON PAGE V-9

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. testing required	b. believed present	c. believed absent	3. EFFLUENT a. MAXIMUM 30 DAY VALUE (if available) (1) Concentration	(2) Mass	b. MAXIMUM 30 DAY VALUE (if available) (1) Concentration	(2) Mass	c. LONG TERM AVRG. VALUE (if available) (1) Concentration	(2) Mass	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) Concentration	(2) Mass	b. NO. OF ANALYSES
GC/MS FRACTION – PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)	X		X												
18P. PCB-1242 (53469-21-9)	X		X												
19P. PCB-1254 (11097-69-1)	X		X												
20P. PCB-1221 (11104-28-2)	X		X												
21P. PCB-1232 (11141-16-5)	X		X												
22P. PCB-1248 (12672-29-6)	X		X												
23P. PCB-1260 (11096-82-5)	X		X												
24P. PCB-1016 (12674-11-2)	X		X												
25P. Toxaphene (8001-35-2)	X		X												

* U.S. G.P.O.:1992-312-020:63176

Please print or type in the unshaded areas only

EPA ID Number (copy from Item I of Form 1): TX0098604

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

Form 2F NPDES

United States Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number (list)	B. Latitude			C. Longitude			D. Receiving Water (name)
001	29°	44'	45"	94°	55'	45"	Cedar Bayou
002	29°	44'	30"	94°	55'	30"	Sutton Gully; Cedar Bayou

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
N/A					

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage or disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility. (See Attachment 2F-1, Site Drainage Map)

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IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
001	2.8 Acres	17.3 Acres	002		26.5 Acres

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

Property has been undeveloped pasture land until the latter part of 1995, when construction was started on the first phase of proposed processing facilities. All process areas and product storage areas are curbed to segregate process wastewaters and contaminated storm waters from the plant storm drainage system. Similar containment facilities will be provided for future process unit construction.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number		List Codes from Table 2F-1
001 002	Storm drainage from all processing, loading and product storage areas will be segregated for analysis and treatment of all contaminated storm water prior to discharge at Outfall 201. Non-process area storm runoff will be drained to the west side of the plant site for discharge to Cedar Bayou (Outfall 001) or to Sutton Gully (Outfall 002).	4-A

V. Nonstormwater Discharges

A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name and Official Title *(type or print)*	Signature	Date Signed
Rodman A. Eggen, President		Jan. 23, 1997

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

N/A

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Continued from Page 2

EPA ID Number (copy from Item I of Form 1)
TX0098604

VII. Discharge Information

A,B,C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Tables VII-A, VII-B, and VII-C are included on separate sheets numbered VII-1 and VII-2.

E: Potential discharges not covered by analysis - is any toxic pollutant listed in table 2F-2, 2F-3 or 2F-4, a substance or a componant of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

[X] Yes (list all such pollutants below) [ ] No (go to Section IX)

Aniline
Butyl Acetate
Ethylbenzene
Toluene
Xylene
Nickel
Cyclohexane
Phenol
Amines
(Butyl, Diethyl, Monoethyl, Triethyl & Ethylene Diamine)

These materials may be in feedstocks or products. Waste materials from these processes are to be contained on-site and transported to permitted treatment facilities for disposal.

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

[ ] Yes (list all such pollutants below) [X] No (go to Section IX)

IX. Contract Analysis Information

Were any of the analysis reported in item VII performed by a contract laboratory or consulting firm?

[X] Yes (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below) [ ] No (go to Section X)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
MBA Laboratories	P. O. Box 9461 Houston, Texas 77261	713/928-2701	Organics, Oil & grease, Inorganics, Suspended solids, etc.

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (type or print)	B. Area Code and Phone No.
Rodman A. Eggen, President	281/573-1366
C. Signature	D. Date Signed
	January 23, 1997

EPA ID Number (copy from item I of Form 1)
TX0098604 OUTFALL 001

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information (Continued from page 3 of Form 2F)

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Oil and Grease		N/A				
Biological Oxygen Demand (BOD5)	No data	available at this time.		Storm runoff will	be	
Chemical Oxygen Demand (COD)	sampled	and the analytical data		will be submitted	as	
Total Suspended Solids (TSS)	soon as	the information can be		obtained.		
Total Nitrogen TKN & NO_3, NO_2						
Total Phosphorus						
pH	Minimum	Maximum	Minimum	Maximum		

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Phenolic Compounds					0	
Ammonia Nitrogen						
Sulfides						
Total Chromium						
Benzene						
Toluene						
Naphthalene						
Acenaphthene						
Acrylonitrile						
Carbon Tetrachloride						
Chlorobenzene						
1,2,4-Trichlorobenzene						
Hexachlorobenzene						
1,2-Dichloroethane						
1,1,1-Trichloroethane						
Hexachloroethane						
1,1-Dichloroethane						
1,1,2-Trichloroethane						
Chloroethane						
Chloroform						
2-Chlorophenol						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
1,1-Dichloroethylene						
1,2-trans Dichloroethylene						
2,4-Dichlorophenol						
1,2-Dichloropropane						
1,3-Dichloropropylene						
2,4-Dimethylphenol					0	

(CONTINUED ON PAGE VII-1-B)

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EPA ID Number (copy from Item I of Form 1)
TX0098604 OUTFALL 001

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information (Continued from page 3 of Form 2F)

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Oil and Grease		N/A				
Biological Oxygen Demand (BOD5)						
Chemical Oxygen Demand (COD)						
Total Suspended Solids (TSS)						
Total Nitrogen						
Total Phosphorus						
	Minimum	Maximum	Minimum	Maximum		

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
2,4-Dinitrotoluene					0	
2,6-Dinitrotoluene						
Ethylbenzene						
Fluoranthene						
Methylene Chloride						
Methyl Chloride						
Hexachlorobutadiene						
Nitrobenzene						
2-Nitrophenol						
4-Nitrophenol						
2,4-dinitrophenol						
4,6-Dinitro-o-cresol						
Phenol						
Bis(2-ethylhexyl)phthalate						
Di-n-butyl phthalate						
Diethyl phthalate						
Dimethyl phthalate						
Benzo(a)anthracene						
Benzo(a)pyrene						
3,4-Benzofluoranthene						
Benzo(k)fluoranthene						
Chrysene						
Acenaphthylene						
Anthracene						
Benzo perylene						
Benzo anthrene						
Benzene						
Tetrachloroethylene						
Trichloroethylene						
Vinyl Chloride					0	

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Nickel, Total					0	
Ethylbenzene					0	
Toluene					0	
Acrylonitrile					0	
Butylacetate		These materials may be in feedstocks or products. Waste materials from these processes are to be contained on-site and transported to permitted treatment facilities for disposal.				
Diethyl amine						
Ethylene diamine						
Monoethyl amine						
Triethyl amine						
Xylene						
Aniline						
Butylamine						
Cyclohexane						

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (In minutes)	3. Total rainfall during storm event (In inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gallons/minute or specify units	6. Total flow from rain event (gallons or specify units)

7. Provide a description of the method of flow measurement or estimate.

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EPA ID Number (copy from Item I of Form 1)
TX0098604 OUTFALL 002

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information (Continued from page 3 of Form 2F)

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Oil and Grease		N/A				
Biological Oxygen Demand (BOD5)	No data available at this time. Storm runoff will be					
Chemical Oxygen Demand (COD)	sampled and the analytical data will be submitted as					
Total Suspended Solids (TSS)	soon as the information can be obtained.					
Total Nitrogen TKN & NO_3 NO_2						
Total Phosphorus						
pH	Minimum	Maximum	Minimum	Maximum		

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Phenolic Compounds					0	
Ammonia Nitrogen						
Sulfides						
Total Chromium						
Benzene						
Toluene						
Naphthalene						
Acenaphthene						
Acrylonitrile						
Carbon Tetrachloride						
Chlorobenzene						
1,2,4-Trichlorobenzene						
Hexachlorobenzene						
1,2-Dichloroethane						
1,1,1-Trichloroethane						
Hexachloroethane						
1,1-Dichloroethane						
1,1,2-Trichloroethane						
Chloroethane						
Chloroform						
2-Chlorophenol						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
1,1-Dichloroethylene						
1,2-trans Dichloroethylene						
2,4-Dichlorophenol						
1,2-Dichloropropane						
1,3-Dichloropropylene						
2,4-Dimethylphenol					0	

EPA ID Number (copy from item I of Form 1)
TX0098604 OUTFALL 002

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information (Continued from page 3 of Form 2F)

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Oil and Grease		N/A				
Biological Oxygen Demand (BOD5)						
Chemical Oxygen Demand (COD)						
Total Suspended Solids (TSS)						
Total Nitrogen						
Total Phosphorus						
pH	Minimum	Maximum	Minimum	Maximum		

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
2,4-Dinitrotoluene					0	
2,6-Dinitrotoluene						
Ethylbenzene						
Fluoranthene						
Methylene Chloride						
Methyl Chloride						
Hexachlorobutadiene						
Hexachlorobenzene						
2-Nitrophenol						
4-Nitrophenol						
2,4-dinitrophenol						
4,6-Dinitro-o-cresol						
Phenol						
Bis(2-ethylhexyl)phthalate						
Di-n-butyl phthalate						
Diethyl phthalate						
Dimethyl phthalate						
Benzo(a)anthracene						
Benzo(a)pyrene						
3,4-Benzofluoranthene						
Benzo(k)fluoranthene						
Chrysene						
Acenaphthylene						
Anthracene						
Pyrene						
Phenanthrene						
Toluene						
Tetrachloroethylene						
Trichloroethylene						
Vinyl Chloride					0	

13000

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

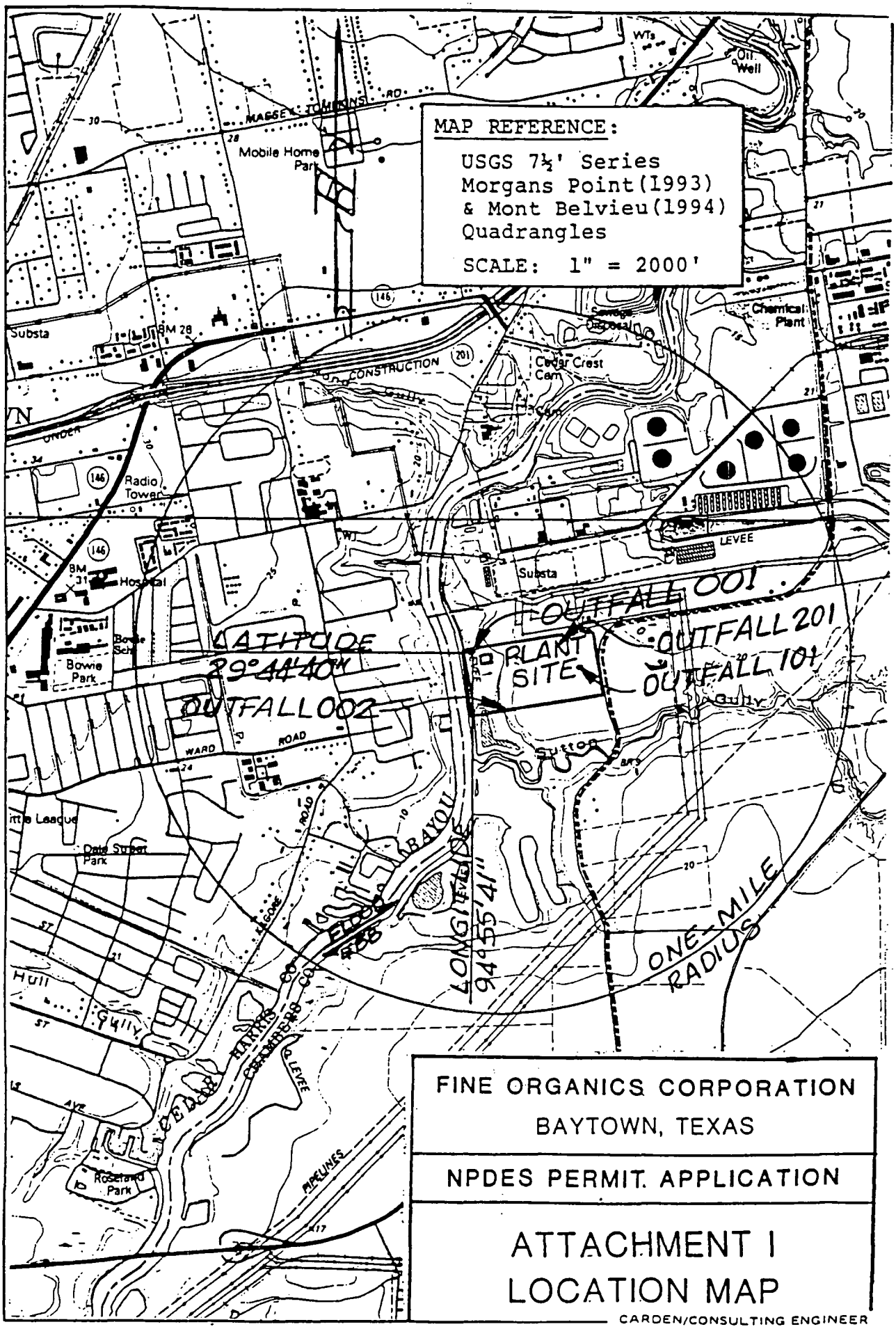
Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite	Grab Sample Taken During First 20 Minutes	Flow-weighted Composite		
Nickel, Total					0	
Ethylbenzene					0	
Toluene					0	
Acrylonitrile					0	
Butylacetate		These materials may be in feedstocks or products. Waste materials from these processes are to be contained on-site and transported to permitted treatment facilities for disposal.				
Diethyl amine						
Ethylene diamine						
Monoethyl amine						
Triethyl amine						
Xylene						
Aniline						
Butylamine						
Cyclohexane						

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gallons/minute or specify units	6. Total flow from rain event (gallons or specify units)

7. Provide a description of the method of flow measurement or estimate.

1334



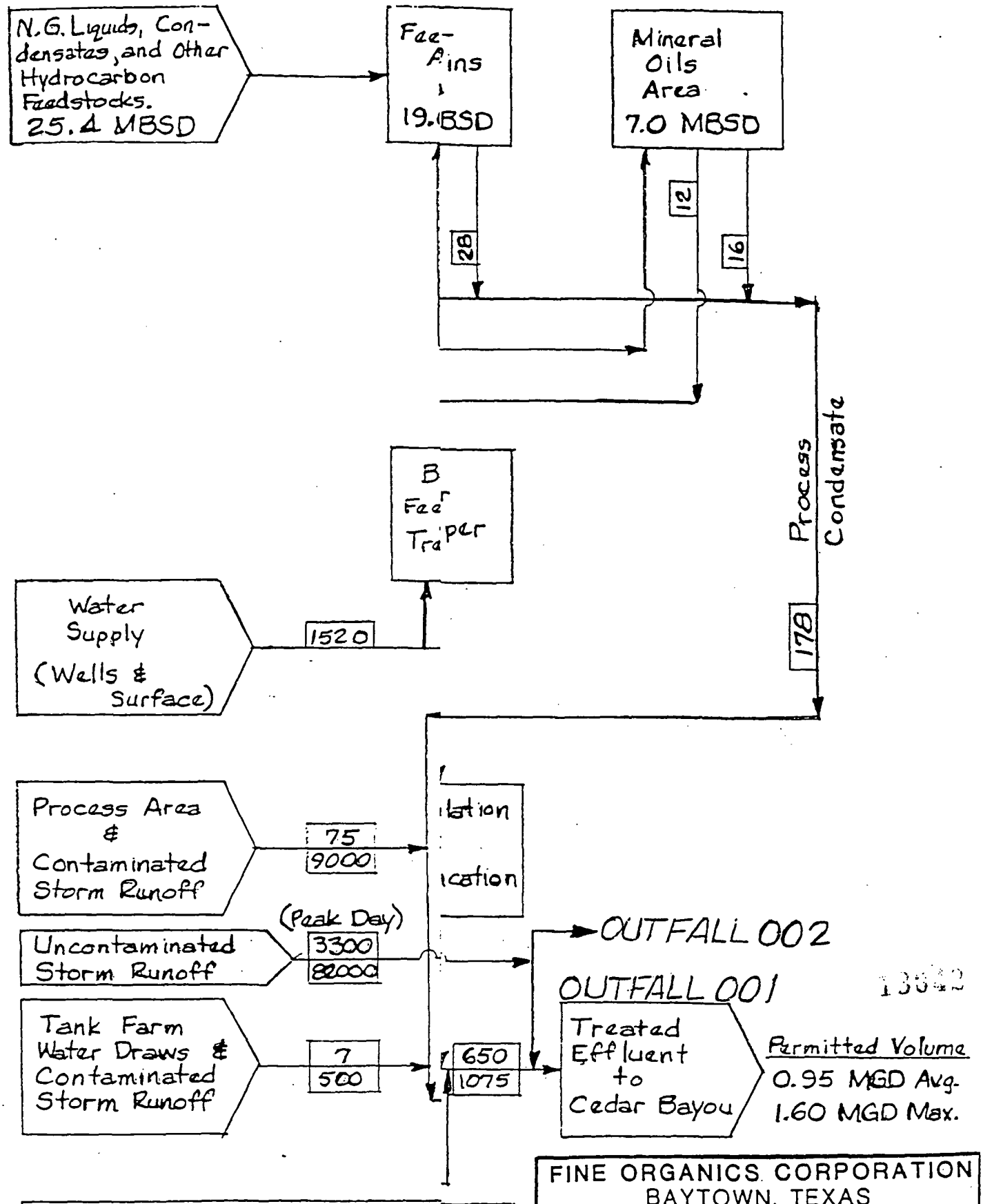
FINE ORGANICS CORPORATION

BAYTOWN, TEXAS

NPDES PERMIT APPLICATION

ATTACHMENT I
LOCATION MAP

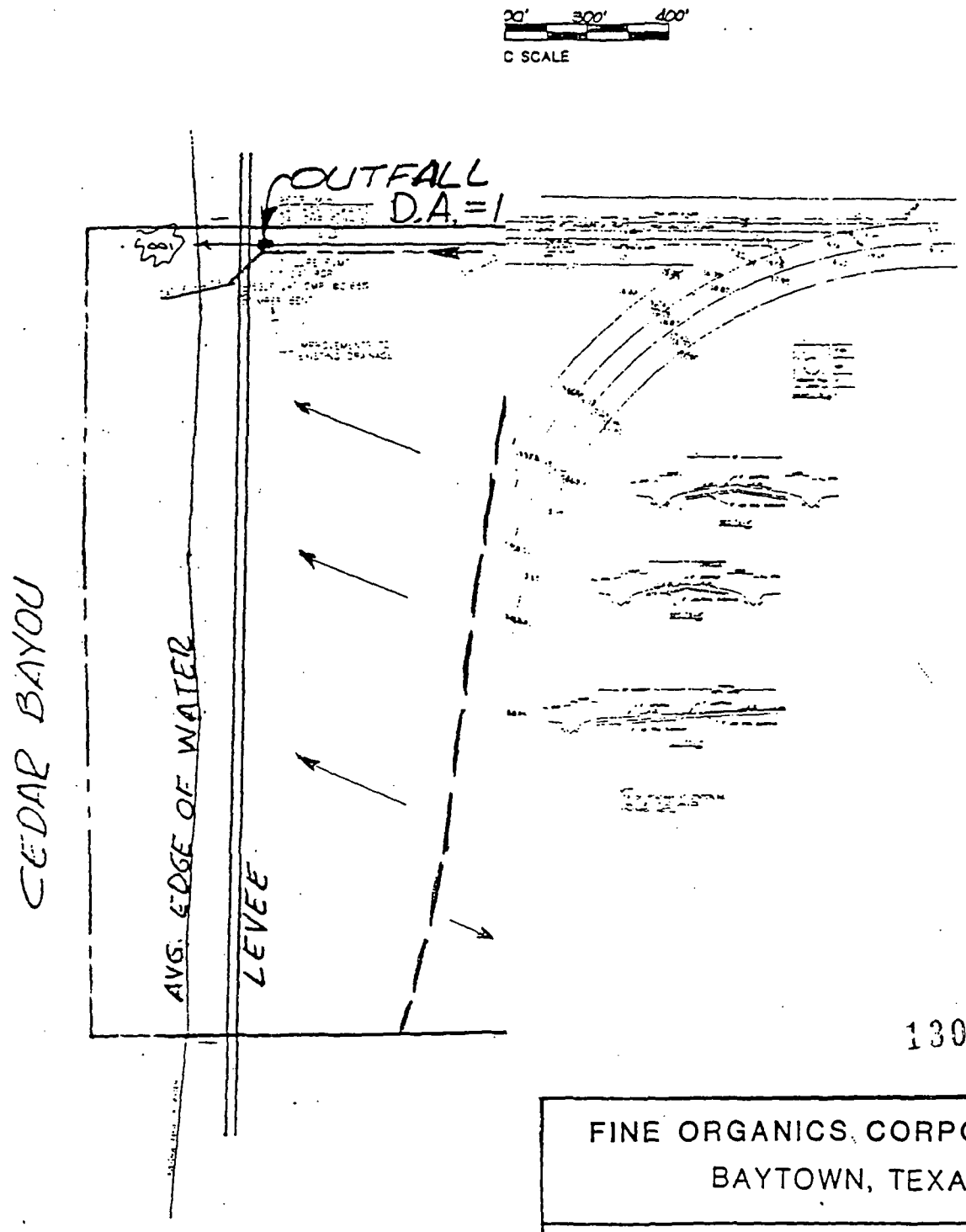
CARDEN/CONSULTING ENGINEER



FINE ORGANICS CORPORATION
BAYTOWN, TEXAS

NPDES PERMIT APPLICATION

ATTACHMENT 2
WASTEWATER FLOW SCHEMATIC



13043

FINE ORGANICS CORPORATION
BAYTOWN, TEXAS

NPDES PERMIT APPLICATION

ATTACHMENT 2-F-1
SITE DRAINAGE MAP

CARDEN/CONSULTING ENGINEER

ATTACHMENT II

TECHNICAL REPORT FOR INDUSTRIAL WASTEWATER FACILITIES

FOR

FINE ORGANICS CORPORATION
CHAMBERS PLANT
BAYTOWN, TEXAS

TNRCC PERMIT NO. 02777
NPDES PERMIT NO. TX0098604

Submitted to

Texas Natural Resource Conservation Commission
P. O. Box 13087
Austin, Texas 78711

DECEMBER, 1995

Prepared by

Clair A. Carden, Inc., Consulting Engineer
P. O. Box 7322
Tyler, Texas 75711

13044

TECHNICAL REPORT FOR

INDUSTRIAL WASTEWATER FACILITIES

Application Page 7, Item 1, Description of Industrial Facility and Treatment System

a. Description of Industrial Facility

Fine Organics Corporation is constructing an organic chemical and petroleum processing facility on its 48-acre plant site in Chambers County, as shown in Attachment I, Location Map. The Texas Water Commission issued Permit No. 02777 on January 28, 1986, and approved a renewal of the permit on May 2, 1991, covering the facilities described in the permit application of August 9, 1985. Due to economic and various other factors, the original schedule for construction of the process facilities has been delayed until recent months. The first phase of process units is currently under construction, with operations scheduled to commence by early 1996.

Since the time of submittal of the application for the initial permit for the Chambers Plant, the proposed group of processes and products has been changed to respond to market conditions for this sector of industry. Consequently, the initial process unit is to be a catalytic distillation unit (CD Cluster) for production of a group of specialty organic chemicals including amines, alcohols, alkylated aromatics, ethers, and esters. The CD Cluster replaces the Light and Heavy Paraffins Areas described in the initial permit application and will utilize a new-generation process technology which will result in a cleaner and more efficient operation than conventional processes for production of this group of organic chemicals.

b. Wastewater Treatment System

The conceptual design of wastewater treatment facilities, as developed in the original permit application and as described herein, is based

on good current treatment technology for the petroleum refining and petrochemical industries. The effluent limitations set forth by the Texas Water Commission in Permit No. 02777 were predicated on the fact that the proposed processing plant was a light ends refinery producing various high purity products, with a significantly higher water use than that of a conventional petroleum refinery; therefore, the limitations were based on best professional judgement. With no significant changes in the total production proposed for this plant, the Commission's determinations regarding effluent limitations for this facility appear to remain valid.

During the initial development of the CD Cluster, the wastes from this unit will be totally contained in a concrete vessel with waste-resistant lining and will be transported off-site for disposal by a permitted commercial waste disposal contractor. The off-site disposal operation will be continued until sufficient volumes of wastewaters are produced to warrant development of appropriate treatment processes to provide the degree of waste treatment required. Cooling tower blowdown from the CD Cluster will be routed to a clarifier for sedimentation of suspended solids prior to release to Outfall 001, as is currently permitted. Over the five-year horizon of this permit renewal, the contact and synthesis waters and condensates to be produced in the CD Cluster are estimated as follow:

Phase I -- Hydrogenation reaction using Ni-based catalyst	= 20 gpm
Phase II -- Amination reaction using Ni-based catalyst	= 22 gpm
Phase III -- Etherification-related reactions using ion exchange resin catalyst	= 20 gpm
Total waste from CD Cluster	= 62 gpm

Prior to construction of additional process units in subsequent phases of plant development, wastewater treatment facilities will be installed to provide primary treatment, secondary biological treatment, and any additional treatment processes as needed to attain the desired effluent

13048

quality prior to discharging the treated water to Cedar Bayou. The proposed process wastewater treatment system is illustrated in the Wastewater Flow Schematic, Attachment III. Waste control techniques which will be utilized where applicable in units processing organic chemicals, including the CD Cluster, will emphasize waste minimization by stripping of condensates for product recovery and isolation of concentrated waste streams for separate treatment at the source or off-site disposal. The treatment system for dilute waste streams and contaminated storm runoff will include facilities for equalization of process waste flows, gravity separators for removal of floating oils, chemical coagulation and dissolved air flotation for removal of emulsified oils, and biological treatment for conversion of soluble organics to biological solids in an activated sludge process. The effluent from this system will be discharged through a monitoring and sampling point, as Outfall 101, prior to commingling with the wastewater streams.

As indicated in the Wastewater Flow Schematic, Attachment III, cooling tower blowdown will be routed through coagulation and clarification processes, as may be needed for removal of suspended solids. The effluent from these treatment units will be combined with the effluent from the process wastewater treatment system (Outfall 101) and will be routed through a flow measuring device and the effluent will be sampled, as required, prior to discharging to Cedar Bayou through Outfall 001. Non-process-area storm runoff which is collected and discharged through an outfall point other than Outfall 001 will be subjected to monitoring and quality limitations as defined in the TNRCC Permit.

Oil which is recovered from oil-water separators will be transported off-site for disposal by permitted contractors. Bottom sediments from the separators, float from the air flotation unit, and excess biological solids will be dewatered and hauled off-site for disposal in accordance with industrial solid waste regulations of the TNRCC.

Application Page 12, Item 16, Stormwater Management

The basic concept for management of stormwater on the plant property is to provide separate storm drainage facilities for process and non-process areas in the plant. The storm drainage from process areas, which could be contaminated with various processing chemicals and process materials, will be routed into process sewers for complete treatment or off-site disposal. Storm runoff from administrative areas, roads and buffer areas will be routed into drainage ditches along the central access road for release into Cedar Bayou. Stormwater collected in the storage tank farm area will be contained within the firewall dikes and will be released, under supervisory control, after analysis for contamination. Tank water draws and contaminated tank farm runoff will be pumped to the process sewer for treatment or off-site disposal.

As indicated on the General Plant Layout, Attachment IV, the initial stages of plant development will generally occupy the northeastern quadrant of the plant property. Non-process area and uncontaminated storm runoff from the developed area will be collected by drainage ditches and will be routed to a culvert through the levee near the northwest corner of the property, from which this storm water will be released into Cedar Bayou. Storm runoff from the undeveloped area will flow into a tributary to Sutton Gully, following the natural drainage patterns, and will continue into Sutton Gully, south of the plant property.

Stormwater facilities will be designed for a 25-year, 24-hour rainfall of 10.3 inches and a maximum monthly rainfall total of 16 inches. Process area storm drainage will be routed through the process sewer system and will be pumped into stormwater surge tanks, from which it will be fed into the treatment system at an average rate of up to 75 gpm. The treatment system will also be designed to accommodate up to 500 gpm of contaminated storm runoff from the tank farm area impoundments.

Based on Soil Conservation Service hydrology methods, the peak flow rate for storm runoff in the process sewer system is about 9,000 gpm, which establishes the hydraulic design criteria for pumps lifting the wastewaters into the storm surge tanks. From these tanks, the water will flow at controlled rates, up to 1200 gpm, into the other treatment units.

CARDEN/CONSULTING ENGINEER

Document 14

FINE ORGANICS

FINE ORGANICS CORPORATION
12941 I-45 N, Suite 707
Houston, TX 77060
Fax: (281) 875-1915
Phone: (281) 873-8733
e-mail: townsend @PTAI.com

FACSIMILE MESSAGE

DATE: 13 May 1997

TO: Michelle Ruckstuhl

COMPANY: TNRCC

FAX : (713) 767-3691

FROM: Rod Eggen

RE:

PAGES: 3 **(including cover page)**

Michelle:
Attached is the correspondence we discussed by phone today. See you on the 20th.

14001

FINE ORGANICS

FINE ORGANICS CORPORATION
12941 I-45 North • Suite 707
Houston, TX 77060
Fax: (713) 875-1915
Phone: (713) 873-8733

11 April 1997

Cathy Shoemaker(MC150)
TNRCC
Toxicity Evaluation Team
Water Quality Division
P.O. Box 13087
Austin, TX 78711-3987

Dear Cathy:

As we discussed by phone this week, Fine Organics commenced commercial operation at its Baytown site on 2 April 1997. Stormwater discharges began in October 1996 at discharge point 001. Since October and to continue for at least another year are abbreviated operational activities at the site as follows:

- All contaminated stormwater is stored in tankage and disposed at the Gulf Coast Waste Disposal Authority - Washburn Tunnel Facility. At the time our water treatment plant is commissioned (to be at least a year from now), contaminated stormwater will be treated and discharged at point 101. There is no discharge point 101 at this time.

- Likewise for the next year, all process water is collected in tanks and disposed at the GCA. At the time our water treatment plant is constructed and operational, all process water will be treated and discharged at point 101.

- Currently our total discharge is roughly 30gpm, 90% of which is uncontaminated stormwater(analyzed for possible contamination prior to discharge) and 10% cooling water, also analyzed.

In conclusion we are now, and will continue to be for at least a year, operating within a very small subspace of the domain of our permit. Based on the flows described above, and on the effluent analyses performed since our recent startup, biomonitoring would appear to be meaningless for at least the next year.

Ms Cathy Shoemaker
TNRCC
11 April 1997

Could you please review this situation and let me know your thinking regarding the biomonitoring requirement at this time and in the future. Please do not hesitate to call if you have any question or need for additional information

Sincerely,

Rod Eggen

Document 15

Rosengarten, Smith & Associates, Inc.
Technical Environmental Management

P.O. Box 162545
Austin, Texas 78716-2545

(512) 707-1777
Fax: (512) 707-0501

November 12, 1997

Mr. Scott Mayo
Texas Natural Resource Conservation Commission
5425 Polk Avenue, Suite H
Houston, Texas 77027

RECEIVED
NOV 14 1997
REGION 12

RE: Fine Organics Corporation, SWR 37507

Dear Mr. Mayo:
Pursuant to Mr. Adrian Martinez's telephone conversation with you on 11/5/97, I have prepared this report of two separate spill incidents occurring at the above listed facility. The spills incidents were as follows:

No.	Date of Spill	Time	Material Spilled	Amount	Cause
1.	5/4/97	0600 to 0615 hrs	Still bottoms - aniline n-phenyl cyclohexylamine dicyclohexylamine	50 lbs	Tank 310 Overfill from Tank 306
2.	5/5/97 to 5/6/97	1600 to 1000 hrs	Feedstock - aniline	50 gals	Storm Water Release

Remediation Activities
Incident #1 reports indicate that chemical adsorbent booms were deployed on the ground to contain the spill and that affected soils were excavated and placed in thirty 55 gallon steel drums. These drums are currently on-site.

Incident #2 reports indicate that this material was initially collected in an underground tank along with storm water from process and truck loading areas. The accumulated 2,500 gallons of storm water was pumped out to the discharge ditch after having been tested. Apparently the sample tested was collected beneath a floating organic layer in the tank. A floating organic layer was later noted on the water in the ditch. Adsorbent booms were placed at the outfall and soils lining the ditch were excavated and placed in two twenty cubic yard roll-off containers which remain on-site.

If you have any questions or require additional information, please call me at (512)707-1777.

Sincerely,

R. L. Rosengarten, P.E.
President, RSA, Inc.

15001

cc: Adrian Martinez

Document 16

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 10, 1997

Mr. Rod Eggen, President
Fine Organics Corp., Inc.
6655 West Bay Rd.
Baytown, Texas 77520

Re: Fine Organics Corp., Inc., Permit No. 02777-000

Dear Mr. Eggen:

On May 20, 1997, a representative of our office conducted a compliance inspection of your wastewater treatment facility. A copy of the inspection report is available upon request.

During the inspection, no outstanding alleged violations/deficiencies were identified. We appreciate your efforts to comply voluntarily with the state's environmental laws and regulations.

If you or members of your staff have any questions, please feel free to contact Michelle Ruckstuhl in our Houston Regional Office at (713) 767-3650.

Sincerely,

John R. Ward
Team Leader
Water Quality Management
Region 12/Houston

JRW/MLR/jac

16001

TEXAS NATURAL RESOU[illegible] CONSERVATION COMMISSION

DOMESTIC OR INDUSTRIAL WWTP
COMPLIANCE REVIEW INSPECTION REPORT

( ) ORIGINAL

( ) CODE SHEET

PERMITTEE: Fine Organics Corp.

ADDRESS: 6655 West Bay Road
Baytown, Tx. 77520

FACILITY NAME: Same as above.

WQ 02777-000

TX 0098604 ( )N/A

TYPE WASTE
( ) DOM - Domestic
(X) IND - Industrial

CLASSIFICATION
( ) Major
(X) Non-major

RETENTION CODE
(X) D - Discharge to surface water
( ) R - Retained (land disposal)

REGION: 12

COUNTY: 036

BASIN: 09

SEGMENT: 0901

OPERATIONAL STATUS
(X) A - Active
( ) I - Inactive

TYPE INSPECTION
(X) ACI - Annual

SELECTION CODE
( ) GT - Grant Major
( ) NM - Non-grant Mandatory
(X) ND - Non-grant Discretionary

DATE INSPECTED 05/20/97
DATE REPORT 06/03/97
DATE LETTER 06/10/97

FIELD MEASUREMENTS TAKEN
( ) Yes (X) No

TYPE LAB SAMPLE
( ) COM -Composite
( ) GRB - Grab
(X) NON - None

CSI (GRANT MAJORS ONLY)
( ) Yes ( )No (X) N/A

COC TAG NOS. (X)N/A _____

OUTSTANDING VIOLATIONS/ DEFICIENCIES NOTED
( ) Yes (X) No

FACILITY EVAL. CONCERNS
[2 LETTER CODES ONLY] (X) N/A

M =

U =

EFFLUENT VIOLATIONS (X) N/A

( ) BOD_5 ( ) TOC ( ) pH
( ) $CBOD_5$ ( ) COD ( ) DO
( ) TSS ( ) Metals ( ) Cl_2 Res.
( ) NH_3-N ( ) Organics ( ) Dechlor. Cl_2 Res.

( ) Other (Specify):

RESPONSE DUE
( ) Yes (X) No

DATE RESPONSE DUE (X) N/A

ENFORCEMENT REFERRAL WITH THIS REPORT ( )Yes
(X) No

DATE ENFORCEMENT REFERRAL (X) N/A

TYPE REFERRAL (X) N/A
( ) Mandatory
( ) Discretionary

INSPECTOR: Michelle Ruckstuhl

INITIALS: MLR

COMMENTS RELATED TO CODE SHEET DATA:

ROUTE TO:

__ WW Permit Applications
__ Municipal Permits
__ Industrial Permits
__ Toxicity Evaluation
__ Pretreatment
__ Sludge/Transporter
__ Self-reporting
__ Operator Certification
__ Enforcement
_X_ Record Services
__ Other: _____

16002

A. CONTACT NAME/TITLE:	PHONE:	YES	NO
Rod Eggen / President	713-573-1366	(X)	( )
Mr. Smith / Plant Manager	"	(X)	( )

B. TREATMENT SYSTEM: List units and/or attach schematic. If land disposal, include description of disposal method.
See attached schematic.

If the permit has interim and final limits, indicate phase in effect.
( ) Applicable (X) N/A

Describe any plant modifications since the last annual inspection.
( ) Applicable (X) N/A

C. INSPECTION SAMPLE RESULTS: (X) N/A - No samples/measurements taken

Outfall & Parameter	Measured Value	Permit Limit	Type Sample	COC Tag No.	Primary Source of Wastewater
Flow too low to measure					

D. RECEIVING WATER AT TIME OF INSPECTION:

Is effluent discharged to a classified segment or within 300 feet of a classified segment? (X) Yes ( ) No ( ) N/A - Land disposal If no, complete the following chart (check all appropriate categories):

Name of receiving water		
( ) Lake	( ) Tidal stream	( ) Wetland, marsh
( ) Bay	( ) Playa	( ) Other (specify):

( ) Ditch			( ) Stream	
Up	Down		Up	Down
( )	( )	Man-made	( )	( ) Channelized
( )	( )	Normally flowing	( )	(X) Normally flowing
( )	( )	Dry channel	( )	( ) Dry channel
( )	( )	Isolated pools	( )	( ) Isolated pools
( )	( )	Natural swale		

E. FACILITY EVALUATION: S = Satisfactory N/E = Not Evaluated
M = Marginal N/A = Not Applicable
U = Unsatisfactory

Provide comments in Sections F, G and/or I for all M and U ratings.

Eval	Code	Category	Eval	Code	Category
N/A	75	Compliance with 75/90 rule	S	SP	Self-monitoring procedures
N/A	II	Infiltration/Inflow	S	LP	Laboratory procedures (X) Commercial MBA Labs ( ) In-house
N/A	FL	Compliance with flow limits	S	SE	Self-monitored effluent quality
S	UD	Unauthorized discharges	N/E	RE	Region-documented effluent quality
N/A	CO	Certified operator	S	RS	Receiving stream
N/A	IW	Industrial waste contribution for domestic WWTP	N/A	SD	Sludge disposal
S	OM	Operations and maintenance	N/A	IP	Irrigation practices
N/A	FA	Flow measurement accuracy Type: _____ Field check attached: ( ) Yes ( ) No If no, provide explanation.	N/A	CS	Compliance schedule 16004
			N/A	OT	Other: _____

F. OUTSTANDING VIOLATIONS/DEFICIENCIES: ( ) Applicable (X) N/A

No.	Requirements Cited	Description of Violation/Deficiency

G. RESOLVED VIOLATIONS/DEFICIENCIES: ( ) Applicable (X) N/A

The following violations/deficiencies were discussed with _____ on _____. These violations/deficiencies were either corrected on-site at the time of the inspection or appropriate documentation of corrective action was provided to the Regional Office within an acceptable time frame.

No.	Requirements Cited	Description of Violation/Deficiency

H. BIOMONITORING: ( ) Applicable (X) N/A

Were any problems noted with the following items? If yes, provide comments.

( ) Yes ( ) No Sample holding time
( ) Yes ( ) No Sample collection
( ) Yes ( ) No Sample type
( ) Yes ( ) No Unauthorized sample dechlorination

I. OTHER COMMENTS: (X) Applicable ( ) N/A

At the time of the inspection, the plant was not fully operational. They are not discharging from outfall 101. The flow through outfall 001 is measured from the cooling water tank output and rainfall combined, due to flow being to low to measure. Outfall 101 effluent is contained in a sump tank and they will use this to feed to the new package plant when built. The permitee also uses Gulf Coast Waste Disposal for hauling wastes.

J. REGIONAL OFFICE ACTION TAKEN: (X) Applicable ( ) N/A
A letter will be addressed to the permittee.

K. CENTRAL OFFICE ACTION REQUESTED: ( ) Applicable (X) N/A

Michelle Rutherford
Inspector

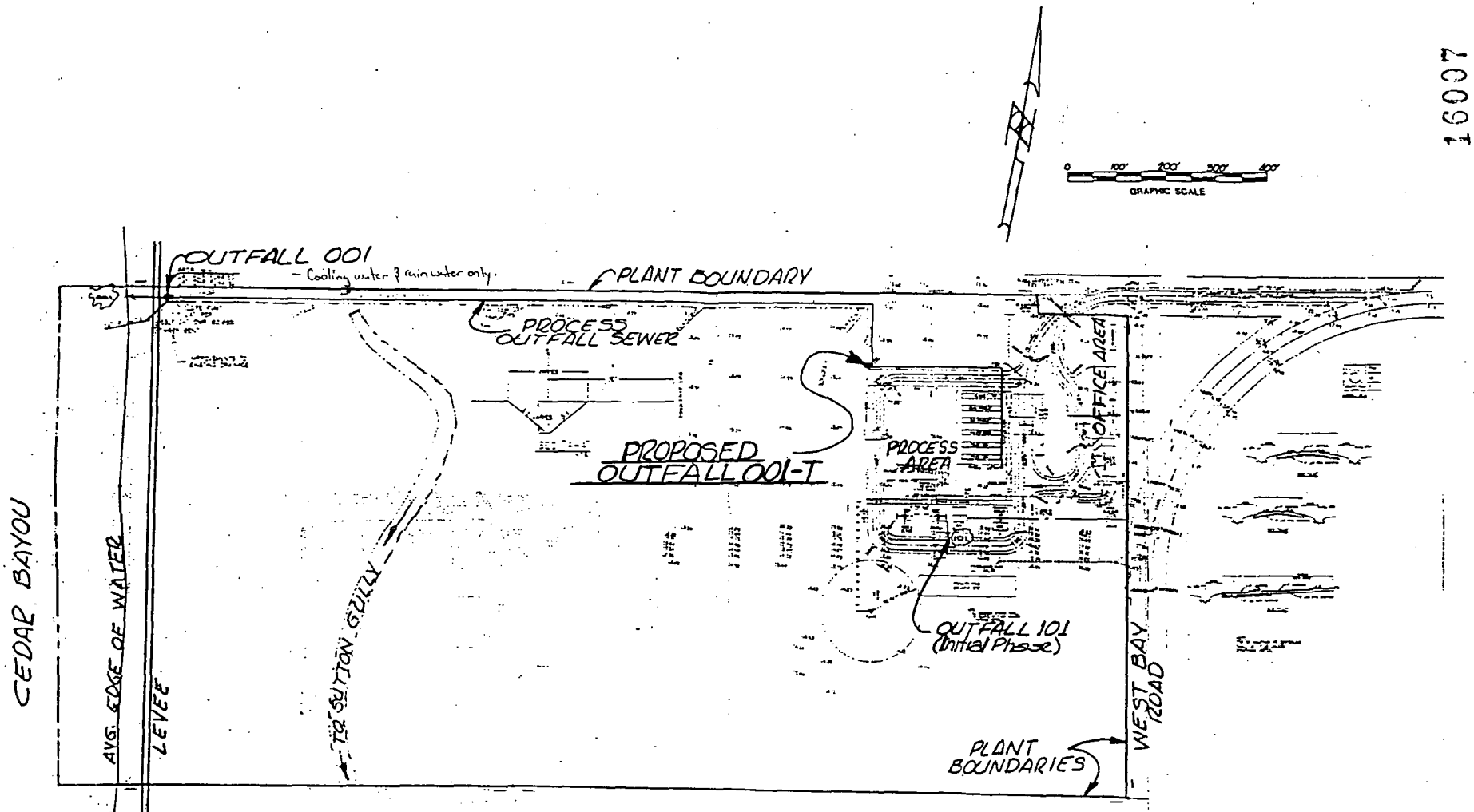
John R. Ward
Regional Water Program Manager

Signature Date 6-10-97

TNRCC-0546 (10/96)

18006

16007



REV 12/96 EAC

FINE ORGANICS, CORPORATION
BAYTOWN, TEXAS

TNRCC PERMIT APPLICATION

ATTACHMENT IV
GENERAL PLANT LAYOUT

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

MANDATORY ENFORCEMENT REFERRAL CRITERIA
FOR DOMESTIC AND INDUSTRIAL WWTPs

Comment: Referral to the Enforcement Division for formal enforcement action is mandatory if any of the following criteria are met. Other violations may be referred at the discretion of the Region.

Entity: Fine Organics Corp.

Permit No. 02777-000 Region: 12 Office: Houston

APP	N/A	N/E		
			APP = Applicable	N/A = Not Applicable
			N/E = Not Evaluated	
___	X	___	1.	Facility operating without a permit when a permit is required. [Texas Water Code Section 26.123(f)(1) necessitates this mandatory referral.]
___	X	___	2.	Failure to submit plans and specifications for a domestic wastewater treatment system after one Region schedule deadline unless an extension of time is granted due to extenuating circumstances.
___	X	___	3.	Violations that will take longer than one year to correct, excluding collection system unauthorized discharges.
___	X	___	4.	Documented ground water contamination.
___	X	___	5.	Falsification of data, documents, or reports.

Type:

Designated violations listed below (numbers 6-15) tha.. (1) are corrected by the due date in a compliance schedule established by the Region but recur within a two-year period, or (2) are not corrected after one extension of an original due date in a compliance schedule established by the Region.

APP	N/A	N/E		
___	X	___	6.	Region-documented effluent violation which exceeds the permit limit by 40% or more for any single parameter of a conventional pollutant. Parameter:
___	X	___	7.	Region-documented effluent violation which exceeds the permit limit by 20% or more for any single parameter for heavy metals or toxics, excluding chlorine residual. Parameter:
___	X	___	8.	Region-documented unauthorized discharge from the same location or site.
___	X	___	9.	Failure to employ one or more domestic treatment plant operator(s) or collection system operator(s) holding valid certificates of competency.
___	X	___	10.	Failure to employ certified treatment plant operator(s) or collection system operator(s) possessing the level of certification required by 30 TAC Chapter 325.
___	X	___	11.	Failure to dispose of sludge in accordance with the method required by the permit.
___	X	___	12.	Violation of Texas Water Code Section 26.121(a)(3) by placing sludge in an area outside of a treatment unit prior to final disposal without providing adequate runoff control measures.
___	X	___	13.	Failure to meet limits/conditions for rainfall runoff discharged from any point source from the plant area not identifiable by outfall.
___	X	___	14.	Failure to meet limits/conditions for rainfall runoff segregated from the wastewater treatment facilities for discharge.
___	X	___	15.	Failure to comply with irrigation application rate specified in the permit.

Document 17

JPM 62777-000 C

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

RECEIVED
SEP 16 1997
REGION 12

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

September 30, 1997

CERTIFIED MAIL

Fine Organics Corporation, Inc.
6655 W BAY ROAD
BAYTOWN, TX 77520

Re: Expiration of Permit No: WQ0002777-000
Permit Renewal Reminder Notice

Gentlemen:

Permit No. WQ0002777-000 will expire at midnight, September 12, 1998. Pursuant to 30 TAC Section 305.63 of the Texas Administrative Code, you are required to file an application for renewal of the existing permit 180 days prior to the date of expiration. This will be the only notice you will receive for the referenced facility.

For your convenience, a renewal application has been included with this notice. Failure to submit an application in a timely manner may result in the initiation of enforcement actions or expiration of the permit. Failure to submit a comprehensive and complete application may cause the application to be returned. If the permit is allowed to expire and/or the application returned, a continuation of any disposal activities beyond the date of expiration will be a violation of the Texas Administrative Code and will be subject to administrative penalties.

This notice of permit expiration is sent as a courtesy to the applicant. It is the responsibility of the permittee to renew or amend the permit in a timely manner.

If you wish to cancel the permit, please write to the address of the Commission listed below so that we may initiate cancellation procedures. If you should have further questions or comments, please call the Applications Team at (512) 239-4440.

Sincerely,

Janet Wyman

Janet Wyman
Applications Team / Wastewater Permit Section (MC 148)
Agriculture & Watershed Management Division

Enclosure

CC: TNRCC Region 12 Office

17001

Document 18

Texas Natural Resource Conservation Commission

INTEROFFICE MEMORANDUM

To: Denise Espinoza Date: October 30, 1997

From: Scott Mayo, Environmental Investigator
Region 12-Houston Office

Subject: Fine Organics, 6655 West Bay Road, Baytown, Texas

I visited the Fine Organics facility on October 29, 1997. Others present at the facility where:

Phillip Townsend -	Former CEO of Fine Organics
Laura Agrons -	Administrative Assistant to Mr. Townsend
Adrian Martinez -	Attorney with Meredith, Donnell & Abernethy, representing the U.S. Bankruptcy Trustee (Rodney Tow)
R.L. Rosengarten -	Rosengarten, Smith & Associates
Lawrence Beharry -	Former employee of Fine Organics who now helps watch the facility

We met at the facility at 1:30 p.m. Access to the facility is through a gate which is kept locked. The facility site occupies eleven (11) acres. The area is mostly industrial and commercial. An HL&P generating station is located approximately one (1) mile to the north of the Fine Organics site. Cedar Bayou is located approximately 1500 yards to the west of the facility. The facility is surrounded by a chain length fence.

Prior to ceasing operations, Fine Organics was involved in the production of cyclohexylamine using aniline as a feedstock. The process area consisted of two large distillation towers. Aniline was converted to cyclohexylamine using a hydrogenation process. The yields proved not to be economical and operations were halted earlier this year.

Prior to the on-site visit, I was faxed a copy of the inventory of drums and tanks at the site. This inventory list showed a total of eighty-seven (87) 55-gallon drums containing material which will probably need to be disposed of. During the site visit, the inventory list was checked for accuracy by making a visual inspection of the facility. During the site visit, it was observed that there were additional drums and tanks at the facility which were not on the inventory list. The additional drums included thirty (30) 55-gallon drums containing soil contaminated with cyclohexylamine and eight (8) 55-gallon drums of nickel cobalt catalyst which had been deactivated. The contaminated soil resulted from a spill at the facility earlier this year. Mr. Townsend stated that the TNRCC was notified of the spill and an inspector had come out to the facility as a result of the spill. A check with the Spill team at the Region 12 office failed to verify this information.

Some of the 55-gallon drums at the facility were labeled as hazardous waste and contained material which was not marketable but might be useful to future owners of the operation,

according to Mr. Townsend. However, it would appear that most of this material will need to be disposed of.

Mr. Townsend is currently obtaining bids from disposal companies for disposing of the waste at the facility. As a result of the site visit, the following observations were made:

- Many of the drums at the facility were not properly labeled. Also the 6,000 gallon tank containing waste heptane was not labeled properly. The drums and the tank will need to be properly labeled.

- The Solid Waste Registration number for Fine Organics is 37507 and is listed as Inactive due to no waste activity from 1994 to 1996. The last year of waste activity was in 1993 at which time the facility was listed as a Large Quantity Generator. The facility's NOR in 1993 listed only two waste streams. In order to dispose of the material at the site, the registration number will need to be reactivated and the waste at the site will need to be classified by testing or process knowledge.

- There is one (1) underground storage tank (UST) at the site which has a capacity of 10,000 gallons. This UST was used to store stormwater prior to release to Gulf Coast Waste Disposal Authority.

- There was one (1) tank containing approximately 4,000 gallon of "hot oil" which was use as a heat transfer liquid. This tank did not appear to be on the inventory.

Document 19

mar 12 ASE. TX WQ0002777-000

EPA ADF.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

NPDES Compliance Inspection Report

East JPU

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Transaction Code		NPDES								yr/mo/day						Inspec. Type	Inspector	Fac Ty	
N	5	T	X	0	0	9	8	6	0	4	9	8	0	6	1	0	C	R	2

Remarks

67	68	69	70	71	72	73	74	75	80
Inspection Work Days			Facility Evaluation Rating	BI	QA	Reserved			
			1	N	N				

Section B: Facility Data

Name and Location of Facility Inspected *(For industrial users discharging to POTW, also include POTW name and NPDES permit number)*

Fine Organics Corporation
6655 West Bay Road
Baytown, Texas 77520

Entry Time / Date: 0945 / 10 Jun 98

Exit Time / Date: 1230 / 10 Jun 98

Permit Effective Date: 11 Aug 92

Permit Expiration Date: 10 Aug 97

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)
Lawrence Behary / Operations Manager / (218) 421-2933
Steve R. Nelson / Project Hydrogeologist / (512) 707-1777 Fax (512) 707-0501

Other Facility Data

Name, Address of Responsible Official/Title/Phone and Fax Number
Adrian Martinez / Environmental Lawyer / (713) 223-7773
600 Travis Suite 6850
Houston, Texas 77002

Contacted: Yes [X] No [ ]

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	U	Flow Measurement	U	Operations & Maintenance	N	CSO/SSO
U	Records/Reports	U	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
U	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
N	Effluent/Receiving Waters	U	Laboratory	N	Storm Water		Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

See attached narrative for summary of findings for areas evaluated during inspection to include Appendix A and B.

Appendix A: Storm Water Discharge Ditches
Appendix B: Outfall 001 Flow Measuring Device

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone/Fax	Date
Kenneth L. AuBuchon	USEPA / 6EN-ASH / (281) 983-2151 / (281) 983-2248	18 Aug 98
Signature of Reviewer: Jim Gold	Agency/Office/Phone and Fax Numbers: USEPA / 6EN-ASH / (281) 983-2153 / (281) 983-2248	Date: 18 Aug 98

RECEIVED
SEP 24 1998
REGION 12

EPA Form 3560-3 (Rev. 9-94) Previous editions are obsolete.

19001

PERMIT NO. TX0098604

SECTION A - PERMIT VERIFICATION

PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS ■ S ☐ M ☐ U ☐ NA (FURTHER EXPLANATION ATTACHED NO)
DETAILS:

1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE ■ Y ☐ N ☐ NA

2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES ☐ Y ☐ N ■ NA

3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT ■ Y ☐ N ☐ NA

4. ALL DISCHARGES ARE PERMITTED ■ Y ☐ N ☐ NA

SECTION B - RECORDKEEPING AND REPORTING EVALUATION

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. ☐ S ☐ M ■ U ☐ NA (FURTHER EXPLANATION ATTACHED YES)
DETAILS: Refer to Recordkeeping and Reporting discussion on page 6.

1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs. ☐ Y ☐ N ■ NA
Unable to determine (Refer to Recordkeeping and Reporting discussion on page 6).

2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE. ☐ S ☐ M ■ U ☐ NA
Unable to determine because records are not maintained at the facility and sampling has been suspended since October of 1997.

a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING ☐ Y ■ N ☐ NA

b) NAME OF INDIVIDUAL PERFORMING SAMPLING ☐ Y ■ N ☐ NA

c) ANALYTICAL METHODS AND TECHNIQUES. ☐ Y ■ N ☐ NA

d) RESULTS OF ANALYSES AND CALIBRATIONS. ☐ Y ■ N ☐ NA

e) DATES AND TIMES OF ANALYSES. ☐ Y ■ N ☐ NA

f) NAME OF PERSON(S) PERFORMING ANALYSES. ☐ Y ■ N ☐ NA

3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE. ☐ S ☐ M ■ U ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR. ☐ S ☐ M ■ U ☐ NA
Unable to determine (Refer to Recordkeeping and Reporting discussion on page 6).

5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA. ☐ Y ■ N ☐ NA
Unable to determine (Refer to Recordkeeping and Reporting discussion on page 6).

SECTION C - OPERATIONS AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. ☐ S ☐ M ■ U ☐ NA (FURTHER EXPLANATION ATTACHED YES)
DETAILS: Refer to Operations and Maintenance discussion on page 7.

1. TREATMENT UNITS PROPERLY OPERATED. ☐ S ☐ M ■ U ☐ NA
There is no process wastewater produced and contaminated storm water appears to be contained in two underground storage tanks. The storage tanks have not been emptied since October of 1997.

2. TREATMENT UNITS PROPERLY MAINTAINED. ☐ S ☐ M ■ U ☐ NA
The storage tanks used to contain contaminated storm water are not being monitored or emptied at regular intervals.

3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED. ■ S ☐ M ☐ U ☐ NA

4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE. ■ S ☐ M ☐ U ☐ NA
Facility manned 24 hours and the underground storge tanks are equipped with an overflow level alarm.

5. ALL NEEDED TREATMENT UNITS IN SERVICE. ☐ S ☐ M ■ U ☐ NA

6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED. ☐ S ☐ M ☐ U ■ NA

7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED. ☐ S ☐ M ☐ U ■ NA

8. OPERATION AND MAINTENANCE MANUAL AVAILABLE. ☐ Y ☐ N ■ NA

STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED. ☐ Y ☐ N ■ NA

PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED. ☐ Y ☐ N ■ NA

10002

PERMIT NO. TX0098604

SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)

9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR? ☐ Y ■ N ☐ NA
IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED? ☐ Y ☐ N ■ NA
HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS? ☐ Y ☐ N ■ NA

10. HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT? ☐ Y ■ N ☐ NA
IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT? ☐ Y ☐ N ■ NA

SECTION D - SELF-MONITORING

PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ■ U ☐ NA *(FURTHER EXPLANATION ATTACHED YES)*.
DETAILS: Refer to Self-Monitoring discussion on page 6.

1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT. ☐ Y ■ N ☐ NA
NPDES samples have not been collected since October of 1997.

2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES. ☐ Y ■ N ☐ NA
NPDES samples have not been collected since October of 1997.

3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT. ☐ Y ■ N ☐ NA
The facility has not been sampling uncontaminated storm water runoff or taking flow measurements since October of 1997.

4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT. ☐ Y ■ N ☐ NA
Facility is not sampling uncontaminated storm water runoff as specified in permit.

5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT. ☐ Y ■ N ☐ NA
NPDES samples have not been collected since October of 1997 (Refer to Self-Monitoring discussion on page 6).

6. SAMPLE COLLECTION PROCEDURES ADEQUATE ☐ Y ■ N ☐ NA
Unable to determine because NPDES samples have not been collected since October of 1997.

a) SAMPLES REFRIGERATED DURING COMPOSITING. ☐ Y ■ N ☐ NA

b) PROPER PRESERVATION TECHNIQUES USED. ☐ Y ■ N ☐ NA

c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136 ☐ Y ■ N ☐ NA

7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT? ☐ Y ☐ N ■ NA

SECTION E - FLOW MEASUREMENT

PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ■ U ☐ NA *(FURTHER EXPLANATION ATTACHED YES)*
DETAILS: Refer to Flow Measurement discussion on page 7.

1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED. ☐ Y ■ N ☐ NA
TYPE OF DEVICE NONE

2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED. ☐ Y ■ N ☐ NA

3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED. ☐ Y ■ N ☐ NA

4. CALIBRATION FREQUENCY ADEQUATE. *(DATE OF LAST CALIBRATION _____)* ☐ Y ■ N ☐ NA
RECORDS MAINTAINED OF CALIBRATION PROCEDURES. ☐ Y ■ N ☐ NA
CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE. ☐ Y ■ N ☐ NA

5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE. ☐ Y ☐ N ■ NA

6. HEAD MEASURED AT PROPER LOCATION. ☐ Y ☐ N ■ NA

7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES. ☐ Y ■ N ☐ NA

SECTION F - LABORATORY

PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS. ☐ S ☐ M ■ U ☐ NA *(FURTHER EXPLANATION ATTACHED YES)*
DETAILS: Refer to Laboratory discussion on page 7.

1. EPA APPROVED ANALYTICAL PROCEDURES USED *(40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES)* ☐ Y ■ N ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

PERMIT NO. TX0098[redacted]

SECTION F - LABORATORY (CONT'D)

2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED ☐ Y ☐ N ■ NA

3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT. ☐ S ☐ M ■ U ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

4. QUALITY CONTROL PROCEDURES ADEQUATE. ☐ S ☐ M ■ U ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

5. DUPLICATE SAMPLES ARE ANALYZED.____ % OF THE TIME. ☐ Y ■ N ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

6. SPIKED SAMPLES ARE ANALYZED.____ % OF THE TIME. ☐ Y ■ N ☐ NA
Unable to determine (Refer to Laboratory discussion on page 7).

7. COMMERCIAL LABORATORY USED. ☐ Y ■ N ☐ NA

LAB NAME

LAB ADDRESS

PARAMETERS PERFORMED

SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS. ☐ S ☐ M ☐ U ■ NA *(FURTHER EXPLANATION ATTACHED NO).*

Receiving water observations are based on visual observations only.

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	FLOAT SOL.	COLOR	OTHER
001	———	———	———	———	———	———	No Flow

SECTION H - SLUDGE DISPOSAL

SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS. ☐ S ☐ M ☐ U ■ NA *(FURTHER EXPLANATION ATTACHED NO).*

DETAILS: Facility has no sludge disposal requirements in Individual NPDES Permit.

1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY. ☐ S ☐ M ☐ U ■ NA

2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503. ☐ S ☐ M ☐ U ■ NA

3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO: N/A (e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)

SECTION I - SAMPLING INSPECTION PROCEDURES *(FURTHER EXPLANATION ATTACHED NO).*

1. SAMPLES OBTAINED THIS INSPECTION. ☐ Y ■ N ☐ NA

2. TYPE OF SAMPLE OBTAINED

GRAB COMPOSITE SAMPLE METHOD FREQUENCY

3. SAMPLES PRESERVED. ☐ Y ☐ N ■ NA

4. FLOW PROPORTIONED SAMPLES OBTAINED. ☐ Y ☐ N ■ NA

5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE. ☐ Y ☐ N ■ NA

6. SAMPLE REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE. ☐ Y ☐ N ■ NA

7. SAMPLE SPLIT WITH PERMITTEE. ☐ Y ☐ N ■ NA

8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED. ☐ Y ☐ N ■ NA

9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT. ☐ Y ☐ N ■ NA

NPDES Compliance Inspection Report

Company Name:	Fine Organics Corporation (Cedar Bayou Plant)
NPDES Permit Number:	TX0098604
Mailing Address:	6655 West Bay Road Baytown, Texas 77520

Responsible Official:

Adrian Martinez	Environmental Lawyer	(713) 223-7773

Facility Representatives/Contacts:

Rodney Taw	Corporation Trusty	(409) 588-1700
Lawrence Beharry	Operations Manager	(281) 421-2933

Rosengarten, Smith & Associates Representatives/Contacts:

Randall Rosengarten	Environmental Engineer	(512) 707-1777
Steve R. Nelson	Project Hydrogeologist	(512) 707-1777

U.S. EPA Personnel:

Kenneth L. AuBuchon	Environmental Engineer	(281) 983-2151

Background

At the time of the inspection Fine Organics was under Chapter 7 Bankruptcy. Mr. Rodney Taw, the trusty of the Corporation, hired an environmental lawyer, Mr. Martinez to oversee environmental matters for the Fine Organics Corporation. Mr. Martinez then hired Mr. Randall Rosengarten of Rosengarten, Smith & Associates, Inc. to maintain NPDES compliance by submitting NPDES Discharge Monitoring Reports (DMRS) to the EPA (Region 6).

Inspection

Entry into the facility was made at 0945 hours on Wednesday, June 10, 1998. Initial contact was with Mr. Lawrence Beharry, the facility's Operations Manager. There was a brief discussion of the scope and intent of the inspection. The inspection only consisted of a facility site review because NPDES compliance records were not maintained at the facility. Observations and areas of concern resulting from this inspection are listed below.

Inspection Findings

Recordkeeping and Reporting

- The NPDES compliance records requested (DMRs and NPDES sampling and analyses reports dating back to October of 1997) were not presented for review during the inspection nor before final report submittal. During the inspection it was explained that records were not maintained at the facility.

Self-Monitoring

- The facility's permit requires **uncontaminated storm water runoff** to be sampled and analyzed according to the permit effluent limitations. When questioned about uncontaminated storm water monitoring samples, Mr. Beharry indicated that no effluent samples had been taken since October of 1997. EPA (Region 6) DMR records also indicated that since October of 1997 the facility has been reporting NO DISCHARGE through outfall 001. However, during the facility site review it did not appear that measures had been taken to restrict uncontaminated storm water from discharging through outfall 001 (see photos in Appendix A).

Operations and Maintenance

Two underground storage tanks appear to retain facility's contaminated storm water. According to Mr. Beharry both of the tanks have retained contaminated storm water since October of 1997. Mr. Beharry also indicated that the tanks are due to be emptied because of the tanks' occupied capacities (see table below) and an analyses performed on the tanks' contents (see table below).

Tank Number	Tank Capacity (gallons)	Percent of Capacity Occupied	COD (mg/l)	NH_4 (mg/l)
1	5000	85 to 90	660	27.4
2	10,000	85 to 90	5600	63

Laboratory

- No laboratory records were available for review. No NPDES compliance samples have been taken since October of 1997. The facility's laboratory has also been out of operation since October of 1997.

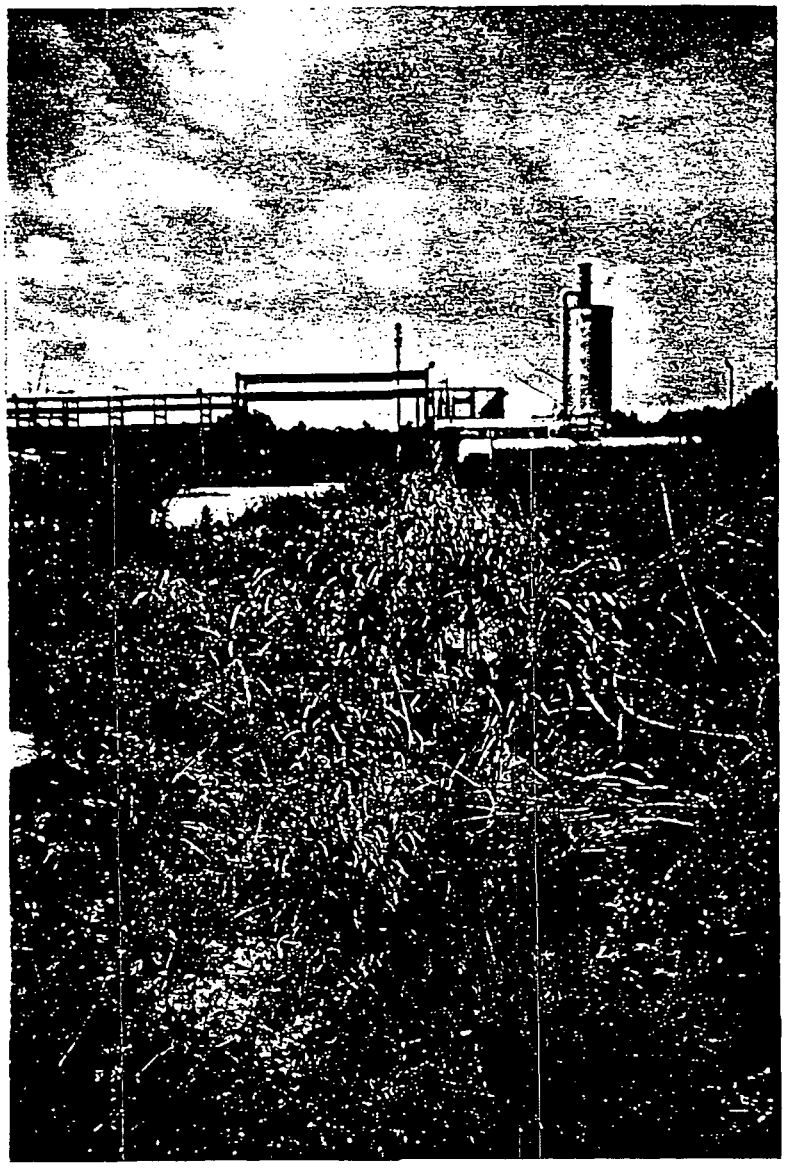
Flow Measurement

- The facility's Individual NPDES Permit requires that outfall 001 be monitored using a totalizing meter. During the facility site review there was no flow totalizing meter installed at the outfall. Flow at the outfall appears to be estimated (see photos in Appendix B).

Appendix A

Storm Water Discharge Ditches

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL PHOTOGRAPH



SUBJECT: Photo FO-3: Photo shows facility's north drainage ditch. Ditch flows to lower portion of photo through outfall 001.

LOCATION: Picture was taken approximately 50ft west of outfall 001 facing west.

CITY: Baytown STATE: Texas

DATE: 10 Jun 98 TIME: Morning PHOTOGRAPHER: Kenneth L. AuBuchon

WEATHER: Sunny ( ) Haze ( ) Cloudy (X) Rain ( ) Snow ( )

19000

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL PHOTOGRAPH

SUBJECT: Photo FO-4: Photo shows facility's east drainage ditch. Ditch flows to lower portion of photo and east through outfall 001.

LOCATION: Picture was taken approximately 50ft west of outfall 001 facing south.

CITY: Baytown STATE: Texas

DATE: 10 Jun 98 TIME: Morning PHOTOGRAPHER: Kenneth L. AuBuchon

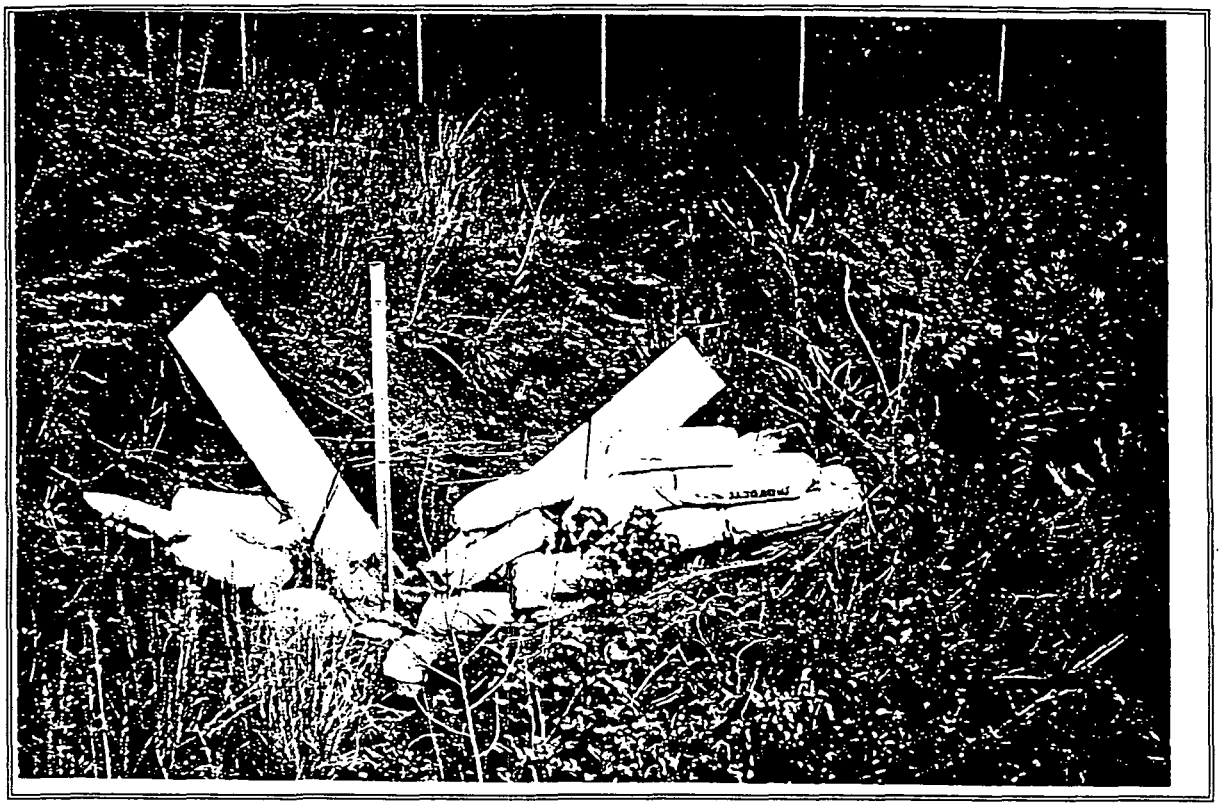
WEATHER: Sunny ( ) Haze ( ) Cloudy (X) Rain ( ) Snow ( )

10010

Appendix B

Outfall 001 Flow Measuring Device

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL PHOTOGRAPH



SUBJECT: Photo FO-1: Photo shows outfall 001 flow measuring device.

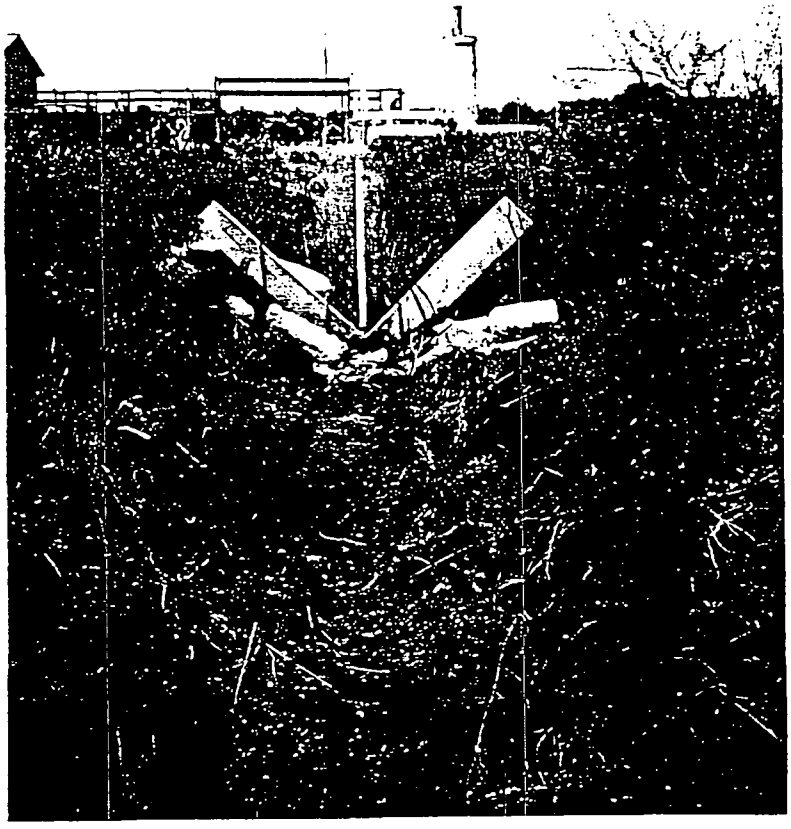
LOCATION: Picture was taken from outfall 001's discharge ditch facing east.

CITY: Baytown STATE: Texas

DATE: 10 Jun 98 TIME: Morning PHOTOGRAPHER: Kenneth L. AuBuchon

WEATHER: Sunny ( ) Haze ( ) Cloudy (X) Rain ( ) Snow ( )

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL PHOTOGRAPH



SUBJECT: Photo FO-2: Photo shows outfall 001 flow measuring device.

LOCATION: Picture was taken from outfall 001's discharge ditch facing west.

CITY: Baytown STATE: Texas

DATE: 10 Jun 98 TIME: Morning PHOTOGRAPHER: Kenneth L. AuBuchon

WEATHER: Sunny ( ) Haze ( ) Cloudy (X) Rain ( ) Snow ( )

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON SURVEILLANCE TEAM
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

DATE: 18 Aug 98

SUBJECT: **Transmittal Memo - Compliance Monitoring Reports**

FROM: Michael Michaud, Chief
Surveillance Section (6EN-AS)

TO: Ruth Gibson, Chief
NPDES Compliance Monitoring Section (6EN-WC)

A Compliance Evaluation Inspection was conducted on **10 Jun 98** at the following location:

FACILITY NAME: **Fine Organics Corporation**

ADDRESS: **6655 West Bay Road**

CITY: **Baytown, Texas 77520**

INSPECTOR: **Kenneth L. AuBuchon**

TYPE FACILITY: FEDERAL ( ) MUNICIPAL ( ) NON-MUNICIPAL (X)

Compliance monitoring reports attached: (Check appropriate box)

NPDES #: TX0098604

(X)MAJOR	( )NOD	( )CSI	( )PAI	( )BIO
( )MINOR	(X)CEI	( )CSI-TOXICS	( )STORM WATER	

COMMENTS: Inspector recommends a RECRA inspection to be conducted on the facility.

10914

Document 20

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 6

In the Matter of	§	CWA Docket No. VI-99-0014
	§	
FINE ORGANICS CORPORATIOJN	§	
	§	
	§	FINDINGS OF VIOLATION
Permittee	§	AND
	§	ORDER FOR COMPLIANCE
Permit No. TX0098604	§	

Statutory Authority

The following FINDINGS are made and ORDER issued under the authority vested in the Administrator of the United States Environmental Protection Agency (EPA) by § 309(a) of the Clean Water Act (herein "the Act"), 33 U.S.C. § 1319(a). The Administrator of EPA has delegated the authority to issue this Order to the Regional Administrator of EPA Region 6, who has further delegated this authority to the Director of the Compliance Assurance and Enforcement Division.

Findings

1. Fine Organics Corporation (herein "the Permittee") is a corporation incorporated under the laws of the State of Delaware, and as such, the Permittee is a "person," as that term is defined at § 502(5) of the Act, 33 U.S.C. § 1362(5), and 40 C.F.R. § 122.2.

2. At all times relevant to this Order, the Permittee owned or operated a plant located adjacent and East of Cedar Bayou,

20001

10-30

approximately 2½ stream miles South of State Highway 146 Cedar Bayou Bridge Northeast of the City of Baytown, Chambers County, Texas. (herein the facility"), and was therefore an "owner or operator" within the meaning of 40 C.F.R. § 122.2.

3. At all times relevant to this Order, the facility was a "point source" of a "discharge" of "pollutants" in and with its process wastewater, treated cooling tower blowdown and uncontaminated stormwater runoff to the receiving waters of Cedar Bayou Tidal in Segment No. 0901 of the Trinity-San Jacinto Coastal Basin which are "waters of the United States" within the meaning of § 502 of the Act, 33 U.S.C. § 1362, and 40 C.F.R. § 122.2. As a result the Permittee and the facility were subject to the Act and the National Pollutant Discharge Elimination System (NPDES) program.

4. Under § 301 of the Act, 33 U.S.C. § 1311, it is unlawful for any person to discharge any pollutant from a point source to waters of the United States except with the authorization of, and in compliance with, an NPDES permit issued pursuant to § 402 of the Act, 33 U.S.C. § 1342.

5. Section 402(a) of the Act, 33 U.S.C. § 1342(a), provides that the Administrator of EPA may issue permits under the NPDES program for the discharge of pollutants from point sources to waters of the United States. Any such discharge is

subject to such specific terms and conditions as are prescribed in the applicable permit.

6. The Permittee applied for and was issued NPDES Permit No. TX0098604 (herein "the permit") under § 402 of the Act, 33 U.S.C. § 1342, which became effective on August 11, 1992. At all times relevant to this Order, the Permittee was authorized to discharge pollutants to waters of the United States only in compliance with the specific terms and conditions of the permit.

7. Parts III.C. and III.D. of the permit require the Permittee to sample and test its effluent and monitor its compliance with permit conditions according to specific procedures in order to determine the facility's compliance or noncompliance with the permit and regulations. They also require the Permittee to file with EPA certified Discharge Monitoring Reports (DMRs) of the results of monitoring, and Noncompliance Reports when appropriate.

8. Part I.A. of the permit states that during the period beginning upon the date of permit issuance and lasting through the date of expiration, the Permittee is authorized to discharge treated process wastewater, treated cooling tower blowdown, and uncontaminated stormwater runoff. Also, Flow shall be determined using a totalizing meter.

9. Part III.C.3. of the permit states that the Permittee shall retain records of all monitoring information, including all

calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

10. Certified DMRs filed by the Permittee with EPA in compliance with the permit show that the Permitte has reported "No Discharge" since Nov. 1997

11. On June 10, 1998, the facility was inspected by an EPA NPDES Inspector. As a result of this inspection, the facility was found to be in violation of its NPDES permit. The Permittee received 6 Unsatisfactory ratings in the areas of:

Records/Reports, Facility Site Review, Flow Measurement, Self-Monitoring Program, Laboratory, and Operations & Maintenance. The following was noted in the inspection report: Self-Monitoring - The facility's permit requires uncontaminated storwater runoff to be sampled and analyzed according to the permit effluent limitations. When questioned about uncontaminated stormwater monitoring samples, the Permittee indicated that no effluent samples had been taken since October 1997. EPA DMR records also indicated that since October of 1997, the facility has been reporting "No Discharge" through Outfall 001. However, during

the facility site review it did not appear that measures had been taken to restrict uncontaminated stormwater from discharging through Outfall 001. Flow Measurement - The facility's Individual NPDES Permit requires that Outfall 001 be monitored using a totalizing meter. During the facility site review there was no flow totalizing meter installed at the outfall. Flow at the outfall appears to be estimated. Recordkeeping and Reporting - The NPDES compliance records requested (DMRs and NPDES sampling analyses reports dating back to October of 1997) were not presented for review during the inspection it was explained that records were not maintained at the facility.

12. The Permittee is in Violation of Part I.A. of the permit by not analyzing and reporting the discharge of uncontaminated stormwater runoff from the property, and for not having a totalizing meter installed at the outfall.

13. The Permittee is in Violation of Part III.C.3. of the permit by not maintaining NPDES compliance records for the previous three (3) years.

14. Each violation of the conditions of the permit or regulations described above is a violation of Section 301 of the Act, 33 U.S.C. § 1311.

ORDER

Based on the foregoing Findings and pursuant to the authority of § 308 and § 309 of the Act, 33 U.S.C. § 1318 &

§ 1319, EPA HEREBY ORDERS THE PERMITTEE to take the following action:

A. Within thirty (30) days of the effective date of this Order, the Permittee shall take whatever corrective action is necessary to eliminate and prevent recurrence of the violations cited herein, and begin sampling and analyzing the uncontaminated stormwater runoff.

B. Within thirty (30) days of the effective date of this Order, the Permittee shall submit a written report detailing the specific actions taken to correct the violations cited herein and explaining why such actions are anticipated to be sufficient to prevent recurrence of these or similar violations.

C. In the event that the Permittee believes complete correction of the violations cited herein is not possible within thirty (30) days of the effective date of this Order, the Permittee shall, within thirty (30) days of the effective date of this Order, submit a comprehensive written plan for the elimination of the cited violations within the shortest possible time. Such plan shall describe in detail the specific corrective actions to be taken and why such actions are sufficient to correct the violations. The plan shall include a detailed schedule for the elimination of the violations within the shortest possible time, as well as measures to prevent these or similar violations from recurring.

D. The Permittee shall begin retaining records for three (3) years.

E. Any information or correspondence submitted by the Permittee to EPA under this Order shall be addressed to the following:

Ms. Diana McDonald
Water Enforcement Branch (6EN-WC)
EPA Region 6
1445 Ross Ave., Suite 1200
Dallas, TX 75202

General Provisions

Issuance of this Order shall not be deemed an election by EPA to forego any administrative, civil, or criminal action to seek penalties, fines, or any other relief appropriate under the Act for the violations cited herein. EPA reserves the right to seek any remedy available under the law that it deems appropriate for the violations cited.

If EPA issues an administrative complaint, or a civil judicial action is initiated by the U.S. Department of Justice, the Permittee will be subject to a monetary penalty. If a criminal judicial action is initiated by the U.S. Department of Justice, the Permittee will be subject to a monetary fine and/or imprisonment.

Failure to comply with this Order or the Act can result in civil penalties of up to $27,500 per day of violation, or if the

Respondent is convicted of a criminal offense under § 309(c) of the Act, 33 U.S.C. § 1319(c), the Permittee's ineligibility for certain contracts, grants, or loans under § 508 of the Act, or suspension of the permit.

This Order does not constitute a waiver or modification of the terms or conditions of the Permittee's NPDES permit, which remains in full force and effect. Compliance with the terms and conditions of this Order does not relieve the Permittee of its obligations to comply with any applicable federal, state, or local law or regulation.

The effective date of this Order is the date it is received by the Permittee.

OCT 30 1998
Date

Samuel Coleman, P.E.
Director
Compliance Assurance and
Enforcement Division

Document 21

⇔ WEST BAY ORGANICS, L. C.

6655 West Bay Road
Baytown, TX 77520
1-(281) 573-6020
Fax: 1-(281) 573-7018

February 25, 1999

Re: TX0098604

Ms. Diana McDonald
USEPA (6EN-WC)
Region 6
1445 Ross Ave.
Dallas, TX 75202-2733

Dear Ms. McDonald:

Enclosed please find DMRs for the months of November and December, 1998 and January, 1999. The West Bay facility has not operated since its purchase on Nov 13, 1998, except for a four day period in January (1/13/99 – 1/17/99). Analytical data for November and December, 1998, while the facility was idle, was not obtained. West Bay's operating program is now in place and data is being generated from January forward. Estimated flow rates for Outfall 001, however, are given for November and December, 1998.

I understand from Randy Rosengarten that the previously neglected 1998 DMRs for Fine Organics Corporation have been submitted to EPA. Could you please let me know if this is not the case.

As you know, a Compliance Order (CWA Docket No. VI-99-0014) was issued to Fine Organics on 10/30/98 which identified the following deficiencies/violations.

(1) Failure to take and analyze effluent samples.

(2) False "No Discharge" reporting.

(3) Absence of the required totalizing meter on Outfall 001.

(4) Inadequate recordkeeping.

- Corrective action has been taken by West Bay as provided in Item A of the Order.

- Pursuant to item B of the Order, a written report detailing the specific corrective actions taken will be submitted to your office by 3/15/99.

21001

- Per Item C, the completion of all actions is to be on or before 3/15/99, except for the installation of the totalizing meter (see below). Please advise if a comprehensive written plan is required.

  The totalizing meter has been specified and placed on order. At this time the delivery date is uncertain. You will be advised as this information becomes available. Installation is to be complete within 30 days of the delivery date of the meter.

- Recordkeeping procedures are now in place which provide for retention of all records for 3 years. (Item D)

- All relevant information is to be submitted to the address specified in Item E of the Order.

Please do not hesitate to call if you have any question or need additional information.

Best regards,

Rod Eggen

cc: Cyndy Duff
Joe Durrett
Brad Hearn
Dennis Hearn

Document 22

IHW020 *** TEXAS NATURAL RESOURCE CONSERVATION COMMISSION *** Page: 1
Notice of Registration Date: 03/04/99
Industrial and Hazardous Waste

37507 WEST BAY ORGANICS, LC.

Solid Waste Registration Number: 37507 EPA Id: TXD981606932

Company Name: WEST BAY ORGANICS, LC.
Site Name: WEST BAY ORGANICS, LC
Site Location: 6655 W Bay Road, Baytown, TX
Contact: Doughty, Arron

Region: 12
County: 101 Harris
Title: General Manager

Initial Registration Date: 09/19/1986
Last Amendment Date: 01/27/1999
Last Date NOR Computer update: 03/01/1999
Phone: 713-573-1366

Mailing Address: 6655 W Bay Road
Baytown, TX 77520-9730

Site Street Address: 6655 W Bay Road
Baytown, TX 77520-9730

Registration Status: Active
Registration Type: Generator
Generator Type: Industrial

Hazardous Waste Generation Status: Large Quantity Generator

Business Description: This registration was inactivated because this facility was registered prior to 1994 and no waste activity was reported in 1994, 1995 and 1996.

Primary SIC Code: 2869 Industrial Organic Chemicals Not Else Classified
Handler Status:

Operator Information
Name:
Phone:
Address:

Owner Information
Name:
Phone:
Address:

As of 01/27/1999 - the next unassigned sequence number for WASTES is 0008 and the next unassigned sequence number for UNITS is 001.

2901

37507 WEST BAY ORGANICS, LC.

**** WASTE INFORMATION ****

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TNRCC Audit Complete
****** Active Wastes ******						
00074031	1	Active	01/27/99	Off		No

Description from Generator: Lab and general refuse
Form Code: 403 Solid resins or polymerized organics
Current Management Units: None
* Origin Codes: 1 Onsite-process/service

* The first value is considered the primary value (e.g. primary origin code).
As of 01/27/1999, the next unassigned sequence number for WASTES is 0008.

** No Longer Generated Wastes **

0001203H	H	Inactive	09/15/97	NA		No

Description from Generator: Catalyst activation
Form Code: 203 Non-halogenated solvent
EPA Hazardous Waste Numbers: D001
Current Management Units: None
* Origin Codes: 1 Onsite-process/service
* Source Codes: A29 Other surface coating/preparation
* Measurement Points: 1 Before mixing
* SIC Codes: 2869 Industrial Organic Chemicals Not Else Classified

00031142	2	Inactive	09/15/97	NA		No

Description from Generator: stormwater,washdown water
Form Code: 114 Other aqueous waste with low dissolved solids
Current Management Units: None
* Origin Codes: 1 Onsite-process/service

943120	H	Inactive	09/15/97	NA		No

Description from Generator: TANK CLEANINGS
Form Code:
EPA Hazardous Waste Numbers: D001 D002
Current Management Units: None
* Origin Codes:

970210	H	Inactive	09/15/97	NA		No

Description from Generator: CATALYST, SPENT
Form Code:
EPA Hazardous Waste Numbers: D001 D002
Current Management Units: None
* Origin Codes:

As of 01/27/1999, the next unassigned sequence number for WASTES is 0008.

Document 23

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039, expires 09/30/95

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. T.X.D.9.8.1.4.9.6.9.3.2 | Manifest Document No. 005

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
West Bay Organics, L.C.
4155 West Bay Rd
Baytown TX 77520
4. Generator's Phone (281) 383 2800

A. State Manifest Document Number: 01298811
B. State Generator's ID: 37507

5. Transporter 1 Company Name: Trade Winds
6. US EPA ID Number: T.X.R.0.0.0.0.3.7.1
C. State Transporter's ID: 83470
D. Transporter's Phone: 281-383-2870

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
Disposal Systems Inc.
2525 Battleground Road
Deer Park TX 77536
10. US EPA ID Number: TXD000799518
G. State Facility's ID: 32299
H. Facility's Phone: 281-930-2508

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
H	a. NA Hazardous Waste Solid NOS Class 9, NA3077, PG III (Amine)	01	CN	25	Y	0009301H
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above: a. 73901077
K. Handling Codes for Wastes Listed Above: T34/M112

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
Brad S. Hearn	Brad S Hearn	02	10	94

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year
David Hart		02	10	94

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year

FACILITY

19. Discrepancy Indication Space: 23001

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date: Month	Day	Year

TNRCC-0311 (Rev. 07/13/94) White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
T X D 0 9 8 1 6 0 6 9 3 2	0 0 3		

3. Generator's Name and Mailing Address
WEST BAY ORGANICS, L.C.
6655 WEST BAY ROAD
BAYTOWN, TX. 77520
4. Generator's Phone (281) 383-3900

A. State Manifest Document Number: 01298808
B. State Generator's ID: 37507

5. Transporter 1 Company Name	6. US EPA ID Number	C. State Transporter's ID: 41268
Rayco Environmental	TXD055050870	D. Transporter's Phone: 281-930-2508
7. Transporter 2 Company Name	8. US EPA ID Number	E. State Transporter's ID
		F. Transporter's Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	G. State Facility's ID: 32299
Laidlaw Environmental Services 505 Earth Movers Road Deer Park, TX 77536	TXD000791518	H. Facility's Phone: 281-930-2508

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
NR	a. Non Hazardous Waste Solid Non Regulated	47	DM	EST. 01640	G	000703
HM	b. RQ Hazardous Waste Solid NOS Class 9, NA3077, PG III (Aniline)	30	DM	EST. 01650	G	D009301H
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
a. 74901086
b. 74901088

K. Handling Codes for Wastes Listed Above
a. T34 / M112
b. T34 / M112

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
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GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
BRAD HEARN	Brad S Hearn	02	10	99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year
Rick Christensen		02	10	99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year

FACILITY

19. Discrepancy Indication Space
23002

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date: Month	Day	Year

TNRCC-0311 (Rev. 07/13/94) White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. T X D 9 8 1 6 0 6 9 3 2 | Manifest Document No. 0 0 4

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
WEST BAY ORGANICS, L.C.
6655 WEST BAY ROAD
BAYTOWN, TX. 77520
4. Generator's Phone (281) 383-3900

A. State Manifest Document Number 01298809

B. State Generator's ID 37507

5. Transporter 1 Company Name: Beeline | 6. US EPA ID Number: TX D980809859

C. State Transporter's ID 40421

D. Transporter's Phone 281-474-7772

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
TXI
245 Ward Rd
Middleton, TX 79065
10. US EPA ID Number: TXD007349337

G. State Facility's ID 33918

H. Facility's Phone 972-647-4902

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
HM	a. Heptane Waste	01	TT	4000	Gal	D001203H
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
a. 990107OI

K. Handling Codes for Wastes Listed Above
D001

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
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Printed/Typed Name	Signature	Month	Day	Year
BRAD HEARN		0		

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name	Signature	Month	Day	Year
DAVID ARGENTO				

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space
23093

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR | TRANSPORTER | FACILITY

TNRCC-0311 (Rev. 07/13/94) White - original Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

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CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: T X D 9 8 1 6 0 6 9 3 2 | Manifest Document No.: 0 0 2

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
WEST BAY ORGANICS, L.C.
6655 WEST BAY ROAD
BAYTOWN, TX. 77520

4. Generator's Phone (281) 383-3900

A. State Manifest Document Number: 01298807

B. State Generator's ID: 37507

5. Transporter 1 Company Name: BFI / Trans

6. US EPA ID Number: TXR000015701

C. State Transporter's ID: 85812

D. Transporter's Phone: 713-948-7600

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
BFI Gulf West
2601 S. Jenkins Rd
Anahuac

10. US EPA ID Number: NA

G. State Facility's ID: 39039

H. Facility's Phone: 409-267-6666

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
NA	a. Non Hazardous Waste Solid, So.l Not Regulated	01	CM	25 Y	Y	00053021
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
a. 581752

K. Handling Codes for Wastes Listed Above
N132

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
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GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
BRAD HEARN	Brad Hearn	02	10	99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year
Charlie Davis		02	10	99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date: Month	Day	Year

FACILITY

19. Discrepancy Indication Space
23004

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date: Month	Day	Year

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. T X D 9 8 1 6 0 6 9 3 2 | Manifest Document No. 8 0 6 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: West Bay Organics, L.C.
6655 West Bay Rd
Baytown TX 77520

4. Generator's Phone (2 8 1) 3 8 3 - 3 9 0 0

A. State Manifest Document Number: 0 1 2 9 8 8 L 2

B. State Generator's ID: 3 0 5 2 7

5. Transporter 1 Company Name: BFI | 6. US EPA ID Number: T X R 0 0 0 0 0 1 5 7 0 1 | C. State Transporter's ID: 2 7 5 2 | D. Transporter's Phone: 7 3 3 - 7 6 2 2

7. Transporter 2 Company Name | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address
BFI Gulfwest
2601 S. Jenkins
Anahuac

10. US EPA ID Number: NA | G. State Facility's ID: 1 0 2 0 | H. Facility's Phone: 4 0 9 - 2 6 7 - 6 5 1 5

11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
NR	a. Non Hazardous Waste So Non Regulated	01	CN	10 Y	Y
	b.				
	c.				
	d.				

C.O.D. TO ADDRESS

C.O.D. Fee

I. Waste Identification Codes for Materials Listed Above: E 2 0

J. Handling Codes for Wastes Listed Above: A 1 0 5

15. Special Handling Instructions and Additional Information

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Printed/Typed Name: Brad S. Hearn | Signature: Brad S Hearn | Month 1 0 | Day 2 1 | Year 9 9

TRANSPORTER

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Report 133

GROUND-WATER RESOURCES OF CHAMBERS AND JEFFERSON COUNTIES, TEXAS

August 1971

TEXAS WATER DEVELOPMENT BOARD

REPORT 133

GROUND-WATER RESOURCES OF CHAMBERS AND JEFFERSON COUNTIES, TEXAS

By

J. B. Wesselman
United States Geological Survey

With a section on Quaternary Geology

By

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Prepared by the U.S. Geological Survey
in cooperation with the
Texas Water Development Board

August 1971

24002

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Climate

Chambers and Jefferson Counties have a warm humid climate. Precipitation, which averages about 54 inches annually, is well distributed throughout the year but is greatest from May to September.

The average annual temperature at Beaumont is about 21°C (70°F). Temperatures below freezing occur on the average of only 12 days per year, and temperatures about 38°C (100°F) are unusual. The approximate dates of the first and last killing frosts are December 2 and March 2. The average annual precipitation, average monthly temperature, and average monthly precipitation at Beaumont for the period of record beginning in 1931 are shown in Figure 2.

Gross lake-surface evaporation averaged about 47 inches annually for the period 1940 to 1965 (Kane, 1967).

Physiography and Drainage

Chambers and Jefferson Counties are on the extreme seaward margin of the West Gulf Coastal Plain physiographic province and entirely within the Grassland Coastal Prairie Region of Texas (Walker and Miears, 1957). The physiography is of three general types: (1) flat to gently rolling upland, which includes most of the area; (2) the valleys of the Trinity and Neches Rivers; and (3) the coastal border. Altitudes range from sea level to a maximum of 81 feet above sea level at Mont Belvieu (Barbers Hill salt dome) in western Chambers County.

Along a line from Smith Point to Beaumont, a series of remnants of abandoned beaches and beach ridges reach altitudes ranging from 15 to 25 feet. The more prominent of these sandy remnants are about 5 feet above the upland surface. Salt domes form two prominent hills on the upland surface: Barbers Hill, in northwestern Chambers County, about 40 feet above the general land surface and Big Hill, in southwestern Jefferson County, about 20 feet high.

The major streams in Chambers County are the Trinity River, which drains the northwestern part of the county and flows into Trinity Bay near Anahuac; Cedar Bayou, which forms the western boundary of the county and flows into Galveston Bay; Double Bayou, which drains the central part of the county and flows into Trinity Bay south of Anahuac; and Oyster Bayou, Onion Bayou, and East Bay Bayou, which drain the eastern part of the county and flow into East Bay.

The major streams in Jefferson County are the Neches River, which drains the eastern part of the county and flows into Sabine Lake; Pine Island Bayou, which forms the northern boundary of the county and flows into the Neches River; Taylor Bayou and its principal tributaries, Hillebrandt and Big Hill Bayous, which drain the western part of the county and flow into Sabine Lake south of Port Arthur; and Spindletop and Salt Bayous, which drain the southern part of the county and flow into the Intracoastal Waterway.

Urbanization and rice cultivation have resulted in the canalization of many streams and the construction of ditches and canals for drainage and irrigation. In some places, natural drainage directions have been changed by deepening parts of the streams.

Methods of Investigation

The following items were included in the investigation of the ground-water resources of Chambers and Jefferson Counties:

1. An inventory was made of all industrial, public supply, and irrigation wells, and of a representative number of domestic and livestock wells (Table 4). Locations of the wells are shown on Figure 24.

2. Electrical logs and drillers' logs of water wells and oil tests were used for construction of the hydrologic sections (Figures 25 through 28) and for determination of the total thickness of sands containing fresh water (Figures 17 and 18).

3. An inventory was made of the withdrawal of ground water for public supply, irrigation, and industrial use.

4. Pumping tests were made to determine the hydraulic characteristics of the water-bearing sands (Table 2).

5. Altitudes of water wells were determined from topographic maps.

6. Measurements of water levels were made in wells, and available records of past fluctuations of water levels were compiled (Table 6 and Figures 8 through 11).

7. Climatological records were collected and compiled (Figure 2).

8. Analyses of water samples were made to determine the chemical quality of the water (Table 7).

9. Maps, sections, and graphs were prepared to correlate and illustrate geologic and hydrologic data.

10. The hydrologic data were analyzed to determine the quantity and quality of ground water available for development.

11. Data were compiled on the subsidence of the land surface (Figure 12).

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12. Problems related to the development and protection of ground-water supplies were studied.

Previous Investigations

Taylor (1907) included wells in Chambers and Jefferson Counties in his report on the underground waters of the Coastal Plain of Texas. Duessen (1914), in a reconnaissance report on the underground waters of the southeastern part of the Texas Coastal Plain, discussed the ground-water geology of Chambers and Jefferson Counties and included a list of wells and springs and drillers' logs of wells.

Livingston and Cromack (1942) inventoried wells in Chambers and Jefferson Counties in 1941 and 1942, and Doyel (1956) published an updated report on Chambers County. Much of the data in these reports was used in this investigation.

Reports by Wood (1956), and Wood, Gabrysch, and Marvin (1963) discussed the ground-water supplies available from the principal water-bearing formations in the Gulf Coast region of Texas, including Chambers and Jefferson Counties.

Water levels have been measured and water samples collected systematically since 1949 in the western part of Chambers County as part of a continuing ground-water program in Harris and Galveston Counties.

Periodic measurements of water levels in wells in Chambers and Jefferson Counties have been made since 1949 as part of the statewide observation-well program in Texas. Records of these measurements are published periodically by the Texas Water Development Board, and records of selected wells in Chambers and Jefferson Counties are published by the U.S. Geological Survey in reports on water levels and artesian pressures in the United States (Hackett, 1962).

Well-Numbering System

The well-numbering system used in this report is the system adopted by the Texas Water Development Board for use throughout the State. Under this system, each 1-degree quadrangle in the State is given a number consisting of two digits. These are the first two digits in the well number. The 1-degree quadrangles are divided into 7½-minute quadrangles which are given two-digit numbers from 01 to 64. These are the third and fourth digits of the well number. Each 7½-minute quadrangle is subdivided into 2½-minute quadrangles and given a single digit number from 1 to 9. This is the fifth digit of the well number. Each well within a 2½-minute quadrangle is given a two-digit number as it is inventoried, starting with 01. These are the last two digits of the well number.

Only the last three digits are shown on the well-location map (Figure 24). The second two digits are generally shown in the northwest corner of each 7½-minute quadrangle, and the first two digits are shown by the large double-lined numbers.

In addition to the 7-digit well number, a two-letter prefix is used to identify the county. Prefixes for Chambers, Jefferson, and adjacent counties are as follows:

COUNTY	PREFIX	COUNTY	PREFIX
Chambers	DH	Hardin	LH
Jefferson	PT	Liberty	SB
Orange	UJ	Harris	LJ

Thus, well DH-64-11-802 (which supplies water for the city of Anahuac) is in Chambers County (DH), in the 1-degree quadrangle 64, in the 7½-minute quadrangle 11, in the 2½-minute quadrangle 8, and was the 2nd well (02) inventoried in that 2½-minute quadrangle.

Acknowledgments

The author acknowledges the assistance of the many county, municipal, and industrial officials who aided in this project. Particular appreciation is expressed to Jett Hankamer and to personnel of Humble Oil and Refining Co., Mobil Oil Corp., Pure Oil Co., Placid Oil Co., Gulf States Utilities Co., Diamond Alkali Co., Warren Petroleum Corp., and Chambers County Water Control and Improvement District No. 1 for permitting and assisting in pumping tests in wells. The Houston Lighting and Power Co. furnished information as it was collected in their testing program east of Baytown.

Well drillers supplied drillers' logs, electrical logs, and well-completion data; and all landowners contacted granted access to their property, wells, and records.

Dr. Saul Aronow, Department of Geology, Lamar State College of Technology, prepared the section of the report on Quaternary geology and aided the author in the task of relating geology to hydrology.

HYDROLOGIC AND GEOLOGIC UNITS

The geologic units composing the aquifers in Chambers and Jefferson Counties are, from oldest to youngest: the Fleming Formation of Miocene age; the Goliad Sand of Pliocene age; the Willis Sand of Pliocene(?) age; the Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age; the Deweyville deposits of Bernard (1950) of Pleistocene(?) age; and the alluvial, deltaic, coastal marsh, mudflat, and

beach (chenier) deposits of Holocene age. The correlation of geologic and hydrologic units is shown in Table 1.

The Beaumont Clay and the Holocene deposits (described in the section on Quaternary geology) crop out within the two counties. Their surface relationships are shown on the geologic map (Figure 20). The older formations crop out in the counties to the north.

The geologic units are generally composed of sand, silt, and clay, with lesser amounts of gravel, marl, and lignite. Faults are common, especially in the vicinity of salt domes, but surface traces of the fault zones are rarely discernible. Some, but not all, of the salt domes are marked by surface features such as higher altitudes, topographic depressions, or a combination of both.

Figures 25, 26, 27 and 28 are hydrologic sections showing the aquifers, their stratigraphic relationship, and the salinity of the water they contain.

Burkeville Aquiclude

The Burkeville aquiclude, the lowermost hydrologic unit discussed in this report, is principally a clay section within the Fleming Formation and is equivalent, at least in part, to the Castor Creek Member (Fisk, 1940) of the Fleming Formation of Kennedy (1892), as mapped by Rogers and Calandro (1965) in Vernon Parish, Louisiana. The Burkeville is also equivalent to "Zone 2" of Lang, Winslow, and White (1950) in the Houston district.

The Burkeville ranges in thickness from 130 to 300 feet. The unit contains minor amounts of sand in some places but is not a source of water in Chambers and Jefferson Counties. The significance of the Burkeville in the two counties is that it forms the lower confining layer for the overlying Evangeline aquifer.

Evangeline Aquifer

The Evangleine aquifer is the lowermost unit containing fresh or slightly saline water in Chambers and Jefferson Counties. The Evangeline overlies the Burkeville aquiclude and includes the Goliad Sand and sands in the upper part of the Fleming Formation. The aquifer is equivalent to the "heavily pumped" layer of Wood and Gabrysch (1965) in the Houston district. In Louisiana, the unit is equivalent to the Blounts Creek Member (Fisk, 1940) of the Fleming Formation of Kennedy (1892) in Vernon Parish (Rogers and Calandro, 1965) and the Foley Formation in Calcasieu Parish (Harder, 1960).

The Evangeline is about 1,400 feet thick in northern Jefferson County and increases in thickness toward the Gulf. The aquifer yields fresh water to large wells in northwestern Chambers County.

Chicot Aquifer

The Chicot aquifer includes all deposits above the Evangeline aquifer. The unit consists of the Willis Sand, the Bentley Formation, the Montgomery Formation, the Beaumont Clay, the Deweyville Deposits of Bernard (1950), and the Holocene alluvium.

The physical basis for separation of the Evangeline and Chicot is the difference in lithology and permeability. In some areas, the two aquifers are separated by beds of clay, but such beds are not continuous. The units differ in average grain size, cementation, and compaction. The higher permeabilities are usually associated with the Chicot.

The differences noted may be recognized in ways other than by examination of the sediments. A displacement of the spontaneous-potential curve of an electrical log as the logging tool passes out of the Evangeline into the Chicot often marks the contact between the two lithologically dissimilar aquifers. In addition, the formation factor (ratio between aquifer resistivity and aquifer water resistivity) for the two aquifers is generally significantly different. The formation factor for the Chicot aquifer is usually greater. In some areas, where lithologic differences are not pronounced or where changes in water quality makes comparative readings difficult or impossible, the contact between the two aquifers is not readily apparent from electrical logs.

In parts of eastern Jefferson County and western Chambers County, the Chicot aquifer is divided into two units by a clay bed that separates an upper sand section from a lower sand section. There are significant differences in water levels in wells completed in the upper and lower units of the Chicot in eastern Jefferson County and western Chambers County. These sands merge in some places, and in other places, one of the sands may be absent.

In some parts of the two counties, the upper and lower units of the Chicot merge into one large mass of interbedded and interconnected sand and clay as much as 1,600 feet thick. In these areas, determination of a boundary between the two units becomes impossible. This is especially true near some of the shallow piercement-type salt domes and in a large area in central Chambers County. The configuration of the base of the Chicot aquifer and the locations of most of the salt domes in the area are shown on Figure 3.

Lower Unit

In the downdip (southeast) parts of Chambers and Jefferson Counties, the lower unit of the Chicot aquifer is generally two or more massive sands separated by clay. These sands are probably equivalent to the "500-foot" and "700-foot" sands as mapped in Calcasieu Parish, Louisiana (Harder, 1960). In reports on Galveston and Harris Counties, the massive sands of the lower Chicot

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unit have been mapped as the Alta Loma Sand of Rose (1943). In Orange County (Wesselman, 1965), the sands were mapped together as the "middle" aquifer.

In much of the updip (northwest) parts of Chambers and Jefferson Counties, the lower unit of the Chicot thins and loses much of the sand that is present downdip. Much of this loss is due to wedging of the unit, but some of the loss is due to facies changes.

Upper Unit

The upper unit of the Chicot consists of a basal sand overlain by clay. Most of the sand is part of the Montgomery Formation and can be traced into the outcrop of this geologic unit. The uppermost overlying clay is Beaumont, but in many places clay of the Montgomery Formation is also present.

No criteria other than the mapping of terrace levels have been developed for separating the Beaumont sands or sands of Holocene age from the underlying sands of the Montgomery Formation. The basal sand of the upper unit of the Chicot may be correlated with the "200-foot" sand of Calcasieu Parish, Louisiana (Harder, 1960).

SOURCE AND OCCURRENCE OF GROUND WATER

The principal source of fresh ground water in Chambers and Jefferson Counties is precipitation. Most precipitation runs off and becomes streamflow or evaporates immediately. Only a small fraction of the rainfall infiltrates to the zone of saturation. The zone of saturation is the zone below the water table where the interstices in the rocks are filled with water. Much of the penetrating water is rapidly returned to the atmosphere by evaporation or transpiration. A large percentage of the water that reaches the zone of saturation in the aquifers is rapidly returned to the surface as spring flow, which supports the base flow of the streams of the area.

Ground water occurs in aquifers. An aquifer is a geologic formation, group of formations, or part of a formation that is water bearing. An aquiclude is an impermeable or relatively impermeable bed that may contain water but is incapable of transmitting an appreciable quantity.

The water in an aquifer exists under one of two conditions, water table or artesian. Under water-table conditions, the water contained in the aquifer is under atmospheric pressure only. The water table is free to rise or fall in response to changes in the volume of water stored. A well penetrating an aquifer under water-table conditions fills with water to the level of the water table.

Artesian conditions occur when an aquifer is overlain by sediments of lower permeability that confine the water under hydrostatic pressure. Such conditions occur downdip from the outcrops of the aquifers. A well penetrating sands under artesian head (pressure) becomes filled with water to a level above the top of the aquifer. If the head (pressure) is great enough to raise the water to a level higher than the top of the well, the water flows. The height above the aquifer that the water will rise in a well is equivalent to the pressure head in the aquifer.

The water in the aquifers moves under the influence of gravity from areas of recharge to areas of discharge. The average velocity of movement is slow, less than a foot a day, except in the immediate vicinity of large wells or springs.

Discharge of ground water occurs both naturally and artificially. Natural means of discharge include evapotranspiration, spring flow, and upward seepage through clays. Artificial discharge is accomplished by pumping from wells; by pumping from excavations that intersect the water table; or by drainage that results when ditches are cut into and below the water table.

RECHARGE, MOVEMENT, AND DISCHARGE OF GROUND WATER

Before man began developing ground water in the Gulf Coast regions, the deeper aquifers had a higher head than the more shallow ones. The original higher piezometric head on the deeper aquifer systems was caused by the outcrops of the deeper aquifers being topographically higher. Downdip from the outcrops, movement of water was generally southeastward, in the direction of the hydraulic gradients, toward areas of natural discharge.

In much of the area, continuous clay beds confined the water, and the only avenue of discharge was upward through the clays. However, in some areas of low altitude, the aquifer sands are not overlain by clay, and fresh water was discharged through the sands. One such area is located between Smiths Point and Monroe City, 6 miles east of Anahuac, in Chambers County and another in the Pine Island Bayou and Neches River lowlands north and east of Beaumont. Much of the artesian fresh water that entered from surrounding counties was discharged as spring flow or seepage in these and similar areas.

The interconnection of the aquifers along the sides of the shallow piercement-type salt domes also provide avenues of discharge. Interconnection is indicated by electric logs and by water-quality data in the vicinity of Barbers Hill, Lost Lake, Moss Bluff, Fannett, Big Hill, and Spindletop Domes (Figure 3).

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Chicot Aquifer

Lower Unit

The approximate base and thickness of the fresh-water sands in the lower unit of the Chicot aquifer are shown on Figure 18. The lower unit of the Chicot contains fresh water in the Houston Point, Mont Belvieu, and Galveston Bay areas of Chambers County and in a small area along the eastern boundary of Jefferson County. The deepest occurrence of fresh water is in western Chambers County where fresh water extends to depths of more than 800 feet below sea level. Here the net thickness of sands containing fresh water is greater than 100 feet. In Jefferson County the maximum sand thickness is less than 50 feet. Fresh water in this aquifer underlies about a third of Chambers County and less than 5 percent of Jefferson County.

In the Houston Point and Mont Belvieu areas of northwestern Chambers County, the only place in which the lower unit of the Chicot has not been affected by saline water from Barbers Hill Dome is northwest of the dome. In this small area, all of the water in the aquifer is fresh. Large capacity wells that would produce fresh water could be constructed here.

The town of Mont Belvieu is using two public-supply wells (DH-64-09-301 and DH-64-09-302) near the saline water. Water from the public-supply wells will probably become more saline as pumping continues.

Assuming a porosity of 30 percent, almost 4,000,000 acre-feet of fresh water is stored in the lower unit of the Chicot aquifer in Chambers County, 2,900,000 acre-feet of which underlies 150 square miles of Galveston Bay. Only a small part of these quantities could be pumped, however, because of specific retention of much of the water and because of encroachment of nearby salt water.

About 150,000 acre-feet of fresh water is stored in the lower unit of the Chicot aquifer in Jefferson County. The wells tapping this fresh-water supply are all near the interface of the fresh water with the slightly saline water. Extensive development of additional fresh water will cause saline water to move into the wells. Many of the wells developed in this aquifer in eastern Jefferson County already produce slightly or moderately saline water which is used by industry for cooling and fire protection. Wells that produce up to 3,000 gpm have been developed in the aquifer, and additional wells of this capacity can be constructed.

Generally, more than 100 feet of saturated sand containing slightly to moderately saline water is present in most places, and in a large area along the southern boundaries of the counties, massive beds in the aquifer total more than 500 feet in thickness. Large (tens of mgd) sustained withdrawals of moderately saline water could be made in most areas of the two counties without excessive drawdown in water levels.

Upper Unit

The most widespread aquifer containing fresh water in Chambers and Jefferson Counties is the upper unit of the Chicot. Generally, it contains fresh water in and beyond the same areas as the lower unit of the Chicot and the Evangeline aquifers. However, in over 50 percent of Chambers and Jefferson Counties, only small supplies can be developed in this aquifer. Individual sand beds range in thickness from several feet to about 50 feet. Wells produce or have produced up to 1,000 gpm of fresh water from this aquifer in the Houston Point area of eastern Chambers County, at Anahuac, and in a fairly large area centered at Winnie. Additional fresh-water wells can be constructed in this aquifer in these areas of Chambers County and in extreme northern Jefferson County without an immediate threat of water-quality deterioration.

Throughout much of Chambers and Jefferson Counties water of poorer quality underlies or occurs at short distances from many of the producing wells. With continued pumpage, some of these wells probably will produce poorer quality water.

The approximate altitude of the base of fresh water in the upper unit of the Chicot aquifer is shown in Figure 19. The deepest occurrence of fresh water is in the northernmost part of Jefferson County where the base is greater than 200 feet below sea level. The base of fresh water becomes more shallow to the south and is only a few feet below sea level in the central and southern parts of Chambers and Jefferson Counties.

QUATERNARY GEOLOGY

By

Saul Aronow

Geologic field studies in southeastern Texas that contributed to the preparation of this report were supported by grants from the National Science Foundation, Lamar Tech Research Center, and Sigma Xi.

Most of the systematic field work was done as part of the Geologic Atlas of Texas project of the Bureau of Economic Geology of the University of Texas. The geologic map of Chambers and Jefferson Counties (Figure 20) was adapted from preliminary copies of the Houston and Beaumont sheets of the Geologic Atlas (Bureau of Economic Geology, 1968a and 1968b).

The Soil Conservation Service of the U.S. Department of Agriculture provided technical assistance in the

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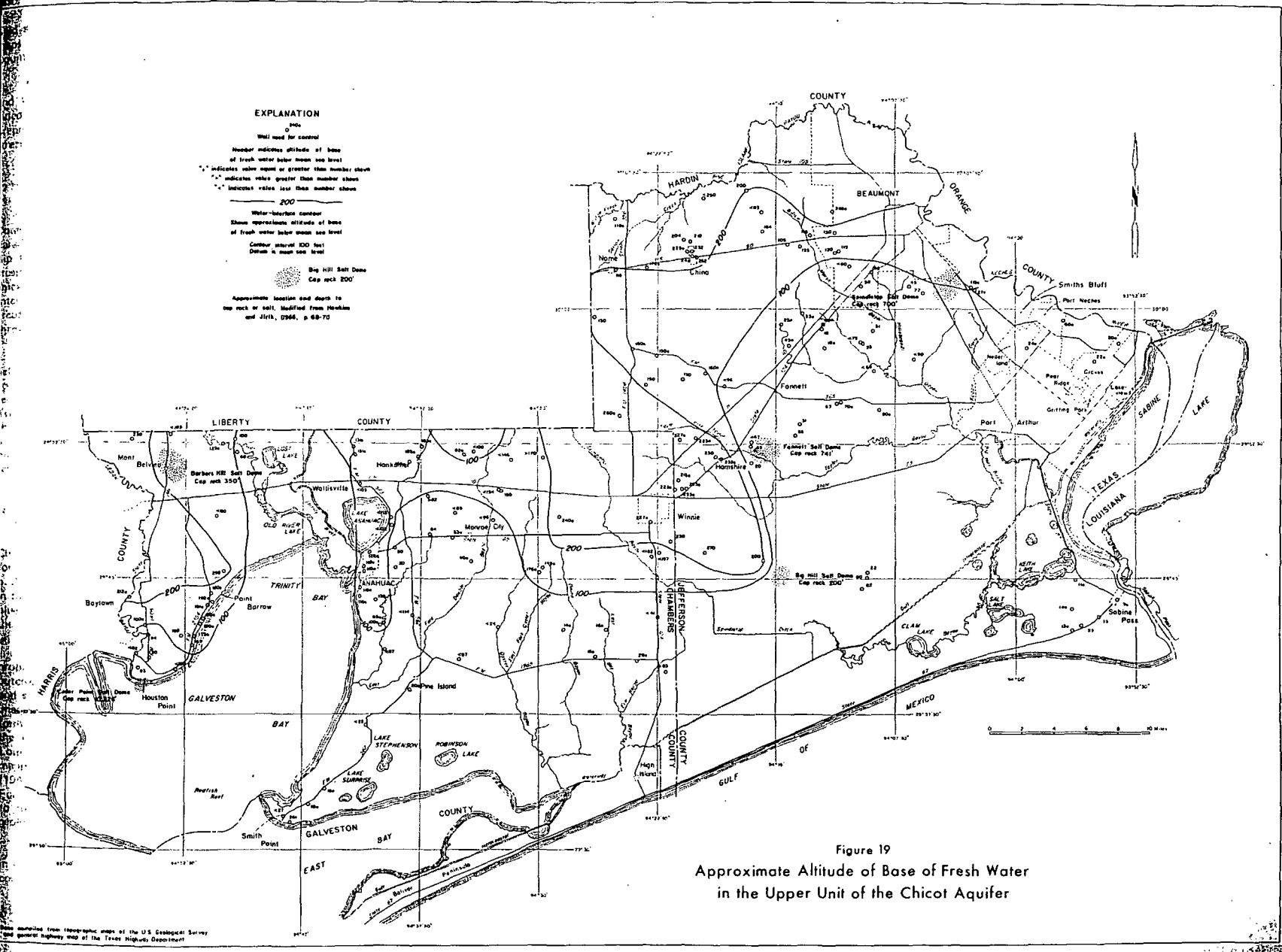

Figure 19
Approximate Altitude of Base of Fresh Water
in the Upper Unit of the Chicot Aquifer

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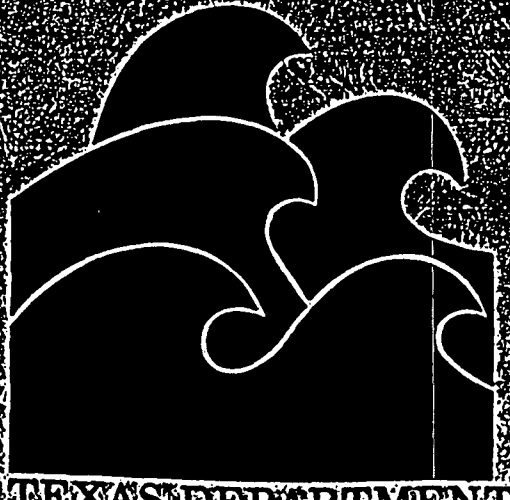
STRATIGRAPHIC AND HYDROGEOLOGIC FRAMEWORK OF PART OF THE COASTAL PLAIN OF TEXAS



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July 1979

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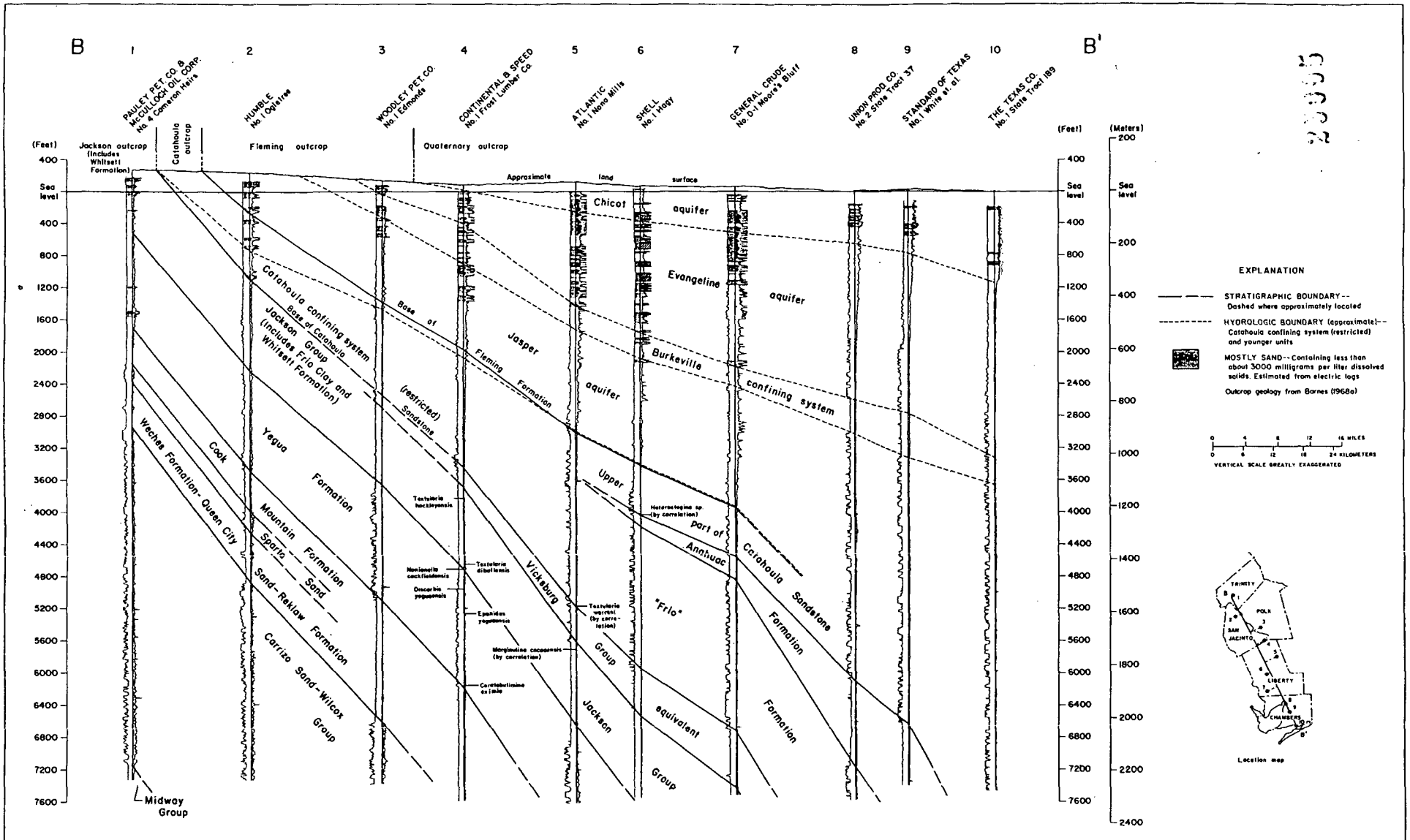

Figure 3

Stratigraphic and Hydrogeologic Section B-B'

and W. M. Sandeen (U.S. Geological Survey) of Houston, Texas, delineated the Chicot and Evangeline aquifers on the sections. Their contribution is gratefully acknowledged. Geologic sections and type logs of oil fields including faunal occurrences by the Houston Geological Society (1954, 1962), the Corpus Christi Geological Society (1954, 1955, 1967, 1972), and the South Texas Geological Society (1962, 1967) were extensively utilized as aids in identifying deep subsurface formations. The geologic sections of Eargle, Dickinson, and Davis (1975) served to identify near-surface formations in parts of South Texas.

Metric Conversions

For those readers interested in using the metric system, the metric equivalents of English units of measurements are given in parentheses. The English units used in this report have been converted to metric units by the following factors:

From	Multiply by	To obtain
feet	0.3048	meters (m)
miles	1.609	kilometers (km)

STRATIGRAPHIC FRAMEWORK

General Features of Deposition and Correlation Problems

Cenozoic sediments that underlie the Coastal Plain of Texas are tens of thousands of feet thick at the coastline. These clastic sediments of sand, silt, and clay represent depositional environments ranging from nonmarine at the outcrops of most units to marine where the units may carry a distinctive suite of fossils. Oscillations of ancient seas and changes in amount and source of sediments that were deposited caused facies changes downdip and along strike. For example, a time-stratigraphic unit having age equivalency may consist of sand in one area, sandy clay in a second area, and clay in a third area. Subsidence of the basin of deposition and rising of the land surface caused the stratigraphic units to thicken Gulfward. Growth faults (faults that were more or less continuously active) greatly increased the thickness of some stratigraphic units in short distances. All of these factors contributed to the heterogeneity of the units from place to place, which in turn makes correlation difficult.

Stratigraphic Units

In the discussion to follow, emphasis will be placed on stratigraphic units that are designated in this report as Miocene in age. Many of the correlation problems of the Cenozoic deposits involve these units to a large degree. Also the main thrust of this report is directed at the Miocene in keeping with the ultimate objective of modeling the flow in the Miocene aquifers.

The stratigraphic nomenclature used in this report was determined from several sources and may not necessarily follow the usage of the U.S. Geological Survey.

Pre-Miocene

Delineation of most of the pre-Miocene units of Cenozoic age present relatively few problems of significance. This is especially true of the pre-Jackson units (Midway Group to Yegua Formation). The top of the Carrizo Sand of the Claiborne Group (included with the underlying Wilcox Group on the sections) can be easily delineated, which makes the position of the unit unmistakable in the subsurface. From about the Sabine River to the San Marcos Arch (section F-F', Figure 7, is centered over this structural feature), the top of the Carrizo-Wilcox is about 3,000 feet (914 m) beneath the landward edge of the Catahoula outcrop. Southward from the San Marcos Arch into the Rio Grande Embayment of South Texas, its position steadily increases in depth to more than 7,000 feet (2,134 m) at the western end of section K-K' (Figure 12).

Facies changes occur downdip in the Sparta and Queen City Sands of the Claiborne Group, and where these units grade into clay, delineation on a time-stratigraphic basis is virtually impossible from electrical-log interpretation. The same problem affects the Yegua Formation of the Claiborne Group, although the Yegua remains sandy for greater distances downdip. It can be delineated by lithology on most of the sections in this report. Also, the presence of important faunal markers such as *Nonionella cockfieldensis* and *Ceratobulimina eximia* aid in locating the approximate top and base, respectively, of the Yegua, regardless of its lithology.

The delineation of the Jackson Group is significant in establishing the framework for the Miocene units. This is because the outcropping Frio Clay of Oligocene(?) age of South Texas is completely overlapped in Live Oak County by the Miocene Catahoula (or is not recognized on the surface east of

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this area). The overlap places the Catahoula in contact with part of the Whitsett Formation, the uppermost formation of the Jackson Group in this area. East of the overlap to the Sabine River, careful attention was required to properly separate on the sections the tuffaceous sand and clay interbeds of the Whitsett from the tuffaceous sand and clay interbeds of the overlying Catahoula. From Live Oak County southward, the outcropping Frio Clay separates the Whitsett Formation from the Catahoula Tuff.

The age of the Whitsett, although shown in Table 1 as Eocene in South-Central Texas, may be at least in part Oligocene in the eastern part of the State. Eargle, Dickinson, and Davis (1975) consider the Whitsett to be Eocene at least from central Karnes County to southern McMullen County. Barnes (1975) likewise considers the Whitsett to be unquestionably Eocene no farther east than central Karnes County. From this area to the Sabine River, Dr. V. E. Barnes (written commun., April 5, 1971) states that the Whitsett may "climb timewise eastward" and be largely Oligocene in East Texas; that the Nash Creek Formation of Louisiana, which is considered to be largely Oligocene, is equivalent to the Whitsett as mapped in Texas near the Sabine River; and the Oligocene vertebrates, which Dr. J. A. Wilson (Department of Geologic Sciences, University of Texas at Austin) collected from the Whitsett in Washington County, show that this formation is at least part Oligocene at that site. Because of the probability that the Whitsett is Oligocene, in part or in whole in much of the area, the delineation of the Eocene Jackson Group is shown on the sections to include the Whitsett Formation.

The Frio Clay of Oligocene(?) age has been a controversial unit for decades. Geologists still do not agree on its subsurface equivalents or if it is even a separate stratigraphic unit from the Catahoula. The fact that many geologists have mapped the unit from Live Oak County to the Rio Grande lends support to the existence of the Frio Clay as a formation. The Geologic Atlas of Texas (Barnes, 1976a,b,c) shows that the Frio is mapped separately as a distinct formation from its overlap in Live Oak County to southern Webb County; from there to the Rio Grande, the Frio is undifferentiated from the Catahoula. The Frio outcrop that was used for control at the surface on the dip sections H-H' to K-K' (Figures 9-12) was modified from Darton, Stephenson, and Gardner (1937) and from Barnes (1976a,b,c). East of the overlap in Live Oak County the Frio is presumed to be present in the shallow subsurface beneath the Catahoula with the erosional edge probably only a few miles downdip from the edge of the Catahoula outcrop.

The Frio Clay at the surface has been interpreted by the author to be, at least in part, the nonmarine time-equivalent of the subsurface Vicksburg Group—a marine biostratigraphic unit of Oligocene age that crops out east of the Sabine River and is characterized by the foraminifer *Textularia warreni*. The relationship is supported by Deussen and Owen (1939, p. 1630) and by the Houston Geological Society (1954). The Vicksburg equivalent east of Karnes County may also be at least a partial time-equivalent of the Whitsett, whose probable Oligocene age in this area may, in itself, indicate an equivalency. Ellisor (1944, Figure 1, and p. 1365) supports this probability and illustrates the relationship in a geologic section. Additionally, this probability is supported by the apparent correlation of the outcrop of the Vicksburg Group in Louisiana near the Sabine River as shown on the geologic map of Louisiana (Wallace, 1946) with the outcrop of the Whitsett Formation as shown on the Geologic Atlas of Texas (Barnes, 1968b). This relationship may be inferred on the dip sections from A-A' to at least F-F' (Figures 2-7) where the Vicksburg equivalent, if projected to the outcrop, would intersect the outcropping Whitsett.

Miocene

The stratigraphic framework of the units that are designated in this report as Miocene in age is complex and controversial, perhaps more so than any other Cenozoic units. Geologists do not agree which units on the surface or in the subsurface are Miocene nor do they agree as to the relationship of the surface and subsurface units. The correct relationship may never be determined because faunal markers, which exist in places in the subsurface, do not extend to the outcrop; and the heterogeneity of the sediments does not facilitate electrical-log correlations.

The outcropping stratigraphic units that are assigned to the Miocene in this report are, from oldest to youngest, the Catahoula Tuff or Sandstone, Oakville Sandstone, and Fleming Formation. The "Frio" Formation, Anahuac Formation, and a unit that is referred to in this report as the upper part of the Catahoula Tuff or Sandstone are assigned by the author as possible downdip equivalents of the surface Catahoula although the Anahuac and "Frio" Formations may be Oligocene in age. Table 1 and the dip sections (Figures 2-12) illustrate this relationship.

The outcrop of the Catahoula, a pyroclastic and tuffaceous unit, has been mapped independently by various geologists with little modification from the Sabine River to the Rio Grande. Darton, Stephenson,

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and Gardner (1937) modified the unit's name from Catahoula Tuff to Catahoula Sandstone east of Lavaca County where the formation becomes more sandy.

It may be seen on the sections that the thickness of the surface Catahoula increases downdip at a large rate in the subsurface to eventually include, when the Anahuac Formation is reached, the "Frio" Formation which underlies the Anahuac, and the upper Catahoula unit. Deussen and Owen (1939, Figures 5, 6, p. 1632, and Table 1), in a study of the surface and subsurface formations in two typical sections of the Texas Coastal Plain (one in East Texas, the other in South Texas), agree with this relationship. They disagree, however, with these units being Miocene and assign them to the Oligocene. Some oil-company geologists consider the Anahuac and "Frio" as separate formations (unrelated to the Catahoula) in the subsurface and also assign them to the Oligocene. As a consequence of this usage, the upper Catahoula unit of this report is then usually referred to as "Miocene," which term is used instead of, or interchangeably with, Fleming. Holcomb (1964, Figure 2) in a study of the subsurface "Frio" Formation of South Texas places the "Frio" and Anahuac Formations, as well as the surface Catahoula in the Miocene, but does not admit to any Catahoula occurring above the Anahuac. He indicates that the "Fleming Formation" (Oakville Sandstone and Fleming Formation of this report) rests on the Anahuac. Dip sections, especially F-F', G-G', and H-H' (Figures 7-9), show unmistakably that the Catahoula-Oakville contact on the surface can be accurately traced far enough downdip by means of electrical logs to show that the clearly discernible contact is several hundred feet above the Anahuac. For this reason, the upper Catahoula unit above the Anahuac cannot be the Oakville. This contention is supported by Meyer (1939, p. 173) and by Lang, Winslow, and White (1950, Plate 1).

The Anahuac Formation, despite the controversial attention it receives, is one of the most discernible formations in the subsurface. This marine biostratigraphic unit carries a rich microfauna of many tens of diagnostic species. These species are categorized into the *Discorbis* zone, *Heterostegina* zone, and *Marginulina* zone, from youngest to oldest. Only a few of the diagnostic species (Table 1) are included with the dip sections in this report. The updip limit of the marine facies of the Anahuac ranges in depth from about 2,500 feet (762 m) below land surface in East Texas to about 4,000 feet (1,219 m) in the Rio Grande Embayment in South Texas. The unit is quite sandy south of the San Patricio County (south of section H-H', Figure 9) to the Rio Grande in contrast to its shaly character eastward from San Patricio County to the Sabine River.

The Oakville Sandstone and Fleming Formation are composed almost entirely of terrigenous clastic sediments that form sand and clay interbeds. Both formations are basically rock-stratigraphic units that are distinguished and delineated on the basis of lithologic characteristics. Their boundaries in the Coastal Plain of Texas are discernible contacts in some areas and arbitrary ones within zones of lithologic gradation in other areas.

The Oakville Sandstone is most prominent on the surface and in the subsurface in the central part of the Coastal Plain. Here its predominantly sandy character is distinguished from the underlying tuffaceous Catahoula and overlying Fleming, which is composed of clay and slightly subordinate amounts of sand.

The Oakville on the surface has been mapped as a formation from about the Brazos River at the Washington-Grimes County line to central Duval County, where its outcrop is overlapped by the Goliad Sand and remains overlapped to the Rio Grande. Beneath this overlap, the Oakville apparently decreases in thickness or loses its predominance of sand or both. In either case, its position in the shallow subsurface in parts of the Rio Grande Embayment is questionable on dip sections I-I' and K-K' (Figures 10, 12). In the vicinity of the Brazos River, the Oakville grades eastward into the base of the Fleming Formation and loses its identity. The position of the base of the Oakville in the deeper parts of the subsurface has been delineated on some of the sections merely as an approximation.

The Fleming Formation, the uppermost unit of Miocene age in the Coastal Plain, has been mapped on the surface in Texas from the Sabine River to central Duval County. From here, like the Oakville, it is overlapped by the Goliad Sand and remains beneath the Goliad to the Rio Grande.

The Fleming is lithologically similar to the Oakville but can be easily separated from the Oakville in some places by its greater proportion of clay. Plummer (1932, p. 744, 747) described the Lagarto as consisting of 75 percent marl or clay, 15 percent sand, and 10 percent silt, with the clay beds being thicker and more massive and the sand beds being thinner and less massive than those of the Oakville. This description is reasonably accurate in some areas of the outcrop and shallow subsurface where the Fleming is separated from the Oakville. (See sections I-I', J-J', and L-L', Figures 10, 11, and 13.) In other areas, the Fleming on the outcrop and in the shallow subsurface contains a ratio of sand to clay that approximates that of the Oakville. Where the Fleming Formation is not separated from the Oakville and directly overlies the Catahoula, from about Grimes

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County to the Sabine River, the percentage of sand in the formation increases eastward. In Jasper and Newton Counties, the amount of sand in the section above the base of the Fleming greatly exceeds the amount of clay. This can be seen in wells 30 and 31 on strike section L"-L"' (Figure 15).

Delineation of the base of the Fleming from the to the deep subsurface has not been attempted on most of the sections because of complex facies changes. In southeast Texas on sections A-A', B-B', and C-C' (Figures 2-4), an approximate base of the Fleming is shown downdip to short distances beyond the pinchout of the Anahuac. The preponderance of sand above the Anahuac in this area, however, makes any delineation on the basis of electrical logs speculative. Deep wells near the coastline penetrate marine facies of the Fleming which carry a diagnostic fauna. Numerous species, which serve to identify the formation, have been described by Rainwater (1964). *Potamides matsoni*, *Amphistegina sp.*, *Bigenerina humblei*, and *Bigenerina nodosaria var. directa* are faunal markers indicated on some of the sections.

Post-Miocene

Delineation of the stratigraphic units of Pliocene, Pleistocene, and Holocene age has not been attempted. Correlation problems with most of these stratigraphic units are too numerous to solve by using only electrical logs. Delineation of the Pleistocene units—Willis Sand, Bentley Formation, Montgomery Formation, and Beaumont Clay—is exceedingly difficult due to the lithologic similarity of the sediments and lack of paleontological control. The contact at the surface of the basal Quaternary with the Goliad Sand or older units is, however, shown on the dip sections.

The Goliad Sand of Pliocene age overlies the Miocene units in the deep subsurface as well as in places on the surface. Except for a few isolated outcrops, it is otherwise entirely overlapped on the surface east of Lavaca County by Pleistocene deposits. Its inland extent beneath the overlap is presumed to be only several miles southeast from the most downdip exposures of the Fleming Formation. From Lavaca County to the Rio Grande, the width of the Goliad outcrop gradually increases because the Goliad progressively overlaps older units in the Rio Grande Embayment of South Texas.

The Goliad Sand can usually be identified on the surface and in the subsurface by a preponderance of sand except in the far eastern part of the State where sand predominates from the base of the Miocene to the surface. In this area, the identity of the Goliad cannot be established with certainty. Delineation of the base of the Goliad has been made, where outcrop control is available, on the strike and dip sections west of Colorado County. The base of the Goliad has been approximated at about 2,200 feet (671 m) below sea level near the coastline on sections I-I' and J-J' (Figures 10, 11).

HYDROGEOLOGIC FRAMEWORK

The following discussion is restricted to the hydrogeologic framework of five units—Catahoula confining system (restricted), Jasper aquifer, Burkeville confining system, Evangeline aquifer, and Chicot aquifer. A discussion of other hydrologic units of Cenozoic age is beyond the purpose and scope of this report.

The quality of the ground water that is indicated on the sections to be less than 3,000 mg/l of dissolved solids is referred to in this report as fresh to slightly saline water. This terminology follows the classification of Winslow and Kister (1956).

Catahoula Confining System (Restricted)

The Catahoula confining system (restricted) is treated in this report as a quasi-hydrologic unit with different boundaries in some areas than the stratigraphic unit of the same name. Its top (base of the Jasper aquifer) is delineated along lithologic boundaries that are time-stratigraphic in some places but that transgress time lines in other places. Its base, which coincides with the base of the stratigraphic unit, is delineated everywhere along time-stratigraphic boundaries that are independent of lithology. No attempt was made to establish a lithologic (hydrologic) base for the unit, which would have created a distinct hydrologic unit. Such effort would have involved a thorough hydrologic evaluation of pre-Miocene formations, which is beyond the scope of the project.

In many places, the Catahoula confining system (restricted) is identical to the stratigraphic unit, but there are notable exceptions. These departures of the hydrologic boundaries from the stratigraphic boundaries are most prominent in the eastern part of the Coastal Plain near the Sabine River (Figure 15), in places in South Texas (Figure 11), and in numerous places at the outcrop and in the shallow subsurface. In these places, the very sandy parts of the Catahoula Tuff or Sandstone (stratigraphic unit) that lie immediately below the Oakville Sandstone or Fleming Formation are included in the overlying Jasper aquifer. This leaves a lower

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section from 0 to 2,000 feet (610 m) or more in thickness that consists predominantly of clay or tuff with some interbedded sand to compose the Catahoula confining (restricted) system. In most areas, this delineation creates a unit that is generally deficient in sand so as to preclude its classification in these areas as an aquifer. Thus in much of its subsurface extent, the Catahoula confining system (restricted) functions hydrologically as a confining layer that retards the interchange of water between the overlying Jasper aquifer and underlying aquifers.

The amount of clay and other fine-grained clastic material in the Catahoula confining system (restricted) generally increases downdip, until the Anahuac Formation is approached. Below this unit, the "Frio" Formation becomes characteristically sandy and contains highly saline water that extends to considerable depths.

Jasper Aquifer

The Jasper aquifer, which was named by Wesselman (1967) for the town of Jasper in Jasper County, Texas, has heretofore not been delineated farther west than Washington, Austin, and Fort Bend Counties. In this report, a delineation as far downdip as possible has been made of the Jasper from the Sabine River to the Rio Grande.

The configuration of the Jasper aquifer in the subsurface, as shown on the sections, is geometrically irregular. This irregularity is due to the fact that the delineation was necessarily made on the basis of the aquifer being a rock-stratigraphic unit. The hydrologic boundaries were defined by observable physical (lithologic) features rather than by inferred geologic history.

The configuration of the base and top of the Jasper transgresses stratigraphic boundaries along strike and downdip. The lower boundary of the aquifer coincides with the stratigraphic lower boundary of the Oakville or Fleming in some places. In other places the base of the Jasper lies within the Catahoula or coincides with the base of that unit. The top of the aquifer is within the Fleming Formation in places, follows the top of the Oakville Sandstone in other places, and is within the Oakville in still other places.

The Jasper ranges in thickness from as little as 200 feet (61 m) to about 3,200 feet (975 m). The maximum thickness occurs within the region of highly saline water in the aquifer. An average range in thickness of the aquifer within the zone of fresh to slightly saline water is from about 600 to 1,000 feet (183 to 305 m). In the eastern part of the Coastal Plain of Texas the Jasper contains a greater percentage of sand than in the southern part. At the Sabine River, the Jasper attains a thickness of 2,400 feet (732 m) in well 31 on section L"-L'" (Figure 15), where the aquifer is composed almost entirely of sand. Fresh to slightly saline water, as shown on section D-D' (Figure 5), occurs as deep as 3,000 feet (914 m) below sea level.

Delineation of the Jasper aquifer in Louisiana (Whitfield, 1975), in western Louisiana and eastern Texas (Turcan, Wesselman, and Kilburn, 1966), and in Jasper and Newton Counties, Texas (Wesselman, 1967) shows that the thickness of the Jasper at the Sabine River closely approximates that given by the author. For example, the author assigns a thickness of 2,400 feet (732 m) to the Jasper in well 31 on section L"-L'" (Figure 15), and the authors cited above show essentially the same thickness at the site. This agreement in aquifer thickness, however, is contrasted to different interpretations of the stratigraphic composition or age of the aquifer near the Sabine River. The authors cited above restrict the Jasper to a part of the Fleming Formation, whereas this paper redefines the Jasper at its type locality near the Sabine River to include the upper part of the Catahoula of Texas in addition to the lower part of the Fleming of Texas. (This redefinition applies only to the area of the type locality and is thus only locally valid. Elsewhere in the Coastal Plain of Texas the Jasper assumes a different stratigraphic makeup.)

The stratigraphic discrepancies at the Texas-Louisiana border are attributed to different interpretations of the surface geology at the State line. The Palestine quadrangle of the Geologic Atlas of Texas (Barnes, 1968b) shows the Catahoula outcrop to be about 6 miles (9.7 km) wide at the Sabine River, whereas Welch (1942) shows the outcrop in Louisiana to be about 1 mile (1.6 km) wide. A close comparison of the two geologic maps indicates that in Louisiana the Lena, Carnahan Bayou, and at least part of the Dough Hills Members of Fisk (1940) of the Fleming Formation of Kennedy (1892), in addition to the Catahoula of Welch (1942), are equivalent to the Catahoula of Texas. Wesselman (1967) assigned the Carnahan Bayou Member as the basal part of the Jasper, which is reasonable; but this member is Catahoula in age in Texas. As long as the discrepancy in geologic mapping is unresolved,

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subsurface correlations of the Catahoula-Fleming contact, as well as formation thicknesses, will continue to differ.

Burkeville Confining System

The Burkeville confining system, which was named by Wesselman (1967) for outcrops near the town of Burkeville in Newton County, Texas, is delineated on the sections from the Sabine River to near the Rio Grande. It separates the Jasper and Evangeline aquifers and serves to retard the interchange of water between the two aquifers.

The Burkeville has been mapped in this report as a rock-stratigraphic unit consisting predominantly of silt and clay. Boundaries were determined independently from time concepts although in some places the unit appears to possess approximately isochronous boundaries. In most places, however, this is not the case. For example, the entire thickness of sediment in the Burkeville confining system in some areas is younger than the entire thickness of sediment in the Burkeville in other places.

The configuration of the unit is highly irregular. Boundaries are not restricted to a single stratigraphic unit but transgress the Fleming-Oakville contact in many places. This is shown on sections D-D' to G-G' and J-J' (Figures 5-8 and 11). Where the Oakville Sandstone is present, the Burkeville crops out in the Fleming but dips gradually into the Oakville because of facies changes from sand to clay downdip.

The typical thickness of the Burkeville ranges from about 300 to 500 feet (91 to 152 m). However, thick sections of predominantly clay in Jackson and Calhoun Counties account for the Burkeville's gradual increase to its maximum thickness of more than 2,000 feet (610 m) as shown on section F-F' (Figure 7).

The Burkeville confining system should not be construed as a rock unit that is composed entirely of silt and clay. This is not typical of the unit, although examples of a predominance of silt and clay can be seen in some logs in sections H-H' and I-I' (Figures 9-10). In most places, the Burkeville is composed of many individual sand layers, which contain fresh to slightly saline water; but because of its relatively large percentage of silt and clay when compared to the underlying Jasper aquifer and overlying Evangeline, the Burkeville functions as a confining unit.

Evangeline Aquifer

The Evangeline aquifer, which was named and defined by Jones (Jones, Turcan, and Skibitzke, 1954) for a ground-water reservoir in southwestern Louisiana, has been mapped also in Texas, but heretofore has been delineated no farther west than Washington, Austin, Fort Bend, and Brazoria Counties. Its presence as an aquifer and its hydrologic boundaries to the west have been a matter of speculation. D. G. Jorgensen, W. R. Meyer, and W. H. Sandeen of the U.S. Geological Survey (written commun., March 1, 1976) recently refined the delineation of the aquifer in previously mapped areas and continued its delineation to the Rio Grande. The boundaries of the Evangeline as they appear on the sections in this report are their determinations.

The Evangeline aquifer has been delineated in this report essentially as a rock-stratigraphic unit. Although the aquifer is composed of at least the Goliad Sand, the lower boundary transgresses time lines to include sections of sand in the Fleming Formation. The base of the Goliad Sand at the outcrop coincides with the base of the Evangeline only in South Texas as shown in sections H-H' to K-K' (Figures 9-12). Elsewhere, the Evangeline at the surface includes about half of the Fleming outcrop. The upper boundary of the Evangeline probably follows closely the top of the Goliad Sand where present, although this relationship is somewhat speculative.

The Evangeline aquifer is typically wedge shaped and has a high sand-clay ratio. Individual sand beds are characteristically tens of feet thick. Near the outcrop, the aquifer ranges in thickness from 400 to 1,000 feet (122 to 305 m), but near the coastline, where the top of the aquifer is about 1,000 feet (305 m) deep, its thickness averages about 2,000 feet (610 m). The Evangeline is noted for its abundance of good quality ground water and is considered one of the most prolific aquifers in the Texas Coastal Plain. Fresh to slightly saline water in the aquifer, however, is shown to extend to the coastline only in section J-J' (Figure 11).

Chicot Aquifer

The Chicot aquifer, which was named and defined by Jones (Jones, Turcan, and Skibitzke, 1954) for a ground-water reservoir in southwestern Louisiana, is the youngest aquifer in the Coastal Plain of Texas. Over the years, the aquifer gradually was mapped westward from Louisiana into Texas where, heretofore, its most

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westerly mapped limit was Austin, Fort Bend, and Brazoria Counties. In this report, the delineation of the Chicot was refined in previously mapped areas and extended to near the Rio Grande by D. G. Jorgensen, W. R. Meyer, and W. M. Sandeen of the U.S. Geological Survey (written commun., March 1, 1976).

It is believed that the base of the Chicot in some areas has been delineated on the sections in this report as the base of the Pleistocene. Early work in Southeast Texas indicates that the Chicot probably comprises the Willis Sand, Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age and any overlying Holocene alluvium (Table 1). The problem that arises in this regard is that the base of the Pleistocene is difficult to pick from electrical logs. Thus any delineation of the base of the Chicot in the subsurface as the base of the Pleistocene is automatically suspect. At the surface, the base of the Chicot on the sections has been picked at the most landward edge of the oldest undissected coastwise terrace of Quaternary age. In practice, the delineation of the Chicot in the subsurface, at least on the sections in Southeast Texas, has been based on the presence of a higher sand-clay ratio in the Chicot than in the underlying Evangeline. In some places, a prominent clay layer was used as the boundary. Differences in hydraulic conductivity or water levels in some areas also served to differentiate the Chicot from the Evangeline.

The high percentage of sand in the Chicot in Southeast Texas, where the aquifer is noted for its abundance of water, diminishes southwestward. Southwest of section G-G' (Figure 8) the higher clay content of the Chicot and the absence of fresh to slightly saline water in the unit is sharply contrasted with the underlying Evangeline aquifer that still retains relatively large amounts of sand and good quality water.

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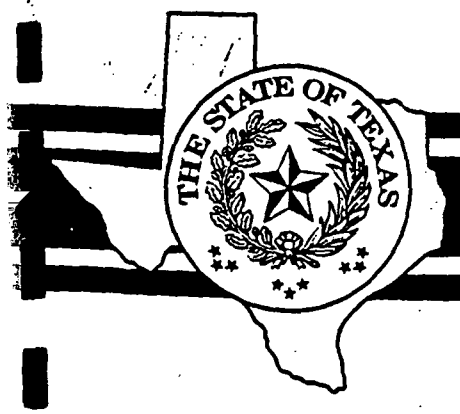
Report 295

Hydrology of the Jasper Aquifer in the Southeast Texas Coastal Plain

October 1986



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TEXAS WATER DEVELOPMENT BOARD

REPORT 295

HYDROLOGY OF THE JASPER AQUIFER IN THE SOUTHEAST TEXAS COASTAL PLAIN

By

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U.S. Geological Survey

This report was prepared by the U.S. Geological Survey under cooperative agreement with the Texas Water Development Board

20002

October 1986

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FOREWORD

Effective September 1, 1985, the Texas Department of Water Resources was divided to form the Texas Water Commission and the Texas Water Development Board. A number of publications prepared under the auspices of the Department are being published by the Texas Water Development Board. To minimize delays in producing these publications, references to the Department will not be altered except on their covers and title pages.

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ABSTRACT

The Jasper (Miocene) aquifer is one of several important hydrologic units in the Gulf Coastal Plain. Because the Jasper aquifer underlies shallower aquifers in many areas, regional water withdrawals from the Jasper are not significant; however, it is capable of yielding 3,000 gallons per minute or more of water to wells in certain areas. The Jasper is underlain by the Catahoula confining system (restricted) and overlain by the Burkeville confining system. The Evangeline and Chicot aquifers, in turn, overlie the Burkeville and also are prolific water-yielding aquifers.

The ground-water hydrology of the Jasper aquifer in an area of about 20,000 square miles was simulated by a two-dimensional digital model using a steady-state approach. The model represents hydrologic conditions prior to development by wells, when natural recharge equaled natural discharge. The model's grid pattern of 15 × 24 nodes varies from a dimension of 5 by 10 miles in the outcrop to 10 by 10 miles in the artesian section downdip from the outcrop.

The model was calibrated by simulating the predevelopment potentiometric surface of the Jasper aquifer. Results of the calibration showed that the simulation closely agrees with historical records of water levels in most areas. Sensitivity analysis showed that the model is very sensitive to changes in recharge on the outcrop of the Jasper. The shape of the potentiometric surface is affected more by changes in transmissivity than by changes in vertical-hydraulic conductivity. The sensitivity of most of the modeled part of the aquifer to a 60-mile extension of its downdip boundary into highly saline water was about equal to a 25-percent reduction in transmissivity or a 25-percent increase in vertical-hydraulic conductivity.

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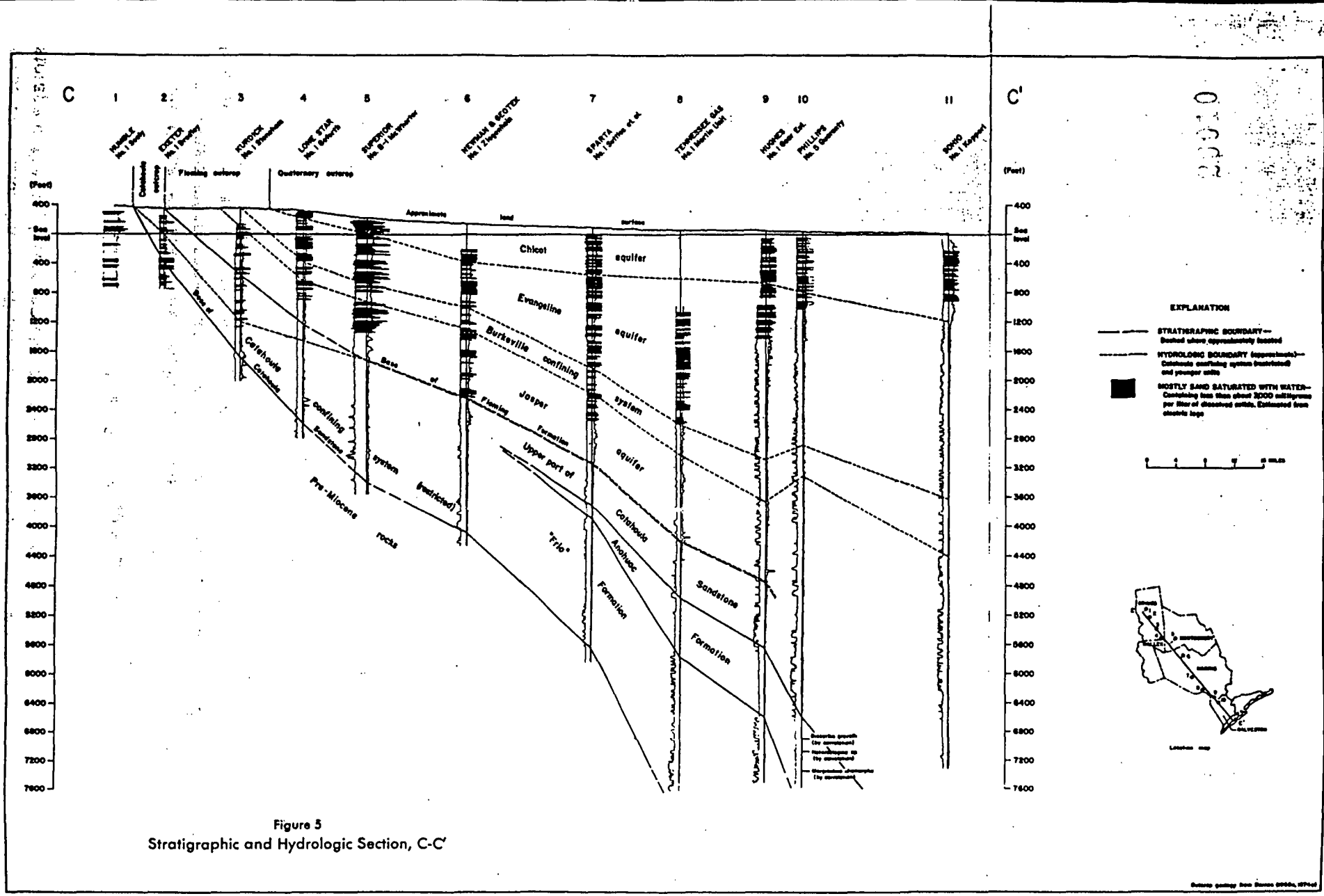

Figure 5
Stratigraphic and Hydrologic Section, C-C'

three-dimensional models that also simulate the response of water levels to pumping, changes in storage in the clay layers, and land-surface subsidence.

Metric Conversions

For those readers interested in using the metric system, the metric equivalents of inch-pound units of measurements are given in parentheses. The inch-pound units used in this report have been converted to metric units by the following factors:

From	Multiply by	To obtain
feet	0.3048	meters (m)
feet per day (ft/d)	0.3048	meters per day (m/d)
feet per mile (ft/mi)	0.189	meters per kilometer (m/km)
feet per second (ft/s)	0.3048	meters per second (m/s)
square feet per day (ft^2/d)	0.0929	square meters per day (m^2/d)
gallons per minute (gal/min)	0.06309	liters per second (l/s)
inches	25.4	millimeters (mm)
miles	1.609	kilometers (km)
million gallons per day (Mgal/d)	0.04381	cubic meters per second (m^3/s)
square miles	2.590	square kilometers (km^2)

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called mean sea level. NGVD of 1929 is referred to as sea level in the text of this report.

GEOHYDROLOGIC FRAMEWORK OF THE SOUTHEAST TEXAS COASTAL PLAIN

Miocene and younger sediments that underlie the southeast Texas Coastal Plain and that form important hydrologic units are thousands of feet thick at the coastline. These clastic sediments constitute geologic formations, which collectively or in part, form important hydrologic

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units. The geologic formations and hydrologic units are composed of varying proportions of gravel, sand, silt, and clay. They thicken toward the Gulf of Mexico and are inclined in that direction. The younger geologic formations and hydrologic units crop out nearer the Gulf and the older ones farther inland. All of them have outcrops or subcrops that are virtually parallel to the shoreline.

In the following discussion, emphasis is placed on the geologic and hydrologic units of Miocene age. It is necessary, however, to discuss the older and younger units in order to understand their relationship, both stratigraphically and hydrologically, to the Miocene. (Stratigraphic and geologic units that are pertinent to the discussion are described in Table 1. The units were determined from several sources and may not necessarily follow the usage of the U.S. Geological Survey.) Four dip sections and one strike section are located in Figure 2 and are presented in Figures 3-7 to visualize the interrelationships and to show the presence of water having concentrations of less than about 3,000 mg/l of dissolved solids within the units.

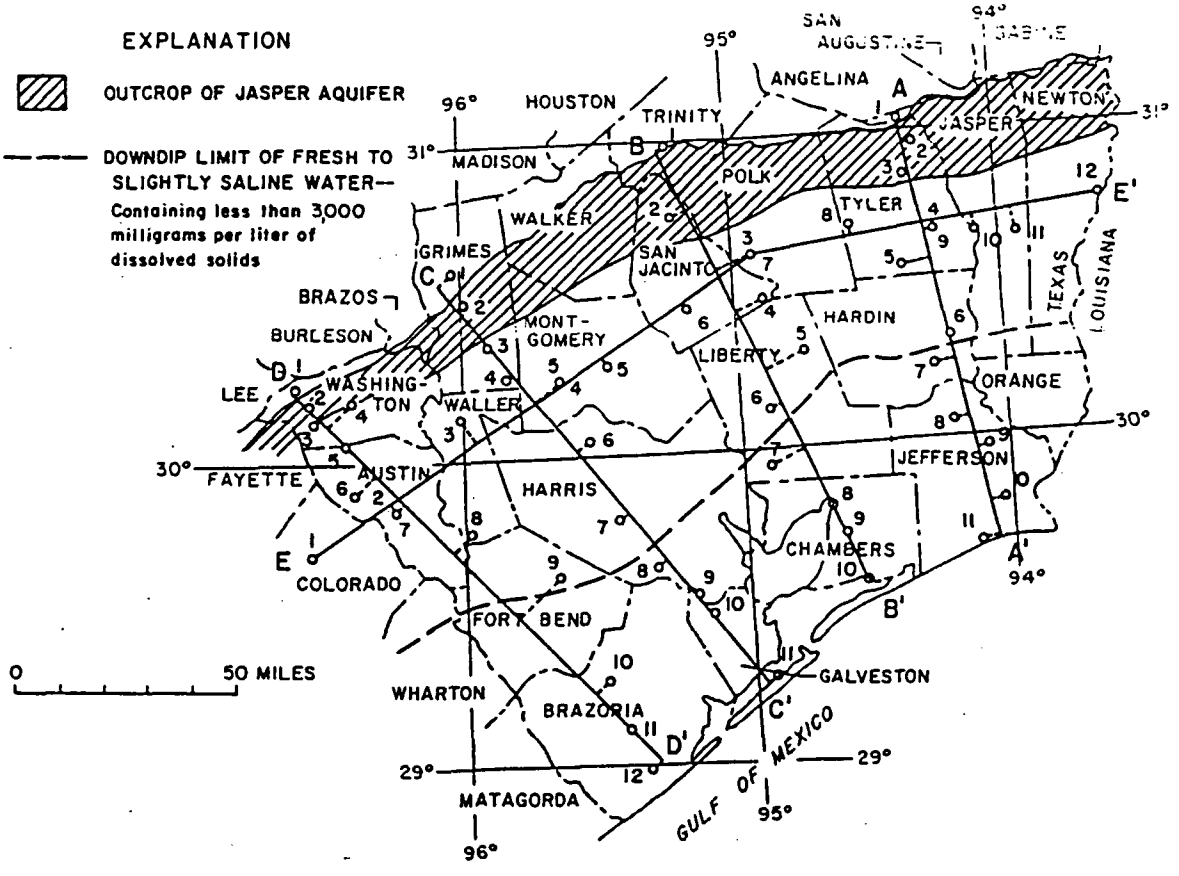

Figure 2.—Location of Stratigraphic and Hydrologic Sections

Stratigraphic Units

Pre-Miocene

Pre-Miocene rocks are composed of beds of sand, clay, carbonate rocks, and other rock types that are tens of thousands of feet thick. Within this thick section of rocks that underlie the Jasper

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Table 1.--Stratigraphic and Hydrologic Framework of the Southeast Texas Coastal Plain [1/]

Era-them	System	Series	Stratigraphic Units	Hydrogeologic Units	Selected Faunal Markers	Remarks
CENOZOIC	Quaternary	Holocene	Alluvium	Chicot aquifer		Quaternary System undifferentiated on sections.
		Pleistocene	Beaumont Clay Montgomery Formation Bentley Formation Willis Sand			
	Tertiary	Pliocene	Goliad Sand	Evangeline aquifer		
		Miocene	Fleming Formation	Burkeville confining system	*Potamides mateoni* *Bigenerina nodosaria var. directa* *Bigenerina humblei* *Amphistegina sp.*	
			Oakville Sandstone	Jasper aquifer		Oakville Sandstone included in Fleming Formation east of Washington County.
			Surface: Catahoula Sandstone — Subsurface: Upper part of Catahoula Sandstone			
			Subsurface: Anahuac Formation	Catahoula confining system (restricted)	*Discorbis nomada* *Discorbis gravelli* *Heterostegina sp.* *Marginulina idiomorpha*	Anahuac and "Frio" Formations may be Oligocene in age.
			Subsurface: "Frio" Formation		*Textularia mississippiensis*	
			Pre-Miocene rocks			

1/ Modified from Baker (1979, p. 4).

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aquifer are identifiable stratigraphic units. These units are not delineated on the sections included with this report; however, a discussion of these units and their identity in the subsurface to a depth of about 8,000 feet are presented by Baker (1979).

The stratigraphic units of pre-Miocene age are hydrologically significant. Some are aquifers and others are confining layers. The hydrologic relationship of the Jasper aquifer to the underlying contiguous units is of primary importance from the standpoint of boundary effects on the digital model. Stratigraphic examination of geophysical logs indicates, however, that freshwater in the stratigraphic units of pre-Miocene age is separated from water in the Jasper by confining layers.

Miocene

The outcropping stratigraphic units that are designated as Miocene in age are, from oldest to youngest, the Catahoula Sandstone, Oakville Sandstone, and Fleming Formation. The "Frio" Formation, Anahuac Formation, and a unit, that is referred to in this report as the upper part of the Catahoula Sandstone, are assigned by the author as possible downdip equivalents of the surface Catahoula although the Anahuac and "Frio" Formations may be Oligocene in age. The data in Table 1 and the dip sections (Figures 3-6) illustrate this relationship.

The Catahoula Sandstone is a pyroclastic unit that has been independently mapped on the outcrop by various geologists with little modification. Within the report area, it is composed of interbedded and interlensing sand and clay. The dip sections show that the thickness of the Catahoula increases downdip at a large rate. It eventually includes, when the Anahuac Formation is reached at depths of about 2,800 to 3,600 feet below sea level, the "Frio" Formation, the Anahuac Formation, and the upper Catahoula unit.

The Oakville Sandstone and Fleming Formation are composed almost entirely of terrigenous clastic sediments that form sand and clay interbeds. Their boundaries are discernible contacts in some areas and arbitrary ones within zones of lithologic gradation in other areas.

Within the limits of the report area, the Oakville Sandstone on the surface is recognized and mapped as a formation only west of the Brazos River in Washington County. Here its predominantly sandy character is barely distinguished from the overlying Fleming Formation, which is only slightly less sandy. Eastward from the vicinity of the Brazos River, the Oakville grades into the base of the Fleming. The position of the base of the Oakville in the deeper parts of the subsurface has been delineated on section D-D' (Figure 6) merely as an approximation.

The Fleming Formation, which is the uppermost unit of Miocene age, is lithologically similar to the Oakville Sandstone. Where the Fleming is not separated from the Oakville and directly overlies the Catahoula Sandstone from about Grimes County to the Sabine River, the percentage of sand in the formation increases eastward. In the far eastern part of the study area, the quantity of sand in the formation greatly exceeds the quantity of clay. This can be seen in strike section E-E' (Figure 7).

Post-Miocene

The stratigraphic units of post-Miocene age consist chiefly of interbedded sand and clay and subordinate beds of silt and gravel. Collectively, they are estimated to be in excess of 2,000 feet

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thick at the coastline in southeast Texas. This wedge of clastic sediment rapidly thins inland from the coastline to extinction along an irregular line from 70 to 100 miles inland from the coastline.

The Goliad Sand of Pliocene age; Willis Sand, Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age; and alluvium of Holocene age comprise the post-Miocene sediments. All of these units are similar in lithology, and for this reason, delineation using electrical logs has not been attempted on the stratigraphic and hydrologic sections. Notwithstanding the difficulty in identifying these stratigraphic units individually in the subsurface, as a group they constitute significant aquifers in the southeast Texas Coastal Plain.

Hydrologic Units

The following discussion will emphasize five hydrologic units—the Catahoula confining system (restricted), which underlies the Jasper aquifer; the Jasper aquifer; and the Burkeville confining system and the Evangeline and Chicot aquifers, which overlie the Jasper. The hydrology of the units underlying and overlying the Jasper is important for understanding the water flow system in the Jasper and for modeling the aquifer.

Catahoula Confining System (Restricted)

The Catahoula confining system (restricted), which was named by Baker (1979) after the Catahoula Sandstone, is treated in this report as a quasi-hydrologic unit. In most of southeast Texas, this confining system has different boundaries than the stratigraphic Catahoula. Its top (base of the Jasper aquifer) is delineated along lithologic boundaries that are time-stratigraphic in some places, but transgress time lines in other places. Its base, which coincides with the base of the stratigraphic unit, is delineated everywhere in the report area along time-stratigaphic boundaries that are independent of lithology. No attempt was made to establish a lithologic (hydrologic) base for the unit, which would have created a distinct hydrologic unit. Such an effect would have involved a thorough hydrologic evaluation of pre-Miocene formations, which was beyond the scope of this study.

In some places, the Catahoula confining system (restricted) is identical to the stratigraphic unit, but there are notable exceptions. These departures of the hydrologic boundaries from the stratigraphic boundaries are most prominent in the eastern part of the study area near the Sabine River (Figure 7) and in numerous places at the outcrop and in the shallow subsurface (Figures 3-6). In these places, the very sandy parts of the Catahoula Sandstone (stratigraphic unit) that lie immediately below the Oakville Sandstone or Fleming Formation are included in the overlying Jasper aquifer. This leaves a lower section from 0 to 2,000 feet or more in thickness that consists predominantly of clay or tuff with some interbedded sand to compose the Catahoula confining system (restricted). In most places, this delineation creates a unit that generally is deficient in sand so as to preclude its classification in these areas as an aquifer. For this reason, in most of its shallow to moderately deep subsurface extent, the Catahoula confining system (restricted) functions hydrologically as a confining layer that greatly restricts interchange of water between the overlying Jasper aquifer and the underlying aquifers.

The quantity of clay and other fine-grained clastic material in the Catahoula confining system (restricted) generally increases downdip, until the Anahuac Formation is encountered at

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depths of 2,800 to 3,600 feet below sea level. Below this level, the "Frio" Formation becomes characteristically sandy and contains moderately saline water to brine (3,000 to more than 35,000 mg/l of dissolved solids) that extends to depths of many thousands of feet.

Jasper Aquifer

The Jasper aquifer, which was named by Wesselman (1967) for the town of Jasper in Jasper County, Texas, until recently had not been delineated farther west than Washington, Austin, and Fort Bend Counties in southeast Texas. Recently, delineations of the Jasper, as well as other related hydrogeologic units, were made by Baker (1979) across the Coastal Plain of Texas from the Sabine River to the Rio Grande.

The configuration of the Jasper aquifer in the subsurface, as shown in the sections, is geometrically irregular because the delineation was made on the basis of the aquifer being a rock-stratigraphic unit. The hydrologic boundaries were defined from observable physical (lithologic) features rather than from inferred geologic time lines, which do not necessarily correspond to lithologic features.

The position of the base and top of the Jasper aquifer in southeast Texas transgresses stratigraphic boundaries along strike and downdip. The base of the aquifer coincides with the stratigraphic lower boundary of the Oakville Sandstone or Fleming Formation in some places. In other places, the base of the Jasper lies within the Catahoula Sandstone or coincides with the base of that unit. The top of the aquifer is within the Fleming in places and is within the Oakville in other places. The dip of the top of the Jasper is fairly uniform in rate within the zone of fresh to slightly saline water. Within this zone, which is about 50 to 75 miles in width, the dip averages about 55 ft/mi to the south-southeast (Figure 8).

The Jasper aquifer ranges in thickness, where it is not eroded, from as little as 200 feet to about 3,200 feet within the area of its delineation. The maximum thickness occurs in the region where the aquifer contains moderately saline water to brine. An average range in thickness of the aquifer within the zone of water having concentrations of less than 3,000 mg/l of dissolved solids is from about 1,000 to 1,500 feet. At the Sabine River, the Jasper attains a thickness of 2,400 feet in well 12 in section E-E' (Figure 7), where the aquifer is composed predominantly of sand. This predominance of sand in the Jasper in the eastern part of the study area, however, diminishes in a westward direction.

The Jasper aquifer contains water having concentrations of less than 3,000 mg/l of dissolved solids from its outcrop to about 50 to 75 miles downdip from its outcrop. This downdip limit approximately parallels the coastline passing a few miles north of Beaumont and near the center of Houston. Water having concentrations of less than 3,000 mg/l of dissolved solids occurs in the Jasper as deep as 3,000 feet below sea level in section D-D' (Figure 6). Although pumpage from the Jasper is not significant, it is capable of yielding 3,000 gal/min or more of water to wells in certain areas.

Burkeville Confining System

The Burkeville confining system was named by Wesselman (1967) for outcrops near the town of Burkeville in Newton County, Texas. It separates the Jasper and Evangeline aquifers and retards the interchange of water between the two aquifers.

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The Burkeville confining system is a rock-stratigraphic unit predominantly consisting of silt and clay. Upper and lower boundaries of the unit do not strictly correspond to geologic time boundaries, although in some places the unit appears to possess approximately isochronous boundaries. The configuration of the top and bottom of the unit is irregular. Boundaries are not restricted to a single stratigraphic unit but are included within the Fleming Formation and Oakville Sandstone in some places. This is shown in section D-D' (Figure 6).

The thickness of the Burkeville confining system ranges from about 100 to 1,000 feet. In general, the greatest variations occur in the relatively deep subsurface within the zone of moderately saline water to brine. A typical thickness of the Burkeville is about 300 feet.

The Burkeville confining system is predominantly composed of fine-grained materials, such as silt and clay, as shown in numerous geophysical logs. In most places, these fine-grained sediments are interbedded with sand lenses, which contain fresh to slightly saline water. Some of these sand lenses yield water to small-capacity wells. Because of its relatively large percentage of silt and clay when compared to the underlying Jasper aquifer and overlying Evangeline aquifer, the Burkeville is a confining unit. The effectiveness of the unit as a confining layer is further borne out by the fact that hydro-static pressures in the Jasper and Evangeline are notably different immediately above and below the Burkeville where detailed testing by well drillers has been done.

Evangeline and Chicot Aquifers

The Evangeline and Chicot aquifers were named and defined by Jones (Jones, Turcan, and Skibitzke, 1954) for ground-water reservoirs in southwestern Louisiana. They also have been mapped in Texas, but until recently, had not been delineated farther west than Washington, Austin, and Fort Bend Counties in southeast Texas. Their positions in the Coastal Plain of Texas westward to the Rio Grande are now known from mapping by D. G. Jorgensen, W. R. Meyer, and W. H. Sandeen of the U.S. Geological Survey (Baker, 1979).

The Evangeline aquifer primarily has been delineated as a rock-stratigraphic unit. Although the aquifer is composed of at least Pliocene-age sediments, its lower boundary crosses time lines to include sections of sand in the Fleming Formation. Within most of the study area, the Evangeline at the surface includes about the upper one-third of the Fleming outcrop as seen in sections A-A', B-B', and C-C' (Figures 3-5). In the western part of the area where the Oakville Sandstone is recognized, the Evangeline includes more than three-fourths of the Fleming outcrop as seen in section D-D' (Figure 6). The upper boundary of the aquifer probably closely follows the top of the Pliocene-age sediments or the Goliad Sand, which is not exposed, except perhaps in a few isolated places, in the report area. This stratigraphic relationship of the top of the Evangeline is somewhat speculative.

The Chicot aquifer has been defined to exclusively include the Quaternary age sediments. Its delineation in the subsurface on this stratigraphic basis is problematical due to the difficulty in identifying the base of the Quaternary deposits on electrical logs. This subsurface delineation in southeast Texas has been based largely on the presence of a greater sand-to-clay ratio in the Chicot than in the underlying Evangeline aquifer. In some places, a prominent clay layer has been used as the boundary. Differences in hydraulic conductivity or water levels in some areas also

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have been used to differentiate the Chicot from the Evangeline. At the surface, the base of the Chicot on the sections has been picked at the most landward edge of the oldest, undissected coastwise terrace of Quaternary age.

The Evangeline and Chicot aquifers are typically wedge-shaped and have a large sand-to-clay ratio. Individual sand beds are characteristically tens of feet thick. Near the outcrop, the Evangeline ranges in thickness from about 400 to 600 feet but near the coastline, where the aquifer's top is about 1,200 feet deep, its thickness averages about 2,300 feet. Water having concentrations of less than 3,000 mg/l of dissolved solids is not present in the aquifer, at the coastline. The Chicot attains a thickness of about 1,200 feet at the coastline, where, in places, it still contains water having concentrations of less than 3,000 mg/l of dissolved solids in most of its full thickness (Figures 5 and 6).

Huge quantities of water are pumped from the Chicot and Evangeline aquifers for municipal supply, industrial use, and irrigation. The most extensive and concentrated development is in the Houston area, where large-capacity wells yield from 1,000 to more than 3,000 gal/min and average about 2,000 gal/min.

GROUND-WATER DEVELOPMENT

The Jasper aquifer regionally is relatively undeveloped. This primarily is because it underlies the Evangeline and Chicot aquifers, which are capable of supplying large volumes of adequate-quality water for most needs. Most of the wells that produce water from the Jasper are located on its outcrop and short distances downdip where the Burkeville confining system is exposed or where the Chicot and Evangeline are not thick enough to provide sufficient water to large capacity wells.

Moderate to large volumes of water are pumped locally from the Jasper aquifer only in a few widely spaced localities (Figure 9). These centers of pumpage are mostly towns and industrial sites, where one or more public-supply or industrial wells are usually within the confines of the city limits or at individual industrial sites. By far, the largest withdrawal of water within the modeled area is in Beauregard Parish near De Ridder, Louisiana, where industrial usage exceeded 20 Mgal/d during 1979. This site is about 10 miles east of the Sabine River. Elsewhere (Figure 9), municipal or industrial pumpage at any one site is many orders of magnitude smaller than the pumpage near De Ridder and ranges from 0.10 to 4.0 Mgal/d.

As a result of the relatively limited development in the Jasper aquifer in southeast Texas, water levels have remained near the land surface, and only slight water-level declines have occurred regionally. Water-level trends in the Jasper aquifer for several representative wells are shown in Figure 10. Some of these wells are in pumping centers, whereas others are away from such centers. The hydrographs show that there have been, for the most part, only slight declines of 10-15 feet in 20 years in the potentiometric surface at those sites.

The potentiometric surface of the Jasper aquifer prior to well development has been approximated on the basis of the earliest available water levels. To approximate predevelopment conditions, the hydraulic heads have been adjusted upward in varying amounts by backward projection of hydrographs and, in some areas, by considering heads measured in nearby wells

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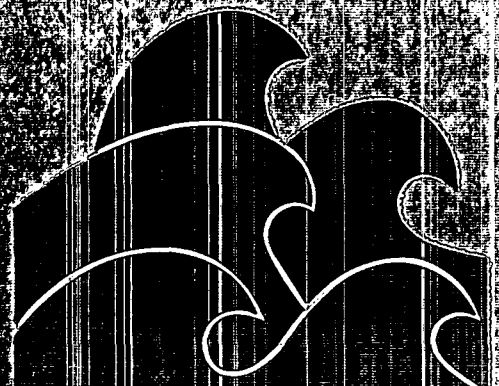
LAND-SURFACE SUBSIDENCE IN THE TEXAS COASTAL REGION



TEXAS DEPARTMENT OF WATER RESOURCES November 1982

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REPORT 272

LAND-SURFACE SUBSIDENCE IN THE TEXAS COASTAL REGION

By

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U.S. Geological Survey

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27002

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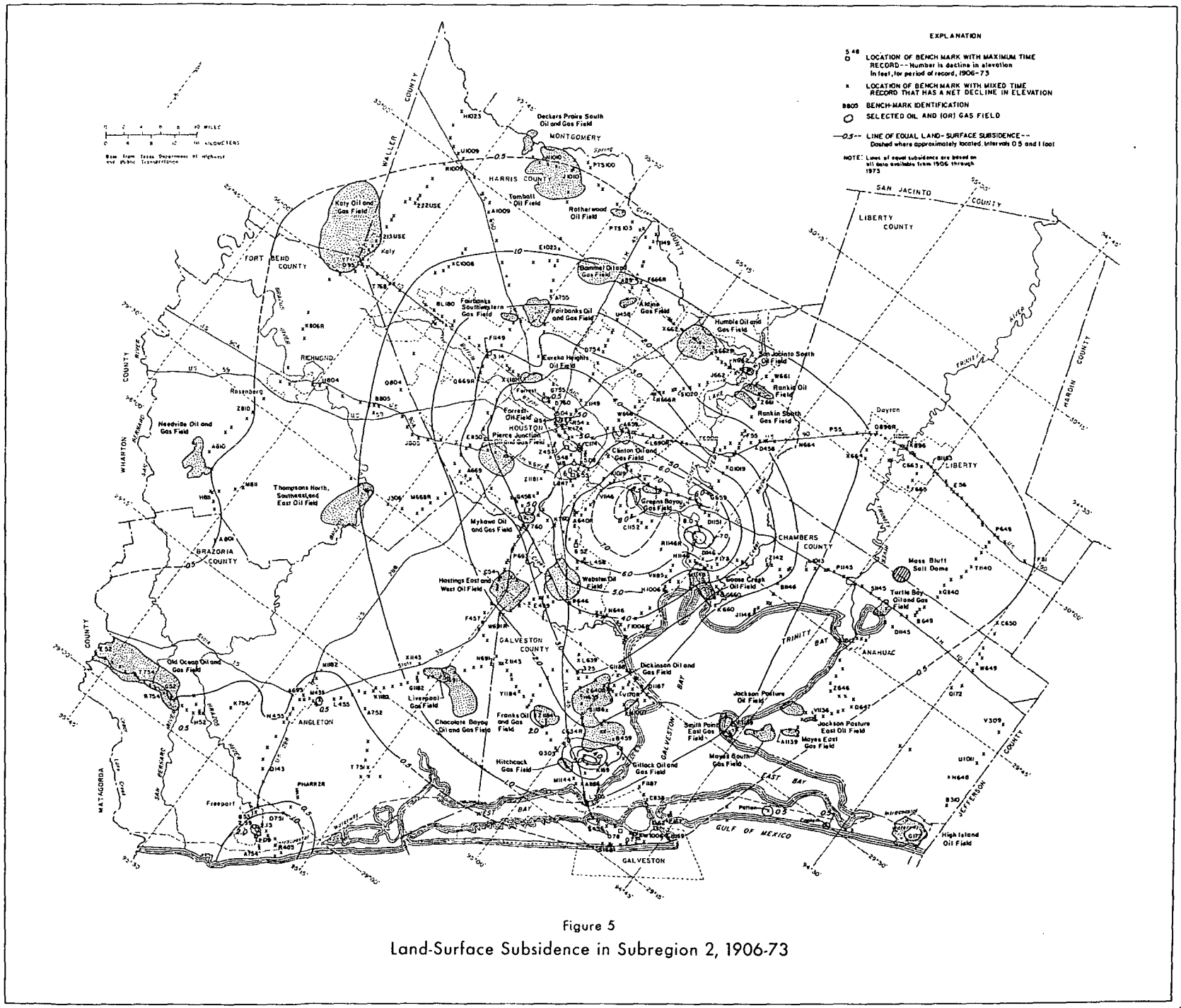

Figure 5

Land-Surface Subsidence in Subregion 2, 1906-73

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DIGITAL MODELS FOR SIMULATION OF GROUND-WATER HYDROLOGY OF THE CHICOT AND EVANGELINE AQUIFERS ALONG THE GULF COAST OF TEXAS

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TEXAS DEPARTMENT OF WATER RESOURCES

May 1985

TEXAS DEPARTMENT OF WATER RESOURCES

REPORT 289

DIGITAL MODELS FOR SIMULATION OF GROUND-WATER HYDROLOGY OF THE CHICOT AND EVANGELINE AQUIFERS ALONG THE GULF COAST OF TEXAS

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U.S. Geological Survey

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ABSTRACT

This report documents the construction and calibration of four digital models for the simulation of hydrologic conditions in the Chicot and Evangeline aquifers along the Gulf Coast of Texas. The models are five-layer, finite-difference models for simulation of three-dimensional, ground-water flow.

The hydrologic properties modeled were ground-water withdrawals, aquifer transmissivity, storage coefficients of the aquifers and clay beds, effective vertical hydraulic conductivity, vertical leakage, and declines in the altitudes of the potentiometric surfaces. The models, which simulate potentiometric-surface declines, changes in storage in the clay beds, and land-surface subsidence, were calibrated by use of historic records from 1890 or 1900 to 1970, and 1890 or 1900 to 1975. The models are very sensitive to variations in aquifer transmissivity and to variations in storage in water-table aquifers; they are less sensitive to variations in storage in artesian aquifers and to variations in storage in clay beds.

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Metric Conversions

Metric equivalents of "inch-pound" units of measurement are given in parentheses in the text. The "inch-pound" units may be converted to metric units by the following conversion factors:

From	Multipy by	To obtain
foot	0.3048	meter (m)
foot $^{-1}$	3.2802	meter $^{-1}$ (m^{-1})
foot per day (ft/d)	0.3048	meter per day (m/d)
foot squared per day (ft^2/d)	0.0929	meter squared per day (m^2/d)
inch per year (in/yr)	2.54	centimeter per year (cm/yr)
mile	1.609	kilometer (km)
million gallons per day	0.04381	cubic meter per second
square mile	2.590	square kilometer (km^2)

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "mean sea level."

HYDROGEOLOGY OF THE TEXAS GULF COAST

The hydrogeologic units are the Chicot aquifer, Evangeline aquifer, and the Burkeville confining layer (Figures 2 and 3). These units are composed of sedimentary deposits of gravel, sand, silt, and clay. The geologic formations, from oldest to youngest, are: the Fleming Formation and Oakville Sandstone of Miocene age; the Goliad Sand of Pliocene age; the Willis Sand, Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age; and alluvium of Quaternary age. The relationship between the hydrogeologic units and the geologic formations (stratigraphic units) is given in Table 1. With exception of the alluvium and the Goliad Sand, the formations crop out in belts that are nearly parallel to the shoreline of the Gulf of Mexico. The Goliad Sand is overlapped by younger formations east of the Brazos River and is not exposed at the surface in the coastal area. The younger formations crop out nearer the Gulf and the older ones farther inland. All formations thicken downdip towards the Gulf of Mexico so that the older formations dip more steeply than the younger ones. Locally, the occurrence of salt domes, faults, and folds may cause reversals of the regional dip and thickening or thinning of the formations.

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Table 1.--Geologic and Hydrologic Units Used in This Report and in Recent Reports on Nearby Areas

Geologic classification			Hydrologic units						
System	Series	Stratigraphic unit	Houston district (Lang, Winslow, and White, 1950)	Houston district (Wood and Gabrysch, 1965)	Texas-Louisiana (Turcan, Wesselman, and Kilburn, 1966)	Houston district (Jorgensen, 1975)		This report	
Quaternary	Holocene	Quaternary alluvium	Alluvial deposits	Confining layer and Alta Loma Sand of Rose (1943)	Chicot aquifer	Chicot aquifer	Upper unit	Chicot aquifer	Upper unit
	Pleistocene	Beaumont Clay	Beaumont Clay						
		Montgomery Formation	Montgomery Formation				Lower unit		Lower unit
		Bentley Formation	"Alta Loma Sand"						
		Willis Sand	Zone 7						
			Zone 6						
Tertiary	Pliocene	Goliad Sand	Zone 5	Heavily pumped layer	Evangeline aquifer	Evangeline aquifer		Evangeline aquifer	
			Zone 4						
			Zone 3						
	Miocene	Fleming Formation	Zone 2	Zone 2	Burkeville confining layer	Burkeville confining layer		Burkeville confining layer	
		Oakville Sandstone	Zone 1		Jasper aquifer	Jasper aquifer			

Chicot Aquifer

The Chicot aquifer is composed of the Willis Sand, Bentley Formation, Montgomery Formation, Beaumont Clay, and Quaternary alluvium. The Chicot includes all deposits from the land surface to the top of the Evangeline aquifer. The altitude of the base of the Chicot aquifer is shown in Figures 4 and 5.

In much of the coastal area, the Chicot aquifer consists of discontinuous layers of sand and clay of about equal total thickness. However, in some parts of the coastal area (mainly within the Houston area), the aquifer can be separated into an upper and lower unit (Jorgensen, 1975). The upper unit can be defined where the altitude of its potentiometric surface differs from the altitude of the potentiometric surface in the lower unit. If the upper unit of the Chicot aquifer cannot be defined, the aquifer is said to be undifferentiated. The aquifer is under water-table conditions in its updip part, becoming confined in the downdip direction. Throughout most of Galveston County and southeast Harris County, the basal part of the Chicot aquifer is formed by a massive sand section that has a relatively high hydraulic conductivity. This sand unit, which is heavily pumped in some places, is known locally as the Alta Loma Sand (Alta Loma Sand of Rose, 1943).

Evangeline Aquifer

The Evangeline aquifer, which consists mostly of discontinuous layers of sand and clay of about equal total thickness, is composed of the Goliad Sand and the uppermost part of the Fleming Formation. The altitude of the base of the Evangeline aquifer is shown in Figures 6 and 7. Because the Chicot and Evangeline aquifers are geologically similar, the basis for separating them is primarily a difference in hydraulic conductivity, which in part causes the difference in the altitudes of the potentiometric surfaces in the two aquifers. The aquifer is under water-table conditions in its updip part, becoming confined in the downdip direction.

Burkeville Confining Layer

The Burkeville confining layer, which is composed of the upper part of the Fleming Formation, consists mainly of clay but contains some layers of sand. The Burkeville, which underlies the Evangeline aquifer, restricts the flow of water except in areas where it is pierced by salt domes and in areas where it contains a high percentage of sand.

DESCRIPTION OF THE DIGITAL MODELS

The conceptual model (Figure 8) for the four modeled subregions (Figure 9) consists of five layers. In ascending order, layer 1 is equivalent to the total thickness of the sand beds in the Evangeline aquifer; layer 2 is equivalent to the clay thickness between the centerline of the Chicot aquifer and the centerline of the Evangeline aquifer; layer 3 is equivalent to the Alta Loma Sand of Rose (1943) where present, otherwise it is equivalent to the total thickness of the sand beds in the Chicot aquifer; layer 4 is equivalent to the clay thickness between the land surface and the centerline of the Chicot aquifer; and layer 5 is used as an upper boundary to simulate recharge to

23912

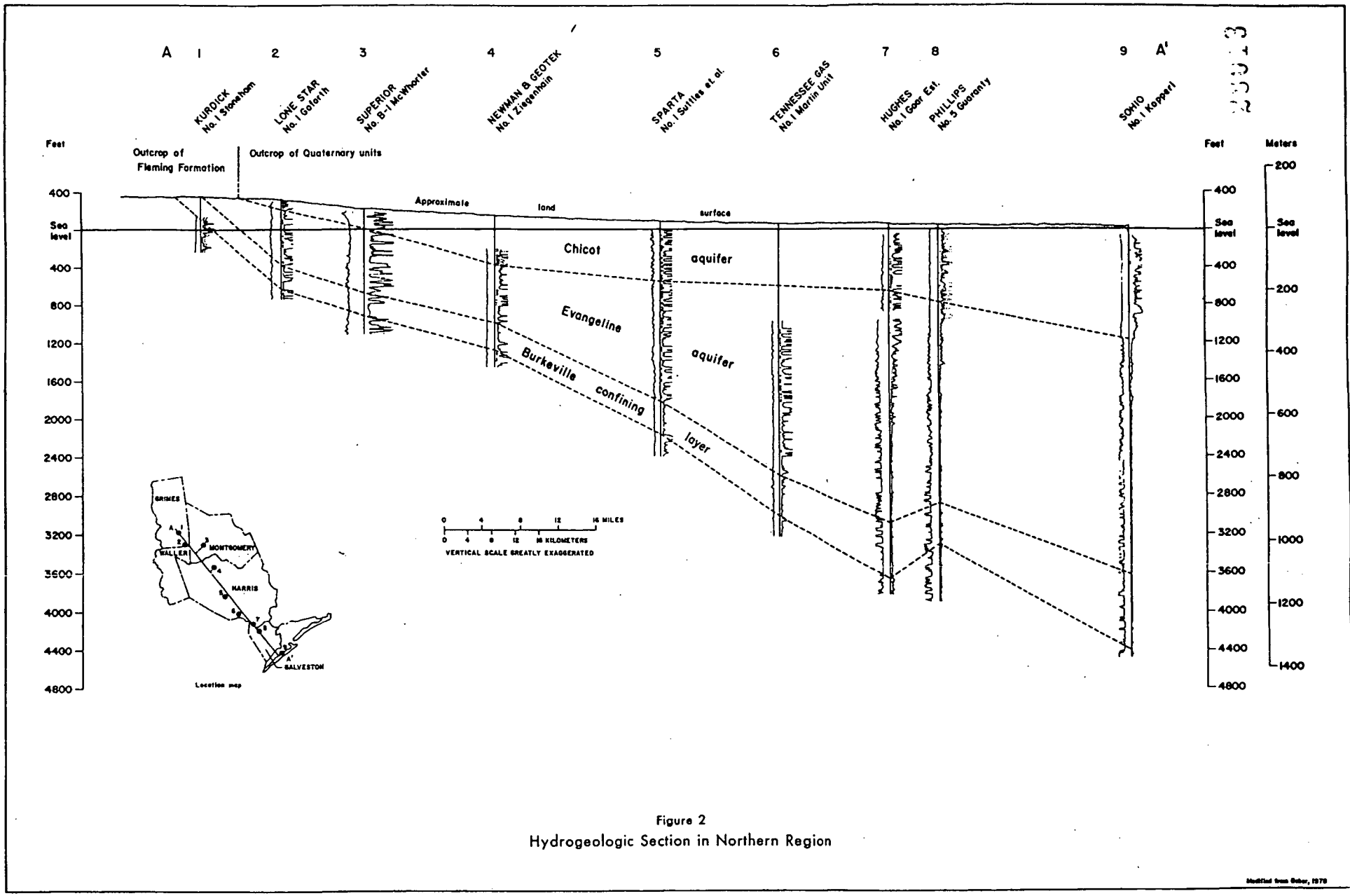

Figure 2
Hydrogeologic Section in Northern Region

Modified from Baker, 1979

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The State of Texas Water Quality Inventory 94

SURFACE WATER QUALITY MONITORING PROGRAM

12th Edition, 1994 • Prepared Pursuant to Section 305[b] Federal Clean Water Act

Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 1 - 12)

2

VOLUME TWO

29001

SFR-11 ◆ 11/94

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

THE STATE OF TEXAS WATER QUALITY INVENTORY

12th Edition
1994

Prepared Pursuant to
SECTION 305(b)
FEDERAL CLEAN WATER ACT

VOLUME 2

Basin Summaries, Basins Maps, Segment Fact Sheets,
and Water Quality Status Tables (Basins 1-12)

by the

Texas Natural Resource Conservation Commission

November 1994

29092

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*

Dan Pearson, *Executive Director*

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FOREWORD

The 12th Edition of the State of Texas Water Quality Inventory Report includes, for the first time, presentation and screening of historical toxic substances in water, sediment, and fish tissue data. Inclusion of these data in the report provides a more comprehensive information resource than previous editions. However, the addition of toxic substance water quality status tables for each stream, reservoir, and bay segment, where historical data are available, greatly added to the size of the report. For this reason, the 12th Edition of the report is divided into three volumes to permit easier handling and review:

Volume 1: Surface and Ground Water Assessments and TNRCC Water Quality Management Programs

Volume 2: Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 1-12)

Volume 3: Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 13-25)

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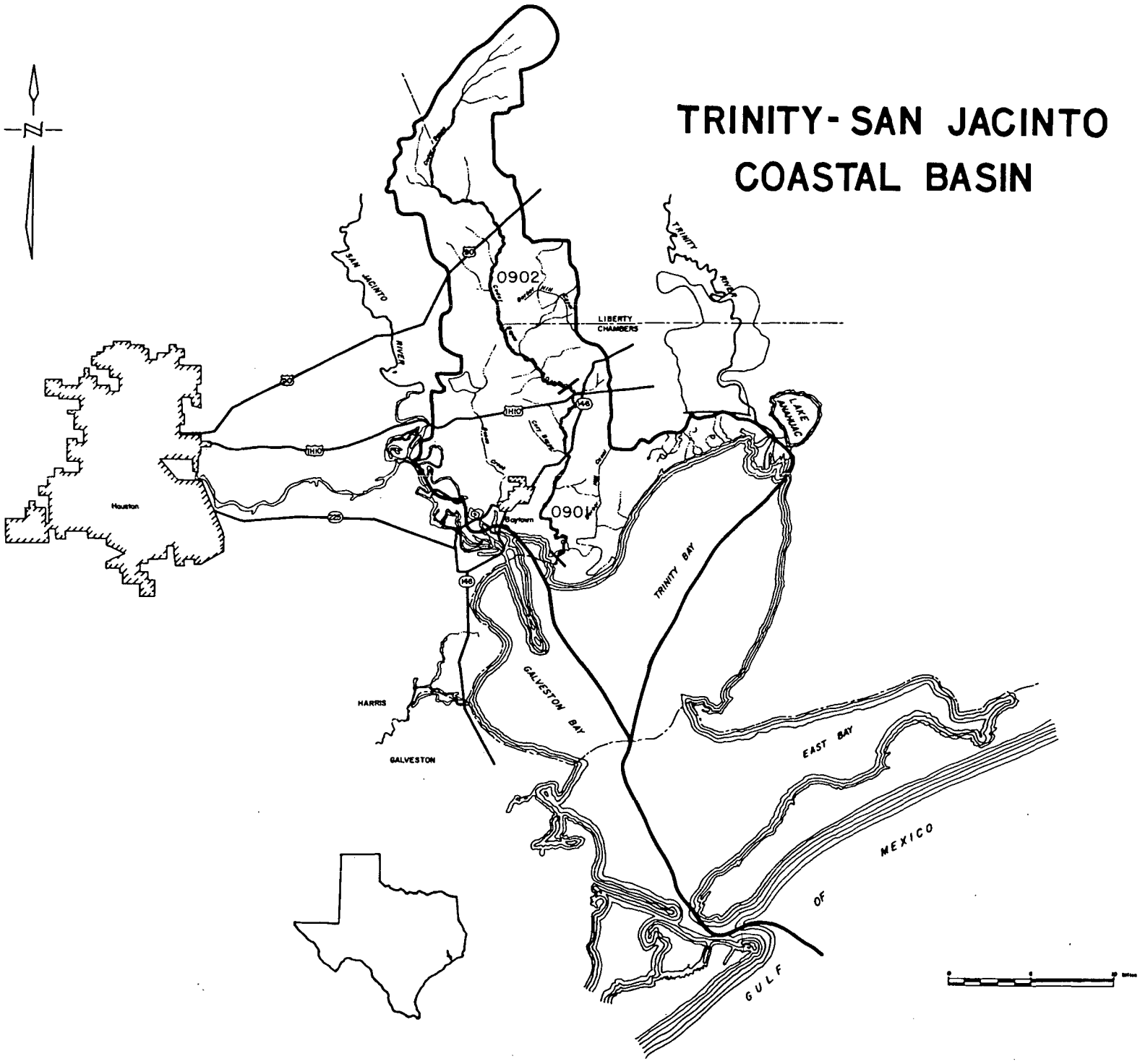
TRINITY-SAN JACINTO COASTAL BASIN



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SEGMENT 0901 OF THE TRINITY-SAN JACINTO COASTAL BASIN

NAME: Cedar Bayou Tidal

DESCRIPTION: from the confluence with Galveston Bay 1.0 kilometer (0.6 mile) downstream of Tri-City Beach Road in Chambers County to a point 2.2 kilometers (1.4 miles) upstream of IH 10 in Chambers/Harris County

LENGTH/SURFACE AREA: 19 miles (31 kilometers)

SEGMENT CLASSIFICATION: Water Quality Limited
Cause: Advanced Treatment Required

SEGMENT RANK: 145

DESIGNATED WATER USES: Contact Recreation
High Quality Aquatic Habitat

USE ATTAINABILITY ANALYSIS: None

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 2 OFF SEGMENT: 0

PUBLISHED STUDIES:				
	06 Jul 1987	B,C,F,L,Q	IS 89-07	(Kirkpatrick: Jun 1989)
	23 May 1988	B,C,F,X,Q	IS 89-07	(Kirkpatrick: Jun 1989)

AMBIENT TOXICITY MONITORING STATIONS: None

SUMMARY OF FISH KILLS: None

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: None

PERMITTED FACILITIES (FINAL):

Domestic	9 outfalls	3.51 MGD
Industrial	20 outfalls	11.04 MGD
Total	29 outfalls	14.55 MGD

SEGMENT SUMMARY:

Elevated levels of nitrite plus nitrate, and total and orthophosphorus in water samples collected at the monitoring station 400 meters upstream of spur 55 in Chambers county indicate that elevated nutrients are a concern in the lower portion of the segment.

20013

SEGMENT 901 Cedar Bayou Tidal

FIELD MEASUREMENTS AND WATER CHEMISTRY

Parameter	Standards Criteria	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criteria or Screening Levels	Mean of Values Outside Criteria or Screening Levels	Percent of Values Outside Criteria or Screening Levels
WATER TEMP (C)	35.00		15	15	14.13	31.40	22.48	0	0.0	0.0%
DISSOLVED OXYGEN (MG/L)	4.00		15	15	0.10	9.90	7.02	1	0.1	6.7%
PH (SU)	6.50- 9.00		15	15	7.00	8.33	7.77	0	0.0	0.0%
CHLORIDE (MG/L)			15	15	32.00	9880.00	4684.60	0	0.0	0.0%
SULFATE (MG/L)			14	14	11.00	1320.00	688.36	0	0.0	0.0%
CONDUCTIVITY FIELD UMHOS			40	40	204.00	189000.00	19267.10	0	0.0	0.0%
TOTAL DISS SOLIDS (MG/L)			15	15	135.20	17095.00	9332.90	0	0.0	0.0%
AMMONIA (MG/L)		0.40	15	15	0.01	0.38	0.16	0	0.0	0.0%
NTRATES&NTRITES (MG/L)		0.40	15	13	0.02	0.93	0.38	8	0.6	53.33%
ORTHOPHOS (MG/L)		0.20	13	13	0.11	0.51	0.33	11	0.4	84.62%
TOTAL PHOSPHORUS (MG/L)		0.40	15	15	0.15	0.62	0.38	5	0.5	33.33%
CHLOROPHYL A (UG/L)		30.00	15	14	1.00	35.90	13.73	1	35.9	7%
FECAL COL (#/100 ML)	400.0		13	11	1.00	7000.00	583.81	1	7000.0	8%

SEGMENT 2001 Cedar Bayou Tidal

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Acute Criteria	Mean Exceeds Chronic Criteria
01106	ALUMINUM	None	None	0	NA	NA	NA	NA	NA	NA
01000	ARSENIC	149.000	78.000	0	NA	NA	NA	NA	NA	NO
01025	CADMIUM	45.620	10.020	0	NA	NA	NA	NA	NA	NO
01220	CHROMIUM, HEXAVALENT	1100.000	50.000	0	NA	NA	NA	NA	NA	NO
01040	COPPER	16.270	4.370	0	NA	NA	NA	NA	NA	NO
01049	LEAD	140.000	5.600	0	NA	NA	NA	NA	NA	NO
71890	MERCURY	2.100	1.100	1	1	0.300	0.300	0.300	0	NO
01065	NICKEL	119.000	13.200	1	0	5.500	5.500	5.500	0	NO
01145	SELENIUM	564.000	136.000	0	NA	NA	NA	NA	NA	NO
01090	ZINC	98.000	89.000	0	NA	NA	NA	NA	NA	NO
39330	ALDRIN	1.300	None	0	NA	NA	NA	NA	NA	NA
39350	CHLORDANE	0.090	0.004	0	NA	NA	NA	NA	NA	NO
39370	DDT	0.130	0.001	0	NA	NA	NA	NA	NA	NO
39380	DIELDRIN	0.710	0.002	0	NA	NA	NA	NA	NA	NO
39388	ENDOSULFAN	0.034	0.009	0	NA	NA	NA	NA	NA	NO
39390	ENDRIN	0.037	0.002	0	NA	NA	NA	NA	NA	NO
39782	GAMMA-HEXACHLOROCYCLOHEXANE	0.160	None	0	NA	NA	NA	NA	NA	NA
39410	HEPTACHLOR	0.053	0.004	0	NA	NA	NA	NA	NA	NO
39530	MALATHION	None	0.010	0	NA	NA	NA	NA	NA	NO
39480	METHOXYCHLOR	None	0.030	0	NA	NA	NA	NA	NA	NO
39755	MIREX	None	0.001	0	NA	NA	NA	NA	NA	NO
39540	PARATHION	None	None	0	NA	NA	NA	NA	NA	NA
39516	PCBS	10.000	0.030	0	NA	NA	NA	NA	NA	NO
39032	PENTACHLOROPHENOL	15.140	9.560	0	NA	NA	NA	NA	NA	NO
39400	TOXAPHENE	0.210	0.000	0	NA	NA	NA	NA	NA	NO
39740	2,4,5-T	259.000	12.000	0	NA	NA	NA	NA	NA	NO

02020

SEGMENT 901 Cedar Bayou Tidal

TOXIC SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criterion or Screening Levels
01003	ARSENIC	MG/KG	6.900	3	3	1.400	2.300	1.733	0
01008	BARIUM	MG/KG	297.000	3	3	63.000	130.000	92.667	0
01028	CADMIUM	MG/KG	1.500	3	1	0.100	0.440	0.247	0
01029	CHROMIUM	MG/KG	44.000	3	3	6.500	14.000	10.833	0
01043	COPPER	MG/KG	40.000	3	3	6.600	7.600	7.233	0
01052	LEAD	MG/KG	95.000	3	2	0.500	16.000	8.400	0
01053	MANGANESE	MG/KG	489.500	3	3	70.000	217.000	162.333	0
71921	MERCURY	MG/KG	0.220	3	3	0.020	0.030	0.026	0
01068	NICKEL	MG/KG	19.000	3	3	7.000	8.400	7.800	0
01148	SELENIUM	MG/KG	1.250	3	1	0.250	0.600	0.367	0
01078	SILVER	MG/KG	1.600	3	0	0.100	0.200	0.167	0
01093	ZINC	MG/KG	170.000	3	3	34.000	41.000	37.000	0
39333	ALDRIN	UG/KG	0.500	4	0	0.090	0.500	0.398	0
39076	ALPHA-HEXACHLOROCYCLOHEXANE	UG/KG	0.500	2	0	0.075	0.500	0.287	0
39783	GAMA-HEXACHLOROCYCLOHEXANE	UG/KG	0.500	4	0	0.075	0.500	0.394	0
39102	BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	894.000	2	0	150.000	150.000	150.000	0
39571	DIAZINON	UG/KG	2.890	4	0	1.715	2.500	2.304	0
39112	DI-N-BUTYL PHTHALATE	UG/KG	350.000	2	0	25.000	25.000	25.000	0
39351	CHLORDANE	UG/KG	17.300	5	2	1.500	12.000	7.246	0
39363	DDD	UG/KG	3.000	4	0	0.150	3.000	1.538	0
39368	DDE	UG/KG	1.500	4	0	0.150	1.500	0.788	0
39373	DDT	UG/KG	3.000	4	0	0.140	3.000	1.535	0
39383	DIELDRIN	UG/KG	1.000	4	0	0.090	1.000	0.773	0
39393	ENDRIN	UG/KG	1.500	4	0	0.140	1.500	1.160	0
39413	HEPTACHLOR	UG/KG	0.250	4	0	0.080	0.250	0.207	0
39423	HEPTACHLOR EPOXIDE	UG/KG	0.500	4	0	0.090	0.500	0.398	0
39701	HEXACHLOROBENZENE	UG/KG	0.600	2	0	0.090	0.500	0.295	0
39531	MALATHION	UG/KG	2.500	4	0	0.980	2.500	2.120	0
39481	METHOXYCHLOR	UG/KG	5.000	4	0	0.265	5.000	3.816	0

39481 METHOXYCHLOR	UG/KG	5.000	4	0	0.265	5.000	3.816	0
39541 PARATHION	UG/KG	1.500	4	0	0.410	1.500	1.227	0
39519 PCBS	UG/KG	18.700	4	1	2.305	36.000	14.576	1
39507 AROCLOR 1254	UG/KG	25.000	0	0	NA	NA	NA	0
39061 PENTACHLOROPHENOL	UG/KG	2.500	2	0	0.565	2.500	1.533	0
39761 SILVEX	UG/KG	5.000	2	0	0.730	5.000	2.865	0
39403 TOXAPHENE	UG/KG	25.000	4	0	2.245	25.000	19.311	0
39731 2,4-D	UG/KG	25.000	2	0	2.790	25.000	13.895	0
39741 2,4,5-T	UG/KG	5.000	2	0	0.755	5.000	2.878	0

22092

SEGMENT 901 Cedar Bayou Tidal

TOXIC SUBSTANCES IN TISSUE

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criterion or Screening Levels
34680	ALDRIN	MG/KG	0.0904	2	0	0.0020	0.0020	0.0010	0
39074	ALPHA-HEXACHLOROCYCLOHEXANE	MG/KG	0.2440	2	0	0.0020	0.0020	0.0010	0
34258	BETA-HEXACHLOROCYCLOHEXANE	MG/KG	0.8540	0	0	NA	NA	NA	0
39075	GAMMA-HEXACHLOROCYCLOHEXANE	MG/KG	3.9010	2	0	0.0020	0.0020	0.0010	0
34241	BENZIDINE	MG/KG	0.0002	0	0	NA	NA	NA	0
34682	CHLORDANE	MG/KG	0.3000	2	0	0.0050	0.0050	0.0025	0
81897	DDD	MG/KG	6.4040	2	0	0.0100	0.0100	0.0050	0
81896	DDE	MG/KG	3.6340	2	0	0.0050	0.0050	0.0025	0
39376	DDT	MG/KG	3.5180	2	0	0.0100	0.0100	0.0050	0
39406	DIELDRIN	MG/KG	0.0379	2	0	0.0060	0.0060	0.0030	0
34687	HEPTACHLOR	MG/KG	0.1350	2	0	0.0020	0.0020	0.0010	0
34686	HEPTACHLOR EPOXIDE	MG/KG	0.1690	2	0	0.0040	0.0040	0.0020	0
34688	HEXACHLOROBENZENE	MG/KG	0.4060	2	2	0.0021	0.0030	0.0025	0
34400	HEXACHLOROETHANE	MG/KG	109.7780	0	0	NA	NA	NA	0
71936	LEAD	MG/KG	5.3330	2	0	0.5000	0.5000	0.2500	0
71930	MERCURY	MG/KG	1.0000	2	2	0.0400	0.0400	0.0400	0
34451	NITROBENZENE	MG/KG	5.9110	0	0	NA	NA	NA	0
39515	PCBS	MG/KG	0.0891	2	0	0.0400	0.0400	0.0200	0
39060	PENTACHLOROPHENOL	MG/KG	354.6670	2	0	0.0020	0.0020	0.0010	0
34691	TOXAPHENE	MG/KG	0.5520	2	0	0.1000	0.1000	0.0500	0

22033

The State of Texas Water Quality Inventory 96

SURFACE WATER QUALITY MONITORING PROGRAM

13th Edition, 1996 • Prepared Pursuant to Section 305[b] Federal Clean Water Act

Basin Summaries, Basin Maps, Graphical Basin Summaries, Segment Fact Sheets, and Water Quality Status Tables (Basins 21 - 25)

4

VOLUME FOUR

SFR-50 ◇ 12/96

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

THE STATE OF TEXAS WATER QUALITY INVENTORY

13th Edition
1996

Prepared Pursuant to
SECTION 305(b)
FEDERAL CLEAN WATER ACT

VOLUME 4

Basin Summaries, Graphical Basin Summaries, Basin Maps, Segment Fact Sheets and Water Quality Status Tables (Basins 21-25)

by the

Texas Natural Resource Conservation Commission

December 1996

29025

FOREWORD

The 13th Edition (1996) of the State of Texas Water Quality Inventory Report includes presentation and screening of historical field measurements, water chemistry data, and data regarding toxic substances in water, sediments, and fish tissue. Including these data in the report provides a comprehensive information resource that permits an evaluation of the status of and trends in water quality statewide. However, including status tables for water quality, sediment quality, and tissue quality for each stream, reservoir, and bay segment for which historical data are available greatly adds to the size of the report. For this reason, the 13th Edition of the report is divided into four volumes to permit easier handling and review:

Volume 1: Surface and Groundwater Assessments and TNRCC Water Quality Management Programs

Volume 2: Basin Summaries, Graphical Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 1-10)

Volume 3: Basin Summaries, Graphical Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 11-20)

Volume 4: Basin Summaries, Graphical Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 21-25)

Acronyms are used throughout the report to reduce its overall volume. Beginning with the Executive Summary, each acronym is identified in parentheses, following the complete spelling of the term, at it's first usage and is not normally repeated afterward. A complete listing of all acronyms used in the report is provided in Appendix A of Volume 1.

Single copies of each volume of the report may be obtained free of charge from the TNRCC's Public Information and Publications Division (Phone: 512/239-0028; FAX: 512/239-4488).

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29032

BAYS AND ESTUARIES

For this report, all of the 44 classified estuarine segments are organized into a single basin to unify discussion and presentation of data. Verbal descriptions of these segments have not been finalized, but approximate boundaries are illustrated in Segment Identification Maps. In total, the 44 estuarine segments cover approximately 1,991 square miles.

Estuaries are formed where rivers, streams, and bayous meet the salt water of the Gulf of Mexico. In the estuaries, tides mix inflowing freshwater with saline water from the Gulf of Mexico. In Texas, estuaries are protected by barrier islands. Estuarine habitats include river deltas, emergent marshes, mud and sand flats, submerged seagrass beds, oyster reefs, and open bay bottoms. Estuarine waters also include the tidally influenced parts of rivers, streams, and bayous. The tidal portions of most major streams and rivers have been established as classified segments by the TNRCC. Descriptions of their physical and water quality characteristics are discussed in the previous section of this report. The remaining estuarine waters are predominantly bays. These areas serve as important nursery areas for many commercial fish and shellfish populations, including shrimp, oysters, crabs, and scallops. Recreational anglers also enjoy harvesting fish that reproduce or feed in estuaries, such as red drum, speckled trout, and flounder. Texas estuaries are typically shallow and turbid. The abundance of nutrients and shelter make the estuarine environments extremely productive biologically.

The estuaries are primarily monitored by the TNRCC and the TDH. These two agencies have routinely monitored 334 surface water quality monitoring sites on the classified bay segments and 23 additional sites on other bay waters over the past four years. Though most of the bay segments are enriched with nutrients, screening levels for at least one type of nutrient are exceeded in 14 segments. The sediments of the bays tend to accumulate metals. Elevated concentrations of various metals are found in sediments of 17 bay segments. Fecal coliform densities are elevated in 13 bay segments and cause nonsupport of the oyster waters use.

The TDH has issued a consumption advisory for Upper Galveston Bay and associated side bays. The advisory was issued due to elevated dioxin levels in catfish and blue crabs. The TDH has also issued an aquatic life closure for parts of Lavaca and Cox Bays due to elevated mercury levels in fish and crabs. The closure prohibits the possession of any finfish or crabs from the areas.

BAYS AND ESTUARIES SUMMARY

Bays and Estuaries Segments	Segment 2411	Segment 2412	Segment 2421	Segment 2422	Segment 2423	Segment 2424	Segment 2425	Segment 2426	Segment 2427	Segment 2428	Segment 2429	Segment 2430	Segment 2431	Segment 2432
DESIGNATED USE SUPPORT														
Contact Recreation	✓	✓	✓	✓	✓	✓	☒	☒	✓	✓	☒	✓	✓	✓
Public Water Supply	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Oyster Waters	☒	☒	✓	✓	✓	✓	⊘	⊘	⊘	⊘	⊘	⊘	⊘	✓
Fish Consumption	✓	✓	☒	✓	✓	✓	✓	☒	☒	☒	☒	☒	✓	✓
AQUATIC LIFE														
Dissolved Oxygen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water Toxics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CRITERIA SUPPORT														
Water Temperature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
pH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chloride	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Sulfate	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Total Dissolved Solids	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
CONCERNS														
Ammonia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrite + Nitrate	✓	✓	✓	!	✓	✓	✓	!	!	✓	!	!	✓	✓
Total Phosphorus	✓	✓	✓	✓	✓	✓	!	!	!	✓	!	!	✓	✓
Orthophosphorus	✓	✓	!	✓	✓	!	!	!	!	✓	!	!	✓	✓
Chlorophyll *a*	✓	✓	✓	✓	✓	!	✓	✓	✓	✓	✓	✓	✓	✓
SEDIMENT	!	!	✓	!	✓	!	!	✓	✓	✓	!	!	✓	!
FISH TISSUE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓=SUPPORT ☒=NONSUPPORT ✓=NO CONCERN !=CONCERN ⊘=DOES NOT APPLY

BAYS AND ESTUARIES SUMMARY

Bays and Estuaries Segments	Segment 2433	Segment 2434	Segment 2435	Segment 2436	Segment 2437	Segment 2438	Segment 2439	Segment 2441	Segment 2442	Segment 2451	Segment 2452	Segment 2453	Segment 2454	Segment 2455
DESIGNATED USE SUPPORT														
Contact Recreation	◆	◆	◆	◆	○	○	◆	◆	◆	◆	◆	◆	◆	◆
Public Water Supply	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Oyster Waters	◆	◆	◆	○	○	○	◆	◆	☒	☒	☒	☒	◆	◆
Fish Consumption	◆	◆	◆	☒	◆	◆	◆	◆	◆	◆	◆	☒	☒	◆
AQUATIC LIFE														
Dissolved Oxygen	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Water Toxics	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
CRITERIA SUPPORT														
Water Temperature	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
pH	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Chloride	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Sulfate	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Total Dissolved Solids	○	○	○	○	○	○	○	○	○	○	○	○	○	○
CONCERNS														
Ammonia	↗	↗	↗	↗	◆	↗	↗	↗	↗	↗	↗	↗	↗	↗
Nitrite + Nitrate	↗	↗	↗	◆	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Total Phosphorus	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Orthophosphorus	↗	↗	↗	◆	◆	◆	↗	↗	↗	↗	↗	↗	↗	↗
Chlorophyll *a*	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
SEDIMENT	↗	↗	↗	↗	◆	↗	↗	↗	↗	↗	◆	◆	◆	↗
FISH TISSUE	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗

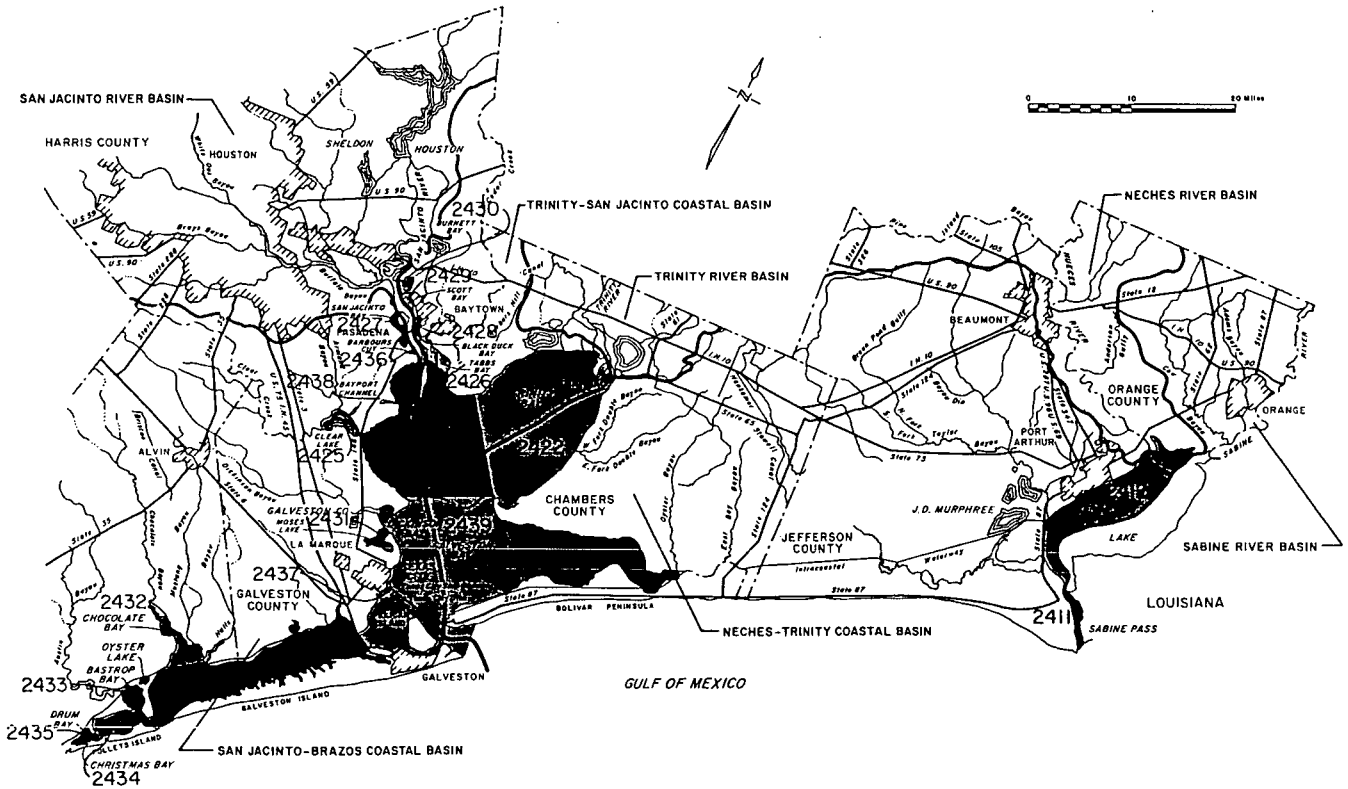
○ = SUPPORT ☒ = NONSUPPORT ↘ = NO CONCERN ↗ = CONCERN ⊘ = DOES NOT APPLY

BAYS AND ESTUARIES SUMMARY

Bays and Estuaries Segments	Segment 2456	Segment 2461	Segment 2462	Segment 2463	Segment 2471	Segment 2472	Segment 2473	Segment 2481	Segment 2482	Segment 2483	Segment 2484	Segment 2485	Segment 2491	Segment 2492	Segment 2493	Segment 2494
DESIGNATED USE SUPPORT																
Contact Recreation	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	○	◆	◆	◆	◆	◆
Public Water Supply	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Oyster Waters	☒	◆	☒	◆	◆	◆	◆	☒	☒	◆	◆	☒	◆	◆	◆	◆
Fish Consumption	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
AQUATIC LIFE																
Dissolved Oxygen	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Water Toxics	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	☒	◆	◆	◆	◆	◆
CRITERIA SUPPORT																
Water Temperature	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
pH	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Chloride	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Sulfate	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Total Dissolved Solids	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
CONCERNS																
Ammonia																
Nitrite + Nitrate																
Total Phosphorus																
Orthophosphorus																
Chlorophyll a						◆								◆		
SEDIMENT				◆		◆		◆	◆		◆		◆	◆		
FISH TISSUE											◆					

◆=SUPPORT ☒=NONSUPPORT ◇= NO CONCERN ◆=CONCERN ○= DOES NOT APPLY

29037


SAN JACINTO RIVER BASIN
HARRIS COUNTY
HOUSTON
SHELDON
HOUSTON
TRINITY-SAN JACINTO COASTAL BASIN
TRINITY RIVER BASIN
NECHES RIVER BASIN
BEAUMONT
ORANGE COUNTY
ORANGE
PORT ARTHUR
J.D. MURPHREE
LAKE
SABINE RIVER BASIN
LOUISIANA
SABINE PASS
2411
JEFFERSON COUNTY
CHAMBERS COUNTY
BOLIVAR PENINSULA
NECHES-TRINITY COASTAL BASIN
GULF OF MEXICO
GALVESTON
GALVESTON ISLAND
GALVESTON COUNTY
LA MARQUE
ALVIN
CHOCOLATE BAY
OYSTER LAKE
BASTROP BAY
DRUM BAY
CHRISTMAS BAY
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SAN JACINTO-BRAZOS COASTAL BASIN
BAYTOWN
PASADENA
BARBOURS CUT
BAYPORT CHANNEL
CLEAR LAKE
SCOTT BAY
BLACK DUCK BAY
TABBS BAY
BURNETT BAY
0
10
20 Miles

Bays

SEGMENT 2421 OF THE BAYS AND ESTUARIES

NAME: Upper Galveston Bay

DESCRIPTION:

LENGTH/SURFACE AREA: 108.2 square miles (280.2 square kilometers)

SEGMENT CLASSIFICATION: Effluent Limited

DESIGNATED WATER USES: Contact Recreation
High Aquatic Life
Oyster Waters

USE ATTAINABILITY ANALYSIS: None

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 24 OFF SEGMENT: 0

PUBLISHED STUDIES:				
	09 Jul 1984	Q,F,C,L	IS-87-06	(Kirkpatrick: Apr 1987)
	25 Feb 1985	Q,F,C,L,S	IS-87-09	(Kirkpatrick: Jul 1987)

AMBIENT TOXICITY MONITORING STATIONS: 1
ON SEGMENT: 1
OFF SEGMENT: 0

SUMMARY OF FISH KILLS: None

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: This segment, from Red Bluff Point to Five Mile Cut Marker to Houston Point, and north to Morgan's Point has a restricted-consumption advisory for the general population and a no-consumption advisory for children and women of childbearing age. These advisories were issued by the Texas Department of Health for blue crabs and catfish due to elevated levels of dioxin in tissue. Twenty-two square miles of Upper Galveston Bay have been affected. The dioxin source is listed as a paper mill.

PERMITTED FACILITIES (FINAL):

Domestic	6 outfalls	12.59 MGD
Industrial	3 outfalls	1,728.20 MGD
Agricultural	0 outfalls	0.00 MGD
Total	9 outfalls	1,740.79 MGD

SEGMENT SUMMARY:

Based on the TNRCC criterion, the oyster water use was partially supported due to moderately elevated fecal coliform levels throughout the bay. Time, extent, and area of actual shellfish closures are based on criteria administered by the Texas Department of Health. Other water quality standards and designated uses were supported. Orthophosphorus was elevated in Upper Galveston Bay. Elevated nutrients can cause excess algal growth and subsequent oxygen depletion, especially during warm summer months.

20035

SEGMENT 2421 Upper Galveston Bay

FIELD MEASUREMENTS AND WATER CHEMISTRY

Parameter	Standards Criteria	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criteria or Screening Levels	Mean of Values Outside Criteria or Screening Levels	Percent of Values Outside Criteria or Screening Levels
WATER TEMPERATURE (C)	35.00		111	111	12.10	34.40	23.023	0	0.0	0.0%
DISSOLVED OXYGEN (MG/L)	4.00		111	111	4.90	12.60	7.801	0	0.0	0.0%
PH (SU)	6.50- 9.00		111	111	7.20	8.97	7.997	0	0.0	0.0%
CHLORIDE (MG/L)			120	120	160.00	15600.00	6148.317	0	0.0	0.0%
SULFATE (MG/L)			120	120	48.00	1820.00	846.533	0	0.0	0.0%
SPECIFIC CONDUCTANCE (UMHOS/CM)			484	484	830.00	45800.00	22837.773	0	0.0	0.0%
TOTAL DISS SOLIDS (MG/L)			115	115	548.60	22230.00	11247.396	0	0.0	0.0%
AMMONIA (MG/L)		0.40	119	111	0.01	0.65	0.088	3	0.5	2.52%
NITRITE + NITRATE (MG/L)		0.40	120	91	0.01	0.78	0.234	27	0.5	22.50%
ORTHOPHOSPHORUS (MG/L)		0.20	116	116	0.04	1.66	0.211	51	0.3	43.97%
TOTAL PHOSPHORUS (MG/L)		0.40	117	117	0.05	1.66	0.248	8	0.6	6.84%
CHLOROPHYLL A (UG/L)		30.00	120	92	1.00	72.00	7.368	2	53.1	2%
FECAL COLIFORM (#/100 ML)										
Contact Recreation	400.0		1384	1327	2.00	3200.00	59.949	45	1104.2	3%
Oyster Waters	43.0		1384	1327	2.00	3200.00	59.949	256	290.6	18%

SEGMENT 2421 Upper Galveston Bay

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Acute Criteria	Percent of Detects Exceeding Acute Criteria	Mean Exceeds Chronic Criteria
01000	ARSENIC	149.000	78.000	1	1	16.100	16.100	16.100	0	0.00	NO
01025	CADMIUM	45.620	10.020	1	0	2.000	2.000	2.000	0	NA	NO
01030	CHROMIUM	None	None	1	0	4.500	4.500	4.500	NA	NA	NA
01040	COPPER	16.270	4.370	1	0	2.000	2.000	2.000	0	NA	NO
01049	LEAD	140.000	5.600	1	0	2.800	2.800	2.800	0	NA	NO
01065	NICKEL	119.000	13.200	1	0	5.500	5.500	5.500	0	NA	NO
01075	SILVER	2.300	None	1	1	25.000	25.000	25.000	1	100.00	NA
01090	ZINC	98.000	89.000	1	1	35.000	35.000	35.000	0	0.00	NO
01106	ALUMINUM	None	None	1	0	1000.000	1000.000	1000.000	NA	NA	NA

29040

SEGMENT 2421 Upper Galveston Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
01003	ARSENIC	MG/KG	6.900	5	5	1.100	4.300	3.088	0	0.00
01008	BARIUM	MG/KG	397.000	5	5	44.000	342.000	218.400	0	0.00
01028	CADMIUM	MG/KG	0.830	5	0	0.007	0.600	0.282	0	0.00
01029	CHROMIUM	MG/KG	29.000	5	5	2.000	27.100	14.220	0	0.00
01043	COPPER	MG/KG	24.000	5	5	4.000	16.300	10.280	0	0.00
01052	LEAD	MG/KG	32.000	5	2	0.500	28.000	14.600	0	0.00
01053	MANGANESE	MG/KG	630.000	5	5	46.000	630.000	406.400	0	0.00
71921	MERCURY	MG/KG	0.324	5	5	0.030	0.480	0.146	1	20.00
01068	NICKEL	MG/KG	18.000	5	4	0.100	18.200	10.860	1	20.00
01148	SELENIUM	MG/KG	1.700	5	2	0.100	2.200	0.958	2	40.00
01078	SILVER	MG/KG	1.600	5	0	0.100	1.600	0.736	0	0.00
01093	ZINC	MG/KG	110.000	5	5	24.000	75.500	58.300	0	0.00
01108	ALUMINUM	MG/KG	None	1	1	25800.000	25800.000	25800.000	0	0.00
34218	ACRYLONITRILE	UG/KG	2250.00	1	0	1600.000	1600.000	1600.000	0	0.00
34237	BENZENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34290	BROMOFORM	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34299	CARBON TETRACHLORIDE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34304	CHLOROBENZENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34309	CHLORODIBROMOMETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34314	CHLOROETHANE	UG/KG	1000.00	1	0	800.000	800.000	800.000	0	0.00
34318	CHLOROFORM	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34330	DICHLOROBROMOMETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34354	ENDOSULFAN SULFATE	UG/KG	3.750	2	0	0.285	2.500	1.393	0	0.00
34374	ETHYLBENZENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00

34426 METHYLENE CHLORIDE	UG/KG	465.000	1	0	325.000	325.000	325.000	0	0.00
34478 TETRACHLOROETHYLENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34483 TOLUENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34487 TRICHLOROETHYLENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34495 VINYL CHLORIDE	UG/KG	1000.00	1	0	800.000	800.000	800.000	0	0.00
34499 1,1-DICHLOROETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34504 1,1-DICHLOROETHYLENE	UG/KG	450.000	1	0	325.000	325.000	325.000	0	0.00
34509 1,1,1-TRICHLOROETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34514 1,1,2-TRICHLOROETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34519 1,1,2,2-TETRACHLOROETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34534 1,2-DICHLOROETHANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34544 1,2-DICHLOROPROPANE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34549 TRANS-1,2-DICHLOROETHENE	UG/KG	450.000	1	0	325.000	325.000	325.000	0	0.00
34579 2-CHLOROETHYL VINYL ETHER	UG/KG	3910.00	1	0	3250.000	3250.000	3250.000	0	0.00
34697 TRANS-1,3-DICHLOROPROPENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
34702 CIS-1,3-DICHLOROPROPENE	UG/KG	400.000	1	0	325.000	325.000	325.000	0	0.00
39076 ALPHA-HEXACHLOROCYCLOHEXANE	UG/KG	0.950	2	0	0.035	1.000	0.517	0	0.00
39118 PENTACHLOROBENZENE	UG/KG	0.600	1	0	0.500	0.500	0.500	0	0.00
39333 ALDRIN	UG/KG	0.800	3	0	0.060	1.000	0.375	0	0.00
39351 CHLORDANE	UG/KG	6.000	3	1	0.685	7.500	3.488	0	0.00
39363 DDD	UG/KG	3.000	3	0	0.125	1.250	0.500	0	0.00
39368 DDE	UG/KG	1.500	3	0	0.095	1.250	0.542	0	0.00
39373 DDT	UG/KG	3.000	3	0	0.105	1.250	0.488	0	0.00
39383 DIELDRIN	UG/KG	1.000	3	0	0.070	1.250	0.463	0	0.00

SEGMENT 2421 Upper Galveston Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
39389	ENDOSULFAN	UG/KG	3.000	1	0	1.000	1.000	1.000	0	0.00
39393	ENDRIN	UG/KG	1.500	3	0	0.090	1.250	0.495	0	0.00
39403	TOXAPHENE	UG/KG	44.500	3	0	0.740	50.000	17.207	0	0.00
39413	HEPTACHLOR	UG/KG	0.450	3	0	0.060	0.500	0.212	0	0.00
39423	HEPTACHLOR EPOXIDE	UG/KG	0.900	3	0	0.070	1.000	0.380	0	0.00
39481	METHOXYCHLOR	UG/KG	5.000	3	0	0.035	5.000	1.722	0	0.00
39491	PCB-1221	UG/KG	35.000	1	0	19.600	19.600	19.600	0	0.00
39495	PCB-1232	UG/KG	30.000	1	0	18.150	18.150	18.150	0	0.00
39499	PCB-1242	UG/KG	30.000	1	0	16.800	16.800	16.800	0	0.00
39503	PCB-1248	UG/KG	35.000	1	0	16.800	16.800	16.800	0	0.00
39507	AROCLOR 1254	UG/KG	30.000	1	0	16.800	16.800	16.800	0	0.00
39511	PCB-1260	UG/KG	35.000	1	0	17.650	17.650	17.650	0	0.00
39514	PCB-1016	UG/KG	30.000	1	0	16.800	16.800	16.800	0	0.00
39519	PCBS	UG/KG	10.000	2	0	2.060	2.110	2.085	0	0.00
39531	MALATHION	UG/KG	3.680	3	0	0.300	5.000	2.733	0	0.00
39541	PARATHION	UG/KG	2.000	3	0	0.275	2.500	1.022	0	0.00
39571	DIAZINON	UG/KG	3.550	3	0	0.930	5.000	2.373	0	0.00
39581	GUTHION	UG/KG	53.000	1	0	75.000	75.000	75.000	0	0.00
39701	HEXACHLOROBENZENE	UG/KG	0.500	3	1	0.070	15.060	5.210	1	33.33
39731	2,4-D	UG/KG	47.000	3	0	1.790	60.000	21.527	0	0.00
39741	2,4,5-T	UG/KG	9.000	3	0	0.445	12.500	4.567	0	0.00
39761	SILVEX	UG/KG	9.500	2	0	0.730	10.000	5.365	0	0.00
39783	GAMA-HEXACHLOROCYCLOHEXANE	UG/KG	0.650	3	0	0.050	1.000	0.372	0	0.00
45510	XYLENE	UG/KG	1150.00	1	0	1000.000	1000.000	1000.000	0	0.00

46290 BETA BHC	UG/KG	2.010	1	0	1.000	1.000	1.000	0	0.00
46292 DELTA-BHC	NG/G	1.500	1	0	1.000	1.000	1.000	0	0.00
79799 DICOFOL (KELTHANE)	UG/KG	25.000	1	0	7.500	7.500	7.500	0	0.00
79800 MIREX	UG/KG	3.850	1	0	2.500	2.500	2.500	0	0.00
81404 DURSBAN	UG/KG	5.000	1	0	1.250	1.250	1.250	0	0.00
88802 BROMOMETHANE	UG/KG	1000.00	1	0	800.000	800.000	800.000	0	0.00
88805 1,2-DIBROMOETHANE	UG/KG	450.000	1	0	325.000	325.000	325.000	0	0.00
88835 CHLOROMETHANE	UG/KG	1000.00	1	0	800.000	800.000	800.000	0	0.00
34614 2,4-DINITROTOLUENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34384 FLUORENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34644 4-CHLOROPHENYL PHENYL ETHER	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34339 DIETHYL PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34436 N-NITROSODIPHENYLAMINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34349 1,2-DIPHENYLHYDRAZINE	UG/KG	900.000	1	0	650.000	650.000	650.000	0	0.00
34639 4-BROMOPHENYL PHENYL ETHER	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34464 PHENANTHRENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34223 ANTHRACENE	UG/KG	800.000	1	0	650.000	650.000	650.000	0	0.00
39112 DI-N-BUTYL PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34379 FLUORANTHENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34472 PYRENE	UG/KG	880.000	1	0	650.000	650.000	650.000	0	0.00
39121 BENZIDINE	UG/KG	900.000	1	0	650.000	650.000	650.000	0	0.00
34295 N-BUTYL BENZYL PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34323 CHRYSENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34529 BENZO (A) ANTHRACENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00

SEGMENT 2421 Upper Galveston Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
34634	3,3-DICHLOROBENZIDINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
39102	BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34599	DI-N-OCTYL PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34233	BENZO(B)FLUORANTHENE	UG/KG	800.000	1	0	650.000	650.000	650.000	0	0.00
34245	BENZO(K)FLOURANTHENE	UG/L	750.000	1	0	650.000	650.000	650.000	0	0.00
34250	BENZO-A-PYRENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34406	INDENO (1,2,3-CD) PYRENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34559	DIBENZ(A,H)ANTHRACENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34524	BENZO (GHI) PERYLENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
88811	CRESOL	UG/KG	900.000	1	0	650.000	650.000	650.000	0	0.00
73120	HEXACHLOROPHENE	UG/KG	885.000	1	0	650.000	650.000	650.000	0	0.00
88817	N-NITROSODIETHYLAMINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
73159	N-NITROSO-DI-N-BUTYLAMINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
88823	PYRIDINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
88826	1,2,4,5-TETRACHLOROBENZENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34208	ACENAPHTHENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34203	ACENAPHTYLENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34276	BIS(2-CHLOROETHYL)ETHER	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34281	BIS(2-CHLOROEHTHOXY)METHANE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34286	BIS(2-CHLOROISOPROPYL)ETHER	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34344	DIMETHYL PHTHALATE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34389	HEXACHLOROCYCLOPENTADIENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34399	HEXACHLOROETHANE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34411	ISOPHORONE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00

34431	N-NITROSODI-N-PROPYLAMINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34441	N-NITROSODIMETHYLAMINE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34445	NAPHTHALENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34450	NITROBENZENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34455	3-METHYL-4-CHLOROPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34554	1,2,4-TRICHLOROBENZENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34539	1,2-DICHLOROBENZENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34569	1,3-DICHLOROBENZENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34574	1,4-DICHLOROBENZENE	UG/KG	715.000	1	0	650.000	650.000	650.000	0	0.00
34584	2-CHLORONAPHTHALENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34589	2-CHLOROPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34594	2-NITROPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34604	2,4-DICHLOROPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34609	2,4-DIMETHYLPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34619	2,4-DINITROPHENOL	UG/KG	3000.00	1	0	2500.000	2500.000	2500.000	0	0.00
34624	2,4,6-TRICHLOROPHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
34629	2,6-DINITROTOLUENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
34649	4-NITROPHENOL	UG/KG	3000.00	1	0	2500.000	2500.000	2500.000	0	0.00
34660	DNOC	UG/KG	3000.00	1	0	2500.000	2500.000	2500.000	0	0.00
34695	PHENOL	UG/KG	1500.00	1	0	1250.000	1250.000	1250.000	0	0.00
39061	PENTACHLOROPHENOL	UG/KG	1800.00	3	0	0.260	2500.000	833.608	0	0.00
39705	HEXACHLOROBUTADIENE	UG/KG	750.000	1	0	650.000	650.000	650.000	0	0.00
78401	2,4,5-TRICHLOROPHENOL	UG/KG	1650.00	1	0	1250.000	1250.000	1250.000	0	0.00

2003

SEGMENT 2422 OF THE BAYS AND ESTUARIES

NAME: Trinity Bay

DESCRIPTION:

LENGTH/SURFACE AREA: 130.1 square miles (337.0 square kilometers)

SEGMENT CLASSIFICATION: Effluent Limited

DESIGNATED WATER USES: Contact Recreation
High Aquatic Life
Oyster Waters

USE ATTAINABILITY ANALYSIS: None

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 17 OFF SEGMENT: 0

PUBLISHED STUDIES: None

AMBIENT TOXICITY MONITORING STATIONS: 1
ON SEGMENT: 1
OFF SEGMENT: 0

SUMMARY OF FISH KILLS:

Water Body	Date	Cause	Size of Kill
Trinity Bay	8/12/93	Water temperature > 100°C	Not reported
Spanish Grant Subdivision-Galveston Island	8/12/93	Low dissolved oxygen	2,870,805 (menhaden)

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: None

PERMITTED FACILITIES (FINAL):

Domestic	4 outfalls	0.95 MGD
Industrial	4 outfalls	0.28 MGD
Agricultural	0 outfalls	0.00 MGD
Total	8 outfalls	1.23 MGD

SEGMENT SUMMARY:

Based on the TNRCC criterion, the oyster water use was supported in this segment. Time, extent, and area of actual shellfish closures are based on criteria administered by the Texas Department of Health. Support of the TNRCC criterion does not rule out shellfish closures by the TDH. Other water quality standards and uses were supported. Nitrite plus nitrate nitrogen was elevated in Trinity Bay. Low dissolved oxygen levels are common in the dead-end canals of subdivisions located adjacent to Trinity Bay due to poor circulation. Elevated nutrients can cause excess algal growth and subsequent oxygen depletion, especially during warm summer months. Chromium and nickel concentrations in sediment are a concern.

20047

SEGMENT 2422 Trinity Bay

FIELD MEASUREMENTS AND WATER CHEMISTRY

Parameter	Standards Criteria	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criteria or Screening Levels	Mean of Values Outside Criteria or Screening Levels	Percent of Values Outside Criteria or Screening Levels
WATER TEMPERATURE (C)	35.00		52	52	11.20	30.20	21.406	0	0.0	0.0%
DISSOLVED OXYGEN (MG/L)	4.00		52	52	3.40	12.17	8.398	1	3.4	1.9%
PH (SU)	6.50- 9.00		52	52	6.70	8.40	8.052	0	0.0	0.0%
CHLORIDE (MG/L)			58	58	17.00	12900.00	3223.966	0	0.0	0.0%
SULFATE (MG/L)			58	58	21.00	1520.00	460.138	0	0.0	0.0%
SPECIFIC CONDUCTANCE (UMHOS/CM)			140	140	267.00	30000.00	10873.672	0	0.0	0.0%
TOTAL DISS SOLIDS (MG/L)			54	54	173.55	19500.00	5833.635	0	0.0	0.0%
AMMONIA (MG/L)		0.40	58	53	0.01	1.00	0.090	1	1.0	1.7%
NITRITE + NITRATE (MG/L)		0.40	58	44	0.02	0.97	0.256	19	0.6	32.76%
ORTHOPHOSPHORUS (MG/L)		0.20	58	58	0.06	0.89	0.179	11	0.3	18.97%
TOTAL PHOSPHORUS (MG/L)		0.40	58	58	0.06	0.90	0.212	1	0.9	1.72%
CHLOROPHYLL A (UG/L)		30.00	58	41	1.00	83.00	5.928	1	83.0	1.7%
FECAL COLIFORM (#/100 ML)										
Contact Recreation	400.0		530	495	2.00	920.00	16.708	4	705.0	1%
Oyster Waters	43.0		530	495	2.00	920.00	16.708	40	162.8	8%

230428

SEGMENT 2422 Trinity Bay

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Acute Criteria	Percent of Detects Exceeding Acute Criteria	Mean Exceeds Chronic Criteria
01000	ARSENIC	149.000	78.000	14	3	1.000	12.700	4.839	0	0.00	NO
01025	CADMIUM	45.620	10.020	14	1	0.500	5.000	1.750	0	0.00	NO
01030	CHROMIUM	None	None	14	4	1.000	40.000	8.893	NA	0.00	NA
01040	COPPER	16.270	4.370	14	9	0.500	13.000	4.477	0	0.00	YES
01049	LEAD	140.000	5.600	14	0	0.500	2.800	1.236	0	NA	NO
01065	NICKEL	119.000	13.200	14	7	4.500	60.000	18.400	0	0.00	YES
01075	SILVER	2.300	None	14	1	0.170	10.000	5.816	0	0.00	NA
01090	ZINC	98.000	89.000	14	11	1.500	1520.000	153.179	3	21.43	YES
71900	MERCURY	2.100	1.100	2	2	0.440	1.460	0.950	0	0.00	NO
01106	ALUMINUM	None	None	14	6	4.000	150.000	46.929	NA	0.00	NA

29049

SEGMENT 2422 Trinity Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
01003	ARSENIC	MG/KG	6.900	8	8	2.500	13.900	6.916	3	37.50
01008	BARIUM	MG/KG	397.000	7	7	66.000	813.000	300.714	2	28.57
01028	CADMIUM	MG/KG	0.830	8	0	0.010	0.600	0.242	0	0.00
01029	CHROMIUM	MG/KG	29.000	8	8	4.000	115.000	31.825	4	50.00
01043	COPPER	MG/KG	24.000	8	7	0.050	17.000	9.719	0	0.00
01052	LEAD	MG/KG	32.000	8	5	0.500	43.000	18.400	1	12.50
01053	MANGANESE	MG/KG	630.000	8	8	106.000	690.000	391.000	2	25.00
71921	MERCURY	MG/KG	0.324	8	5	0.010	0.210	0.057	0	0.00
01068	NICKEL	MG/KG	18.000	8	7	0.100	50.000	16.125	2	25.00
01148	SELENIUM	MG/KG	1.700	8	2	0.100	1.110	0.386	0	0.00
01078	SILVER	MG/KG	1.600	8	2	0.100	17.000	2.712	1	12.50
01093	ZINC	MG/KG	110.000	8	8	30.000	107.000	62.412	0	0.00
01108	ALUMINUM	MG/KG	None	1	1	34000.000	34000.000	34000.000	0	0.00
34218	ACRYLONITRILE	UG/KG	2250.00	3	0	16.250	2250.000	1405.417	0	0.00
34237	BENZENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34290	BROMOFORM	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34299	CARBON TETRACHLORIDE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34304	CHLOROBENZENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34309	CHLORODIBROMOMETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34314	CHLOROETHANE	UG/KG	1000.00	3	0	16.250	1100.000	705.417	0	0.00
34318	CHLOROFORM	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34330	DICHLOROBROMOMETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34354	ENDOSULFAN SULFATE	UG/KG	3.750	5	0	0.255	25.000	6.458	0	0.00
34374	ETHYLBENZENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00

34426 METHYLENE CHLORIDE	UG/KG	465.000	3	0	8.100	450.000	282.700	0	0.00
34478 TETRACHLOROETHYLENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34483 TOLUENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34487 TRICHLOROETHYLENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34495 VINYL CHLORIDE	UG/KG	1000.00	3	0	16.250	1100.000	705.417	0	0.00
34499 1,1-DICHLOROETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34504 1,1-DICHLOROETHYLENE	UG/KG	450.000	3	0	8.100	450.000	282.700	0	0.00
34509 1,1,1-TRICHLOROETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34514 1,1,2-TRICHLOROETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34519 1,1,2,2-TETRACHLOROETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34534 1,2-DICHLOROETHANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34544 1,2-DICHLOROPROPANE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34549 TRANS-1,2-DICHLOROETHENE	UG/KG	450.000	3	0	8.100	450.000	282.700	0	0.00
34579 2-CHLOROETHYL VINYL ETHER	UG/KG	3910.00	3	0	16.250	4500.000	2805.417	0	0.00
34697 TRANS-1,3-DICHLOROPROPENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
34702 CIS-1,3-DICHLOROPROPENE	UG/KG	400.000	3	0	8.100	450.000	282.700	0	0.00
39076 ALPHA-HEXACHLOROCYCLOHEXANE	UG/KG	0.950	4	0	0.500	5.000	1.987	0	0.00
39118 PENTACHLOROBENZENE	UG/KG	0.600	2	0	0.600	1.250	0.925	0	0.00
39333 ALDRIN	UG/KG	0.800	7	0	0.065	10.000	1.958	0	0.00
39351 CHLORDANE	UG/KG	6.000	7	0	0.685	50.000	10.484	0	0.00
39363 DDD	UG/KG	3.000	7	0	0.125	25.000	5.570	0	0.00
39368 DDE	UG/KG	1.500	7	0	0.280	10.000	2.619	0	0.00
39373 DDT	UG/KG	3.000	7	0	0.110	25.000	5.561	0	0.00
39383 DIELDRIN	UG/KG	1.000	7	0	0.070	10.000	2.322	0	0.00

SEGMENT 2422 Trinity Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
39389	ENDOSULFAN	UG/KG	3.000	3	0	1.200	35.000	13.067	0	0.00
39393	ENDRIN	UG/KG	1.500	7	0	0.145	10.000	2.676	0	0.00
39403	TOXAPHENE	UG/KG	44.500	7	0	0.005	200.000	53.198	0	0.00
39413	HEPTACHLOR	UG/KG	0.450	7	0	0.075	10.000	1.714	0	0.00
39423	HEPTACHLOR EPOXIDE	UG/KG	0.900	7	0	0.070	10.000	1.961	0	0.00
39481	METHOXYCHLOR	UG/KG	5.000	7	0	0.035	15.000	6.612	0	0.00
39491	PCB-1221	UG/KG	35.000	3	0	23.100	200.000	82.700	0	0.00
39495	PCB-1232	UG/KG	30.000	3	0	21.350	200.000	82.117	0	0.00
39499	PCB-1242	UG/KG	30.000	3	0	19.800	200.000	81.600	0	0.00
39503	PCB-1248	UG/KG	35.000	3	0	19.800	200.000	81.600	0	0.00
39507	AROCLOR 1254	UG/KG	30.000	3	0	19.800	200.000	81.600	0	0.00
39511	PCB-1260	UG/KG	35.000	3	0	20.800	200.000	81.933	0	0.00
39514	PCB-1016	UG/KG	30.000	3	0	19.800	200.000	81.600	0	0.00
39519	PCBS	UG/KG	10.000	4	0	2.060	10.000	7.015	0	0.00
39531	MALATHION	UG/KG	3.680	7	0	0.020	8.000	4.046	0	0.00
39541	PARATHION	UG/KG	2.000	7	0	0.010	3.750	1.598	0	0.00
39571	DIAZINON	UG/KG	3.550	7	1	0.020	48.000	9.479	1	14.29
39581	GUTHION	UG/KG	53.000	3	0	0.100	62.500	35.533	0	0.00
39701	HEXACHLOROBENZENE	UG/KG	0.500	5	0	0.070	1.250	0.520	0	0.00
39731	2,4-D	UG/KG	47.000	6	0	0.050	75.000	22.473	0	0.00
39741	2,4,5-T	UG/KG	9.000	5	0	0.445	14.500	5.459	0	0.00
39761	SILVEX	UG/KG	9.500	4	0	0.015	12.000	5.504	0	0.00
39783	GAMA-HEXACHLOROCYCLOHEXANE	UG/KG	0.650	7	0	0.065	5.000	1.244	0	0.00
45510	XYLENE	UG/KG	1150.00	3	0	8.100	1350.000	836.033	0	0.00

46290	BETA BHC	UG/KG	2.010	3	0	1.200	10.000	4.150	0	0.00
46292	DELTA-BHC	NG/G	1.500	3	0	1.200	10.000	4.150	0	0.00
79799	DICOFOL (KELTHANE)	UG/KG	25.000	2	0	8.850	62.500	35.675	0	0.00
79800	MIREX	UG/KG	3.850	2	0	3.000	5.000	4.000	0	0.00
81404	DURSBAN	UG/KG	5.000	3	0	0.100	12.500	4.700	0	0.00
82400	DEMETON	UG/KG	None	2	0	0.200	100.000	50.100	0	0.00
88802	BROMOMETHANE	UG/KG	1000.00	3	0	16.250	1100.000	705.417	0	0.00
88805	1,2-DIBROMOETHANE	UG/KG	450.000	2	0	390.000	450.000	420.000	0	0.00
88835	CHLOROMETHANE	UG/KG	1000.00	3	0	16.250	1100.000	705.417	0	0.00
34614	2,4-DINITROTOLUENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34384	FLUORENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34644	4-CHLOROPHENYL PHENYL ETHER	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34339	DIETHYL PHTHALATE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34436	N-NITROSODIPHENYLAMINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34349	1,2-DIPHENYLHYDRAZINE	UG/KG	900.000	3	0	275.000	1700.000	908.333	0	0.00
34639	4-BROMOPHENYL PHENYL ETHER	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34464	PHENANTHRENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34223	ANTHRACENE	UG/KG	800.000	3	0	275.000	1700.000	908.333	0	0.00
39112	DI-N-BUTYL PHTHALATE	UG/KG	750.000	4	0	25.000	1700.000	687.500	0	0.00
34379	FLUORANTHENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34472	PYRENE	UG/KG	880.000	3	0	275.000	1700.000	908.333	0	0.00
39121	BENZIDINE	UG/KG	900.000	3	0	750.000	1700.000	1261.667	0	0.00
34295	N-BUTYL BENZYL PHTHALATE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34323	CHRYSENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00

SEGMENT 2422 Trinity Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
34529	BENZO (A) ANTHRACENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34634	3,3-DICHLOROBENZIDINE	UG/KG	750.000	3	0	550.000	1700.000	1000.000	0	0.00
39102	BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	750.000	4	1	150.000	3100.000	1068.750	1	25.00
34599	DI-N-OCTYL PHTHALATE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34233	BENZO(B)FLUORANTHENE	UG/KG	800.000	3	0	275.000	1700.000	908.333	0	0.00
34245	BENZO(K)FLOURANTHENE	UG/L	750.000	3	0	275.000	1700.000	908.333	0	0.00
34250	BENZO-A-PYRENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34406	INDENO (1,2,3-CD) PYRENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34559	DIBENZ(A,H)ANTHRACENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34524	BENZO (GHI) PERYLENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
88811	CRESOL	UG/KG	900.000	3	0	275.000	1700.000	908.333	0	0.00
73120	HEXACHLOROPHENE	UG/KG	885.000	3	0	750.000	1700.000	1091.667	0	0.00
88817	N-NITROSODIETHYLAMINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
73159	N-NITROSO-DI-N-BUTYLAMINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
88823	PYRIDINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
88826	1,2,4,5-TETRACHLOROBENZENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34208	ACENAPHTHENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34203	ACENAPHTYLENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34276	BIS(2-CHLOROETHYL)ETHER	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34281	BIS(2-CHLOROEHTHOXY)METHANE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34286	BIS(2-CHLOROISOPROPYL)ETHER	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34344	DIMETHYL PHTHALATE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34389	HEXACHLOROCYCLOPENTADIENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34399	HEXACHLOROETHANE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00

34411	ISOPHORONE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34431	N-NITROSODI-N-PROPYLAMINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34441	N-NITROSODIMETHYLAMINE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34445	NAPHTHALENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34450	NITROBENZENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34455	3-METHYL-4-CHLOROPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34554	1,2,4-TRICHLOROBENZENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34539	1,2-DICHLOROBENZENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34569	1,3-DICHLOROBENZENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34574	1,4-DICHLOROBENZENE	UG/KG	715.000	3	0	275.000	1700.000	908.333	0	0.00
34584	2-CHLORONAPHTHALENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34589	2-CHLOROPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34594	2-NITROPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34604	2,4-DICHLOROPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34609	2,4-DIMETHYLPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34619	2,4-DINITROPHENOL	UG/KG	3000.00	3	0	1335.000	7000.000	3778.333	0	0.00
34624	2,4,6-TRICHLOROPHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
34629	2,6-DINITROTOLUENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
34649	4-NITROPHENOL	UG/KG	3000.00	3	0	1335.000	7000.000	3778.333	0	0.00
34660	DNOC	UG/KG	3000.00	3	0	550.000	7000.000	3516.667	0	0.00
34695	PHENOL	UG/KG	1500.00	3	0	275.000	3350.000	1708.333	0	0.00
39061	PENTACHLOROPHENOL	UG/KG	1800.00	6	0	0.260	7000.000	1890.043	0	0.00
39705	HEXACHLOROBUTADIENE	UG/KG	750.000	3	0	275.000	1700.000	908.333	0	0.00
78401	2,4,5-TRICHLOROPHENOL	UG/KG	1650.00	3	0	275.000	3350.000	1708.333	0	0.00

SEGMENT 2426 OF THE BAYS AND ESTUARIES

NAME: Tabbs Bay

DESCRIPTION:

LENGTH/SURFACE AREA: 3.6 square miles (9.3 square kilometers)

SEGMENT CLASSIFICATION: Water Quality Limited
Cause: Water Quality Standards Violations
Advanced Waste Required

DESIGNATED WATER USES: Contact Recreation
High Aquatic Life

USE ATTAINABILITY ANALYSIS: An August 1984 use attainability analysis confirmed that the designated water uses and numerical criteria were appropriate for Tabbs Bay.

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 1 OFF SEGMENT: 3

PUBLISHED STUDIES:

27 Jul 1977	F,C,S,P,I,B	IMS-80	(Bohmfalk: 1978)
15 Aug 1978	F,C,Q	IS-26	(Kirkpatrick: Mar 1982)
03 Aug 1982	F,C	IS-86-10	(Kirkpatrick: Dec 1986)
09 Jul 1984	F,C	IS-87-06	(Kirkpatrick: Apr 1987)
26 Feb 1985	F,C	IS-87-09	(Kirkpatrick: Jul 1987)

AMBIENT TOXICITY MONITORING STATIONS: None

SUMMARY OF FISH KILLS: None

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: Tabbs Bay has a restricted-consumption advisory for the general population, and a no-consumption advisory for children and women of childbearing age. These advisories were issued by the Texas Department of Health for blue crabs and catfish due to elevated levels of dioxin in tissue.

PERMITTED FACILITIES (FINAL):

Domestic	3 outfalls	6.77 MGD
Industrial	2 outfalls	0.85 MGD
Agricultural	0 outfalls	0.00 MGD
Total	5 outfalls	7.62 MGD

SEGMENT SUMMARY:

Elevated fecal coliform levels cause nonsupport of the contact recreation use. Other water quality standards and designated uses were supported. Elevated nitrite plus nitrate nitrogen and orthophosphorus concentrations are a concern. Elevated nutrients can cause excess algal growth and subsequent oxygen depletion, especially during warm summer months. Manganese in sediment is elevated.

20956

SEGMENT 2426 Tabbs Bay

FIELD MEASUREMENTS AND WATER CHEMISTRY

Parameter	Standards Criteria	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Criteria or Screening Levels	Mean of Values Outside Criteria or Screening Levels	Percent of Values Outside Criteria or Screening Levels
WATER TEMPERATURE (C)	35.00		16	16	12.00	29.20	21.269	0	0.0	0.0%
DISSOLVED OXYGEN (MG/L)	4.00		16	16	5.50	9.53	7.291	0	0.0	0.0%
PH (SU)	6.50- 9.00		16	16	7.30	8.40	7.794	0	0.0	0.0%
CHLORIDE (MG/L)			16	16	200.00	12700.00	4921.875	0	0.0	0.0%
SULFATE (MG/L)			16	16	54.00	1540.00	722.375	0	0.0	0.0%
SPECIFIC CONDUCTANCE (UMHOS/CM)			45	45	1128.00	31000.00	15821.289	0	0.0	0.0%
TOTAL DISS SOLIDS (MG/L)			16	16	733.20	20150.00	9794.200	0	0.0	0.0%
AMMONIA (MG/L)		0.40	16	16	0.01	0.41	0.144	1	0.4	6.25%
NITRITE + NITRATE (MG/L)		0.40	16	12	0.03	0.79	0.372	7	0.7	43.75%
ORTHOPHOSPHORUS (MG/L)		0.20	16	16	0.08	0.65	0.281	13	0.3	81.25%
TOTAL PHOSPHORUS (MG/L)		0.40	16	16	0.12	0.71	0.324	1	0.7	6.25%
CHLOROPHYLL A (UG/L)		30.00	16	11	1.00	17.70	5.956	0	0.0	0.0%
FECAL COLIFORM (#/100 ML)	400.0		15	9	10.00	7000.00	741.667	5	2170.0	33%

SEGMENT 2426 Tabbs Bay

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Acute Criteria	Percent of Detects Exceeding Acute Criteria	Mean Exceeds Chronic Criteria
01065	NICKEL	119.000	13.200	1	0	5.500	5.500	5.500	0	NA	NO

SEGMENT 2426 Tabbs Bay

TOXICS SUBSTANCES IN SEDIMENT

Storet Code	Parameter	Units	Screening Levels	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Detects Exceeding Screening Levels	Percent of Detects Exceeding Screening Levels
01003	ARSENIC	MG/KG	6.900	3	3	0.500	4.600	3.133	0	0.00
01008	BARIUM	MG/KG	397.000	3	3	102.000	227.000	172.667	0	0.00
01028	CADMIUM	MG/KG	0.830	3	0	0.100	0.300	0.167	0	0.00
01029	CHROMIUM	MG/KG	29.000	3	3	16.000	22.000	20.000	0	0.00
01043	COPPER	MG/KG	24.000	3	3	2.000	13.000	7.333	0	0.00
01052	LEAD	MG/KG	32.000	3	2	0.500	54.000	25.833	1	33.33
01053	MANGANESE	MG/KG	630.000	3	3	431.000	910.000	697.333	2	66.67
71921	MERCURY	MG/KG	0.324	3	3	0.050	0.103	0.081	0	0.00
01068	NICKEL	MG/KG	18.000	3	3	11.000	23.000	16.667	1	33.33
01148	SELENIUM	MG/KG	1.700	3	0	0.100	0.400	0.200	0	0.00
01078	SILVER	MG/KG	1.600	3	0	0.100	0.300	0.167	0	0.00
01093	ZINC	MG/KG	110.000	3	3	64.000	105.000	79.333	0	0.00

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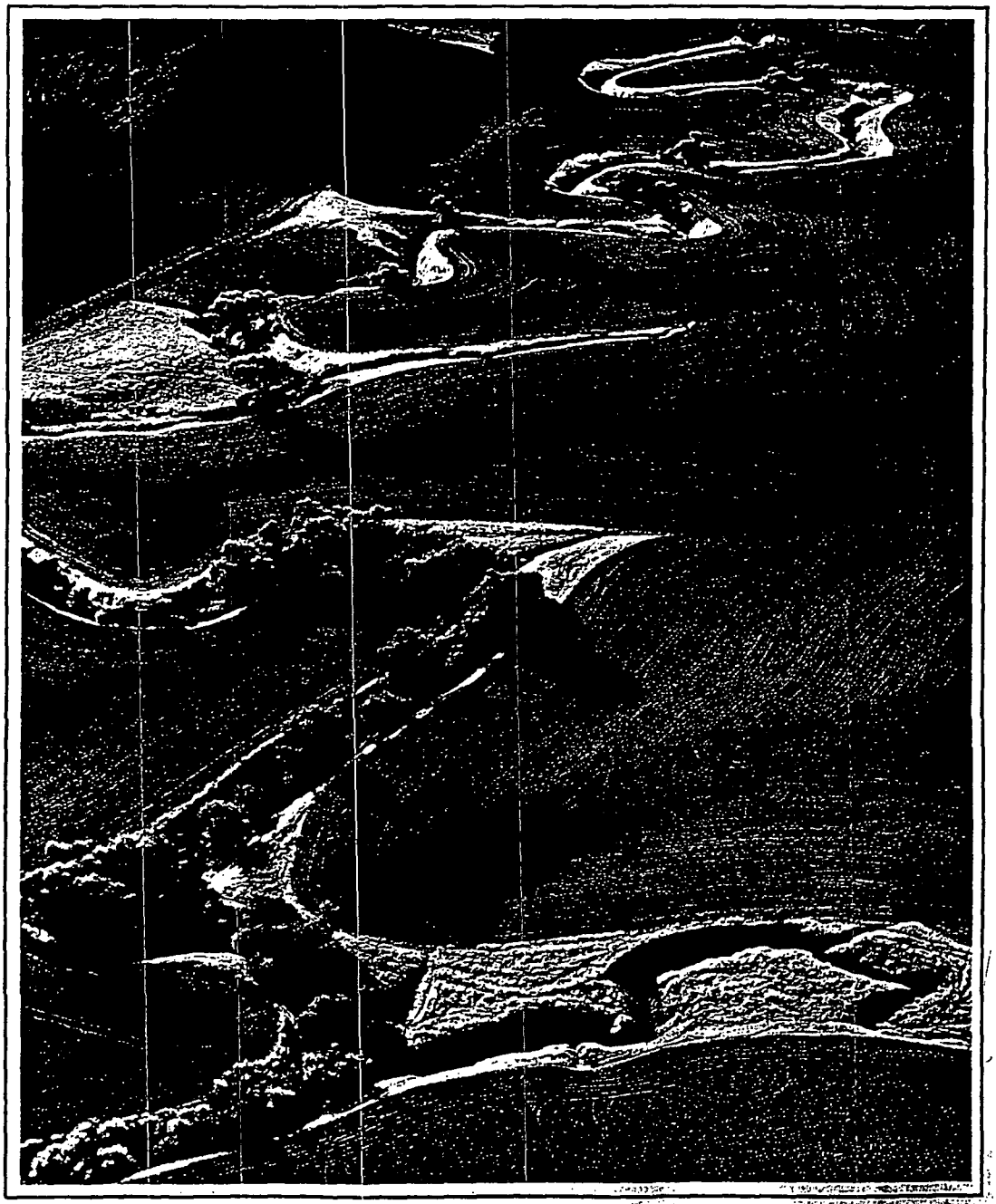
Water in Environmental Planning

Thomas Dunne and Luna B. Leopold



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WATER in Environmental Planning

Thomas Dunne

University of Washington

Luna B. Leopold

University of California, Berkeley

W. H. Freeman and Company
New York

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The photograph on the dust jacket, taken near Williams, Colusa County, California, shows a valley typical of the Coast Range. The sinuous ephemeral stream is incised in the alluvium forming the valley flat. The dark areas in the swales and low spots are those producing saturated overland flow. Hortonian overland flow is probably the main runoff-producing process on the steep hillslopes.
Photograph on dust jacket is copyrighted by William A. Garnett.

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To Bettylou and Barbara

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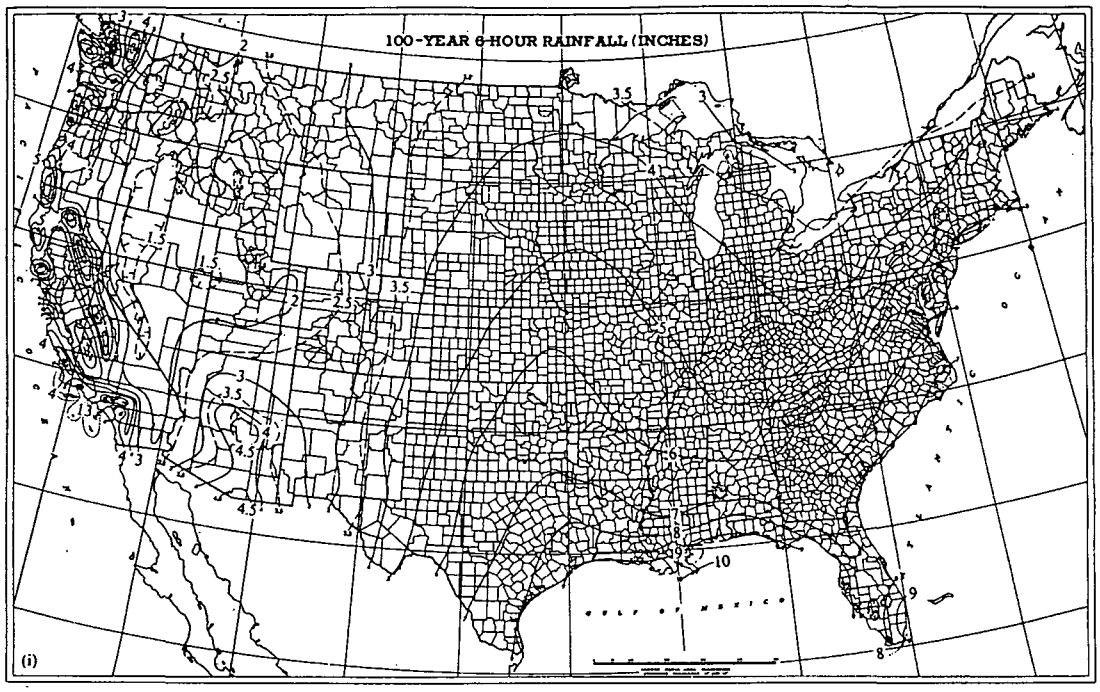

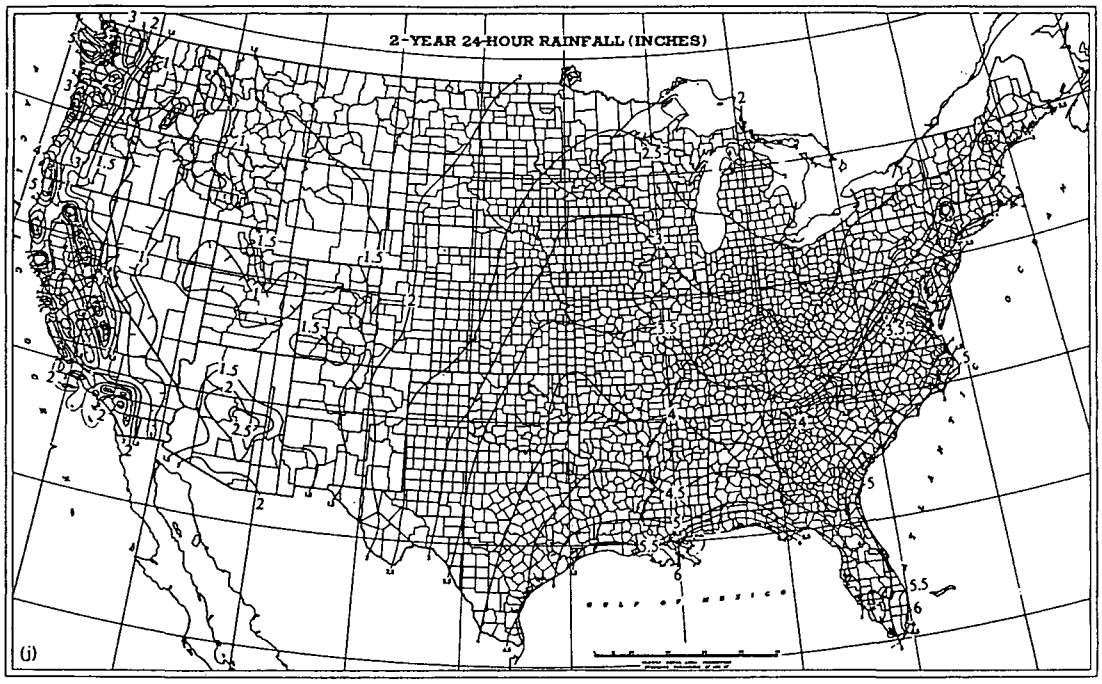

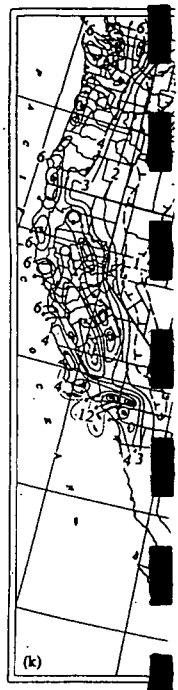

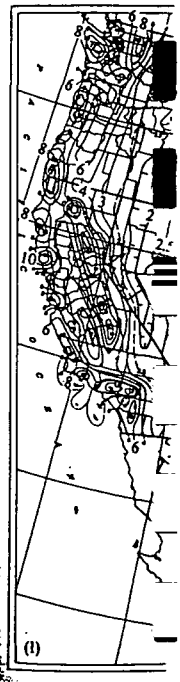

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SOIL SURVEY OF

Chambers County, Texas

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Texas Agricultural Experiment Station

31001

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in the period 1963–69. Soil names and descriptions were approved in 1969. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1969. This survey was made cooperatively by the Soil Conservation Service and the Texas Agricultural Experiment Station. It is part of the technical assistance furnished to the Trinity Bay Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps could cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in determining the suitability of tracts of land for farming, industry, and recreation.

Locating Soils

All the soils of Chambers County are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside, and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification of each. It also shows the page where each soil is described and the page for the capability unit, the pasture and hay group, the range site, the woodland group, and the woodland grazing group in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those that have a moderate limitation can be colored yellow, and those that have a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the descriptions of the capability units, the pasture and hay groups, the range sites, and the woodland groups.

Foresters and others can refer to the section, "Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Wildlife."

Ranchers and others can find, under "Range," groupings of the soils according to their suitability for range and also the names of many of the plants that grow on each range site.

Community planners and others can read about soil properties that affect the choice of sites for nonindustrial buildings and for recreation areas in the section "Engineering Uses of the Soils."

Engineers and builders can find, under "Engineering Uses of the Soils," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Chambers County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given in the section "General Nature of the County."

Cover: Leveling an area of a Lake Charles clay for rice irrigation and drainage.

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Issued May 1976

31003

TABLE 7.—*Classification of soil series*

Series	Family	Subgroup	Order
Acadia	Fine, montmorillonitic, thermic	Aeric Ochraqualfs	Alfisols.
Anahuac	Fine, mixed, thermic	Udollic Albaqualfs	Alfisols.
Beaumont	Fine, montmorillonitic, thermic	Entic Pelluderts	Vertisols.
Calhoun variant	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols.
Clodine [1]	Fine-loamy, mixed, thermic	Typic Ochraqualfs	Alfisols.
Frost	Fine-silty, mixed, thermic	Typic Glossaqualfs	Alfisols.
Harris	Fine, montmorillonitic, noncalcareous, thermic	Typic Haplaquolls	Mollisols.
Ijam	Fine, montmorillonitic, nonacid, thermic	Vertic Fluvaquents	Entisols.
Kaufman	Fine, montmorillonitic, noncalcareous, thermic	Vertic Haplaquolls	Mollisols.
Lake Charles [2]	Fine, montmorillonitic, thermic	Typic Pelluderts	Vertisols.
McKamie variant	Fine, mixed, thermic	Aquic Hapludalfs	Alfisols.
Morey	Fine-silty, mixed, thermic	Typic Argiaquolls	Mollisols.
Stowell	Fine-loamy, mixed, thermic	Typic Argialbolls	Mollisols.
Vaiden	Very-fine, montmorillonitic, thermic	Aquentic Chromuderts	Vertisols.
Veston [3]	Fine-silty, mixed, nonacid, hyperthermic	Typic Fluvaquents	Entisols.

[1] Clodine soils in Chambers County are outside of the range of the Clodine series, because they have a surface layer of sandy clay loam and mottled colors of olive and gray. These differences do not alter use or management.

[2] Lake Charles soils in Chambers County in mapping unit LaB are taxadjuncts to the Lake Charles series, because chroma is greater than 1.5 at a depth of 36 inches. This difference does not alter use or management.

[3] Veston soils in Chambers County are taxadjuncts to the Veston series, because the mean annual temperature at a depth of 20 inches is slightly less than 72° F. This difference does not alter use or management.

FAMILY: Soil families are separated within a subgroup primarily on the basis of properties important to the growth of plants or on the behavior of soils when used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. A family name consists of a series of adjectives preceding the subgroup name. The adjectives are the class names for texture, mineralogy, and so on that are used as family differentiae (see table 7).

SERIES: As explained in the section "How This Survey Was Made," the series is a group of soils that have major horizons that, except for texture of the surface layer, are similar in important characteristics and arrangement in the profile.

General Nature of the County

Chambers County is a nearly level coastal plain bordering Trinity, Galveston, and East Bays. Elevation ranges from sea level to 50 feet. Oil production since 1916 has amounted to more than one-half million barrels. Nine-tenths of the farm income is from crops, principally rice.

Three types of transportation—rail, highway, and waterway—connect the county with the metropolitan centers of Houston and Galveston on the west and Beaumont, Orange, and Port Arthur on the east.

History and Settlement

The early inhabitants of Chambers County were Indian tribes of Karankawas, Guapites, and Coopanes. They hunted and fished in the lower Trinity River area.

This county was organized in 1858 from Liberty and Jefferson Counties and was named for General T. J. Chambers, Surveyor General of Texas under Mexico.

Anahuac, the present county seat, became a permanent settlement in 1821, when it was made a port of entry for American colonists. Anahuac serves as a commercial center for a large rice, cattle, oil, fishing, and hunting area. The town has a barge canal connecting it with the Houston ship channel.

Climate [6]

The climate of Chambers County is humid subtropical and is characterized by warm summers. The prevailing wind is south-southeasterly. The proximity of the Gulf of Mexico and the bays results in a predominantly marine climate. Periods of modified continental influence occur during the colder months, when cold fronts from the northwest reach the coast. Average temperatures and precipitation probabilities are given in table 8. The climate is less extreme than in areas located a greater distance from the coastline. Rainfall is abun-

[6] By ROBERT B. ORTON, climatologist for Texas, National Weather Service, United States Department of Commerce.

31004

TABLE 8.—*Temperature and precipitation data*

[Data from Anahuac, Texas, elevation 24 feet, mainly for the period 1938–67. The symbol < means less than, the symbol > means more than]

Month	Temperature				Precipitation											
						Probability of receiving—								Average number of days with—		
	Average daily maximum	Average monthly maximum	Average daily minimum	Average monthly minimum	Average total	0 or trace	0.50 inch or more	1 inch or more	2 inches or more	3 inches or more	4 inches or more	5 inches or more	6 inches or more	0.10 inch or more	0.50 inch or more	1 inch or more
	°F	°F	°F	°F	Inches	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct			
January	61.3	76.2	41.3	24.0	4.09	<1	99	95	80	60	40	28	10	5	3	1
February	64.6	77.1	44.6	29.0	3.89	<1	96	90	70	50	32	25	15	5	3	1
March	70.2	82.1	49.5	33.8	2.74	<1	92	80	60	40	30	20	14	3	1	1
April	77.0	85.4	58.8	43.0	3.99	<1	96	90	70	50	35	20	15	4	2	1
May	83.3	89.7	65.6	55.0	4.16	<1	91	81	65	50	40	30	15	4	2	1
June	88.9	94.4	71.8	64.0	4.48	<1	93	85	65	50	35	30	20	4	2	1
July	91.1	97.0	73.9	68.8	5.49	<1	96	90	80	65	55	45	35	5	2	1
August	91.2	96.5	73.1	67.1	5.19	<1	98	94	80	68	50	39	29	6	4	2
September	87.7	94.6	67.8	55.8	5.02	<1	96	90	73	62	50	40	31	5	2	1
October	81.4	89.9	57.8	43.7	3.60	3	89	89	58	40	29	20	10	4	2	1
November	71.0	82.8	48.5	32.9	4.25	<1	96	90	70	51	35	25	19	5	3	1
December	64.6	78.0	43.1	27.0	4.72	<1	>99	97	89	70	55	35	25	4	3	2
Year	77.7	87.0			51.55									54	29	14

dant, averaging 51.55 inches annually. The relative humidity is rather high, as would be expected in a coastal area. The average annual relative humidity is 85 percent at 6:00 a.m., 65 percent at noon, and 70 percent at 6:00 p.m., central standard time. The area receives 64 percent of the total possible sunshine annually.

Winter temperatures are mild, being moderated by the influence of the relatively warm Gulf. Nighttime minimums are 32° F or below about 17 percent of the time. Cloudiness and fog occur more frequently in winter than in other seasons.

During the summer, persistent offshore winds cause nights to be relatively cool. Daytime temperatures are not so high as in areas away from the coast, and heat waves seldom occur. Precipitation is mostly of the showery type, but excessive, short-period rains fall at times.

Spring and fall are pleasant transitional seasons. Because the temperature of the Gulf is cooler in spring than in fall, cloudy weather is more frequent in spring. Occasionally, tropical disturbances occur late in summer or early in fall. They occur most frequently in September, but rarely are they of hurricane intensity. When tropical storms occur, they often produce very heavy rains in the county.

Chambers County has a long growing season (freeze-free period) that averages 261 days. The average date of the last occurrence of 32° F in spring is March 5, and the first occurrence of 32° F in fall is November 21. The average annual rate of lake evaporation is 52 inches.

Water Supply

Canals, rivers, bayous, reservoirs, freshwater and brackish water lakes, and stock ponds make up a large part of the county.

Individual water areas range from 4 acres to more than 4,500 acres in size.

Water areas are used for water supply, drainage outlets, shipping facilities, fishing, wildlife, and recreation. These areas are not placed in capability units or in other soil groups.

Surface Geology[7]

Chambers County lies within the Coastal Plain of Texas. The geologic formations slope gently toward the Gulf. The soil associations shown on the "General Soil Map" at the back of this survey can be closely correlated with the pattern of geologic units as shown on the Houston Sheet (*4*).

For this discussion, the geologic formations in Chambers County are divided into three groups according to age: (1) Recent, (2) late Pleistocene or early Recent, and (3) Pleistocene.

The youngest soils in the county are those in the Harris-Kaufman and the Harris-Veston-Ijam associations. Recent, or Holocene, alluvial deposits of the Trinity River and the coastal marsh are the parent materials of these soils. The Trinity River deposits in the Harris-Kaufman association are essentially a series of successive, abandoned deltas that are abandoned and eroding on the east and are active and growing on the west[8] (*6*). Linear sandy areas that are included in Kaufman clay, frequently flooded, are natural levees

[7] By SAUL ARONOW, Department of Geology, Lamar State College of Technology, Beaumont, Texas.

[8] M. C. MCEWEN, Sedimentary Framework of the Trinity River Delta, Ph.D. thesis, Rice University, Houston, Texas, 1961. (Unpublished)

31505

that were deposited along distributary channels of the deltas.

The coastal marsh deposits in the Harris-Veston-Ijam association are growing in size. New material is added by storm overwash, organic matter accumulation, stream deposition, and very slow mass wasting of higher areas to the north. The parent materials are thin in places. Sediment from the older, underlying Beaumont Formation was locally excavated and brought to the surface when the Intracoastal Canal was dug and dredged out over the years. These areas make up part of the Ijam soils. Some saline areas of the Beaumont Formation also are in this association.

The most recent formations in the county, the Trinity River delta complex and the coastal marsh, were probably deposited within the past 4,500 years, when the sea level reached its present position. The most recent delta of the Trinity River, which separates Lake Anahuac from Trinity Bay, has been dated by radiocarbon methods. It was formed within the past 1,000 years (*5*).

The Deweyville Formation of the late Pleistocene or early Recent is mapped on the Houston Sheet as several terrace levels in the area north and northwest of Lake Anahuac (*4*). This formation is the parent material of the Acadia, Vaiden, and Calhoun soils in the Vaiden-Acadia-Calhoun association and of the McKamie and Morey soils. Acadia, Calhoun, Morey, and Vaiden soils are also near the Deweyville terraces on the upland Beaumont Formation. McKamie soils are only on these terraces. Morey soils are on the lowest terraces, along Interstate 10 near Wallisville. Some Morey soils are clayey and formed in the same kind of material as their upland counterparts. Some formed in straths or on terraces cut into the older Beaumont Formation, rather than on local, younger surfaces of river deposits.

The age of the terrace material (Deweyville Formation) on the east side of the Trinity River has been dated by radiocarbon methods. It ranges from more than 30,000 (*3*) to about 12,000 years in age. This Deweyville Formation may span in age the beginning of downcutting, when glaciers began to melt and the sea level began to rise (about 25,000 to 18,000 years ago). Old meander patterns on the surface of Deweyville deposits are several times larger than those of the present river flood plain. This indicates that stream discharge was considerably greater in the past, probably because of high-rainfall climates and melting glaciers. The higher terraces in Chambers County may record the beginning of downcutting. Lower terraces and large meander scars, similar to those on the eastern edge of Lake Anahuac and Lake Charlotte, may record the continuation of this water movement, when the valley refilled as the glaciers melted and the sea level rose.

Most of the Beaumont Formation, which is Pleistocene in age, consists of river deposits. Embedded in this formation, however, are deposits of a barrier island-beach system. This partly buried, segmented system was first identified near Corpus Christi Bay and was named for Ingleside, Texas, by W. A. Price (*5*). The Ingleside System is the parent material of the sandy soils in the Stowell-Clodine association and of the Anahuac-Morey-Frost association. Clodine and Frost soils are in rounded depressions within sandy areas. These depressions are in part wind excavated or modified; in part segmented, interbeach-ridge depressions; and in part segmented "guts" made during hurricanes. All are features that can be seen on present-day barrier islands.

The Beaumont Formation developed in a manner similar to the large alluvial plains of the present-day Brazos and Rio Grande Rivers. The Ingleside System, now tilted so that it is lower in the Smith Point area and rises to the northeast, is analgous to the present, barrier island-beach system of the Texas coast.

Following the deposition of the Beaumont Formation, sea level fell, perhaps as much as 450 feet below its present level, when the continental ice sheets advanced in North America. Water was taken from the oceans and locked up in these glaciers. The Trinity River, like the rest of the Gulf Coast streams, deepened its channel, entrenched the Beaumont Formation, and flowed across the vacated continental shelf before entering the Gulf of Mexico. When sea level rose during the retreat and melting of glaciers, Trinity Bay and the wide, alluvial valley upstream were flooded. The bay and valley were remnants of the older, larger, and deeper valley. The Trinity River is now filling this valley, but it has not yet completely succeeded as have the Brazos and Rio Grande Rivers.

River deposits of the Beaumont Formation were made by the Pleistocene Trinity River (*2, 12*) as a successive, laterally migrating series of meander belts that terminated in deltas. The soils of the Anahuac-Morey-Frost association are on the slightly elevated meander belts that are old, stream-channel, levee, and point-bar deposits. Anahuac soils are mostly on old point bars. Frost soils are in the depressional, winding or curved areas of abandoned channels and oxbows. In places these depressions may be of lake origin.

Soils of the Beaumont-Morey-Lake Charles association are in broad, lower areas that were formerly backswamp and intermeander belt "lows." Much of the natural drainage and part of the manmade canal and ditch systems in Chambers County were influenced by these "lows"; for example, Spindletop Bayou and the East Fork of Double Bayou.

Radiocarbon dates on wood and shells from both parts of the Beaumont Formation are older than 40,000 years, which is beyond the range of accurate dating. The Beaumont Formation was deposited during an interglacial period, or during one of several periods in which the ice retreated and the sea level rose. This interglacial period has been identified as possibly mid-Wisconsin (*3*), or as the older interval between the Wisconsin and Illinoian glacial stages, called the Sangamon. It is estimated that this interglacial stage ended about 70,000 years ago.

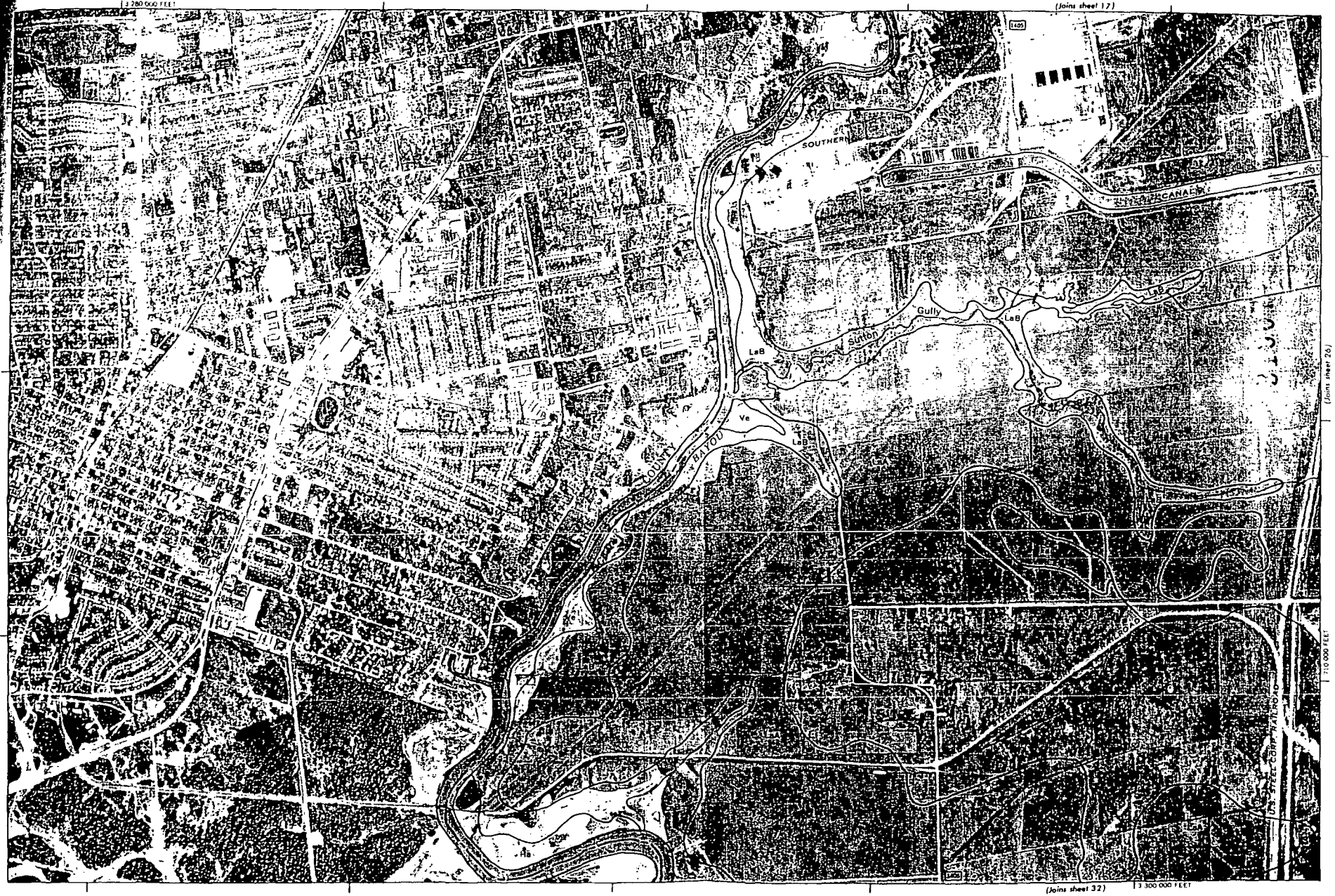
Literature Cited

(1) American Association of State Highway Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(2) Barton, D. C. 1930. Surface geology of coastal southeast Texas. Amer. Assoc. Petrol. Geol. Bull., vol. 14, No. 10, pp. 1301–1320, illus.

(3) Bernard, H. A., and Leblanc, R. J. 1965. Resume of the quaternary geology of the northwestern Gulf of Mexico Province. *In* The Quaternary of the United States. Princeton, N.J., Princeton University Press. 922 pp., illus.

CHAMBERS COUNTY, TEXAS — SHEET NUMBER 25



CHAMBERS COUNTY, TEXAS, NO. 25

Document 32

TELEPHONE MEMO TO THE FILE

Call To: Rodney LeBlanc Chief Certified Operator City of Baytown Public Water Supply	Call From: Johnny Kennedy SSDAT, TNRCC Region 12 - Houston
Date of Call: 07/07/99	File No: TXD981606932
Phone No: 281/420-5306	Subject: Facility Status

Information for File:

Mr. Rodney LeBlanc was contacted in order to verify the status of the public water supply wells in the City of Baytown's systems.

He stated that there are eight wells in the system, but these wells are only for demand purpose. The wells have never been put into service. The City only has one main line connecting it to its surface water source. If this line were to fail, within 24 hours the water tanks would be drained and the city would then require use of the ground water wells. These wells are tested once a month, but the water is not pumped into the system. The Cedar Bayou well listed on the inspection report has been recently capped - no longer serviceable.

32001

Document 33

TNRCC

Protecting Texas by Reducing and Preventing Pollution

FAX TRANSMITTAL

DATE: July 7, 1999 NUMBER OF PAGES *(including this cover sheet):* 3

TO:

Name	Johnny Kennedy
Organization	TNRCC Region 12
FAX Number	(713) 767-3561

FROM: TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Name	Matt Court
Division/Region	Water Utilities Div.
Telephone Number	(512) 239-6020
FAX Number	(512) 239-6050

NOTES:

Johnny,
I found five wells in the system 1010003 that fall within the 4-mile radius of the site. The wells are G1010003A,B,C,I, & J. I am sending 2 photocopies of maps that show the wells. The first shows wells A,B, & C and the site. The second shows wells I & J and approximate location of the site. Let me know if you need anything else.

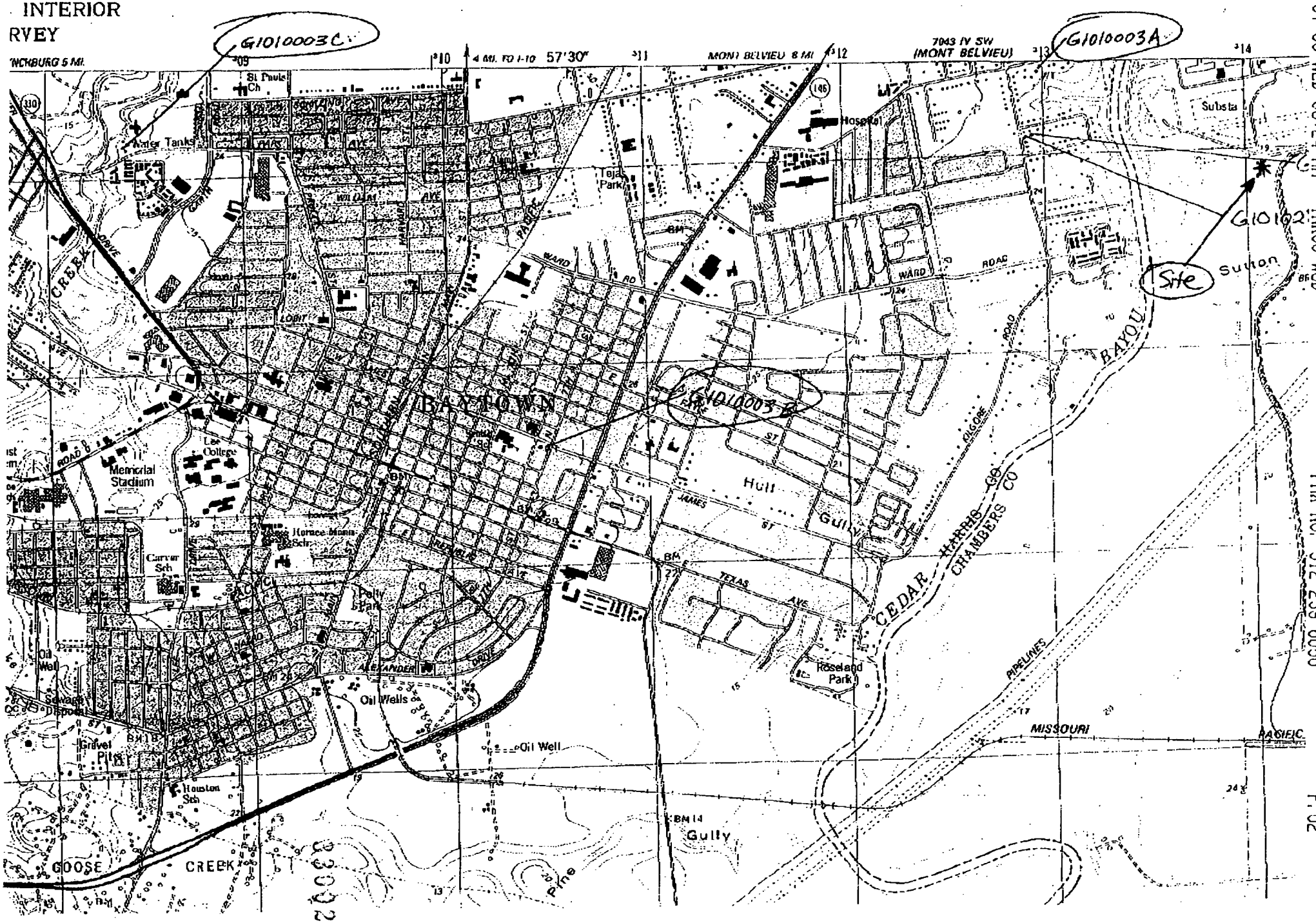
Matt Court
Public Drinking Water Section
SWAP Team
(512) 239-5844
mcourt@tnrcc.state.tx.us

33001

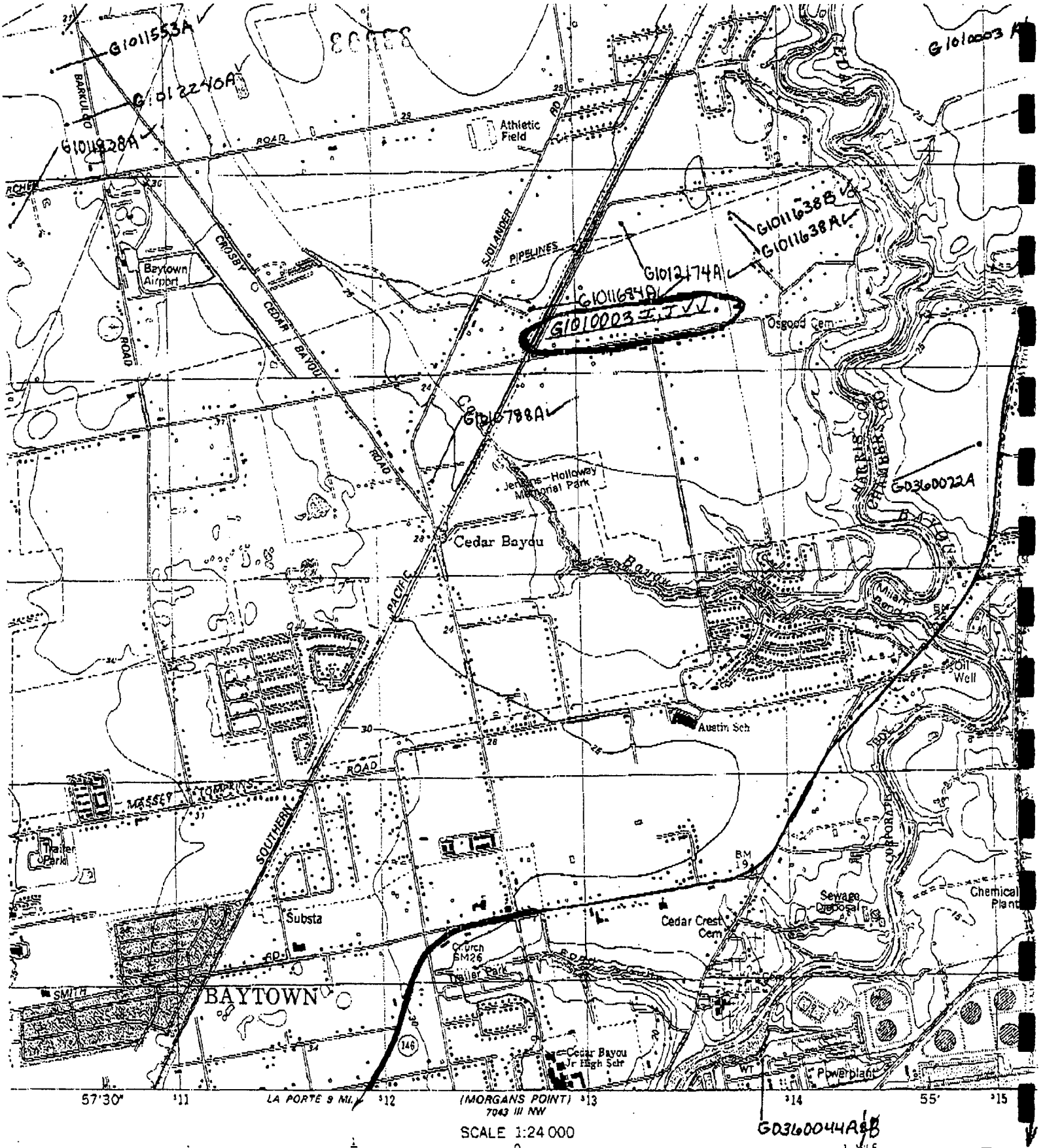
JUL-07-99 WED 08:25 AM TNRCC-WOD FAX NO. 512 239 6050 P.01

G1010003 A,B,C
→within 4 mile radius of site

ES
INTERIOR
RVEY



JUL-07-99 WED 08:24 AM TNRCC-WUD FAX NO. 512 239 6050 P. 02



G1010003 I,J
→ within 4 mi radius of site

Approx ½ M

Document 34

TNRCC

Protecting Texas by Reducing and Preventing Pollution

FAX TRANSMITTAL

DATE: July 6, 1999 NUMBER OF PAGES *(including this cover sheet):* 4

TO:

Name	Johnny Kennedy
Organization	TNRCC Region 12
FAX Number	(713) 767-3561

FROM: TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Name	Matt Court
Division/Region	Water Utilities / Region 11
Telephone Number	(512) 239-5844
FAX Number	(512)239-6050

NOTES:

Dear Mr. Kennedy,

Our database indicates that there are no surface water intakes within the area you have indicated. As far as Wellhead Protection Areas are concerned: There is one system that is currently involved in wellhead protection. That system is PWS ID# 1010003 in the City of Baytown. I am sending you an attachment titled Water Well Report For 1010003, Baytown, City of that contains all of the appropriate data for this system. I have also included an attachment titled Description of Codes used for the Report of Public Water Supply Well Information for Wells located on Quadrangle Map that describes the codes used in the report. If you need further assistance please feel free to contact me anytime.

Sincerely,

Matt Court
Source Water Protection Program
Public Drinking Water Section
Water Utilities Division
mcourt@tnrcc.state.tx.us
(512) 239-5844

34001

Description of Codes used for the

"Report of Public Water Supply Well Information for Wells Located on Quadrangle Map:"

The TNRCC, Water Utilities Division, Public Drinking Water Section makes no claim as to the accuracy or completeness of the data contained in the "Report of Public Water Supply Well Information for Wells Located on Quadrangle Map:", the USGS topographic maps with plotted well locations, the ground water well databases (Vap-Loc.db and Vap-Det.db). These and other data files were created and are updated solely for the use of TNRCC Source Water Assessment and Protection Team. Any other user assumes all liability for omissions and inaccuracies.

The user is referred to the actual databases where the information is maintained, the data dictionaries describing the attributes of each field, and the paper files located in the TNRCC's Record Services Section. The following information describes some of the data fields of these databases in order for the user to understand basic information about raw water sources plotted on the topographic maps.

PWS ID — A seven digit number assigned to each public water supply (PWS) system in the State. The first three digits refer to the county number of the water system (001-254).

{C PWS} — This field refers to the type of PWS and is printed after the name of the system on the report. There are three categories of PWS systems: C: Community; P: Non-transient, non-community; and N: Transient, non-community. Refer to the Rules and Regulations for Public Water Supply systems in Texas (§290) for the legal definitions of each of these types of systems.

{# Population} — This is the estimated population served by the PWS system.

WATER SOURCE — A nine or ten character field assigned to each raw water source used in a public water supply system. This field is listed in all databases and printed on the topographic maps next to each raw water source location. Water wells begin with the character G..., surface water intakes begin with the character S..., and springs begin with the character N... . The first character is followed by the seven digit PWS ID number. The last one or two characters refer to the individual well or surface intake, such as well A, B, and so on.

EP# — This refers to the Entry Point that the well or surface intake is linked with. Entry points are sites where treated drinking water first enters the distribution system.

Status — This field refers to the operational status of the well or intake, based on the most recent sanitary survey. The following codes are used to denote the status:

O	Operational	C	Capped water well.
D	Demand. Used for peak demand periods.	A	Abandoned water well.
E	Emergency. Used only for emergencies.	T	Test well, not operational.
N	Well not used in the water system.	P	Plugged water well.
Y	PWS not active and not expected to be so.	I	Inactive PWS system.

Owners Name — This is the name or number of the well given by the water system.

St Well # — This field references the Texas Water Development Board's State Well Number, if known. The State Well Number is a seven digit number. This field will contain the first five digits, which were calculated by the location of the well.

Aquifer — This field references the Texas Water Development Board's aquifer code. A full description of the codes can be obtained in the TWDB's Publication UM-50: Ground-Water System Data Dictionary.

Well Depth — This is the depth of the completed water well in feet below ground surface. The VAP-DET.db database must be consulted to determine the source of this number. The depth may be from the driller log, memory of the owner, or several other potential sources.

Date Drilled — This is the date that the well construction was completed. The format is YYYYMMDD.

Water Well Report For 7/06/99

1010003 BAYTOWN CITY OF Page 1

MARK LABLANC PO BOX 424
BAYTOWN , TX 775220424 2814205306

PETE ALFARO MAYOR

System Type: C Population: 70000 Active?: A Last Survey:10/17/97

Water Source	Owner Name	State Well Num.	Aquifer Code	Well Depth	Drill Date	EP	Op
	Latitude Longitude	Quadrangle Number	Well Data			Well	GPM
G1010003A	1A-CEDAR BAYOU	6417201	112CHCTL	500	19520702	999	E
	294458 945603	2994-323	D,7,W,				600
G1010003B	5-JAMES ST.	6417103	112CHCTL	500	19521013	999	E
	294358 945735	2994-323	D,				1210
G1010003C	9-PARK ST.	6417101	112CHCTL	500	19590127	999	E
	294447 945853	2994-323	7,1,R,E,6,D,W,				1500
G1010003D	11-BAKER ST.	6516912	112CHCTL	496	19620000	999	E
	294615 950011	2995-441	2,				1500
G1010003E	12-BARNES ST.	6516904	112CHCTL	500	19520917	999	E
	294527 950149	2995-441	D,7,2,W,				1000
G1010003F	13-RED BUD	6516905	112CHCTL	260	19520916	999	E
	294638 950227	2995-441	D,7,2,W,				500
G1010003G	14-BAYWAY	6516911	112CHCTL	400	19610701	999	P
	294616 950152	2995-441	D,7,2,W,6,1,M,R,I,C,				500
G1010003H	15-DECKER	6516934	112CHCTL	536	19720810	999	E
	294646 950137	2995-441	0,				1000
G1010003I	16-TIMBER RIDGE	64098	112CHCTL	375		999	P
	294705 945538	2994-332	0,				55

24003

Water Well Report For 7/06/99

1010003 BAYTOWN CITY OF

MARK LABLANC PO BOX 424
BAYTOWN , TX 775220424 2814205306

PETE ALFARO MAYOR

System Type: C Population: 70000 Active?: A Last Survey:10/17/97

Water Source	Owner Name	State Well Num.	Aquifer Code	Well Depth	Drill Date	EP	Op
	Latitude	Longitude	Quadrangle Number	Well Data		Well	GPM
G1010003J	17-TIMBER RIDGE	64098		0		999	P
	294704	945539	2994-332	0,			58
G1010003K	PINEHURST 1	64096	112CHCTL	520		999	E
	294750	945426	2994-332	0,			0
G1010003L	PINEHURST 2	64096	112CHCTL	520		999	E
	294750	945426	2994-332	0,			0

TB70.sc TB70.db and TB70-A.db TB70.rl CGI

24004

Document 35

(URL reload)

1990 US Census Data
Database: **C90STF1A**
Summary Level: State--County

Harris County: FIPS.STATE=48, FIPS.COUNTY90=201

PERSONS
Universe: Persons
Total.....2818199
HOUSEHOLDS
Universe: Households
Total.....1026448

35001

(URL reload)

1990 US Census Data
Database: **C90STF1A**
Summary Level: **State--County**

Chambers County: FIPS.STATE=48, FIPS.COUNTY90=071

PERSONS
Universe: Persons
Total.....20088
HOUSEHOLDS
Universe: Households
Total.....6930

35002

Document 36

Environmental Management Inventory of Galveston Bay

Galveston Bay
National Estuary Program
GBNEP-21
October 1992

Environmental Management Inventory of Galveston Bay

35003

text pages printed on recycled paper using soy-based ink

Environmental Management Inventory of Galveston Bay

Susan G. Hadden
Principal Investigator

LBJ School of Public Affairs
The University of Texas

The Galveston Bay National Estuary Program

Publication GBNEP-24
October, 1992

33033

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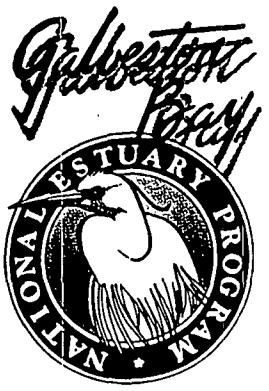
33084



Policy Committee

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CHAPTER TWO
GALVESTON BAY

The Galveston Bay system constitutes the seventh largest estuary in the United States, with 600 square miles of shallow (10-12 foot) water. Because precipitation exceeds mean evaporation and an additional 10 million acre-feet of fresh water enter the estuary annually, the bay has a very low salinity, which in turn is one of the keys to its extraordinary productivity. A second factor is the large number of marsh, forest, and fresh water ponds and lakes that surround the bay, filtering runoff and providing a rich source of nutrients and valuable habitat. The bay supports a wide range of commercial and recreational fishing, producing nearly 7 million pounds of shrimp in 1987 along with oysters, redfish, flounder, and many others. It also provides rookeries for colonial nesting birds. More than 70 species of waterfowl and shorebirds live or migrate through the bay as do 90 species of amphibians and reptiles.

Galveston Bay is composed of four main bodies of water and several smaller side bays. It lies generally southeast of the Houston Metropolitan Area and is fed in part by the San Jacinto River which drains populated areas of northern Harris and southern Montgomery Counties. Other municipalities on its shores include Baytown, Pasadena, Galveston, and Texas City/LaMarque, putting it at the edge of the most heavily populated area of Texas. The bay is surrounded by four counties: Harris, Chambers, Brazoria, and Galveston. The Trinity River, which flows into the bay, cuts through the Dallas/Fort Worth Metroplex. Other municipalities along the Trinity include Athens, Corsicana, Huntsville, and Waxahatchie. Thus the bay is affected by cities and towns with a population of more than 4 million people, although the distance of many of the cities from the bay may reduce the effects of pollution from them. In addition, it is at the center of the state's petrochemical industry, with 30 percent of U.S. petroleum industry and nearly 50 percent of U.S. production of ethylene and propylene occuring on its shores.

In order to support ocean-going ship traffic, the Houston Ship Channel was cut across Galveston Bay: a 400-foot-wide, 40-foot deep cut through the floor of the otherwise shallow bay. The channel has allowed the Port of Houston to become the third largest port in the United States. The channel carries 70 percent of the state's total port traffic and generates over $3 billion of revenue to the state and local economy. More than 150 companies line the channel, primarily producing petrochemicals and steel. It is estimated that over 110,000 Texas residents are employed in organizations that are related to business activity along the Houston Ship Channel. In addition, the Gulf Intracoastal Waterway, a barge channel, crosses the bay.

In short, Galveston Bay is of great economic importance to Texas. The Port of Houston generated $3 billion in revenue in 1987; the Intracoastal Waterway system carried almost 73 million tons of commodities in 1986. In May 1988, when then-Governor William

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Clements nominated Galveston Bay as an estuary of national significance, the Texas Water Commission estimated the total economic value of its natural resources, including habitat, fishing, and recreation, to be $2.74 billion.

The economic importance of the bay contributes to the difficulty of developing coherent and sensible policies for environmental protection. On the one hand, the continued economic importance of the bay depends upon its environmental health, including its ability to sustain fishing and recreation. On the other hand, environmental protection must be balanced against long-established patterns of use whose disruption could be extremely costly. Phase 2 of this project will include an evaluation of the present balance between these competing values embodied in the present set of laws and regulations and agency practices. However, the purpose of this phase, the environmental regulatory inventory, is to sketch the existing legal framework for protection of the bay's environment. The following sections are organized according to several problems identified by the Management Conference of the Galveston Bay National Estuary Program.

35003

Document 37

TELEPHONE MEMO TO THE FILE

Call To: Becky Power H.P. Gas Products, Inc. Baytown, Texas	Call From: Johnny Kennedy SSDAT, TNRCC Region 12 - Houston
Date of Call: 07/02/99	File No: TXD981606932
Phone No: 281/383-7236	Subject: Facility Status

Information for File:

Ms. Power was contacted to determine whether H.P. Gas Products, Inc. has an on-site drinking water well and to determine the number of permanent employees at the facility.

She stated that H.P. Gas Products, Inc. has a water well of an unknown depth, but the well is not used for drinking water purposes. She also stated that there are 4 permanent employees at the facility.

37001

Document 38

TELEPHONE MEMO TO THE FILE

Call To: Mary Rakestraw Triple S Equipment Co. Baytown, Texas	Call From: Johnny Kennedy SSDAT, TNRCC Region 12 - Houston
Date of Call: 07/02/99	File No: TXD981606932
Phone No: 281/383-2870	Subject: Facility Status

Information for File:

Ms. Rakestraw was contacted to determine whether Triple S Equipment Company has an on-site drinking water well and to determine the number of permanent employees at the facility.

She stated that Triple S Equipment Company has two water wells of unknown depths, but neither well is used for drinking water purposes. She also stated that there are 20 permanent employees, but some are truck drivers and not present at the facility throughout the day.

BOOKMARK

TNRCC

Protecting Texas by Reducing and Preventing Pollution

Preliminary Assessment Report

Fine Organics Site
Baytown, Chambers County, Texas
TXD 981 606 932

Volume II of II

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI

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

August 1999

TNRCC

Protecting Texas by Reducing and Preventing Pollution

Preliminary Assessment Report

Fine Organics Site
Baytown, Chambers County, Texas
TXD 981 606 932

Volume II of II

REGION VI

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

August 1999

Appendix D
RMT, Inc.
Environmental Investigation
of the Fine Organics Corporation
Baytown, Texas

PRIVILEGED INFORMATION
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ENVIRONMENTAL INVESTIGATION INCLUDING A COMPLIANCE ASSESSMENT OF FINE ORGANICS CORPORATION BAYTOWN, TEXAS

WEST BAY ORGANICS

RECEIVED
FEB 26 1999
REGION 12

November 1998

Kelly Krenz
Senior Project Manager

00001

RMT, INC.
11811 IH-10 EAST, SUITE 450
HOUSTON, TX - 77029-1954
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Section 1
Introduction

1.1 Background

RMT, Inc. (RMT), acting at the request of West Bay Organics, Inc. (West Bay), conducted an environmental investigation including a limited compliance assessment of the closed Fine Organics Corporation, located in Chambers County, at 6655 West Bay Road in Baytown, Texas. West Bay Organics is considering the transfer of property ownership and has retained RMT to identify potential environmental liability associated with pre-development property use and the construction and operation of the organics manufacturing plant at the subject property (Appendix A).

The subject property is about 48 acres and the developed portion of the property is approximately 5 acres in size. Although developmental planning occurred as early as 1984, the existing organics manufacturing plant was constructed in 1994-1996. The plant was operated by approximately 20 employees for a short period of time. The pilot plant was operated for approximately 1 year and the plant was on-line for about 3 months before it was shut down. The plant closed on October 6, 1997. Since that time, the facility has been inactive, although a 24-hour guard is provided, in conjunction with security gates and fences.

1.2 Purpose

The purpose of the environmental investigation was to identify **recognized environmental conditions (RECs)** associated with a property. While this project did not conform to ASTM *"Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process"*; Designation E1527-97, definitions found in that standard that applies to these services including:

- **Recognized Environmental Conditions** - the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.
- **Reasonably Ascertainable** - information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints, and (3) practically reviewable.

- **Publicly Available** - information that is publicly available means that the source of the information allows access to the information by anyone upon request.
- **Practically Reviewable** - information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the property without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the property or a geographic area in which the property is located are not generally practically reviewable. Most databases of public records are practically reviewable if they can be obtained from the source agency by the county, city, zip code, or other geographic area of the facilities listed in the record system. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally practically reviewable. Listings in publicly available records, which do not have adequate address information to be located geographically, are not generally considered practically reviewable. For large databases with numerous facility records (such as RCRA hazardous waste generators and registered underground storage tanks), the records are not practically reviewable unless they can be obtained from the source agency in the smaller geographic area of zip codes. In other words, when so much data is generated that it cannot be feasibly reviewed for its impact on the property, it is not practically reviewable.

The purpose of the environmental compliance assessment performed at the property was to:

- review on-site documents pertaining to the current compliance status with applicable environmental regulations and to identify significant environmental compliance-related issues that can be discovered without a detailed documentation/records review normally undertaken in a detailed environmental compliance audit.

1.3 Scope of Services

This environmental site investigation was conducted in accordance with the terms and conditions specified in RMT's proposal to West Bay Organics dated October 28, 1998 (Appendix A).

The following activities were conducted as part of the environmental site investigation:

- Interviews with employees to assess current and historical property use or releases of hazardous substances or petroleum products at the property;
- A visual inspection of readily accessible areas of the property;
- A review of readily available documents identifying historical uses of the property and adjacent properties;
- A review of available local, state, and federal environmental agency records within the minimum search distance as specified by the ASTM Standard for the property;

1.4 Methodology Used

RMT performed the data compilation and review, site inspection, regulatory database review, and regulatory compliance evaluation according to the methodology described below.

1.4.1 Data Compilation and Review

RMT has reviewed the existing Phase I ESA, other reasonably available historical data on the subject property i.e., local historical maps, TNRCC Air Quality files, U.S.G.S. topographic maps (current and historic) and geologic maps, to determine if any prior ownership or activity on the site indicates a likely presence of environmental impairment. In addition, we reviewed the water well drilling record for the on-site water well. Soil survey reports and maps and hydrogeologic information were examined and summarized to develop a clear description of local geology and hydrology.

1.4.2 Site Inspection

This site investigation was limited to a visual inspection of readily accessible (cleared) areas of the developed portion of the property. The methodology used for site reconnaissance consisted of a visual assessment of the property building and grounds in order to obtain information indicating the presence or likely presence of recognized environmental conditions. RMT conducted a single site reconnaissance visit to collect information about recognized environmental conditions in connection with the site and to visually observe the facility and structure(s) located on the developed portion of the property. The status of the site on the day of the reconnaissance visit was documented through photographs of on-site facilities. Observations were made and documented regarding:

- on-site structures and improvements;
- areas of visible contamination;
- drums, totes, above-ground tanks, and other chemical storage;
- evidence of underground storage tanks;
- electrical transformers; and,
- evidence of on-site waste disposal (such as septic systems, dry wells, floor drains from production areas, waste lagoons, waste piles, landfills, pits, or sumps).

Areas that were not cleared of vegetation were not examined during the one-day inspection. To reiterate, the undeveloped portion of the property was not examined.

RMT performed a visual observation of adjoining properties, including the adjacent H.P. Gas Products, Inc. facility (from a distance, without entry onto the property). Such visual observations focused only on obvious evidence of problems. No detailed investigation of adjoining properties was included in the Scope of Services performed. Descriptions of activities on adjoining properties were based on visual observations, from a distance, and any additional information provided during the environmental database review, site interviews, or information requests from local municipal agencies. An evaluation of the potential for environmental impairment of the subject property from adjacent sites was based on RMT's experience with similar off-site sources.

RMT also interviewed Mr. Rod Eggen, the former property owner, who has a good knowledge of the history and physical characteristics of the site. During the site reconnaissance visit, we contacted state or local agencies, as necessary, in person, by telephone, or in writing, to obtain reasonably available information regarding environmental issues at the site.

1.4.3 Regulatory Database Review

RMT used Environmental Data Resources. Inc. (EDR) to perform regulatory database searches covering the subject site and surrounding properties to determine if any of these properties appear on key regulatory databases. The review included the following environmental record sources:

Database	Maximum Search Distance (Miles)
Federal NPL site list	1.0
Federal CERCLIS list	0.5
Federal RCRA TSD facilities list	1.0
Federal RCRA generators list	0.25
Federal ERNS list (property and adjoining properties only)	Site & Adjoining
State lists of hazardous waste sites identified for investigation or remediation (NPL and CERCLIS equivalents)	1.0
State landfill and/or solid waste disposal sites lists	0.5
State registered, leaking UST list	0.5
State registered UST list	0.25

In addition, RMT expanded the EDR report request to include any oil and gas wells or water supply wells within a ½ mile radius of the subject site.

1.4.4 Regulatory Compliance Assessment

The site team included a compliance specialist who quickly reviewed the status of the site relative to applicable environmental compliance requirements. In general, approximately 12 boxes of facility documentation were shipped to the Fine Organics Corporation office trailer at the request of Mr. Eggen. The environmental information identified in a 3-hour, file-sorting session formed part of the regulatory compliance assessment. While onsite, RMT interviewed the facility manager, Mr. Lawrence Beharry, regarding the content and status of current environmental permits and agreements. Environmental compliance assessment activities, including monitoring, recordkeeping, and reporting procedures, were evaluated, to the extent possible, through a review of available compliance files the day after the one-day site inspection. Information from the onsite interviews was also used during the compliance assessment evaluation, as were TNRCC Air Quality file records.

1.4.5 Development of Site Investigation Report

RMT has prepared this Environmental Investigation Report for the subject property. This report identifies the potential for environmental impairment or liability that may be associated with recognized environmental conditions at the property and the current compliance status relative to applicable regulatory requirements. RMT has also made recommendations with respect to on-site soil and groundwater sampling.

Ms. Kelly Krenz and Ms. Eileen Tanner of RMT performed the site inspection on November 2, 1998 (see Environmental Professional Qualifications, Section 7). During the site inspection, Mr. Lawrence Beharry (Fine Organics Corporation) accompanied RMT; Mr. Robert Jacques and Mr. Todd Thompson of RMT (see Section 7) provided quality assurance for this project.

1.5 Limitations and Exceptions of Assessment

- West Bay Organics is advised that the Scope of Services described herein is not equivalent to ASTM "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*"; ASTM Designation E1527-97.
- West Bay Organics is advised that the Scope of Services described represents a LIMITED INQUIRY into a property's environmental status and is not sufficient to discover every potential source of environmental liability, if any, of the property to be evaluated. ***Therefore, RMT cannot, under any circumstances, make a statement of warranty or guarantee, express or implied, that the site is free of recognized environmental conditions, environmental impairment, or that the site is "clean" or that impairments, if any, are limited to those that are discovered while we are performing this environmental investigation.*** This limiting statement is not meant to compromise the findings of our

report; rather it is meant as a statement of limitations within the intended scope of this assessment.

- RMT's findings and opinions will be based on information that is available and obtained at the time of the investigation through site reconnaissance, standard investigation techniques used in the industry at this time, records review, and other related activities. It is possible that other information exists or subsequently becomes known that may impact or change the site after observation.
- In conducting this environmental investigation and preparing its report, RMT will review, interpret and rely upon information provided by others, including but not limited to, West Bay Organics, individuals, government authorities, subcontractors and other entities. RMT will not perform an independent evaluation of the accuracy or completeness of such information and RMT will not be responsible for any errors or omissions contained in such information.
- *RMT's Report, along with the findings and conclusions contained in the Report, either in completed form, summary form or by extraction is prepared for and intended for the sole use of West Bay Organics and therefore may not contain sufficient information for other purposes or parties. West Bay Organics is the only intended beneficiary of this report.* The contents of RMT's report will continue to be the property of RMT and are protected by copyright. RMT's report may not be disclosed to, used by or relied upon by any person or entity other than the West Bay Organics without the express written consent of RMT.
- Authorization for disclosure to a third party or authorization for third party reliance on a final report of any ESA will be considered by RMT upon the written request of West Bay Organics. RMT reserves the right to deny authorization to allow disclosure or reliance of RMT's report to third parties.

Section 2
Site Assessment

2.1 Site Description

The subject site includes the closed Fine Organics Corporation facility located at 6655 West Bay Road in Baytown, Texas (Chambers County). The property is approximately 48.791 acres in size and consists of approximately 5 acres of developed and 43 acres of undeveloped land. The developed portion of the Site consists of an organics manufacturing plant ("Plant"). The Plant was constructed during the 1994 - 1996 time period. The organics manufacturing plant is the subject Site of this environmental investigation. The property is situated along the east bank of Cedar Bayou, which is the dividing line between Harris and Chambers counties. H.P. Gas Products, Inc. is located immediately adjacent to the subject site, to the east of the northeast corner of the property. The subject property has several buildings located within the fenced developed area of Fine Organics Corporation. These include a control room for the manufacturing plant, two portable buildings, the managerial offices and maintenance office, and a pole-barn structure used for storage.

2.1.1 Location

The site is located in the extreme western side of Chambers County, adjacent to the eastern corporate boundary of the City of Baytown, Texas. The street address of the site is 6655 West Bay Road, Baytown, Texas. The site is bounded on the north by Houston Lighting and Power (HL&P) Cedar Bayou power generation plant property, on the south by undeveloped land, on the east by West Bay Road, and on the west by Cedar Bayou.

Figure 1 depicts the site location and topographic setting. Figure 1 was developed from the Mount Belvieu and Morgans Point U.S. Geological Survey 7.5-minute quadrangle maps dated 1994 and 1993, respectively. A facility site layout map is provided as Figure 2 and includes a large portion of the developed property. Mr. Lawrence Beharry, representative of Fine Organics Corporation, provided this map to RMT, on November 2, 1998. The legal description and the survey plat for the subject site is included as Appendix B.

2.1.2 Site and Vicinity Characteristics

The subject property is located in an area of mixed use. Residential properties are located to the south and southeast, industrial property to the north and northeast, and

rural property interspersed throughout the general area. The subject site is bounded on the north by HL&P's Cedar Bayou power generating plant, on the east by West Bay Road and the Triple S Company, on the south by undeveloped land and a residential area, and on the west by Cedar Bayou and the City of Baytown (Table 1). Other industrial developments in the vicinity of the subject property include the Bayer Corporation polyurethane manufacturing plant that is located on FM 1405, north of the HL&P plant. Several natural gas and petroleum pipelines also traverse the area.

2.1.3 Description of Structures, Roads, and Other Site Improvements

The subject plant Site consists of the following operational system areas:

- Cooling water system
- Flare system
- Hydrogen compressor
- Product tower
- Nitrogen tank
- Hot oil system
- Ammonia supply system
- Natural gas system
- Potable water system
- Plant air system
- Instrument air system
- Firewater system
- Process sewer system

The equipment/structures summarized in Table 2 are found in the operational areas of the Plant.

In addition, the following general information is provided about the Site.

1. Development of the subject site began approximately 3 years ago and consisted of the construction of the pilot plant, manufacturing/blending vessels, several above-ground storage tanks containing raw materials and finished products, a control room, a pole-barn, and two portable buildings utilized for maintenance supplies and offices. The control room is steel beam construction with a concrete floor. The outer walls are constructed of corrugated steel. The interior walls of this building are finished and insulated and the ceiling is dropped acoustical tile. The maintenance and office portable buildings have corrugated aluminum outer walls

and roofing. The interior walls are finished with simulated wood paneling. Flooring is linoleum tile and sheet vinyl.

2. The heating and cooling systems are electrical powered and each of the main buildings (i.e., the control room, maintenance portable and office portable) have separate heating/cooling units.
3. Sanitary sewage disposal is *via* an on-site septic tank system. Industrial wastewater is collected into a tank, sampled and analyzed (characterized) and then picked up by Bealine Environmental Services, Inc. for disposal at the Gulf Coast Waste Disposal facility in Pasadena, Texas.
4. The facility is not served by a potable water system. The 400-foot, on-site, water well is utilized for cooling and process water only. This water is treated prior to use (it is high in total dissolved solids). Potable water is supplied *via* bottled water at water coolers located in the control room and office portable.
5. The fire suppression system for this facility consists of a firewater pond located on the south side of the control room, a firewater pump station and appurtenances. Fire extinguishers are also located throughout the process areas and inside the control room.
6. HL&P supplies electrical power to the property. The transformers located on-site are owned by HL&P and are reportedly filled with mineral oil.
7. Natural Gas Pipeline of America supplies natural gas to the subject site. Propane is also utilized on site as an energy source.
8. Mid Con Texas Pipeline Company provides the raw material, liquefied hydrogen, to the Plant. Both pipelines are metered at a fenced-in transfer station located on the north side of the facility access road. The pipelines are protected with cathodic protection.
9. One unimproved roadway enters the subject property from West Bay Road. Parking areas are provided west of the portable office and west of the portable maintenance building.

2.1.4 Information Reported by Fine Organics Corporation Regarding Environmental Liens or Specialized Knowledge or Expertise

Mr. Rodman Eggen is the former owner of the property and has been associated with Plant operations and development. Mr. Eggen was available to provide information, as was Mr. Lawrence Beharry, a former Plant employee and current property caretaker. According to Mr. Eggen and Mr. Beharry, there are no known environmental liens on the Property. Other than the Phase I ESA performed in 1995 by Phase One Environmental, Inc., Mr. Eggen and Mr. Beharry stated that they were not aware of any other environmental assessments. However, during the facility records review, a report titled, "Environmental Impact Assessment for a Light Ends Refining Plant", was

identified. This report was prepared for HANSA Manufacturing in May of 1986 to be submitted to the U.S. EPA for the permitting of a new source category industry. Information from that report is incorporated into this investigation.

During the facility records search, several pertinent letters were found in the facility management files. One was dated March 6, 1997 and addressed the purchase of Environmental Liability Insurance for the Fine Organics Corporation property from Ben Moore Insurance Company. Another letter, dated May 8, 1997, was issued by AIGEM and addressed liability at the Plant. This letter also makes reference to a review of the Plant's existing SPCC Plan. AIGEM's environmental liability-reduction recommendations included the statement that wetlands should be delineated prior to further site development and that secondary containment should be constructed for the 2 on-site fuel above-ground storage tanks (ASTs). Mr. Eggen's written notational response to both recommendations was compliant. The last recommendation received the notation that the "two fuel tanks are empty and will be removed from the property. We do not plan on using them."

2.1.5 Current Uses of the Property

Specialty organic chemical manufacturing operations were discontinued on October 6, 1997. Since that time, the facility has been non-operational. There is a posted 24-hour guard and the gates and fences are kept closed and locked when not in use.

During December 1997, the facility reported storage of the following raw materials and products:

- 12, 387 gallons of cyclohexylamine (99.8 percent).
- 5,531 gallons of cyclohexylamine,
- 6,336 gallons of heptane and wax,
- 500 gallons of acetonitrile,
- 19,250 gallons of cyclohexylamine (99.5 percent);

In addition, manufacturing-waste materials are also stored in tanks on the property. These materials include a cyclohexylamine/acetonitrile/aniline/acetone mixture (3,986 gallons) and a cyclohexylamine/acetonitrile/methyl-ethyl-ketone/aniline/acetone mixture (1,044 gallons).

According to the December 1997 waste inventory, drummed materials are being stored on-site. The inventory reports a total of 100 drums of finished product and 4 drums of slop material. There are numerous 55-gallon drums, labeled hazardous waste, staged at

various locations on the property prior to disposal (RECs). In general, according to site interviews, the wastes in the drums have been characterized, drums generally appear to be in fair condition (with weather-related impacts noted), and hazardous waste labels have been affixed to most of the drums, although some do lack labels. In general, the waste drums are not under cover (except for the ones beneath the pipe rack in the process area) and are exposed to the elements (RECs). A number of the drums (25 to 30) are staged north of the isotainer tank area. Many other drums have been placed in rows east and north of the pole barn (Figure 2).

2.1.6 Past Uses of the Property

The property was reportedly undeveloped prior to the construction of the chemical manufacturing and pilot plant. Based on the records review, the area was generally heavily wooded prior to clearing. In addition, the portion of the property along Cedar Bayou, was reportedly used for dredged material disposal. Apparently levees were built that crossed the property in a north-south direction along Cedar Bayou, as evidenced by the topographic map and information provided by the 1984-vintage geotechnical study in the area. On-site drainage features also apparently traversed the property in the area of the levee with Sutton Gully identified in recent permit applications. In addition, the Phase I ESA completed in 1995 identified a possible residential or farm-related structure on the property.

2.1.7 Current and Past Uses of Adjoining Properties

Descriptions of activities on adjoining properties were based on visual observations from a distance and any information provided during the site interviews. Evaluations of the potential for environmental impairment from off-site sources were based on RMT's experience with similar types of facilities.

Since timely information about the description of the property was not available during the site inspection, RMT assumed that the eastern property boundary stopped at the Plant fence. This ended up being true as far as can be determined through an examination of the legal property description. RMT did perform a visual observation of adjoining facilities (from a distance, without entry onto adjoining properties) but our visual observation only focused on obvious evidence of problems. No detailed investigations of adjoining properties or the H.P. Gas Products, Inc. facility were included within this Scope of Services.

Neighboring facilities include HL&P's Cedar Bayou electrical generation plant, H.P. Gas Products, Inc. facility and Bayer's polyurethane plant.

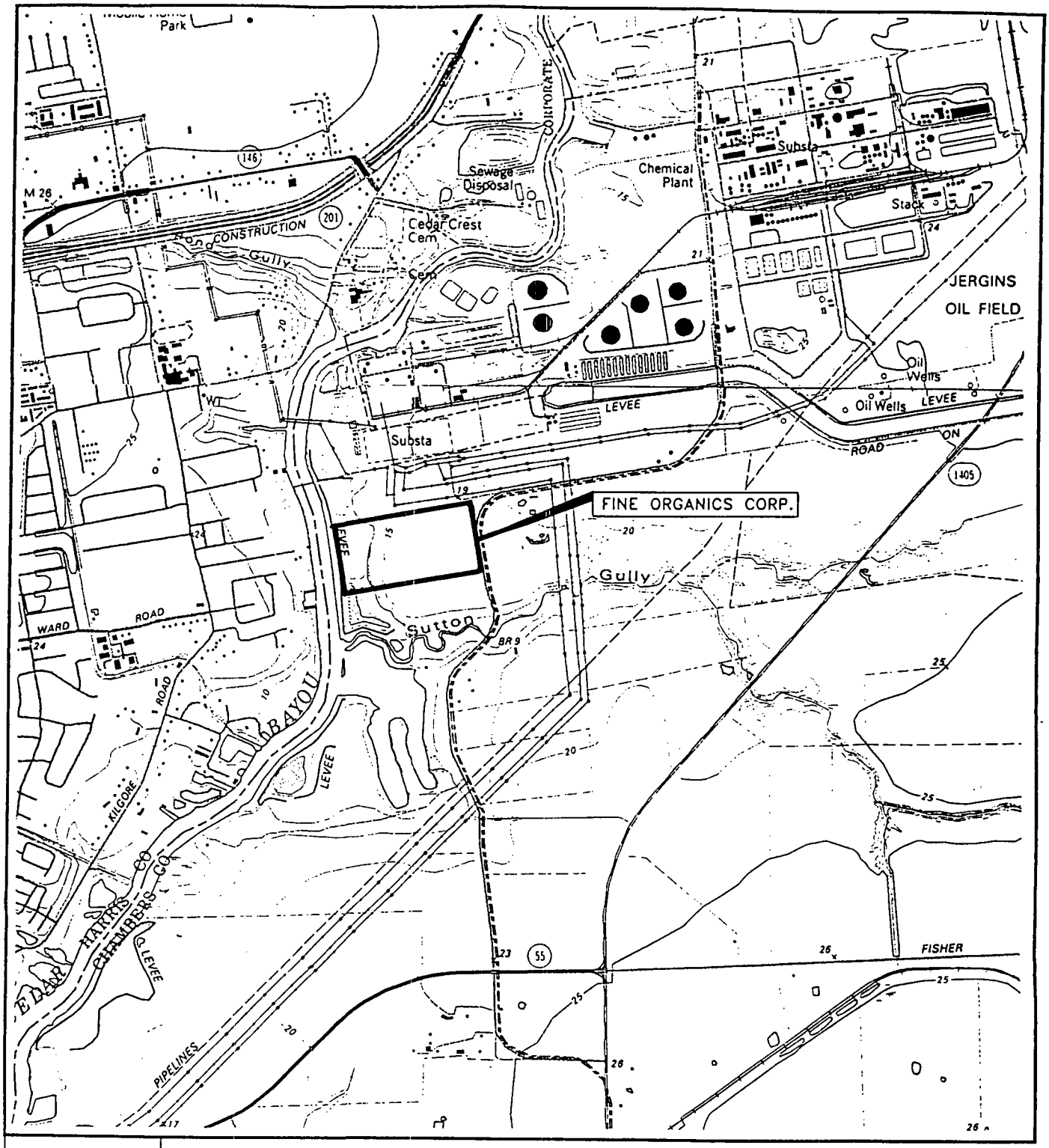
Current uses of the properties adjoining the Fine Organics Corporation site are as follows:

Table 1
Current Properties Surrounding the Subject Site

North	HL&P's Cedar Bayou electrical power generating plant
South	Undeveloped rural (owned by U.S. Steel) and then residential properties
East	H.P. Gas Products, Inc., West Bay Road (FM 1405), and, across the street, the Triple S waste hauling company
West	Cedar Bayou and then a residential area within the city limits of Baytown.

2.1.8 Site Plan

A legal description of the property and a site map were available in the 12 to 16 boxes of files and records examined the day after the one-day site visit. A legal description for the entire tract is provided in Appendix B, as is a property description map. The facility layout map for a part of the developed portion of the Fine Organics Corporation site is provided as Figure 2. RMT received the site layout map from Mr. Beharry. RMT assumes that these data correctly depict the property boundary and Plant layout. Other than directly asking during the site interview process, RMT did not independently verify that the property boundary map and the Plant layout map are correct or current.



00017

SOURCE : USGS TOPOGRAPHIC 7.5 MIN.
SERIES - MORGANS POINT QUADRANGLE (1993)
SERIES - MOUNT BELVIEU QUADRANGLE (1994)

FIGURE 1
SITE LOCATION MAP

FINE ORGANICS CORPORATION
BAYTOWN, TEXAS

RMT INC.

DWN. BY:	W.B.
APPROVED BY:	K.K.
DATE:	11/6/98
PROJ. #	50-02166.01
FILE #	216601-2.dwg

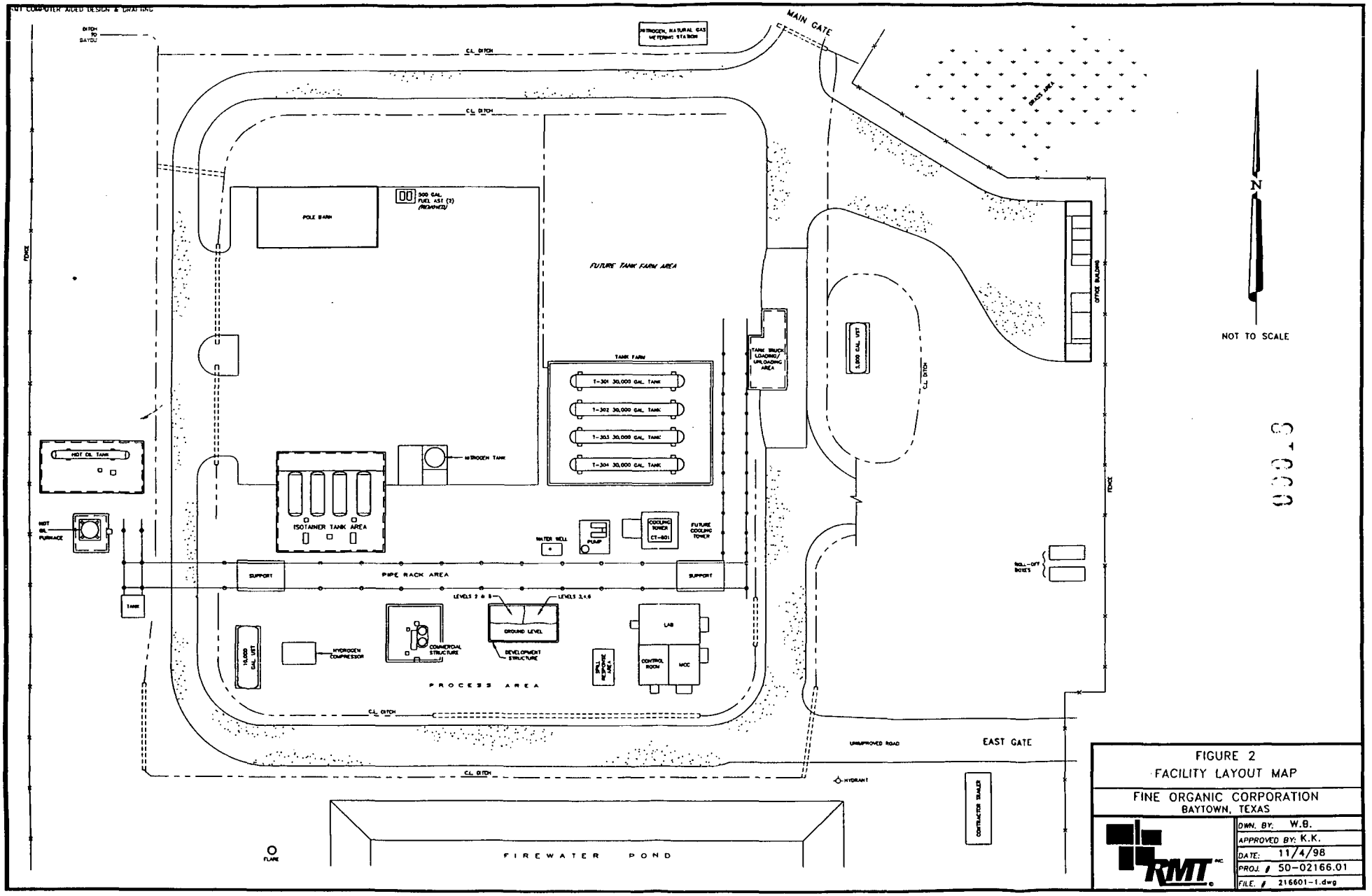


FIGURE 2
FACILITY LAYOUT MAP

FINE ORGANIC CORPORATION
BAYTOWN, TEXAS

RMT INC

DWN. BY:	W.B.
APPROVED BY:	K.K.
DATE:	11/4/98
PROJ. #	50-02166.01
FILE. #	216601-1.dwg

Table 2
Summary of Equipment and Structures

Equipment No.	Location	Description
-	Common Structures	Foundation
-	Common Structures	Steel Fabrication
-	Common Structures	Steel Erection
T-101	Common Structures	Reboiler
T-102	Common Structures	Reboiler
T-103	Common Structures	Reboiler
T-101	Common Structures	Bottoms Cooler
E-106	Common Structures	Product Cooler
E-108	Common Structures	T-101 Condenser
E-109	Common Structures	T-102 Condenser
V-102	Common Structures	E-109 Condenser K.O. Drum
E-110	Common Structures	T-103 Condenser
E-111	Common Structures	T-101 Catalyst Distillation Column
E-112	Common Structures	T-102 Rectifying Column
E-113	Common Structures	T-103 Purification Column
TI-101	Common Structures	T-101 Tower Internals
TI-102	Common Structures	T-102 Tower Internals
TI-103	Common Structures	T-103 Tower Internals
A	Tank Farm	Tank Foundations
B	Tank Farm	Containment/Sump
TK-301	Tank Farm	Ethylene Storage Tank
TK-302	Tank Farm	CHA Storage Tank
TK-303	Tank Farm	Aniline Storage Tank
TK-304	Tank Farm	Acetonitrile Storage Tank
-	Tank Farm	Interconnecting Piping
A	Cooling Tower	Cooling Tower Foundation
CT-601	Cooling Tower	Cooling Tower
P-601-A	Cooling Tower	Cooling Tower Circulation Pump Foundation
P-601-B	Cooling Tower	Cooling Tower Circulation Pump Foundation
TK-606	Cooling Tower	Cooling Tower Basin Tank Foundation
TK-601	Cooling Tower	Cooling Tower Blowdown Tank Foundation
-	Cooling Tower	Interconnecting Piping
A	Pipe Racks	Pipe Rank Foundations
B	Pipe Racks	Steel Fabrication
C	Pipe Racks	Steel Erection
D	Pipe Racks	Pipe Installation

Table 2
Summary of Equipment and Structures

Equipment No.	Location	Description
A	Hot Oil System	Foundation
B	Hot Oil System	Paving
H-101	Hot Oil System	Hot Oil Heater
V-105	Hot Oil System	Hot Oil Tank
P-106	Hot Oil System	Hot Oil Pump
B	Hot Oil System	Interconnecting Piping
A	Flare System	Foundation
F-401	Flare System	Flare And K.O. Drum
B	Flare System	Interconnecting Piping
A	Recycle Compressor	Foundation
K-101	Recycle Compressor	Recycle Compressor
V-101	Recycle Compressor	Knock-Out Drum
V-103	Recycle Compressor	K-101 Suction Drum
V-104	Recycle Compressor	K-101 Separator
B	Recycle Compressor	Interconnecting Piping
A	Fire Water System	Pump Foundation/Sump
B	Fire Water System	Fire Water Pond
P-501	Fire Water System	Fire Water Pump
P-403	Fire Water System	Fire Water Jockey Pump
C	Fire Water System	Fire Water Lines
A	Truck Loading	Foundation/Containment
LR-301	Truck Loading	Loading Rack
	Nitrogen System	Foundation, Air Products Equipment, Piping
TK-306	Miscellaneous Tanks	Heavies Storage Tank
TK-307	Miscellaneous Tanks	Rundown Tank
TK-308	Miscellaneous Tanks	Rundown Tank
TK-309	Miscellaneous Tanks	Rundown Tank
	Miscellaneous Tanks	Isotainer Foundation, Piping
TK-401	Miscellaneous Tanks	Runoff Water 10,000 Gallon Tank - Set Tank
TK-402	Miscellaneous Tanks	Runoff Water 5,000 Gallon Tank - Set Tank
TK-503	Miscellaneous Tanks	Jockey Pump Tank
	Miscellaneous Tanks	Tank Foundation
TK-602	Miscellaneous Tanks	Potable Water Tank
	Miscellaneous Tanks	Tank Foundation
P-101	Pumps	Feed Pump For T-101
P-103	Pumps	T-102 Overhead Production
P-104	Pumps	T-102 Bottoms Pump

Table 2
Summary of Equipment and Structures

Equipment No.	Location	Description
P-301	Pumps	Ethylene Transfer Pump
P-302	Pumps	CHA Transfer Pump
P-303	Pumps	Aniline Transfer Pump
P-306	Pumps	Heavies Transfer Pump
P-307	Pumps	Rundown Transfer Pump

Section 3
Records Review

3.1 Standard State and Federal Environmental Record Sources

Various state and federal record sources are being reviewed to assess the environmental status related to the subject property and properties surrounding the site. These sources will list properties with identified or possible contamination, facilities that generate hazardous waste, sites with underground storage tanks (USTs), and properties involved in state and federal enforcement actions. The following information is based on information provided by Environmental Data Resources (EDR), a computerized database service.

The database and the radii reviewed for the property conform to ASTM Standard 1527-97 E for Phase I ESAs plus ¼ mile. Due to the size of the subject tract, RMT felt a ¼ mile additional search distance around the property was warranted in order to identify sites within the ASTM search radii from the property boundary.

A summary of the database research is provided below (Table 3). A copy of the database research report is provided in Appendix C.

Table 3
Environmental Database Summary

DATABASE	SUBJECT PROPERTY	ASTM MINIMUM SEARCH DISTANCE	SEARCH DISTANCE (MILES)	< 1/8	1/8 TO 1/4	1/4 TO ½	1/2 TO 1
NPL		1.0	1.25	0	0	0	0
RCRIS-TSD		0.5	0.75	0	0	1	–
CERCIS		0.5	0.75	0	0	0	–
State Priority List		1.0	1.25	0	0	0	0
ERNS		Site & Adjoining	Site & Adjoining	–	–	–	–
State Landfill		0.5	0.75	0	0	0	–
LUST		0.5	0.75	0	0	0	1
UST		0.25	0.50	0	0	–	–

Table 3
Environmental Database Summary

DATABASE	SUBJECT PROPERTY	ASTM MINIMUM SEARCH DISTANCE	SEARCH DISTANCE (MILES)	< 1/8	1/8 TO 1/4	1/4 TO ½	1/2 TO 1
RCRIS Sm. Quantity Generator		0.25	0.50	0	0	--	--
RCRIS Large Quantity Generator		0.25	0.50	0	0	1	--

Notes: - Not reviewed.

The target property (Site) appears in the database information as a Texas industrial and hazardous waste site. The inclusion of the subject property on the database merely means that this site is registered in the State of Texas as a generator of industrial and hazardous waste and has obtained a solid waste registration number from the State.

The identified RCRIS TSD and RCRIS LQG are the same facility. This facility is identified as the HL&P Cedar Bayou generating station located on FM Rd 1405 in Baytown. As previously mentioned, the HL&P property borders the northern boundary of the subject property; however, the power generating plant itself is located approximately ½ mile north of the subject property.

One leaking underground petroleum storage tank site (LUST) is on the preliminary report summary. The LUST site is the "Former NCS" located at 2512 Ward Road in Baytown. The LUST site is located west of Cedar Bayou, on the side opposite the Plant, within the city limits of Baytown. According to information associated with the LUST, there are no impacts to groundwater and there are no apparent threats or impacts to receptors. The release incident has been reported and initial directives from the State have not yet been issued.

3.2 Physical Setting Sources

3.2.1 Climate

The climate of Chambers County is characterized as humid subtropical. Summers are warm with the average monthly temperatures ranging from a low of 71.5 degrees Fahrenheit in June to a high of 92 degrees Fahrenheit in August. Winters are mild with average monthly temperatures ranging from a low of 42.5 degrees Fahrenheit in January to a high of 64.2 degrees Fahrenheit in December. Average annual precipitation in

Chambers County is about 49.5 inches. Average lake-surface evaporation is about 48.5 inches. Average net annual precipitation is about minus 1.0 inches. Prevailing winds are northerly from October through March becoming south to southeasterly from April through September.

3.2.2 Topography

The property is situated along and is bounded by Cedar Bayou. Based on the 1982 and the 1993 U.S. Geological Survey maps of the property, the eastern, developed area of the property, is fairly level at an elevation of approximately 20 feet above mean sea level (National Geodetic Vertical Datum of 1929). There is a levee constructed along Cedar Bayou at the westernmost edge of the property. Between 1982 and 1993, the land area of the western side of the property appears to have subsided, with a drainage extension of Sutton Gully becoming more pronounced (deeper) as it extends further to the north. On-site drainage appears to flow to the west, in the direction of Cedar Bayou, or to the south, in the direction of Sutton Gully.

In 1982, the entire property appeared to be cleared of vegetation. By 1993, vegetation (trees or shrubs) was mapped along the HL&P property line and in a linear trend across the subject property from east to west, approximately midway between the north and south property boundaries. According to the 1993 topographic map, this vegetated area extends and broadens to the east along FM 1405.

3.2.3 Soils

Prior to development, two soil investigations were conducted on the subject property. According to both soil investigation reports, subsurface soils possess adequate strength to support the proposed construction.

The first geotechnical investigation performed on the Site was completed in 1984. Ten cone penetrometer tests (CPTs), to 40 feet below surface, and 3 augured borings, to 10 feet below surface, were completed throughout the property at this time. Site conditions were reported as being "recently cleared" and "some portions on the property were heavily-wooded" prior to clearing. The 1984 report by Kenneth E. Tand & Associates (Texas Professional Engineer Registration #39214) stated that fill material was placed on the west side of the property along the east bank of Cedar Bayou. Deep gullies and low spots were noted east of the fill areas. In addition, this report stated, "It appears that the CPT test penetrated through an old levee used to retain hydraulic fill".

In 1995, Coastal Testing Laboratories, Inc. performed testing of subsurface soils with the completion of 3 borings to 40 feet below surface. The report stated that, in general, Recent-age surface soils are composed of dark gray sand, silt and clay. The older formation beneath the Recent-age surface layer is multi-colored and consists of silty and sandy clays, clays, and clayey silts in color combinations of light gray, tank and red. This interval is frequently interbedded with layers and lenses of fine to medium sand and silty sand. Typically, these sand layers are saturated below a depth of 10 to 15 feet below surface. Specifically, based on the investigation conducted at the Site, there were reported to be stiff to very stiff dark gray clays to 5 feet beneath ground surface. These Recent soils were reported to be underlain by stiff to very stiff light, gray and tan, silty- to sandy-clays and clays. The Plasticity Indices for the soils within the upper 5 feet of the ground surface was reported to be 70 to 74 percent. For reference, Plasticity Indices above 20 are considered to represent expansive soils. Groundwater was encountered at 21.5 feet (one boring) and at 22.0 feet (2 borings) below surface.

Coastal Testing Laboratories recommended that building foundations were to be supported with drilled and installed belled piers. The paved areas were recommended to be prepared using subgrade lime stabilization, 9 percent by dry weight. The flexible pavement areas were recommended to include 1 to 1 ½ inches of hot mix and hot-laid asphaltic concrete. The paved areas were recommended to consist of a base with the surface treatment being 7 inches of crushed limestone.

3.2.4 Geology and Hydrogeology

Chambers County is located in the Lower Coastal Plain physiographic province of the Gulf Coast Region. Stratigraphically, the area is characterized by a wedge of overlapping formations that tend to increase in thickness near the coast. Quaternary (Recent) and Tertiary-age fluvial (river-laid) sediments are at least 2,000 feet thick beneath Chambers County. From youngest to oldest, they are the Beaumont, Lissie, Willis, and Goliad formations. The Beaumont Formation (Recent-age), that immediately underlies the Fine Organics Corporation property, consists of mostly clay, silt and sand. Chambers County is underlain by two major aquifers: the Chicot and the Evangeline. The Chicot Aquifer extends to an approximate depth of 80 feet, is about 50 percent sand, and includes the Beaumont, Lissie and Willis formations. Rural residents use the Chicot Aquifer for drinking water, to water livestock, and for irrigation. Although some rural Chambers County residents are provided water from the Trinity Bay Conservation District, most of the houses maintain domestic water wells. However, there are no domestic or industrial shallow (<100 feet below surface) water wells within 1-mile of the subject property.

The subject property has a water well that is used for industrial water supply purposes. This well was drilled in October, 1995 and the well screen is set at a depth of 452 to 492 feet below surface.

3.3 Historical Use Information

A general description of historical uses of the subject property can be found in subsection 2.1.6.

3.3.1 Aerial Photographs

The existing Phase I ESA includes historical aerial photographs and Chain-of-title documentation that has been made available to RMT for review. Based on the accepted scope of services, RMT has not purchased additional aerial photographs, although a recent aerial photograph of the Plant was found in the facility files (provided by Showcase Aerial Photography - Appendix D). The existing Phase I ESA was referenced to summarize historical information available from aerial photographs (below).

3.3.2 Oil and Gas Records Search

Banks Information Solutions, Inc. performed a search of oil and gas wells within one mile of the subject property. Four wells were identified; three of the wells were drilled and abandoned ("dry hole") and the fourth well was a gas producer that was subsequently abandoned. Three wells were drilled during or prior to 1946 and the fourth was drilled (and abandoned) in 1963. However, there are no reported oil or gas wells on the Plant property itself.

3.3.3 Pipelines

Numerous pipelines are present in the area of the Plant. Along FM 1405, trending in a north-south direction is an idle, 8-inch Arco Products line. A major pipeline corridor exists south and east of the property and includes a variety of ethane, propane, butane, propylene, ethylene, and natural gas lines.

3.4 Previous Environmental Assessments

The following previous environmental site assessment report for the subject property was reviewed:

- Phase I Environmental Site Assessment of 48.791 acres on Cedar Bayou, Chambers County, Texas dated July 1995.

According to the Phase I ESA report dated 1995, the subject property had not been developed prior to the construction of Fine Organics Corporation. This document also reported that according to the aerial photograph review, a building, which appeared to be a residence, was located on the subject site in the 1940s and 1950s.

A review of this previous assessment provided, in part, the following information regarding the subject property:

- The subject property was generally vacant with dense scrub brush covering most of the area.
- The portion of the property close to Cedar Bayou consists of dredge spoil derived from the dredging activities in the early 1970s.
- A portion of the subject property appears on the Federal Wetlands Inventory Map.
- The aerial photographic analysis performed in 1995 indicated that the property was used for agricultural purposes in the past. A small structure was located on the site as evident on the 1940 and 1950 vintage aerials.
- Major portions of the area of the subject property are located between the 100-year and 500-year floodplain.

Section 4
Information from Site Reconnaissance and Interviews

Based on the site inspection and interviews, the plant was operated for a very short period of time and is now shutdown. The pilot plant was operated for approximately 1 year and the plant was on-line for about 3 months before it was shut down. The plant closed on October 6, 1997. The Plant was not mothballed after shut-down, so that product and manufacturing chemicals are currently stored in existing tanks, drums, sumps, etc.

While on-site, RMT interviewed the available staff with respect to the content and status of current environmental permits and agreements. The status of the site on the day of the reconnaissance visit was documented through photographs of on-site facilities (Appendix D). Observations were made and documented regarding:

- on-site structures and improvements;
- areas of visible contamination;
- drums, totes, above-ground tanks, and other chemical storage;
- evidence of underground storage tanks;
- electrical transformers; and,
- indications of on-site waste disposal (such as septic systems, dry wells, floor drains from production areas, waste lagoons, waste piles, landfills, pits, or sumps).

On November 2, 1998 Ms. Eileen Tanner and Ms. Kelly Krenz of RMT conducted a walk-through of the developed portion of the Fine Organics Corporation property that was accessible and had been cleared of vegetation. These areas included the majority of the manufacturing plant areas, the offices and maintenance areas, the flare, the firewater pond, and the truck loading area. These areas are referred to as the "developed" portion of the site.

The Fine Organics Corporation property and facility is located at 6655 West Bay Road, Baytown, Chambers County, and Texas. During some of the walk-through, Mr. Lawrence Beharry, current facility manager, accompanied Ms. Tanner and Ms. Krenz. The purpose of the walk-through was to inspect the subject property, including the buildings on-site, for potential environmental concerns, including, but not limited to, the following:

- Hazardous substance and waste management activities

- Evidence of potential hazardous substance spills or releases (*e.g.*, stressed vegetation, discolored soil, etc.)
- USTs (*e.g.*, protruding fill or vent pipes)
- Equipment potentially containing polychlorinated biphenyl's (PCBs)
- Potential property or adjacent property activities that could affect the environmental condition of the subject property

Photographs taken during the site visit or found in facility files are included in Appendix D.

4.1 General Site Observations

The developed portion of the property lies in approximately the northeastern quadrant of the tract. This portion is fenced. The remainder of the site is heavily vegetated with native grasses and scrub brush. The process area of the developed property is isolated from the non-process developed area by drainage ditches. These ditches were constructed to control stormwater runoff. The ditches are routed to the stormwater outfall that is located on the northwestern fenceline. A fenced, pipeline-metering station is located on the Plant site immediately west of the entry gate. The sign located in this area indicates that the pipeline is operated by Mid Con Texas Pipeline Corporation. Three gates access the plant area; the main gate which is located at the northeast corner of the site, the southeast gate which provides access to the maintenance offices, and a west gate which provides access to the undeveloped property located between Cedar Bayou and the Plant.

4.1.1 Hazardous Substances and Petroleum Products in Connection with Identified Uses

According to Mr. Beharry, no wastes, other than stormwater, have been manifested offsite since the plant began operations (RECs). Two, 20-yard, roll-off containers, and numerous 55-gallon steel drums which were labeled "hazardous waste" were located within the fenced and developed portion of the Site on the day of the site visit (REC). Mr. Beharry reported that the facility has had two spills of cyclohexylamine (RECs) and the drums and roll-off boxes contained materials derived from remediation activities associated with these spills. Labeling on the drums indicated that some of these materials had been staged on-site since 1996 (RECs).

According to an inventory conducted by Mr. Beharry, the facility stores product and raw materials on-site in drums and storage tanks. The table below lists the inventory of these materials (Table 4).

Table 4
Storage Tank Inventory

Description	Type	Amount
Cyclohexylamine, acetonitrile, aniline and acetone	Waste slop	3,986 gallons
Cyclohexylamine, acetonitrile, methy-ethyl-ketone, aniline, and acetone	Waste	1,044 gallons
Cyclohexylamine 99.8% CHA	Product	5,531 gallons
Cyclohexylamine, aniline, heptane, wax, and ammonia	Waste	6,336 gallons
Heptane and wax	Product	6,336 gallons
Acetonitrile 99.9%	Product	500 gallons
Cyclohexylamine, aniline, ammonia	Product	330 gallons
Methyl-ethyl-ketone, sec-butylamine, ammonia	Product	2,090 gallons
Acetone, mono isopropylamine, ammonia	Product	1,980 gallons
Acetone 99.9%	Product	165 gallons
Acetonitrile, and MEAM	Product	275 gallons
Heptane and wax	Product	165 gallons
Butanol 100 %	Product	165 gallons
Heptane 100%	Product	110 gallons
CRL drums	Product	220 gallons
Slop amines (MEK, ACE, acetone, CHA, MIPA, and DIPA)	Waste	220 gallons

4.1.2 Unidentified Substance Containers

Numerous (greater than 10) 5-gallon containers were located on the ground east of the pole barn (Figure 2). The majority of these containers appeared to have open bungs. Due to the amount of vegetation and stored equipment in this area, the containers were not accessible during the site visit. Therefore, it is not known if these pails are empty, contain hazardous substances, contain non-hazardous materials, or have leaked. Two aboveground LP gas tanks are located northeast of the isotainer tank area. These tanks are unlabeled and the contents, if any, is not known.

Many 55-gallon drums are located on the north side of the pole barn. Although no release to the environment was noted during the site inspection, this does not mean that no release has occurred (potential REC). The content of these drums is not known.

A variety of containers for paint, acids, lubricants, and containers with damaged labels are being stored outside on the north side of the pole barn under a roofed area (RECs). Exposure to weather has damaged some container labels limiting product identification.

4.1.3 Storage Tanks

A total of 12, fixed, above- and below ground storage tanks for product and raw materials are located on the site. The contents of these tanks are summarized in the Table 4. In addition, one nitrogen storage tank, a hot oil tank for the on-site incinerator, and two LP gas tanks are located on the site. One 5,000 gallon UST is located east of the truck loading/unloading area and one 10,000 gallon UST is located in the southwest portion of the developed area near the west gate. These tanks reportedly collect storm water from the truck loading area and the secondary containment structures in the process area, respectively. This stormwater is routinely tested for hazardous substances. The stormwater collection tanks are periodically emptied and the contents are taken for disposal to the Gulf Coast Waste Disposal Authority's Pasadena facility.

During construction activities, two aboveground petroleum storage tanks were located on the property near the pole barn. These tanks were removed when construction activities were completed although no removal or disposal records were available for review.

4.1.4 Indications of PCBs

There were 3 pole-mounted transformers located in the area of the laboratory and firewater pond. The transformers in the area of the subject property are owned by HL&P. According to the previous Phase I ESA, HL&P reported that the majority of the company's transformers contain mineral oil. In any event, HL&P would be responsible for any releases from this equipment.

4.1.5 Non-hazardous Waste Generation and Disposal

Mr. Beharry reported that no Class 1 wastes have been disposed from this facility. Industrial solid waste generated during plant operation, was reported to be stored on site. General trash disposal (office waste, food wastes, etc.) is picked up by Browning-Ferris Industries (BFI).

4.1.6 Hazardous Waste Generation and Disposal

Based on the file review, the facility is registered with the State of Texas as a large quantity generator of industrial and solid wastes. The facility has a solid waste

registration number and an EPA identification number. There are large quantities of hazardous wastes currently stored on the site (RECs).

4.1.7 Physical Setting Analysis

Many of the drums located on the site that may potentially contain hazardous wastes are being stored uncovered and have rusted, possibly due to rainfall and humidity (RECs). Some of these drums are being staged within secondary containment structures plant. Some drums located in the commercial area were observed to be standing in 4 to 6 inches of water. Many of the drums were beginning to show signs of deterioration. Not all of the waste drums are stored within secondary containment or other manner to preclude potential contamination to surrounding soils or contact with storm water (RECs).

Mr. Beharry reported that product and raw material storage tanks are not tested for integrity (REC). The tanks are reportedly double-lined and have leak detection systems. However, the leak detection systems for the tanks are not routinely tested for operational integrity (REC).

4.1.8 Interviews

As part of the environmental assessment, select persons were interviewed to provide insight into conditions at the Site. The individuals interviewed are listed below, followed by a summary of the interview.

- Mr. Lawrence Beharry, operation manager and site representative for Fine Organics Corporation.

Mr. Beharry provided the following information about the Site:

- The site was undeveloped prior to construction of the plant.
- There had been two spills at the site, one of which was approximately 300 gallons of cyclohexylamine.
- There are currently no fuel USTs located on the site. During the construction of the plant, two ASTs containing gasoline and diesel fuels were located on the east side of the pole barn area.
- The plant developed specialty organics products and was in operation as pilot plant for approximately 1 year and in production for approximately 3 months.
- The chemical plant has been out of operations since October 1997.
- There is a water well on-site which is not approved as a potable water source but rather a source of cooling water for the plant.
- The site is served by a septic tank system for domestic wastewater disposal.

- Stormwater is routed via drainage ditches to the stormwater outfall. The discharges are sampled in accordance with an NPDES permit.
- Mr. Beharry identified no environmental liens on the property.

Mr. Rodman Eggen, President of Fine Organics Corporation was interviewed during the project-scoping meeting. Mr. Eggen provided the following information about the Site:

- The site was undeveloped prior to construction of the plant.
- There have been two spills at the site. One was of cyclohexylamine (CHA) in the area of the loading dock and the other was at the isotainer area. Mr. Eggen did not know the precise circumstances surrounding the spills and suspected he never would. According to Mr. Eggen, the spills have been remediated, although the drummed waste and contaminated soils have not yet been disposed of off-site (REC). There are 2 roll-off bo[illegible]s staged on-site (and covered) that contain soil contaminated during the chemical spill at the loading/unloading area (REC).
- In addition to the septic tank, there are 2 USTs located at the facility. Both of these are fiberglass, double-walled tanks with interstitial monitoring as a release detection system. These USTs are used to manage spills and overfills from the loading/unloading areas and potentially contaminated storm water from the process area of the plant.
- The secondary containment area around the sump in the process plant area was notably full on October 15, 1998 at the initial project scoping meeting, and on the November 2, 1998 site inspection.
- Mr. Eggen stated that he had been told that the pipe rack containing product or process chemicals may require secondary containment or be underlain by some sort of drainage diversion or control structure (REC).

4.1.9 Other Conditions of Concern

Stained concrete at the inlet to the south process area storm water ditch was observed during the site visit. In addition, some evidence of leaking drums and spilled dry materials (possibly absorbent materials) were observed inside the pole barn (REC). The property is located between the 100-year and 500-year floodplains. During the site inspection, slight evidence of recent flooding was noted.

4.2 Findings and Conclusions

Based on the records research performed, the Plant property has b[illegible]he subject of developmental planning since the 1980's. The Fine Organics Corp[illegible]n was established and the operation areas of Plant were developed from 1994 to 1996. Th[illegible]cialty organics manufacturing Plant was operated for a period of less than 2 years, [illegible]til closure occurred on October 6, 1997. The history of actual industrial operations at the site is relatively short.

Based on the information compiled during this site investigation, environmental concern and liability issues associated with the pre-development history of the property appear to be limited to spills or releases from surrounding facilities or release of contaminants from dredged material. Indications of on-site impacts due to off-site releases were not identified based on the data reviewed i.e., there were no off-site releases documented.

Based on the information compiled, environmental concerns related to past Plant operations, established through the identification of recognized environmental conditions (RECs), have been provided as noted throughout the text of this Report. Potential environmental concerns related to the short operational history of the Plant can be concisely expressed:

- The two spill areas need to be investigated to make sure that the TNRCC was notified and that reported remediation has occurred. Soil and subsurface soil samples need to be collected and tested so that verification of remediation can be documented.
- All wastes (roll-off boxes of contaminated soil, drums, miscellaneous containers, etc.) stored on-site need to be characterized through analytical testing and properly disposed.
- Stormwater in the process area sumps need to be discharged to the waste management UST prior to characterization and disposal in accordance with facility permits.
- Aboveground process pipes (pipe rack area) may require controls or management in the event of leaks or spills to the ground surface.

Section 5
Compliance Assessment

5.1 Permit and Regulatory Document Review

The site inspection team included a compliance specialist to assess the site relative to applicable environmental compliance requirements. The property has had a long history of planned development starting in the 1980s. In fact, permitting and property development planning was started in the 1980s by Mr. Eggen. Since the facility had been shut down in 1996, facility records and files were stored in approximately 12 cardboard boxes. Unfortunately, a contents listing for each (or any) box was not available. Given the limits of this investigation, and the time constraints of the project, the compliance data provided were not practically reviewable. However, to the extent possible, RMT sorted through boxes of facility files and records and worked to identify key environmental compliance documents for the Plant relative to:

- wastewater management and permitting;
- solid and hazardous waste generation, management, and disposal;
- air emissions monitoring and permitting;
- chemical handling, including requirements relative to SARA Title III compliance;
- PCB management;
- storm water management and permitting; and,
- other pertinent environmental issues.

On November 10, 1998, RMT reviewed documents relative to the facility's environmental compliance status that were temporarily stored in cardboard boxes and stacked in the office trailer. According to Mr. Eggen, all documentation related to environmental compliance issues was provided for review. However, it is not possible to be absolutely positive that all pertinent information was examined. There were a number of boxes to quickly screen and categorize. As an example, if a large box, at first sight, seemed to only contain engineering drawings or specifications, this information was not examined in detail. Boxes that seemed to contain only personnel files, expense reports, facility financial information, tax returns, laboratory runs, engineering reports, etc., were not examined. Only those boxes that were labeled "Environmental" or had a similar designation were examined in detail. In addition to the file ("box") review performed, concise environmental compliance information was also requested of Mr. Rod Eggen. After a search of his files, he responded by providing the 1995 Phase I ESA.

The OSHA safety and compliance records, engineering drawings, transporter records, invoices, etc., located in the 2 file drawers at the office trailer were not examined during the site visit due to the large volume of facility information in cardboard boxes that had to be sorted.

Based on the cursory (not practically reviewable) review performed of available documentation, Table 5 lists permit and U.S. EPA registration numbers for the Fine Organics Corporation (formerly known as RDK, L.C., and HANSA Manufacturing Company).

Table 5
Permits and Registrations

Description	Type	I.D. Number
TNRCC (issued 1/28/86)	State waste discharge	WQ0002777-000
U.S. EPA (issued 12/17/86)	Federal NPDES	TX0098604
General Land Office (renewed 7/9/90)	State coastal easement	LC 89-051
Port of Houston Authority (issued 10/16/84 but never apparently used)	Local dredging	approval of the USACE permit 17197
Chambers County (issued 10/25/84)	Development/building permit	N/A
U.S. EPA (initial N.O.R. 11/28/86)	Federal RCRA generator	TXD981606932
TWC* (date 9/19/86) - a Large Quantity Generator	State industrial solid waste generator or disposal company	37507
U.S. EPA, TACB*	Federal and state air emission permit from proposed sources	PSD-TX-670
TACB*	State air quality permit	No. 9564
State of Texas	State charter	1303780
State of Texas	State tax payer	76-0445819
U.S. Army Corps of Engineers (original 9/84; revised 4/85; apparently never used)	Federal dredging	17197(01)

* precursor agency to the TNRCC

Pertinent compliance issues identified during the search of facility records are provided below:

Stormwater discharges began in October 1996 at discharge point 001. This discharge was covered by U.S. EPA and TNRCC discharge permits (WQ0002777-000 and TX0098604).

The existing TNRCC and U.S. EPA wastewater discharge permits required a totalizing meter for flow measurement and flow-weighted composite samples for most of the effluent parameters. Individual samples are required for pH, oil and grease, phenolic compounds, and sulfides. In order to accommodate both grab and composite sampling, a weir box was installed to allow access for grab samples and for placement of the sampler intake nozzle. MBA Laboratories provides stormwater sampling and analytical reported services.

An application to renew the National Pollutant Discharge Elimination System (NPDES) permit was submitted to the U.S. EPA in early 1997 (the expiration date was 8/10/97). As of March 10th, the application was judged to be administratively complete, although the status of the final permit is unknown.

A letter dated July 24, 1997, from the U.S. EPA to Fine Organics Corporation, stated that the required Discharge Monitoring Report (DMR) due on May 5, 1997 had not been received for outfalls TX1Q and TX1S. The resolution of this matter is not known.

Mr. Eggen is negotiating with the TNRCC about the suspension of the biomonitoring requirements for the existing TNRCC discharge permit. However, the existing TNRCC discharge permit expired on September 12, 1998 and the status of these negotiations is not known.

Several Hazardous Waste Manifests were identified in the facility records and both pertained to contaminated stormwater disposal. The first was for Bealine Service Company, Inc. to take 4,600 gallons of contaminated stormwater, N.O.S. class 9, ORM-D, to Gulf Coast Waste Disposal Authority, Pasadena Texas (on 2/4/97). The second was for Bealine Service Company, Inc. to take 4,700 gallons of contaminated stormwater, N.O.S. class 9, ORM-D, to Gulf Coast Waste Disposal Authority, Pasadena Texas (on 4/11/97).

5.2 Hazardous and Nonhazardous Waste

Mr. Eggen and Mr. Beharry provided information on wastes generated at the subject facility. In addition, the review of facility files provided the supplemental information summarized below.

Based on the NPDES renewal application raw materials handled at the Fine Organics Corporation include the following: hydrogen, amines, nitriles, aromatics, C1 through C4 alcohols, ammonia, natural gas liquids, pipeline condensates and hydrocarbon feed stocks (crude oil). Products include acetate esters (ethyl, propyl and butyl acetate), C3 through C5 alcohols, alkyl and/or olefinic amines (not including methylamine), tertiary amyl methyl ether, ethers, toluene, ethylbenzene, xylenes, aromatic hydrocarbons, pentane, mineral oil, isoparaffins, C8 through C12 olefins, and benzoic acid.

5.2.1 Hazardous Waste

The following potential chemical compounds that may generate waste materials are present on-site: aniline, butyl acetate, ethylbenzene, toluene, xylene, nickel, cyclohexane, phenol and amines (butyl, diethyl, monoethyl, triethyl, and ethylene diamine). The 1/30/97 N.O.R. for the facility lists the following hazardous wastes: (1) catalyst activation (0001203H H), non-halogenated solvent, D001, managed off-site; (2) tank cleanings (943120 H), D001, D002, managed off-site; and (3) spent catalyst (970210 H), D001, D002 waste, managed off-site. There were no disposal manifests for these wastes in the files.

5.2.2 Nonhazardous Wastes

Based on site interviews and knowledge of similar operations, the facility generated several waste streams that are non-hazardous including possibly the following:

- waste oil, spent parts cleaners, compressor blowdown fluids;
- floor sweepings;
- used, empty containers;
- used oil filters;
- office trash;
- stormwater and washdown water (00032242 2), defined as other aqueous waste with low dissolved solids, are managed off-site;

5.3 Wastewater/Stormwater

All process areas and product storage areas are curbed to segregate process wastewaters and contaminated stormwater from the plant storm drainage system. The wastewaters from the process facilities are contained on-site for transportation to a permitted treatment facility for disposal.

A letter in the facility files was issued by the TNRCC on June 10, 1997. The letter stated that a compliance inspection was performed on May 5, 1997 for water quality permit WQ000-02777-000 and no outstanding alleged violations and or deficiencies were noted at that time.

Fine Organics Corporation has a Wastewater Management Plan dated July 29, 1996. This Plan may incorporate information pertaining to future development. Since the Plan addresses Phase A of the development of the Fine Organics Corporation site and provides for the accumulation of non-process wastewater at Areas 1 through 6. The Phase A of the Wastewater Management Plan is summarized below.

- Wastewater Area No. 1 - Cooling tower blowdown, once through cooling water. Wastewaters generated are to be treated in clarifier TK-6-1 and discharged to the drainage system according to the NPDES/TRNCC discharge permit requirements.
- Wastewater Area No. 2 - Tank farm containment stormwater. Stormwater accumulation in the tank farm containment area is to be retained in-place, analyzed and discharged to the plant drainage system as long as it meets permitted effluent limits of pH, flow and TOC. Non-conforming wastewater from this area is to be prepared for shipment off-site per TNRCC N.O.R. #0003 and GCA Wastewater Disposal Agreement.
- Wastewater Area No. 3 - Truck loading rack stormwater. Stormwater generated at the truck loading rack accumulates in TK-402. As long as this stormwater meets permitted effluent limits of pH, flow and TOC, this wastewater is to be discharged to the plant drainage system. Non-conforming wastewater from this area is to be prepared for shipment off-site per TNRCC N.O.R. #0003 and GCA Wastewater Disposal Agreement.
- Wastewater Area No. 4 - Isotainer (hydrogen compressor) stormwater. Stormwater generated in this area accumulates in TK-401. As long as it meets permitted effluent limits of pH, flow and TOC, this wastewater is to be discharged to the plant drainage system. Non-conforming wastewater from this area is to be prepared for shipment off-site per TNRCC N.O.R. #0003 and GCA Wastewater Disposal Agreement.
- Wastewater Area No. 5 - Hot oil system stormwater. Stormwater generated in this area is to be retained in-place and analyzed prior to discharge. As long as it meets permitted effluent limits of pH, flow and TOC, this wastewater is to be discharged to the plant drainage system. Non-conforming wastewater from this area is to be prepared for shipment off-site per TNRCC N.O.R. #0003 and GCA Wastewater Disposal Agreement.
- Wastewater Area No. 6 - Lab waste - C. Lab waste - C accumulates in the exterior containment sump of the lab building. As long as it meets permitted effluent limits of pH, flow and TOC, this wastewater is to be hauled off-site for disposal, along with the waste of the two domestic sewers, subject to the Plant's Waste Management Plan.

5.3.1 Wastewater Generation

Fine Organics Corporation commenced commercial operation on April 2, 1997, although the pilot plant (research and development operations) started up in October of 1996. In 1996, the total discharge at the Plant was roughly 30 gallons per minute (gpm), 90% of which was uncontaminated stormwater (analyzed prior to discharge) and 10% cooling tower water, which also analyzed prior to discharge/disposal.

All contaminated stormwater is stored in below-ground tanks and disposed of at the Gulf Coast Waste Disposal Authority (GCWDA) - Washburn Tunnel Facility (Pasadena, Texas). During Plant operation, all process water was collected in tanks and disposed by the GCWDA.

5.3.2 Stormwater Discharge

The basic concept for management of stormwater at the Plant is to provide separate storm drainage facilities for process and non-process areas of the plant. Stormwater discharges began October 1996 at Outfall 001. The stormwater drainage from the process areas, which could be contaminated with various processing chemicals and process materials, is routed into process sewers prior to treatment or off-site disposal. Stormwater runoff from administrative areas, roads and buffer areas is routed into drainage ditches along the central access road for release into Cedar Bayou (Segment no. 0901 of the Trinity-San Jacinto coastal basin). Stormwater collected in the storage tank farm area is contained within the firewall dikes and is released under supervision and control, after analyses for contamination are completed. Tank water draws and contaminated tank farm runoff is contained for off-site disposal.

Non-process area and uncontaminated stormwater runoff from the developed area of the Plant is routed through a culvert near the northwest corner of the property, then released to Cedar Bayou. Stormwater runoff from the undeveloped area flows into a tributary to Sutton Gully, following the natural drainage patterns of the property, and continues into Sutton Gully, south of the plant property.

5.3.3 Spill Prevention, Control and Countermeasures Plan

Based on information provided by AIGEM's liability-reduction recommendation letter, the facility has a developed SPCC Plan. However, RMT could not locate this document during the file research conducted.

5.4 Air Emissions and Air Management

A review of the air quality files at the local TNRCC was the basis of the air emission summary presented in this section. In May of 1993, the Region 7 Texas Air Quality Control Board received a permit amendment application from RDK, Inc. The permit amendment application was No. 9564 and this corresponded to TACB ID No. CI-0069-V. No date for the issuance of these permits was discovered. These permits were originally issued at an undocumented date to HANSA Manufacturing Company, which was acquired by RDK, L.C. The accompanying letter stated that "This amendment application requests a change in service for various units currently permitted under TACB Permit No. 9564 and PSD-TX-670. Among those changes is a proposal to produce tertiary amyl-methyl ether." The letter also states that, "The expected emissions increase from this amendment is 1.0 ton/yr of VOC. As such, this amendment will be a minor modification to PSD-TX-670 and not subject to the nonattainment rules for Chambers County." Construction was estimated to start on July 1, 1993. The emission sources listed by this application were storage tanks and a vapor combustion unit. Storage tanks were

described as internal/external floating roof tanks, fixed roof tanks (low vapor pressure service) and pressure tanks (vented to the fuel gas/flare). To control fugitives, a 28MID LDAR program was to be implemented with the amendment. The heaters/boilers were to be natural gas firing only. Loading/blending and packaging emissions were to be collected by a vacuum-assisted system and routed to an enclosed vapor combustion unit (VCU). Based on this application package, the TNRCC found that speciated fugitives, tank, and VCU emissions satisfy BACT and NSPS Subpart Kb. The draft provisions of the amendment were approved by the U.S. EPA. Pursuant to the TNRCC rule 116.116(a) and Rule 116.160, 30 TAC 116 (commonly known as Regulation VI), Permit No. 9564 was amended and PSD-TX-670 was modified in early 1994.

In October, 1994, RDK, L.C., submitted another permit amendment application to authorize use of anhydrous ammonia instead of aqueous ammonia for the production of amines. The amendment proposed to store up to 26,650 gallons of anhydrous ammonia in a pressurized storage tank previously represented as storing a mixture of light hydrocarbons, ether, aqueous ammonia and amines. In a letter dated March 6, 1995, the TNRCC administratively voided the permit amendment application and the review process was put on-hold. In August 1995, RDK L.C. submitted Form PI-1 and additional information to reactivate the permit review process for Permit No. 9564. A NOD letter was received and the response letter was issued on August 30, 1995. After a name change to Fine Organics Corporation on November 2, 1995, Fine Organics Corporation received a standard exemption registration (No. 31384).

In December 1995, a Standard Exemption Application for Fine Organics Corporation was submitted to the TNRCC for Air Quality Permit No. 9564 under the air quality account ID No. CI-0069-U. This registration application referred to a request that Standard Exemptions No. 83, 84 and 118 be approved based on certain changes to the Plant. These changes included the proposed addition of acetonitrile as feedstock to be stored in two pressurized tanks. The fugitive emissions from the pressurized tanks met provision 118(c) under Standard Exemption No. 118. On January 19, 1996, the TNRCC responded that the exemption registration Form PI-1 that concerned the proposed processing and storage of acetonitrile and anhydrous ammonia (under Standard Exemptions 83, 84, and 118) was approved.

Air emission control equipment present during the site inspection consisted of a process flare, pressurized tanks, check valves, pressure valves, fire water spray system, and rupture disks.

5.5 TSCA-PCBs

According to Mr. Eggen and Mr. Beharry, there are three pole-mounted transformers located at the facility near the on-site laboratory. These transformers are owned by HL&P and are non-PCB transformers based on previous conversations with HL&P. They know of no PCB-containing equipment at the Site and none was observed during the site inspection.

5.6 SARA Title III

The facility maintains inventories of hazardous and extremely hazardous substances (EHSs) at the Site. Since ammonia and other chemicals are kept on-site, the facility exceeds the threshold planning quantity for ammonia (for example). According to information provided during site interviews, the facility notified the State Emergency Response Commission by the required reporting date. However, no documentation was available. The facility has not had an emergency release of a CERCLA hazardous substance or EHS above the reportable quantity (RQ) within the past year. Procedures for responding to a release of an EHS have been developed. Mr. Beharry, current facility manager, reports that employees that were hired in the past were trained in emergency response procedures.

Mr. Beharry advised that the facility maintains a listing of all MSDSs for all hazardous chemicals used or stored at the site. The list of hazardous chemicals is updated for the current year and is provided for reference as Table 6. Mr. Eggen advised RMT that the Tier I and Tier II forms have been submitted, although this information was not found in the facility files or in publically available databases (EnviroFacts).

During the first meeting with Mr. Eggen, he stated that the facility had participated in the Clean Air Act Risk Management Plan (RMP) rollout for Chambers County that occurred in May of last year. Worst-case and the other required release scenarios were modeled and provided as information to the public. Although planning notes were provided of this meeting in the files reviewed, no other confirmatory documentation was available.

5.7 Underground Storage Tanks

According to Mr. Eggen and Mr. Beharry, there are two underground storage tanks installed at the facility. These tanks are used to store and manage potentially contaminated stormwater or process water. These are double-walled, fiberglass tanks with interstitial release monitoring equipment. These tanks are not required to be registered under the State PST program and no registration records were found in the files reviewed. Since the facility shutdown, these tanks are not routinely inspected or checked (REC).

5.8 Miscellaneous Issues

Fine Organics Corporation had a contract with TXI for recycling (fuel blending) of their liquid, process-development waste amines and of their mixed heptane, catalyst activation waste.

A handwritten note (dated 3/5/97) in the files to TXI indicated that there were about 17, 30-gallon plastic drums containing oily absorbent pads and clothing that require disposal. Lacking additional data, RMT assumes these drums are still on-site.

The property is located within flood zone B, between the limits of a 100-year and 500-year flood event. Slight evidence of recent flooding was noted during site inspection.

A Mr. John Goodyear, Starr Technical Risks, developed a Recommendations Report in 1996 that included the suggestion that fire monitoring be performed in the electrical room.

5.9 Conclusions of Compliance Assessment

The Fine Organics Corporation Plant is currently closed. In addition, the history of planning for site development is lengthy (starting in 1984) and complex, with owner name changes and planned facilities development modifications occurring with some frequency. Records at the site are not complete since the Plant is not operating. Permits are numerous and appear to be r.quested with some forethought. Operational and developmental changes, as they occurred through time, were provided to the regulatory agencies with jurisdiction in a timely fashion. There are numerous, unsorted and jumbled files that pertain to just these issues (replacing conceptual with actual development scenarios). The records provided for review were essentially not practically reviewable. It appears that permit-related compliance activities during operation of the Plant were performed, as needed, with records being maintained (i.e. water and air quality). Water quality monitoring and reporting appeared to be an on-going activity (i.e., there is one box containing nothing but DMR and environmental monitoring report documents for 1997 and 1998). In addition, there is a listing in the facility management files of required environmental/health & safety documents. RMT cannot confirm that all these Plans and requirements were met, since not all were identified for review, and the Plant is not operating, but the inference is that these plans were developed. The plans and documents identified and required by management included the Plant SPCC, Hazardous Operations Training, SARA Title III reports and the TRI, Safety Progress Book, Emergency Response Plan, Stormwater PPP, Waste Management Plan, a volume of Standard Operating Procedures, Quality Control Plan, Discharge Management Plan, and the Site Security Plan.

Since closure of the Plant, required water quality monitoring appears to have been performed based on the records reviewed. However, waste management issues (hazardous wastes disposal) have not been addressed, most likely due to the expense of compliance. This poses a significant liability to the potential property purchaser (REC). Since waste characterization analyses were not located on-site, there is no way to verify whether the wastes stored on-site are classified as hazardous or non-hazardous. Fine Organics Corporation does not have a permit to store hazardous wastes at the property for longer than 90 days. Since there are hazardous substances, unused, and for all intents and purposes, discarded (i.e., defined as wastes) on-site, Fine Organics Corporation is not complying with RCRA in storing these materials indefinitely. Although it appears that storage containers are, for now, adequately managing the waste materials (i.e., no spills were evident during the site inspection), there were

some areas that could not be closely examined. RMT recommends that all waste materials be properly disposed.

Another potential liability to any potential purchaser is the remediation of the two spill areas. No remediation verification reports or reports to the TNRCC were discovered in the files provided for review. In any event, it would be prudent for a potential purchaser to perform at least 4 to 6 soil borings in the areas of the spills (including along are drainage ditches) to verity that environmental impacts are not present.

Table 6
MSDS - Index - 09/22/97

Product Code	Name	Location* Code	Inventory Typ (lbs)	On site Max (lbs)
10	Acetic acid, Glacial	L	5	10
20	Acetone	L	5	10
30	Acetonitrile, 99+9%	PL	500	3000
40	Acetonitrile, Azeotrope Solution	PTL	100,000	250,000
50	Acrylic Acid, Glacial	L	5	10
60	Acrylic Polymer (DURAMAX B-1051)	L	5	10
70	Acrylic Polymer (DURAMAX B-1052)	L	5	10
80	Air, Compressed	L	5	10
88	Ami-Glas (Woven Fiber Glass)			
90	Ammonium Aluminosilicate	NA	5	10
100	Ammonium Chloride Detergent	NA	5	10
110	Amino Methyl Proponol (AMP-95)	NA	5	10
120	Ammonia, Anhydrous	NA	100,000	250,000
130	Aniline	PTL	50,000	250,000
140	Benzene	PL	2,000	2,000
150	Biphenyl			
160	Buffer Solution pH 4.0			
170	Buffer Solution pH 7.0			
180	Buffer Solution pH 10.0			
190	Butane	L	5	10
200	Butanol	PTL	50,000	250,000
210	Butanol, sec	PTL	50,000	250,000
220	Butanol, tert	PTL	50,000	250,000
230	Butylamine	PTL	50,000	250,000
240	Butyl Ether	PTL	5,000	250,000
250	Calcium Silicate	NA	100,000	100,000
260	Calcium Sulfate	L	5	10
270	Chem Therm 750			
280	Chromium Oxide	L	5	10
290	Conductor XLP-105 Water Treatment			
300				
310	Cyclohexane	PL	500	3,000
320	Cyclohexylamine	PTL	50,000	250,000
330	Cyclohexylbenzene			
340	Decene-1	L	5	10
350	Dibutylamine	PTL	50,000	250000
360	Diethylamine, Redistilled, 99.5%			

Table 6
MSDS - Index - 09/22/97

Product Code	Name	Location* Code	Inventory Typ (lbs)	On site Max (lbs)
370	Dicyclohexylamine	PTL	10,000	250,000
380	Diethylamine	PTL	50,000	250,000
390	Diethylhexylamine	L	5	10
400	Dimethylbutylamine	L	5	10
410	Diphenylamine, 99+%			
420	Diisobutylamine	PTL	50,000	250,000
430	Di-n-butylamine	PTL	50,000	250,000
440	Diisopropylamine	PTL	50,000	250,000
450	Divinylbenzene-styrene (CR&L Catalyst Type 1)	NA	10,000	10,000
460	DPD Free Chlorine Reagent			
470	Ethane	L	5	10
480	Ethylamine	PTL	75,000	250,000
490	Ethylhexanol	L	50	10
497	Galva Bright Premium			
500	Glass Fibers, tape (AMI-GLAS)	NA	50	100
510	Glass Fibers, tubing (AMI-GLAS)	NA	50	100
520	Helium	L	5	10
530	Heptane	PL	1,000	3,000
540	Heptane, 3			
550	Heptane 99+%			
560	Hydrochloric Acid	L	5	10
570	Hydrogen	PT	1,000	5,000
580	Isobutane	L	5	10
590	Isobutanol	PTL	50,000	250,000
600	Isopropylamine	PTL	50,000	250,000
605	Karl Fischer Water Standard			
610	LPS 1 Greaseless Lubricant			
620	LPS 2 Greaseless Lubricant			
630	Mercury	L	5	10
640	Methane	L	5	10
650	Methanol	PTL	75,000	250,000
653	Methoxyethanol			
660	Methyl Ether	PTL	100,000	250,000
662	Methyl Ethyl Ketone			
670	Microbiocide			
680	Microbiocide Biospherse 261T			
690	Monoethylamine 70%			

Table 6
MSDS - Index - 09/22/97

Product Code	Name	Location* Code	Inventory Typ (lbs)	On site Max (lbs)
695	Motor Oil			
700	Natural Gas	NA	1,000	1,000
710	N-Ethylacetamide, 99%			
720	Nickel Catalyst Spheres	NA	10,000	10,000
730	Nickel Catalyst on Alumina	NA	10,000	10,000
740	Nitric Acid	L	5	10
750	Nitrogen	NA	30,000	60,000
760	N, N-Dimethyl Formamide, 99.8%			
770	Octene	L	5	10
780	Octylamine	PTL	50,000	250,000
790	Pentane	L	5	10
800	Phosphoric Acid-Titanium Dioxide	L	5	10
810	Phosphoric Acid	L	5	10
820	Polyethylene Glycol	NA	60	200
830	Potassium Hydroxide	L	5	10
840	Propane	L	5	10
850	Pyrrolidine	L	5	10
858	Sec-Butylamine			
860	Sodium Aluminosilicate	L	5	10
870	Sodium Bicarbonate	L	5	10
880	Sodium Carbonate	L	5	10
890	Sodium Hydroxide	L	5	10
900	Sodium Hypochlorite			
910	Solvent 180-66			
920	Sulfuric Acid	L	4,000	4,000
930	Tetrahydrafuron	L	5	10
940	Tributylamine	PTL	50,000	250,000
950	Triethylamine	PTL	50,000	250,000
975				
1000	Valugard 250 D Cooling Water Treatment			
1100	Welding Rods			
1200				

CU - commercial unit

*L - lab

P - pilot plant

T - tank farm

Section 6
Environmental Professional Signatures

The following RMT staff developed this report:

Kelly Krenz
Senior Project Manager

Todd Thompson
Project Manager

Eileen Tanner
Environmental Specialist

Section 7
Environmental Professional Qualifications

The following sections briefly cover the credentials of the environmental professionals who conducted the Phase I ESA.

7.1 Kelly Krenz

Kelly holds a Masters degree in Geology (Geophysics) and has 19 years of applied experience in both the hydrocarbon exploration and environmental consulting fields. Environmental experience includes the supervision of drilling and sampling projects, RI/FS investigations, RFI studies, RCRA groundwater compliance programs, the application of risk assessment methodologies, aquifer characterization, remediation of hydrocarbon spills, litigation support, and development of environmental compliance programs.

Ms. Krenz developed the Federal and State regulatory framework and reference documentation for use during a large number of municipal facility environmental audits. She produced environmental compliance manuals for municipal and aviation related industries and operations. Issues addressed involved hazardous waste management and good housekeeping practices; community right-to-know compliance and accident prevention; management of storage tanks and fueling operations; control of air emissions produced by standard operations; spill reporting and response; stormwater management; pollution prevention and training requirements; and emergency preparedness and worker protection and training.

7.1.1 Education and Training

Master of Science in Geology (Geophysics), Northern Illinois University, 1981

Bachelor of Science in Geology (Math, Physics), Northern Illinois University, 1977

7.2 Todd Thompson

Todd has 19 years experience in providing environmental management consulting services to a variety of industrial, legal, and financial clients. His areas of technical expertise lie in environmental management consulting; compliance auditing; regulatory compliance; environmental permitting; underground injection of wastes; and environmental assessments. Mr. Thompson has acted as Project Manager, Audit Team Leader, and/or Audit Team Member

on a variety of auditing assignments. Facilities he has audited include bakeries, breweries, food processing plants, graphic printing facilities, metal forming and plating facilities, petroleum tank farms, and chemical processing and petroleum refineries. He has managed and/or participated in multimedia audits in many states including Arkansas, Georgia, Indiana, Louisiana, Massachusetts, Missouri, Tennessee, and Texas and in many countries including Canada, Mexico, and the U.K.

7.2.1 Education and Training

MS Environmental Science, University of Texas at Dallas, 1978

BA Political Science, University of Oklahoma, 1975

7.3 Eileen Tanner

As an environmental specialist with RMT, Eileen has conducted ESAs for various clients, including Nations Bank, Mercantile Bank, Dowell Schlumberger, Sizemore Family Partnership, and Harris County Metropolitan Transit Authority. These projects included developing cost estimates, site inspection, record reviews, and evaluation of regulatory compliance. Eileen has also conducted site assessments for LUST sites. Other experience includes field activities associated with the development of storm water and wastewater permit renewal applications and preparation of the applications. She has also prepared SWPPPs and SPCC Plans. Prior to joining RMT, Eileen was an environmental scientist with Engineering-Science, Inc., where she performed site inspections for over 50 current and former pesticide applicators, manufacturers, and dealers under the TNRCC site inspection program. This work included conducting field investigation and writing and editing site inspection reports.

7.3.1 Education and Training

Undergraduate Work; Geology; Del Mar College, Corpus Christi, Texas 1990-1994

Appendix A
Scope of Services

October 28, 1998

Mr. Chuck Schaller
West Bay Organics, L.C.
550 Post Oak Blvd. Suite 400
Houston, Texas 77027

Subject: Proposal for Environmental Consulting Services
RMT Proposal No. 90-99843.63

Dear Mr. Schaller:

This proposal has been developed in response to a verbal request on October 12th, a meeting on October 15th, and a telephone discussion with Mr. Rod Eggen on October 27, 1998. This letter presents RMT's proposal to assist you with environmental consulting services at a 5-acre chemical plant that West Bay Organics may purchase.

The subject facility is the closed Fine Organics Corporation site located at 6655 West Bay Road in Baytown, Texas (Chambers County). The subject property is approximately 50 acres in size and the developed portion (chemical plant area) is approximately 5 acres in size. The property fronts onto Cedar Bayou and was developed during the past 2 to 5 years. Before the plant was built, the property was undeveloped pasture land and a Phase I ESA was completed prior to property purchase. The existing Phase I ESA includes historical aerial photographs and Chain-of-title documentation that will be made available to RMT for review. RMT will research sources of recent aerial photographs (more recent than those provided in the existing Phase I ESA) and will purchase approximately one aerial photograph, if available, to provide photographic update of the existing Phase I ESA. However, RMT assumes, based on our discussions, that the Chain-of-Title to be provided as a source document is current and a reliable source of historical site data. We have not included purchase of the Chain-of-Title as part of this scope of work.

Mr. Rod Eggen is associated with the facility operations and has been available to provide information about the operational history. Based on our discussions of October 27th, he is to serve as the client representative for this project.

According to Mr. Eggen, the plant was operated for a very short period of time. The pilot plant was operated for approximately 1 year and the plant was on-line for about 3 months before it was shut down. It is understood that the subject facility has been non-operational for approximately 1 to 1 ½ years with product and chemicals potentially stored in existing tanks, drums, sumps, etc. There was one reported chemical spill on-site which has been reportedly

RMT, Inc.
11811 IH-10 East, Suite 450
Houston, TX - 77029-1954
713/450-1882 - 713/450-1639 FAX

remediated, although the drummed waste and contaminated soils have not yet been disposed of off-site. There are 2 roll-off boxes staged on-site (and covered) that contain soil contaminated during the chemical spill at the loading/unloading area. There are approximately 43, 55-gallon drums that are labeled hazardous waste that are staged at various locations on-site awaiting disposal. In general, the wastes in the drums were reported to have been characterized, drums appear to be in good condition, and hazardous waste labels have been affixed to most of the drums with one exception (at the loading rack). In general, the waste drums are not under cover (except for the ones in the process area) and are exposed to the elements. A number of the drums (15 or so) are staged on pallets in an elevated concrete area (north of the process area) although many drums have been placed in rows next to the maintenance shed.

There are 2 USTs on-site that manage spills and overfills from the loading/unloading areas and potentially contaminated stormwater from the process area of the plant. The secondary containment area around the sump in the process plant area was notably full on October 15, 1996, during the brief site inspection. The existing USTs conform to current U.S. EPA and TNRCC laws for operation of USTs. There is also a hydrogen and natural gas pipeline connection station at the facility.

During operation of the plant, OSHA safety records were kept and remain on-site and wastes were handled by Gulf Coast Waste Disposal Authority and Safety Kleen. Bealine Service Company provided waste transport and MBA Labs performed NPDES compliance monitoring and testing. The records found in the 2 file drawers at the trailer will be examined during the site audit and summarized as part of our site audit report.

Neighboring facilities include HL&P's Cedar Bayou electrical generation plant, H.P. Gas Products, Inc., and Bayer's polyurethane plant.

The Scope of Services has been designed to identify existing recognized environmental conditions and possible compliance issues, based on existing facility records, at the subject site. The plant was covered by several air permits, several standard exemptions, and U.S. EPA NPDES and Texas discharge permits for discharge of boiler blowdown water. A weir controls this discharge into Cedar Bayou and outfall monitoring data are available on-site. Other spill control issues noted during the brief site inspection include the above-ground lines containing product or process chemicals may need to have secondary containment structures installed.

To complete the environmental consulting services in a timely fashion, RMT will furnish Mr. Rod Eggen with a listing of data requirements. West Bay Organics (or Mr. Rod Eggen) will make these data available to RMT on Thursday, October 29th, for direct incorporation into the Environmental Site Report.

Our cost estimate and scope includes the information provided during the site inspection and pre-bid meeting (summarized above). Anything not specifically identified in the Scope of Services will not be performed. Anything different from what was discussed during the pre-bid meeting and site inspection (summarized above) may affect our cost proposal.

Background

West Bay Organics is potentially interested in purchasing an existing facility and wants to identify the potential environmental risks associated with current and previous ownership and facility operations. West Bay Organics has contacted RMT to provide the required scope of services.

While this project will not conform to ASTM "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; Designation E1527-97", definitions found in that standard will apply to these services including:

- **Recognized Environmental Condition** - the presence or likely presence of any *hazardous substances or petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a material threat of a release of any *hazardous substances or petroleum products into* structures on the *property* or into the ground, groundwater, or surface water of the *property*. The term includes ha*zardous substances or petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.
- Reasonably Ascertainable - information that is (1) *publicly available, (2)* obtainable from its source within reasonable time and cost constraints, and *(3) practically reviewable.*
- Publicly Available - information that is publicly available means that the source of the information allows access to the information by anyone upon request.

- **Practically Reviewable** - information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the property without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the property or a geographic area in which the property is located are not generally practically reviewable. Most databases of public records are practically reviewable if they can be obtained from the source agency by the county, city, zip code, or other geographic area of the facilities listed in the record system. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally practically reviewable. Listings in publicly available records which do not have adequate address information to be located geographically are not generally considered practically reviewable. For large databases with numerous facility records (such as RCRA hazardous waste generators and registered underground storage tanks), the records are not practically reviewable unless they can be obtained from the source agency in the smaller geographic area of zip codes. Even when information is provided by zip code for some large databases, it is common for an unmanageable number of sites to be identified within a given zip code. In these cases, it is not necessary to review the impact of all of the sites that are likely to be listed in any given zip code because that information would not be practically reviewable. In other words, when so much data is generated that it cannot be feasibly reviewed for its impact on the property, it is not practically reviewable.

Issues and Approach

RMT has identified several issues that we believe will be important in accomplishing the project objectives while controlling costs. Other issues, and RMT's approach, are summarized as follows:

1. Aggressive Project Schedule.

   RMT has established a Project Team approach that has been designed to complete the requested environmental consulting services of the subject property so as to have the draft report available by the November 5, 1998 deadline.

2. Experienced Project Team

The project team that has been assembled has both ESA, environmental auditing, and power industry expertise. As a corporate policy, RMT will only allow individuals who have RMT approval to conduct ESAs. That approval includes internal training, on-the-job mentoring, and evaluation of work products. RMT has a ESA Policy Group that meets periodically to refine the training programs and make key policy determinations for this key market area. All of the individuals on this project team that will be conducting the actual site assessments have obtained this internal approval.

3. Compliance Evaluations as Part of Overall Scope

RMT has assigned team members with the skills to perform both site-based and compliance-based evaluations. We have included compliance assessments as part of a number of due diligence projects, and have experienced personnel that understand the compliance aspects related to this type of site.

4. One Local Point of Contact

RMT has identified Kelly Krenz as the project manager for this project. As such, she will function as the single point of contact with West Bay Organics. As a Senior Manager in the Houston office, Kelly has the authority to direct staff to meet the needs of this project on an ongoing basis. Kelly's location in the Houston office will make periodic project meetings even easier with West Bay Organics, providing day-to-day control over the site environmental consulting process.

5. Confidentiality

RMT has developed detailed protocols for project work, records retention, and internal project references to assure confidentiality. We perform most of these projects under code names and only refer to the Company or target facility names as needed. Confidential files are stored in locked cabinets at RMT's offices and all records are returned at the end of the project, if necessary.

Scope of Services

RMT will perform the following tasks:

Task 1. Data Compilation and Review

RMT will review the existing Phase I ESA, other reasonably available historical data on the subject property i.e., local historical maps, Chambers County historical society data, U.S.G.S. topographic maps (current and historic) and geologic maps, to determine if any prior ownership or activity on the site indicates a likely cause of environmental impairment. We will research a source of aerial photographs to update the existing Phase I ESA and will purchase approximately one, if one is available to meet the needs of the project. As discussed, we will rely on the existing Chain-of-Title document to provide historical site ownership information. In addition, we will review available water well records (supplied by Mr. Eggen) and soil survey reports and maps to develop as clear a description of local geology and hydrology as possible in order to understand possible contaminant pathways. We will also comment whether the existing Phase I ESA meets ASTM standards for Phase I Site Assessments.

Task 2 Site Inspection

RMT will conduct a single site reconnaissance visit to collect information on recognized environmental conditions in connection with the site and to visually observe the facility and structure(s) located on the property. The status of the site on the day of the reconnaissance visit will be documented through photographs of on-site facilities. Observations will be made and documented regarding:

- on-site structures and improvements;
- areas of visible contamination;
- drums, totes, above-ground tanks, and other chemical storage;
- evidence of underground storage tanks;
- electrical transformers; and

- evidence of on-site waste disposal (such as septic systems, dry wells, floor drains from production areas, waste lagoons, waste piles, landfills, pits, or sumps).

Areas that have not been cleared of vegetation, will not be examined during the one-day inspection. RMT will perform a visual observation of adjoining properties (from a distance, without entry onto adjoining properties) but such visual observation will focus only on obvious evidence of problems. No detailed investigation of adjoining properties is included within this Scope of Services. Descriptions of activities on adjoining properties will be based on these observations and any additional information provided during the site interviews. Evaluations of the potential for environmental impairment from those sites will be based on RMT's experience with those types of facilities and likelihood of contamination of the subject site from off-site sources will be addressed in the delineation of recognized environmental conditions and will be as described within that definition.

RMT will also interview Mr. Rod Eggen, someone who possesses a good knowledge of the history and physical characteristics of the site. During the site reconnaissance visit, we will also contact state or local agencies, as necessary, in person, by telephone, or in writing to obtain reasonably available information regarding environmental issues at the site. This will include local municipal health and fire departments serving the subject site.

Regulatory Database Review

RMT will utilize an environmental database research firm to perform regulatory database searches covering the subject site and surrounding properties to determine if any of these properties appear on key regulatory databases. The review will include the following environmental record sources.

Database	Maximum Search Distance (Miles)
Federal NPL site list	1.0
Federal CERCLIS list	0.5
Federal RCRA TSD facilities list	1.0
Federal RCRA generators list	0.25
Federal ERNS list (property and adjoining properties only)	
State lists of hazardous waste sites identified for investigation or remediation (NPL and CERCLIS equivalents)	1.0
State landfill and/or solid waste disposal sites lists	0.5
State registered, leaking UST list	0.5
State registered UST list	0.25

In addition, RMT will expand the environmental database report request to include any oil and gas wells or water supply wells within a ½ mile radius of the subject site.

Regulatory Compliance Evaluation

The site team will include a compliance specialist who can quickly review the status of the site relative to applicable environmental compliance requirements. In general, the data remaining at the facility will form the basis of this review. Facility operations, including manufacturing, receiving, shipping, materials and waste handling, recordkeeping, and reporting, will be reviewed against current permits and regulatory requirements to identify potential non-compliance areas or liabilities.

RMT, through West Bay Organics or their representative, will send an information request asking the environmental manager, consultant or counsel (Mr. Randy Rosengarten or Mr. Adrian Martinez) to compile and make available key environmental compliance documents for the site visit relative to:

- wastewater management and permitting;
- solid and hazardous waste generation, management, and disposal;

- air emissions monitoring and permitting;
- chemical handling, including requirements relative to SARA Title III compliance;
- PCB management;
- storm water management and permitting; and
- other environmental issues.

During the site reconnaissance, we will review available documents, including existing permits and other currently available information, relative to the facility's environmental compliance status. While on-site, RMT will interview the environmental compliance manager, legal counsel or environmental consultant, at the facility regarding the content and status of current environmental permits and agreements. Environmental compliance activities, including monitoring, recordkeeping, and reporting procedures, will be evaluated through a review of compliance files during the one-day site visit.

Task 3. Development of Environmental Site Report

RMT will prepare an Environmental Site Report for the subject property to summarize our findings and opinions with respect to the potential for environmental impairment and/or liability which may be associated with recognized environmental conditions at the subject property and the current compliance status relative to applicable requirements. If necessary, RMT will make recommendations with respect to prudent on-site soil and groundwater sampling, especially in the spill area. The final Environmental Site Report will be issued as necessary after receipt and clarification of draft report comments made by West Bay Organics.

Fee Proposal

RMT proposes to perform the Scope of Services on a time and expenses basis in accordance with the attached Schedule of Charges. The estimated total fees will be approximately $5,000 (not including RMT travel time and travel costs such as airline tickets, car rental, food, hotel, parking, etc. or the cost to purchase one aerial photograph). Should West Bay Organics request

RMT to make changes in the Services or to perform additional Services, RMT will prepare a Change Order for acceptance by West Bay Organics. Additional services will be performed in accordance with the attached Schedule of Charges.

A breakdown by task is included in the following table.

TASK	ESTIMATED FEE
Task 1: Data Compilation and Review	$1,000
Task 2: Site Inspection	$1,000
Task 3: Development of Environmental Site Report	$3,000
Total	$5,000

This Proposed Fee is based on the following assumptions:

- West Bay Organics will make arrangements for the site inspection by RMT and will provide the property owner and property manager with a copy of RMT's Pre-audit Information Request prior to the site inspection. West Bay Organics will make sure RMT is accompanied throughout the site inspection by the property owner or operator and that the property owner/manager will be available during the facility records review. We anticipate that copies of necessary documents identified by RMT will be made available at the subject property by a facility representative.
- Timely cooperation of local, state and federal agencies.
- Chain of Title will NOT be purchased but will be incorporated from the existing Phase I ESA. Approximately one aerial photograph WILL be purchased to provide a photographic update of the existing Phase I ESA, if one is available to meet the needs of the project. The cost of the purchase of this aerial photograph will be directly passed on to West Bay Organics and is not included herein.
- Site reconnaissance as described in the Scope of Services can be accomplished within one field day.
- One or two RMT staff member will spend up to 1 person-day in the field to review the site and the surrounding area that has been cleared of vegetation, review on-site compliance documents, and visit the local agencies to acquire maps and other relevant documents.
- RMT will perform a visual observation of adjoining properties (from a distance, without entry onto adjoining properties) but such visual observation will focus only on obvious

evidence of problems. No detailed review of adjoining properties is included within the Scope of Services.

- The property boundaries can be located with reasonable effort without the use of surveying equipment. Only easily accessible areas of the property will be traversed on-foot during the site reconnaissance. For cost estimation purposes, we assume that the plant area has been mowed within the last week or so, allowing for ease of access and mobility.

Other Considerations

The following items are not included as part of a this Scope of Services:

- Asbestos-Containing Materials Assessment
- Radon Assessment
- Lead-based Paint Assessment
- Lead-in-Drinking-Water Assessment
- Wetlands Assessment

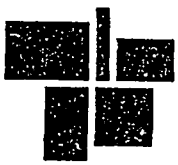
No implication is intended as to the relative importance of these items, and this list of items is not intended to be all inclusive. Client may want to consider adding items to the Scope of Services. If requested, RMT can provide an amended Scope of Services and cost estimate to include these additional terms.

Terms of Contract

RMT proposes to perform these Services under the attached Work Authorization and General Terms and Conditions, except as modified by the terms of this proposal. To accept this proposal, please sign and return one copy of the enclosed Work Authorization.

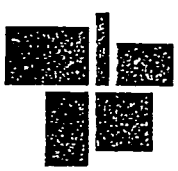
Schedule

RMT can begin work on the project immediately after receiving your notice to proceed. In order to meet the November 5, 1998 deadline, RMT will need authorization to proceed no later than October 28, 1998.



Limitations

- Client is advised that the Scope of Services described are not equivalent to ASTM "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; Designation E1527-97."
- Client is advised that the Scope of Services described herein is for Environmental Consulting Services as defined in the Scope of Services, which is a LIMITED INQUIRY into a property's environmental status and is not sufficient to discover every potential source of environmental liability, if any, of the property to be evaluated. *Therefore, RMT cannot under any circumstances make a statement of warranty or guarantee, express or implied, that the site is free of recognized environmental conditions, environmental impairment, or that the site is "clean" or that impairments, if any, are limited to those that are discovered while we are performing the Services rendered.* This limiting statement is not meant to compromise the findings of our report; rather it is meant as a statement of limitations within the intended scope of this investigation.
- RMT's findings and opinions will be based on information that is available and obtained at the time of the assessment through site reconnaissance, standard investigatory techniques used in the industry at this time, records review, and other related activities. It is possible that other information exists or subsequently becomes known that may impact or change the site after observation.
- In conducting these environmental consulting services and preparing its report, RMT will review, interpret and rely upon information provided by others, including but not limited to, Client, individuals, government authorities, subcontractors and other entities. RMT will not perform an independent evaluation of the accuracy or completeness of such information and RMT will not be responsible for any errors or omissions contained in such information.
- *RMT's Report, along with the findings and conclusions contained in the Report, either in completed form, summary form or by extraction is prepared for and intended for the sole use of Client and therefore may not contain sufficient information for other purposes or parties. Client is the only intended beneficiary of this report.* The contents of RMT's report will continue to be the property of RMT and are protected by copyright. RMT's Report may not be disclosed to, used by or relied upon by any person or entity other than the Client without the express written consent of RMT.
- Authorization for disclosure to a third party or authorization for third party reliance on a final Environmental Site Report will be considered by RMT upon the written request of Client. RMT reserves the right to deny authorization to allow disclosure or reliance of RMT's report to third parties.



Client Responsibilities

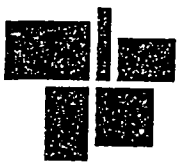
- Client shall obtain the necessary authorizations to allow RMT, its agents, subcontractors or representatives, to have access to the site and buildings thereon at reasonable times throughout performance of these Services by RMT.
- Client shall furnish all reports, data, studies, plans, specifications, documents and/or other information in its possession, custody, or control which relates to the site, its present and prior uses, or to activities at the site which may bear upon the Services of RMT.
- Client shall furnish a site plan which identifies the physical boundaries of the site to be examined. RMT will not inspect areas that are not readily accessible during a one-day site reconnaissance visit.
- Client shall identify and make available a site contact person familiar with the nature of the activities which are or have been conducted at the site.

Release For Pre-Existing Conditions

Client releases RMT from liability resulting from any pre-existing environmental condition at the Site which is not directly or indirectly caused by or did not result from, in whole or in part, any act or omission of RMT, its employees, agents representatives, or invitees or RMT's subcontractors or their representatives, agents, employees, or invitees.

Essential Terms of Agreement

The Agreement to perform the described environmental consulting services consists of this letter Proposal, the Work Authorization, the General Terms and Conditions and the Schedule of Charges. *This letter Proposal and all of the terms and conditions contained within it comprise an essential part of the Agreement to perform these Services. To the extent that any provisions in this Proposal are inconsistent with or contrary to the attached terms and conditions, this Proposal shall be treated as an amendment that expressly revises and takes precedence over the referenced terms and conditions.*



Project Team

We offer Ms. Kelly Krenz as the Senior Project Manager for the proposed Scope of Services. Key members of the project team will be drawn from the Southwest Region offices of RMT to provide the most local resources to the subject property. Ms. Stacy Putman will serve as the Project Director.

We are pleased to offer this assistance to West Bay Organics. I will call you at the end of the week to discuss this project further after you have had an opportunity to review our proposal.

Sincerely,

RMT, Inc.

Kelly Krenz

Kelly Krenz
Senior Project Manager

Attachments: Work Authorization
Schedule of Charges
Terms and Conditions

xc: Central Files

WORK AUTHORIZATION FORM

RMT, Inc.
11811 IH-10 East, Suite 450
Houston, TX 77029-1954
Tel. (713) 450-1882 • Fax (713) 450-1639

Date:	October 28, 1998	**Client Number:**	
To:	Mr. Chuck Schaller West Bay Organics, L.C. ("Client") 550 Post Oak Blvd., Suite 400 Houston, Texas 77027		
Project Name:	Proposal for Environmental Consulting Services		
Facility Location:	Baytown, Texas		
RMT Proposal Number:	90-99843.63	**RMT Project Number:**	

The Agreement consists of the following documents:

(a) This Work Authorization Form
(b) Letter Proposal (attached)
(c) Terms and Conditions:
- RMT General Terms and Conditions (attached)

(d) Change orders that may be authorized at various times throughout the Project
(e) Schedule of Charges (attached)

Schedule:

Approximate Start Date: October 28, 1998
Approximate Completion Date: November 5, 1998

Basis for Payment:

Flat Rate Time & Expense

Summary of Scope of Services

DESCRIPTION		ESTIMATED TASK COST
Task 1:	Data Compilation and Review	$1,000
Task 2:	Site Inspection	$1,000
Task 3:	Development of Environmental Site Report	$3,000
	Total	$5,000

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WORK AUTHORIZATION
Proposal Number: 90-99843.63

Project Managers:

RMT	West Bay Organics, L.C.
Kelly Krenz	Chuck Schaller

This Proposal is valid until October 30, 1998.

Acceptance:

Authorization for RMT to commence work included in the Proposal constitutes acceptance of this Agreement. Acceptance can be made by signing in the place provided below, by accepting or using work product within the Scope of Services, or by written or oral authorization to RMT to commence work prior to signing. Acceptance is limited to the terms stated herein, and any additional or different terms are rejected unless expressly agreed to in writing by RMT.

APPROVED AND ACCEPTED AS OF THE DATE SHOWN BELOW:

RMT, Inc.	**West Bay Organics, L.C.**
Kelly Krenz	
Signature	Signature
Kelly Krenz	Chuck Schaller
Printed Name	Printed Name
Senior Project Manager	Manager
Title	Title
October 28, 1998	
Date	Date

00067

WORK AUTHORIZATION FORM

RMT, Inc.
11811 IH-10 East, Suite 450
Houston, TX 77029-1954
Tel. (713) 450-1882 • Fax (713) 450-1639

Date:	October 28, 1998	**Client Number:**
To:	Mr. Chuck Schaller West Bay Organics, L.C. ("Client") 550 Post Oak Blvd., Suite 400 Houston, Texas 77027	
Project Name:	Proposal for Environmental Consulting Services	
Facility Location:	Baytown, Texas	
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Kelly Krenz	Chuck Schaller

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APPROVED AND ACCEPTED AS OF THE DATE SHOWN BELOW:

RMT, Inc.	**West Bay Organics, L.C.**
Signature	Signature
Kelly Krenz Printed Name	Chuck Schaller Printed Name
Senior Project Manager Title	Manager Title
October 28, 1998 Date	Date

00000

GENERAL TERMS AND CONDITIONS

RMT, Inc. ("RMT")

1. SERVICES TO BE PERFORMED

1.1 Generally

The Agreement ("Agreement") consists of the documents identified in the Work Authorization. The services to be performed by RMT are set forth in the Scope of Services ("Services") as defined in the Work Authorization Form. A project for which Services are to be performed is referred to as the "Project."

1.2 Estimates

Unless the Agreement provides otherwise, the estimated costs required to complete the Services to be performed are made by RMT on the basis of its experience, qualifications, and professional judgment, but are not guaranteed. If the costs appear likely to exceed the estimate, RMT will notify Client before proceeding. If Client does not object to additional costs within at least three (3) days of notification, the increased costs are approved.

1.3 Changes in the Scope of Services

If Client requests and RMT agrees to changes in the Services, RMT and Client, shall execute a written change order. Client may orally authorize changes in the Services, providing such changes are confirmed in writing.

2. TIME FOR PERFORMANCE

2.1 Generally

The schedule for performance of the Services shall be as agreed by the parties and reflected in the Agreement.

2.2 Effect of Delay

If the Services to be performed by RMT are interrupted, suspended, or delayed for any reason beyond the reasonable control of RMT, the schedule of work and date for completion shall be adjusted accordingly and RMT shall be compensated for all reasonable increased costs resulting from such interruption, suspension, or delay.

3. COMPENSATION AND PAYMENT

3.1 Method for Compensation

3.1.1 Client agrees that time is of the essence as to payment of RMT's invoices, and that timely payment is a material consideration for this Agreement.

3.1.2 Payment for Services rendered hereunder shall be on a time and expense basis in accordance with RMT's Schedule of Charges current when the Services are performed, unless otherwise specified in the Agreement. All charges are net of any applicable taxes (except income and payroll taxes). Any additional costs due to such applicable taxes shall be charged to Client.

3.1.3 Invoices will be submitted monthly by RMT, and shall be due and payable thirty (30) calendar days after the invoice date. These payment terms are subject to RMT credit approval and may be changed by RMT upon changes in Client's credit status.

3.1.4 Client shall pay an additional charge of one (1) percent per month, or the maximum percentage allowed by law, whichever is lower, of the overdue amount for any payment received by RMT more than thirty (30) calendar days from the date of the invoice, excepting any portion of the invoiced amount in dispute and resolved in favor of Client.

3.1.5 If any amount is not paid within thirty (30) calendar days after the date of the invoice, RMT shall have the right, after giving seven (7) days written notice, to suspend all Services on the project until all accounts (including charges and accrued interest) have been paid. If any overdue amount is not paid within forty-five (45) calendar days after the date of the invoice, RMT shall have the right to terminate this Agreement. Any attorney fees, court costs, collection fees, or other costs incurred in collecting any delinquent amounts shall be paid by Client.

3.2 Dispute Support Services

Client will pay RMT in accordance with RMT's then current Schedule of Charges for dispute support services for any RMT employee who appears, testifies, or performs any services in connection with any court, administrative, arbitral, or other legal proceeding arising out of work related to this Agreement. This includes work and expenses incurred responding to subpoenas and other discovery procedures related to RMT's Services whether initiated by Client, Client's adversary, or third parties. This does not apply to proceedings against RMT alleging negligence, breach of professional standards, or breach of contract by RMT, unless RMT is otherwise entitled to reimbursement under this Agreement.

4. RMT RESPONSIBILITIES

4.1 Standard of Care

4.1.1 RMT will perform the Services in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.

4.1.2 RMT makes no other representation, express or implied, and no warranty is included or intended in any report, opinion, or document regarding the results to be achieved upon completion of this Agreement.

4.2 Cooperation with Client

RMT will advise Client of the status of the Project and will make reasonable efforts to coordinate its activities with Client, and to accommodate other activities of Client at the Project site. RMT shall designate an authorized representative to be available for consultation, assistance, and coordination of activities.

4.3 Safety

RMT is responsible for the safety on site of its own employees. This provision shall not be construed to relieve Client or any of its officers, directors, employees, agents, vendors, or contractors from their responsibility for maintaining a safe worksite. Neither the professional services of RMT, nor the presence of RMT's employees or subcontractors shall be construed to imply RMT has any responsibility for any activities on site performed by personnel other than RMT's employees or subcontractors.

4.4 Responsibility for Uncompleted Services

If any of the Services are eliminated, or if RMT is not retained to perform subsequent phases, RMT's responsibility shall extend only to the Services it completes.

5. CLIENT RESPONSIBILITIES

5.1 Information

Client shall provide all pertinent, available information regarding its requirements, objectives, and criteria for the Project, including, but not limited to, surveys, studies, available descriptive information regarding historical use and existing environmental conditions, investigations, compliance and enforcement actions, records concerning the subject matter of the Project, and communications with governmental regulatory agencies relating to the Project.

5.2 Cooperation with RMT

Client will cooperate with RMT, so that the Project can be completed in a timely, efficient, and cost-effective manner. Client shall designate an authorized representative familiar with the Project who shall be available to RMT and who shall have the authority to make all decisions necessary for RMT to perform its Services. Client shall also identify others who may have information pertinent to the Project, and who may be contacted or consulted by RMT. Client will provide RMT access to the Project site, except that Client may impose reasonable rules and restrictions to prevent avoidable interference with other activities on the Project site and to promote safety and security.

5.3 Utilities

Unless otherwise required by law or set forth in this Agreement, Client shall be responsible for accurately locating, horizontally and vertically, and prominently marking any buried or concealed pipes, tanks, cables, utilities, or other manmade obstructions that may affect or may be affected by RMT's Services. RMT may rely on such locations and markings in planning and performing intrusive Services, such as drilling or excavating.

6. PERMITS, CERTIFICATIONS, AND OTHER APPROVALS

6.1 Responsibility

RMT shall be responsible for obtaining and maintaining all permits, and other approvals required to be in RMT's name.

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7. CONFIDENTIALITY

7.1 Nondisclosure

7.1.1 For the purpose of this provision, confidential information shall be proprietary business information or trade secrets designated in writing to be confidential.

7.1.2 RMT and Client shall maintain as confidential any confidential information provided by the other party, as defined in 7.1.1. This provision shall not apply to information that

1. is already known to the recipient as shown by written records in its possession at the time such information is received;
2. is already part of the public domain at the time of disclosure, or subsequently becomes part of the public domain through no fault of the recipient;
3. becomes available to the recipient from a third party who is not under obligation to the recipient with respect thereto; or
4. is independently developed by an employee or consultant of the recipient who had no knowledge of or access to the information.

7.1.3 Each party may disclose confidential information if the confidential information

1. is required to be disclosed by law, subpoena, order of a court or governmental regulatory agency, or other legal process provided that the disclosing party gives the other party reasonable notice and opportunity to challenge the requirement to disclose;
2. is disclosed to a party's contractor, subcontractor, consultant, agent, or employee who has signed a nondisclosure agreement;
3. is disclosed to a third party who has signed a nondisclosure agreement, but only if both RMT and Client agree to such disclosure;
4. is disclosed to avoid a risk of imminent harm to persons, property, or the environment; or
5. is disclosed to protect either party from criminal or civil liability under applicable law.

7.2 Use of Project Information

Client agrees that RMT may use Client's name and a general description of the Project as a reference for other prospective clients.

8. OWNERSHIP OF DOCUMENTS AND MATERIALS

8.1 Documents

8.1.1 Original survey data, field notes, maps, computations, studies, reports, drawings, specifications, and other documents generated by RMT are instruments of Service and shall remain the property of RMT. RMT shall provide a copy of those deliverables specified in the Services.

8.1.2 Any documents generated by RMT are for the exclusive use of Client and any use by third parties or use beyond the intended purpose of the document, shall be at the sole risk of Client, unless otherwise agreed upon by RMT in writing. To the fullest extent permitted by law, Client shall indemnify, defend, and hold harmless RMT, its subcontractors, consultants, officers, directors, employees, and agents for any loss or damage arising out of the unauthorized use of such documents.

8.2 Samples and Other Materials

8.2.1 All materials at or removed from the Project site, including, but not limited to, samples, soil, drill cuttings, excavation spoils, and solid, liquid, or hazardous wastes, shall remain the property of Client at all times. Client recognizes and agrees that RMT is acting as a bailee and at no time assumes title to said materials or samples.

8.2.2 Client shall indemnify and hold harmless RMT and its subcontractors, consultants, agents, officers, directors, and employees from and against any and all liability which arises out of the treatment, storage, transport, or disposal of hazardous materials.

8.3 Investigative, Remedial, and Treatment Technologies

Any investigative, remedial, treatment, or other environmental or pollution control process, technology, or method used by RMT in performing the Services, or that arise out of, or are developed or improved during the course of, the Services, shall remain the property of RMT. RMT retains the exclusive right to patent or copyright any technology-related concept or document arising out of the Services that may be patentable or copyrightable.

9. ALLOCATION OF RISK

RMT and Client acknowledge that, prior to the start of this Agreement, RMT has not generated, handled, stored, treated, transported, disposed of, or in any way whatsoever taken responsibility for any toxic or hazardous substance or other material found, identified, or as yet unknown at the Project premises. RMT and Client further acknowledge and understand that the evaluation, management, and other actions involving toxic or hazardous substances that may be undertaken as part of the Services to be performed by RMT, including subsurface excavation or sampling, entails uncertainty and risk of injury or damage. RMT and Client further acknowledge and understand that RMT has not been retained to serve as an insurer of the safety of the Project to the Client, third parties, or the public.

Client acknowledges that the discovery of certain conditions and/or taking of preventative measures relative to these conditions may result in a reduction of the property's value. Accordingly, Client waives any claim against RMT and agrees to indemnify, defend, and hold harmless RMT and its subcontractors, consultants, agents, officers, directors, and employees from any claim or liability for injury or loss allegedly arising from procedures associated with environmental site assessment (ESA) activities or the discovery of actual or suspected hazardous materials or conditions.

Client releases RMT from any claim for damages resulting from or arising out of any pre-existing environmental conditions at the site where the work is being performed which was not directly or indirectly caused by and did not result from, in whole or in part, any act or omission of RMT or subcontractor, their representatives, agents, employees, and invitees.

If, while performing the Services set forth in any Scope of Services, pollutants are discovered that pose unanticipated or extraordinary risks, it is hereby agreed that the Scope of Services, schedule, and costs will be reconsidered and that this Agreement shall immediately become subject to renegotiation or termination. Client further agrees that such discovery of unanticipated hazardous risks may require RMT to take immediate measures to protect health and safety or report such discovery as may be required by law or regulation. RMT shall promptly notify Client upon discovery of such risks. Client, however, hereby authorizes RMT to take all measures RMT believes necessary to protect RMT and Client personnel and the public. Furthermore, Client agrees to compensate RMT for any additional costs associated with such measures.

RMT and Client agree that the apportionment of the risk of loss and other limitations set forth in the Allocation of Risk provisions of this Agreement are essential terms of this Agreement and a condition of RMT's willingness to perform the Services.

10. INSURANCE

RMT agrees to purchase and maintain at its own expense worker's compensation insurance, employer liability insurance, general liability insurance, professional liability insurance, and automobile liability insurance. Certificates of insurance shall be provided to Client upon request in writing. RMT agrees to purchase additional insurance as requested by the Client (presuming such insurance is available) provided the premiums for such additional insurance are reimbursed by the Client.

11. INDEMNIFICATION

11.1 RMT agrees to indemnify, defend, and hold harmless Client and its agents, officers, directors, and employees from and against those claims, suits, damages, or losses incurred by Client, to the extent that such damages or losses are directly caused by the negligent acts or willful misconduct of RMT or its agents, officers, directors, or employees. This Agreement to indemnify, defend, and hold harmless shall not extend to any suits, claims, damages, or losses caused by the acts, omissions, or conduct of Client or any other person.

11.2 Client agrees to indemnify, defend, and hold harmless RMT and its subcontractors, consultants, agents, officers, directors, and employees from and against all claims, suits, damages, and losses, including, but not limited to, those claims, suits, damages, or losses arising out of, relating to, or based upon the following: (1) the acts, omissions, or other conduct of Client; (2) the acts, omissions, or other conduct of persons other than Client or RMT or RMT's subcontractors; (3) the actual or threatened dispersal, discharge, escape, release, or saturation of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids, gases, or any other materials, irritants, contaminants, or pollutants in or into the atmosphere or on, onto, upon, in, or into the surface or subsurface of soil, water or water course, objects, or any tangible or intangible matter, abated or not; or (4) RMT's status as a generator,

storer, treater, arranger, transporter, operator, or disposal facility as defined in any federal, state, or local statute, regulation, or rule governing treatment, storage, transport, and/or disposal of hazardous materials, except to the extent that such damage or loss is directly caused by the negligent acts or willful misconduct of RMT or its agents, officers, directors, or employees.

12. LIMITATION OF LIABILITY

12.1 To the fullest extent permitted by law, RMT's total liability under this Agreement shall not exceed the greater of

1. RMT's charges for the Services under this Agreement; or
2. Fifty thousand dollars ($50,000).

12.2 Neither party to this Agreement shall be liable to the other party for any special, indirect, punitive, or consequential damages.

13. TERMINATION

This Agreement may be terminated by either party upon ten (10) days written notice for (1) failure of the other party to substantially perform its responsibilities under this Agreement, (2) substantial violation of any provision of this Agreement, or (3) discovery of conditions that differ materially from those ordinarily found to exist in, or generally recognized as inherent in, the work contemplated to be performed under this Agreement. In the event of termination, RMT shall be paid on a time and expenses basis at RMT's standard rates for services performed prior to the termination notice date plus reasonable termination expenses, including the cost of completing analyses, records, and reports necessary to document job status at the time of termination. RMT shall also be reimbursed for reasonable costs associated with untimely demobilization and reassignment of personnel and equipment.

14. DISPUTE RESOLUTION

14.1 Mediation

Except where provisional or temporary remedies are sought, no action may be commenced concerning any claim arising out of or connected with this Agreement or the Services unless it has first been submitted to non-binding mediation at the written request of either party. Such requests shall include the grounds of the dispute and the nature of the relief sought. The mediator shall be appointed under the auspices of the Lex Mundi College of Mediators.

Where provisional or temporary remedies are sought, the parties shall engage in mediation before a Lex Mundi mediator within ninety (90) days after institution of such suit. The prevailing party in the court action shall be entitled to recover its dispute resolution expenses, including, but not limited to, reasonable attorney's fees, costs, expenses, and damages incurred in connection with any dispute arising out of this Agreement. RMT shall have the right to suspend all or a portion of the Services during the pendency of any dispute regarding compensation for Services.

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14.2 Limitations on Actions

No claim may be asserted by either party against the other party unless an action on the claim is commenced within two (2) years after the date of RMT's final invoice to Client.

15. MISCELLANEOUS

15.1 Third Parties

15.1.1 This Agreement shall be binding on RMT and Client, and their successors, trustees, legal representatives, and assigns. Neither party shall assign or transfer any rights, responsibilities, or interest in this Agreement without the written consent of the other party and any attempt to do so without such consent shall be void.

15.1.2 Nothing in this section shall prevent RMT from employing any subcontractor or consultant to assist in the performance of Services under this Agreement.

15.1.3 All duties, responsibilities, rights, and interests created by this Agreement are for the sole and exclusive benefit of RMT and Client, and not for the benefit of any third party.

15.2 Notices

Any written notice required or authorized to be given may be personally delivered, or sent by courier service or facsimile to the authorized representative designated under this Agreement.

15.3 Survival of Sections

Provisions 3, 4, 7, 8, 9, 11, 12, 14, and 16 of this Agreement shall survive completion of performance or termination under this Agreement.

15.4 Substance Abuse

RMT has a vital interest in maintaining a safe, healthful, and efficient working environment for our employees, customers, suppliers, contractors, subcontractors, vendors, visitors, and the general public. The presence of illegal or improperly used drugs or other mood-altering substances is unacceptable. RMT strictly prohibits using, possessing, manufacturing, selling, transporting, distributing, storing, concealing, or dispensing of any controlled or illegal substances, as defined by federal or state law, other than pursuant to a valid prescription, while on the premises of RMT (including parking lots), while conducting RMT business (including travel), or during RMT-sponsored activities. Client is hereby notified that all Client's employees will be required to abide by this policy whenever on RMT's premises and agree that such employees are subject to a search, testing, or removal from the project in accordance with RMT's substance abuse policy.

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16. INTERPRETATION

16.1 Severability

If any provision of this Agreement is determined to be void or unenforceable by a court, all remaining provisions shall continue to be valid and enforceable. The court shall reform or replace any void or unenforceable provision with a valid and enforceable provision that comes as close as possible to expressing the intention of the void or unenforceable provision.

16.2 Governing Law

This Agreement shall be governed by the laws of the State of .

16.3 Paragraph Headings

The paragraph headings in these General Terms and Conditions are included solely for convenient reference, and shall not define, limit, or affect the construction or interpretation of this Agreement.

16.4 Waiver

Failure or delay by either party to insist on the strict performance of any covenant, term, provision or condition hereunder, or to exercise any option herein contained, or to pursue any claim or right arising herefrom, will not constitute or be construed as a waiver of such covenant, term, provision, condition, option, claim, or right. Any waiver by either party will not constitute or be construed a continuing waiver of any subsequent default.

16.5 Whole Agreement

The Agreement, including these General Terms and Conditions, constitutes the complete and final contract between RMT and Client. This contract supersedes all prior or contemporaneous agreements, communications, representations, undertakings, or understandings between the parties, whether oral or written, including but not limited to, purchase orders relating to the Project, except as expressly incorporated into this Agreement. Modifications to this Agreement shall not be binding unless made in writing and signed by authorized representatives of RMT and Client.

16.5.1 If Client's Purchase Order form or acknowledgment or similar form is issued to identify the Agreement, authorize work, open accounts for invoicing, provide notices, or document change orders, the preprinted terms and conditions of said Purchase Order shall be void and of no effect.

16.5.2 To the extent that they are inconsistent or contradictory, the express provisions of these General Terms and Conditions shall take precedence over all other documents, except amendments expressly revising these General Terms and Conditions.

16.5.3 Any term and/or condition set forth in a change order executed after the date of this Agreement that is inconsistent with or contradictory to this Agreement shall take precedence over the inconsistent or contradictory term in this Agreement.

SCHEDULE OF CHARGES - FLAT RATE
January 1, 1998 - December 31, 1998

PERSONNEL CHARGES*

Senior Consultant	$ 144/hour
Consultant, Project and Technical Management	$ 124/hour
Senior Project Technical	$ 115/hour
Project Technical II	$ 99/hour
Project Technical I	$ 88/hour
Staff Technical II	$ 75/hour
Staff Technical I	$ 65/hour
Senior Technician, Designer	$ 70/hour
Technician II	$ 60/hour
Technician I	$ 55/hour
Field/O&M Technician	$ 45/hour
Administration	$ 45/hour

*Personnel include direct and contract employees.

DISPUTE RESOLUTION SUPPORT: Services in support of disputes (arbitration, litigation, etc.) involving client's information or interests, such as responding to discovery requests and subpoenas, are chargeable at the above rates.

Testimony rates (court, deposition or hearing time) are 1.75 times the above rates, with a minimum of 4 hours per day.

OTHER CHARGES

Computer: CADD, Modeling Appl. & other computer service charges, per hr	$ 25.00
Equipment Use	Std. Rate Sheet
Facsimile Transmissions, per sheet	N/A
Laboratory Analysis	Std. Rate Sheet
Prints: Blueline, per sq. foot	$ 0.15
Reproduction, per sheet	$ 0.15
Sample Storage: Geotechnical and Soils Samples	$ 10.00/unit/first mo. $ 1.00/unit/mo. after
Vehicles: Car, per mile	$ 0.37
Field Vehicle	$ 50.00/day plus $ 0.35/mile

Outside services, equipment, and facilities not furnished directly by RMT, Inc., will be billed at cost plus 15%, and may include, but are not limited to, the following:

- Aerial photography & mapping
- Meals and lodging
- Outside laboratory testing
- Printing and photographic reproduction
- Rental of equipment and vehicles
- Sample disposal
- Shipping
- Bonds required by project or client
- Special fees, permits, insurance, etc.
- Subcontractors to RMT, Inc.
- Supplies
- Telephone
- Transportation on public carriers

Payment terms: Net thirty (30) days. Thereafter, one percent (1%) interest per month on the unpaid balance will be charged.

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Appendix B
Survey Plat

EXHIBIT "A"

DESCRIPTION OF LAND

BEING a parcel or tract of land in the CHRISTIAN SMITH LEAGUE, Abstract No. 22, Chambers County, Texas, and being that same parcel conveyed by Fenno D. Ball, et al to R. D. Haden by Deed, dated March 18, 1878, recorded in Volume "B", Page 578 of the Deed Records of Chambers County, Texas, said to contain 45.25 acres of land, more or less, but found upon a re-survey to contain 48.791 acres of land, and being more particularly described by metes and bounds as follows, to-wit:

BEGINNING at a fence post on the East bank of Cedar Bayou, the Southwest corner of the Lizzie Wilburn Estate 34.95 acre tract and the Northwest corner of this tract;

THENCE a true bearing of North 80° 12' 22" East following the common boundary between the Haden and Wilburn Estates tracts as fenced, at 1942.77 feet passed a 1.0 foot North of, and 0.35 foot West of, a fence corner in the West right-of-way of a County Road at 1975.27 feet passed the Southeast corner of said Wilburn Estate tract, in the center of said Road, and Southwest corner of the Annie Schilling Estate original 360 acre tract, as described in a deed of record in Volume "H", Page 176 of the Deed Records of Chambers County, Texas, in all a total distance of 2155.30 feet to the Northeast corner of this tract in the center of a County Road, said corner is situated 3.29 feet North 10° 17' West of an iron rod found in said road;

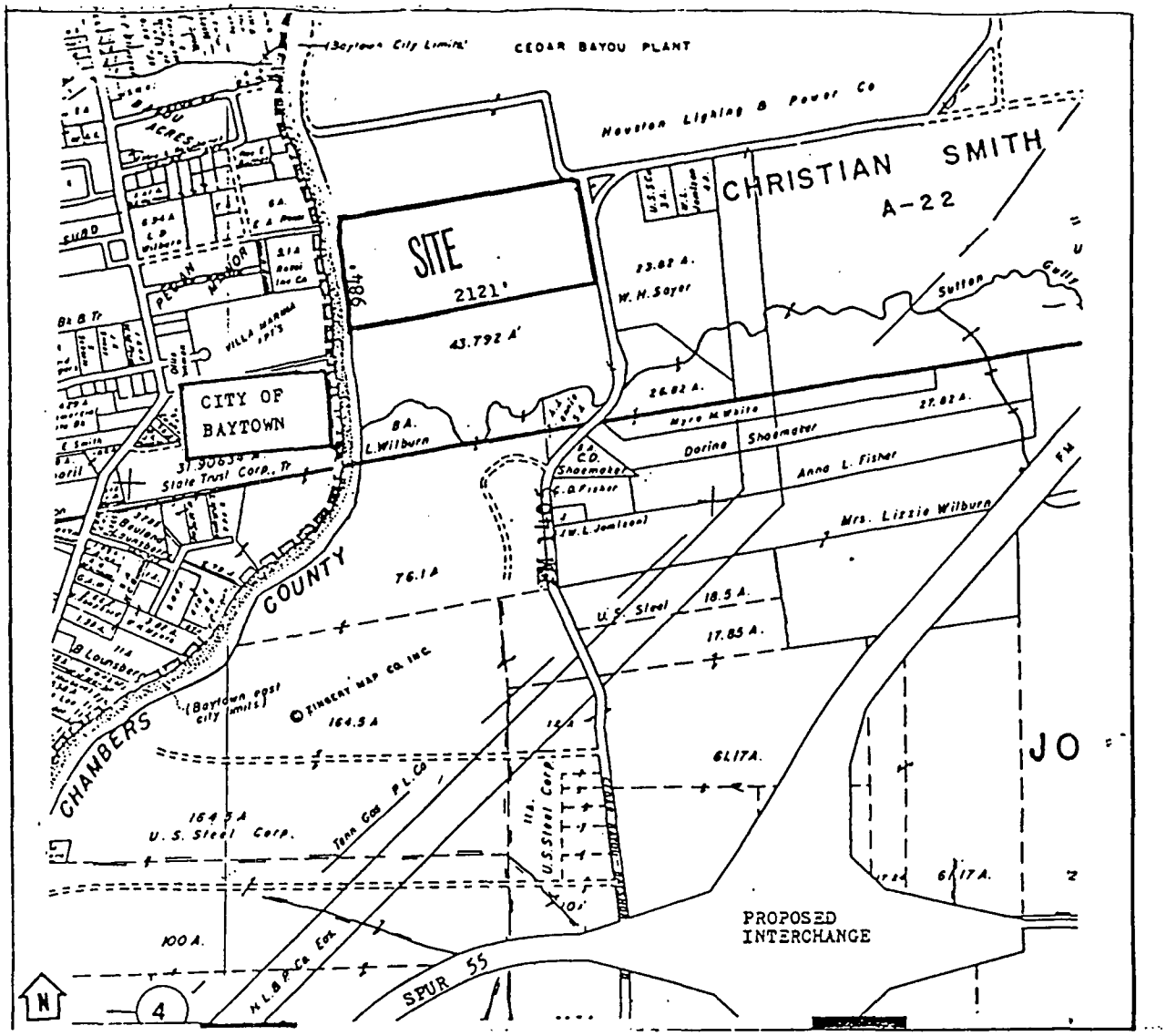
THENCE South 10° 17' 08" East with center of a County Road and entering the right-of-way of F. M. Highway No. 1405, and with the center of said latter named Highway, at 3.[illegible] feet passed aforesaid iron rod, and at 991.75 feet to corner in said F. M. Highway No. 1403, the Southeast corner of this tract and the Northeast corner of the C. D. Ehrhardt so-called 45.25 acre tract;

THENCE South 80° 52' 17" West at 40.0 feet crossed the West right-of-way fence of F. M. Highway No. 1405, at a fence corner, and [illegible] with a fence, a total distance of 1275.[illegible] a fence corner and angle in the common boundary line between the Haden tract and the Ehrhardt tract;

THENCE continuing with said common boundary as fenced, South 79° 44' 37" West [illegible] feet to a post on the East bank of Cedar Bayou, the Southwest corner of this tract and the Northwest corner of the C. D. Ehrhardt tract;

THENCE with the meanders of the East bank of Cedar Bayou, North 10° 46' 53" West [illegible].11 feet and North 08° 39' 38"

West 393.10 feet to the PLACE OF BEGINNING, containing within said boundaries, 48.791 acres of land, there being 0.993 acre in the right-of-way of said County Road and F. M. Highway No. 1405, leaving a net acreage of 47.798 acres of land.



The information contained above is furnished for the sole benefit of participants of the Multiple Listing Service. No representations or warranties, either expressed or implied, are made as to the accuracy thereof; and property is subject to prior sale without notice.

Appendix C
Database Search

The EDR-Radius Map
with GeoCheck®

Fine Organics Corporation
6655 W. Bay Road
Baytown, TX 77520

Inquiry Number: 308898.1s

November 04, 1998

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Environmental Data Resources, Inc.
an edr company

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-97. Search distances are per ASTM standard or custom distances requested by the user.

The address of the subject property for which the search was intended is:

6655 W. BAY ROAD
BAYTOWN, TX 77520

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the subject property or within the ASTM E 1527-97 search radius around the subject property for the following Databases:

NPL:	National Priority List
Delisted NPL:	NPL Deletions
SHWS:	State Haz. Waste
CERCLIS:	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP:	Comprehensive Environmental Response, Compensation, and Liability Information System
SWF/LF:	Permitted Solid Waste Facilities
UST:	Petroleum Storage Tank Database
AST:	Petroleum Storage Tank Database
RAATS:	RCRA Administrative Action Tracking System
RCRIS-SQG:	Resource Conservation and Recovery Information System
HMIRS:	Hazardous Materials Information Reporting System
PADS:	PCB Activity Database System
ERNS:	Emergency Response Notification System
FINDS:	Facility Index System
TRIS:	Toxic Chemical Release Inventory System
NPL Lien:	NPL Liens
TSCA:	Toxic Substances Control Act
MLTS:	Material Licensing Tracking System
TX Spills:	TX Spills
WasteMgt:	WasteMgt
TX VCP:	Texas Natural Resource Conservation Commission
TX MM:	Multi Media Enforcement Cases
ROD:	ROD
CONSENT:	Superfund (CERCLA) Consent Decrees
Coal Gas:	Former Manufactured gas (Coal Gas) Sites.

Unmapped (orphan) sites are not considered in the foregoing analysis.

Search Results:

Search results for the subject property and the search radius, are listed below:

Subject Property:

The subject property was identified in the following government records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
FINE ORGANICS CORPORATION 6655 W BAY RD BAYTOWN, TX 77520	TX IHW	N/A

EXECUTIVE SUMMARY

Surrounding Properties:

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the subject property includes a tolerance of -10 feet. Sites with an elevation equal to or higher than the subject property have been differentiated below from sites with an elevation lower than the subject property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

RCRIS: The Resource Conservation and Recovery Act database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Act. The source of this database is the U.S. EPA.

A review of the RCRIS-TSD list, as provided by EDR, and dated 07/01/1998 has revealed that there is 1 RCRIS-TSD site within approximately 0.75 Miles of the subject property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
HOUSTON LGHT & POWER CEDAR BAY	*FM RD 1405*	*1/4 - 1/2 NNW*	*2*	*9*

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/15/1997 has revealed that there is 1 CORRACTS site within approximately 1.25 Miles of the subject property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
HOUSTON LGHT & POWER CEDAR BAY	*FM RD 1405*	*1/4 - 1/2 NNW*	*2*	*9*

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Texas Natural Resource Conservation Commission's Leaking Petroleum Storage Tank Database.

A review of the LUST list, as provided by EDR, and dated 04/01/1998 has revealed that there is 1 LUST site within approximately 0.75 Miles of the subject property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WARD RD CENTER	*2512 WARD RD*	*1/2 - 1 WSW*	*3*	*10*

RCRIS: The Resource Conservation and Recovery Act database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Act. The source of this database is the U.S. EPA.

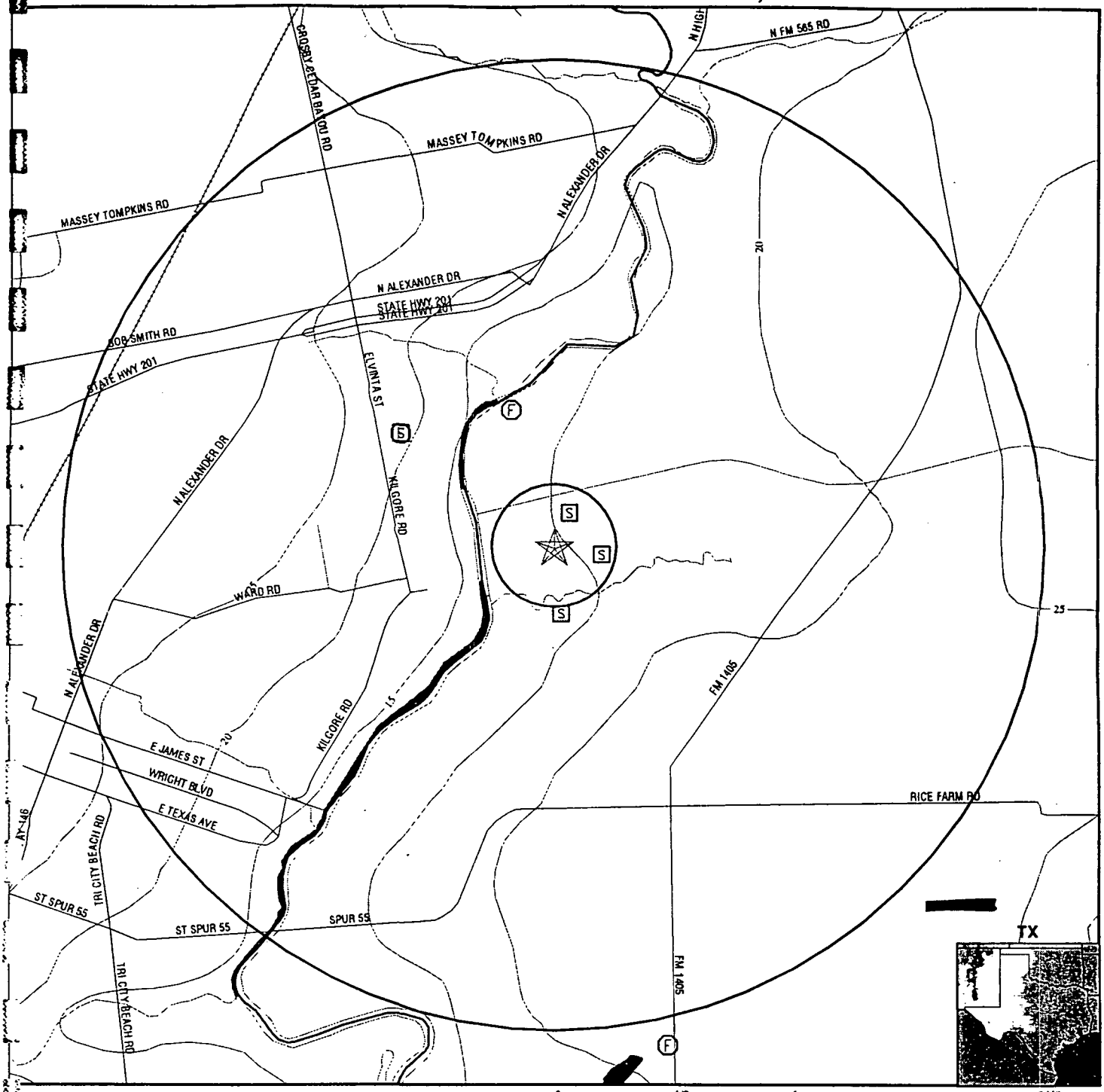
A review of the RCRIS-LQG list, as provided by EDR, and dated 07/01/1998 has revealed that there is 1 RCRIS-LQG site within approximately 0.5 Miles of the subject property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
HOUSTON LGHT & POWER CEDAR BAY	*FM RD 1405*	*1/4 - 1/2 NNW*	*2*	*9*

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
STOP N GO MARKETS 10	LUST
SHELL SERVICE STATION	LUST
STOP N GO #2007	UST
FORMER GIFFORD HILL	UST
FIRST CHEMICAL TEXAS LP	RCRIS-LQG
EPC - NITROGEN BENZENE TRANSFER STATION	TX VCP
FORMER LESCO TRUCKING PROPERTY	TX VCP
CEDAR CROSSING BUSINESS PARK\KOPPEL STEE	TX VCP

TOPOGRAPHIC MAP - 308898.1s - RMT, Inc.



- Major Roads
- Contour Lines
- Waterways
- Earthquake epicenter, Richter 5 or greater
- (F) Closest Federal Well in quadrant
- [S] Closest State Well in quadrant
- (S) Closest Public Water Supply Well
- Oil or gas wells (in certain Texas counties)

00000

TARGET PROPERTY:	Fine Organics Corporation	CUSTOMER:	RMT, Inc.
ADDRESS:	6655 W. Bay Road	CONTACT:	Eileen Tanner
CITY/STATE/ZIP:	Baytown TX 77520	INQUIRY #:	308898.1s
LAT/LONG:	29.7430 / 94.9238	DATE:	November 04, 1998 1:38 pm

GEOCHECK VERSION 2.1 SUMMARY

TARGET PROPERTY COORDINATES

Latitude (North):	29.743000 - 29° 44' 34.8"
Longitude (West):	94.923798 - 94° 55' 25.7"
Universal Transverse Mercator:	Zone 15
UTM X (Meters):	-23837214.0
UTM Y (Meters):	117306256.0

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property:	2429094-F8 MORGANS POINT, TX

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	Qp
Era:	Cenozoic
System:	Quaternary
Series:	Pleistocene

ROCK STRATIGRAPHIC UNIT†

Category:	Stratifed Sequence

GROUNDWATER FLOW INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, including well data collected on nearby properties, regional groundwater flow information (from deep aquifers), or surface topography.‡

AQUIFLOW™•• Search Radius: 2.000 Miles

MAP ID	DISTANCE FROM TP	DIRECTION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported			

General Topographic Gradient at Target Property: General WSW
General Hydrogeologic Gradient at Target Property: No hydrogeologic data available.

FEDERAL DATABASE WELL INFORMATION

WELL QUADRANT	DISTANCE FROM TP	LITHOLOGY	DEPTH TO WATER TABLE
Northern	1/2 - 1 Mile	Not Reported	120 ft.
Southern	>2 Miles	Not Reported	24 ft.
Western	1/2 - 1 Mile	Not Reported	80 ft.

STATE WATER WELL INFORMATION

DIRECTION FROM TP	DISTANCE FROM TP	DEPTH FEET	SOURCE
Northern	1/8 - 1/4 Mile	22	Texas Water Development Board
Eastern	1/8 - 1/4 Mile	25	Texas Water Development Board
Southern	1/4 - 1/2 Mile	410	Texas Water Development Board
Western	1/2 - 1 Mile	390	Texas Water Development Board

STATE OIL/GAS WELL INFORMATION

WELL #	DISTANCE FROM TP
NO WELLS FOUND	

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).
‡ U.S. EPA Ground Water Handbook, Vol I: Ground Water and Contamination, Office of Research and development EPA/625/6-90/016a,Chapter 4, page 78, September 1990.
•• EDR AQUIFLOW™ Information System of hydrogeologically determined groundwater flow directions at specific locations. See the data pages at the end of this report for a complete description.

GEOCHECK VERSION 2.1
SUMMARY

PUBLIC WATER SUPPLY SYSTEM INFORMATION

Searched by Nearest PWS.
NOTE: PWS System location is not always the same as well location.

PWS Name: FIVE OAKS MOBILE HOME SUBDIVISION
C/O WINDY HILL UTILITIES INC
P O BOX 9449
WOODLAND, TX 77387

Location Relative to TP: >2 Miles West

PWS currently has or has had major violation(s): Yes

AREA RADON INFORMATION

EPA Radon Zone for CHAMBERS County: 3

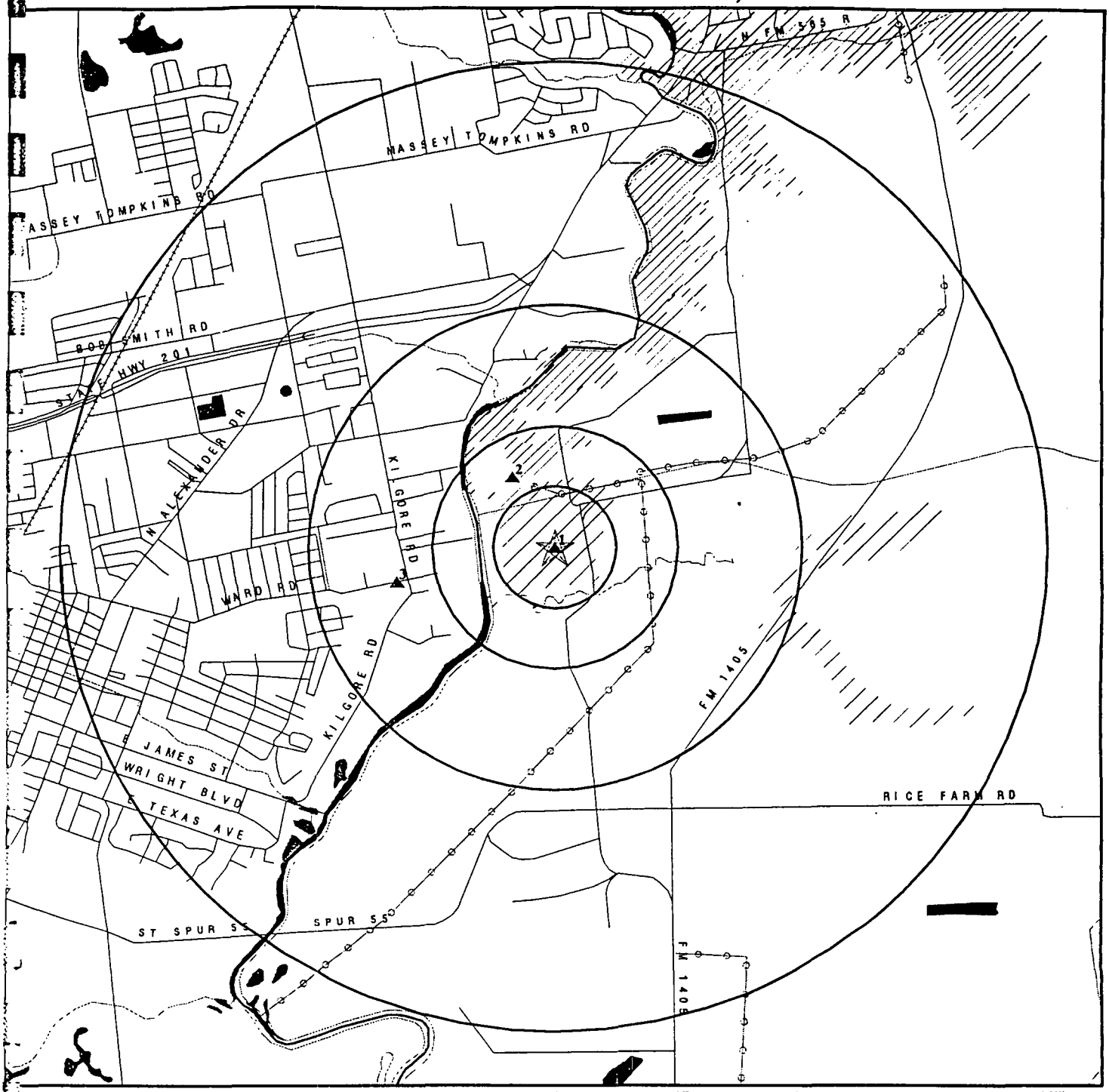
Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Zip Code: 77520

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

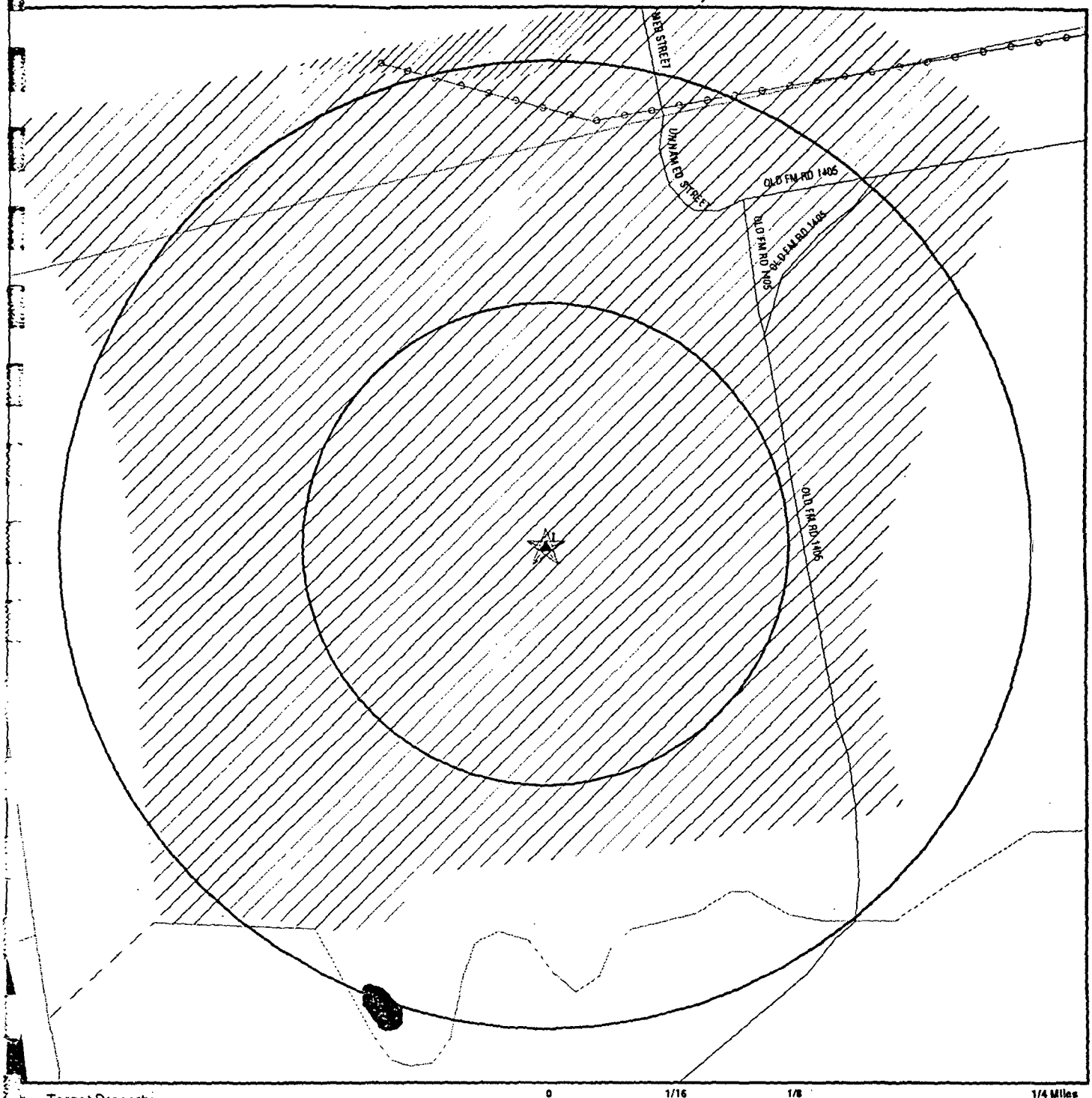
OVERVIEW MAP - 308898.1s - RMT, Inc.



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands per National Wetlands Inventory (1994)

TARGET PROPERTY:	Fine Organics Corporation	CUSTOMER:	RMT, Inc.
ADDRESS:	6655 W. Bay Road	CONTACT:	Eileen Tanner
CITY/STATE/ZIP:	Baytown TX 77520	INQUIRY #:	308898.1s
LAT/LONG:	29.7430 / 94.9238	DATE:	November 04, 1998 1:36 pm

DETAIL MAP - 308898.1s - RMT, Inc.



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands per National Wetlands Inventory (1994)

TARGET PROPERTY:	Fine Organics Corporation	CUSTOMER:	RMT, Inc.
ADDRESS:	6655 W. Bay Road	CONTACT:	Eileen Tanner
CITY/STATE/ZIP:	Baytown TX 77520	INQUIRY #:	308898.1s
LAT/LONG:	29.7430 / 94.9238	DATE:	November 04, 1998 1:37 pm

MAP FINDINGS SUMMARY SHOWING ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.250	0	0	0	0	0	0
Delisted NPL		TP	NR	NR	NR	NR	NR	0
RCRIS-TSD		0.750	0	0	1	0	NR	1
State Haz. Waste		1.250	0	0	0	0	0	0
CERCLIS		0.750	0	0	0	0	NR	0
CERC-NFRAP		TP	NR	NR	NR	NR	NR	0
CORRACTS		1.250	0	0	1	0	0	1
State Landfill		0.750	0	0	0	0	NR	0
LUST		0.750	0	0	0	1	NR	1
UST		0.500	0	0	0	NR	NR	0
AST		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.500	0	0	1	NR	NR	1
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
TX Spills		TP	NR	NR	NR	NR	NR	0
WasteMgt		TP	NR	NR	NR	NR	NR	0
TX VCP		1.250	0	0	0	0	0	0
Tx Multimedia		TP	NR	NR	NR	NR	NR	0
Tx Ind Haz Waste	X	TP	NR	NR	NR	NR	NR	0
ROD		1.250	0	0	0	0	0	0
CONSENT		1.250	0	0	0	0	0	0
Coal Gas		1.250	0	0	0	0	0	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS SUMMARY SHOWING ONLY SITES HIGHER THAN OR THE SAME ELEVATION AS TP

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.250	0	0	0	0	0	0
Delisted NPL		TP	NR	NR	NR	NR	NR	0
RCRIS-TSD		0.750	0	0	1	0	NR	1
State Haz. Waste		1.250	0	0	0	0	0	0
CERCLIS		0.750	0	0	0	0	NR	0
CERC-NFRAP		TP	NR	NR	NR	NR	NR	0
CORRACTS		1.250	0	0	1	0	0	1
State Landfill		0.750	0	0	0	0	NR	0
LUST		0.750	0	0	0	1	NR	1
UST		0.500	0	0	0	NR	NR	0
AST		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.500	0	0	1	NR	NR	1
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
TX Spills		TP	NR	NR	NR	NR	NR	0
WasteMgt		TP	NR	NR	NR	NR	NR	0
TX VCP		1.250	0	0	0	0	0	0
Tx Multimedia		TP	NR	NR	NR	NR	NR	0
Tx Ind Haz Waste	X	TP	NR	NR	NR	NR	NR	0
ROD		1.250	0	0	0	0	0	0
CONSENT		1.250	0	0	0	0	0	0
Coal Gas		1.250	0	0	0	0	0	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

00006

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

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1 Target Property

FINE ORGANICS CORPORATION
6655 W BAY RD
BAYTOWN, TX 77520

TX IHW **S102743646**
N/A

TX IHW:

Registration Number:	37507
Registration Initial Notification Date:	09/19/1986
Registration Last Amendment Date:	01/30/1997
EPA Identification:	TXD981606932
TNRCC Premit Number:	Not reported
Description of Facility Site Location:	6655 W Bay Road, Baytown, TX
Site Primary Standard Industrial Code:	28690
SICC Description	Manufacturing, Industrial Organic Chemicals Not Else Classified
Registration is a Generator of Waste:	Yes
Registration is a Reciever of Waste:	No
Registration is a Transporter of Waste:	No
Registration is a Transfer Facility:	No
Mexican Facility:	Does not represent a Maquiladora (Mexican Facility)
Facility Status:	Active
Type of Generator:	Industrial, LQG
TNRCC Region:	12 Houston
Company Name:	Fine Organics Corporation
Facility Building Name:	Not reported
Mailing Building Name:	Not reported
Mailing Address:	6655 W Bay Road Baytown, TX 77520
Mailing County:	USA
Contact:	Arron Doughty
Contact Telephone Number:	713-573-1366

Additional detail may be available for this site. Please contact your EDR Account Executive for more information

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2 NNW 1/4-1/2 Higher

HOUSTON LGHT & POWER CEDAR BAYOU GEN ST
FM RD 1405
BAYTOWN, TX 77520

FINDS **1000389540**
RCRIS-LQG **TXD000761841**
RCRIS-TSD
CORRACTS

CORRACTS Data:

Prioritization:	Medium
Status:	RCRA Facility Assessment Completed

RCRIS:

Owner:	HOUSTON LGHT & PWR CO (713) 481-7145
Contact:	WF MCGUIRE (713) 481-7145
Record Date:	08/18/1980
Classification:	Large Quantity Generator, TSDF, Hazardous Waste Transporter

BIENNIAL REPORTS:
Last Biennial Reporting Year: 1995

Waste	Quantity (Lbs)	Waste	Quantity (Lbs)
D001	12220.00	D002	17204360.00
D005	10300.00	D006	18100.00

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number

HOUSTON LGHT & POWER CEDAR BAYOU GEN ST (Continued) 1000389540

D007	1000.00	D008	18100.00
D035	13220.00	F001	2920.00
F003	2920.00	F005	2920.00

Used Oil Recyc: No

TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
- Facility is monitored or permitted for air emissions under the Clean Air Act (under AFS/AIRS)

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3 WSW 1/2-1 Higher **WARD RD CENTER** UST U001270637
2512 WARD RD LUST N/A
BAYTOWN, TX 77520

LUST:

Facility ID:	0037935	Discovery Date:	6/17/97
Data Entry Date:	7/22/97	Lead Office:	STATE LEAD/CONTRACTS
PST Coordinator:	SLR	RPR Coordinator:	SLR
Region:	12	Region City ID:	Houston
Leaking Tank #:	112478		
Responsible Party:	National Convenience Bankrupt		
RP Contact:	Cathy Rashin		
	Not reported		
	TX		
RP Telephone:	512/239-2138		
Facility Location:	2512 Ward Rd		
County Code:	101		
Priority:	NO GW IMPACT, NO APPARENT THREATS OR IMPACTS TO RECEPTORS		
Status:	INCIDENT REPORTED, INITIAL DIRECTIVES NOT YET ISSUED		

UST:

Facility ID:	0037935	Customer ID:	38510
Tank ID:	1	Installation Date:	06/01/74
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	Yes	Status Date:	11/01/93
Capacity:	8000	Unit ID:	001000

Tank Material of Construction:	Steel
Pipe Material of Construction:	Steel
Other Materials of Construction:	Not reported
Tank Status:	Removed from the Ground
Tank Construction & Containment:	Single Wall
Pipe Construction & Containment:	Single Wall
Other Construction & Containment:	Single Wall
Tank Substance Stored:	Gasoline
Other Substance Stored:	Single Wall
Tank Release Detection:	Inventory Control
Tank Release Detection II:	Tightness Testing
Pipe Release Detection:	A
Other Release Detection:	Not reported
Tank Corrosion Protection:	None
Pipe Corrosion Protection:	None
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)
Other Corrosion Protection:	Not reported
Spill and Overfill Protection:	Unknown/None
Spill and Overfill Protection II:	Tight-Fill Fitting

00033

WARD RD CENTER (Continued) **U001270637**

Vapor Recovery Equipment Status:	Not reported
Equipment Installed Date:	Not reported
Equipment Installer:	Not reported
Contractor Registration Number:	Not reported
Tank Registration Date:	05/08/86
Installer License Number:	Not reported

Facility ID:	0037935	Customer ID:	38510
Tank ID:	2	Installation Date:	06/01/74
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	No	Status Date:	11/01/93
Capacity:	8000	Unit ID:	001000

Tank Material of Construction:	Steel
Pipe Material of Construction:	Steel
Other Materials of Construction:	Not reported
Tank Status:	Removed from the Ground
Tank Construction & Containment:	Single Wall
Pipe Construction & Containment:	Single Wall
Other Construction & Containment:	Single Wall
Tank Substance Stored:	Gasoline
Other Substance Stored:	Single Wall
Tank Release Detection:	Inventory Control
Tank Release Detection II:	Tightness Testing
Pipe Release Detection:	A
Other Release Detection:	Not reported
Tank Corrosion Protection:	None
Pipe Corrosion Protection:	None
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)
Other Corrosion Protection:	Not reported
Spill and Overfill Protection:	Unknown/None
Spill and Overfill Protection II:	Tight-Fill Fitting
Vapor Recovery Equipment Status:	Not reported
Equipment Installed Date:	Not reported
Equipment Installer:	Not reported
Contractor Registration Number:	Not reported
Tank Registration Date:	05/08/86
Installer License Number:	Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
BAYTOWN	S101901017	STOP N GO MARKETS 10	2219 HWY 201	77520	LUST	0039718
BAYTOWN	U003040553	STOP N GO #2007	2219 HWY 201	77520	UST	0039718
BAYTOWN	U003201779	FORMER GIFFORD HILL	FM 565 & HWY 1405	77520	UST	007004
BAYTOWN	S102833113	SHELL SERVICE STATION	6011 HWY 73		LUST	0033124
BAYTOWN	1001216337	FIRST CHEMICAL TEXAS LP	8480 W BAY RD	77520	RCRIS-LQG	
BAYTOWN	S103169063	EPC - NITROGEN BENZENE TRANSFER STATION	BAYWAY DRIVE		TX VCP	593
BAYTOWN	S103168688	FORMER LESCO TRUCKING PROPERTY	INTERSECTION SJOLANDER AND WALLISVILLE		TX VCP	140
BAYTOWN	S103168672	CEDAR CROSSING BUSINESS PARK\KOPPEL STEE	5200 E MCKINNEY RD STE 100	77520	TX VCP	128

GEOCHECK VERSION 2.1 ADDENDUM
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Northern Quadrant)

BASIC WELL DATA

Site ID:	294504094553601	Distance from TP:	1/2 - 1 Mile
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1967	County:	Chambers
Altitude:	10.00 ft.	State:	Texas
Well Depth:	402.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	120.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	10101967	Prim. Use of Water:	Industrial

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Cenozoic-Quaternary-Pleistocene
Principal Lithology of Unit:	Not Reported
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Water Level:	137.74 ft.	Water Level:	134.80 ft.	Water Level:	134.90 ft.	Water Level:	133.20 ft.
Date Measured:	03/26/71	Date Measured:	02/15/72	Date Measured:	09/07/72	Date Measured:	01/19/73
Water Level:	140.10 ft.	Water Level:	134.20 ft.	Water Level:	134.50 ft.	Water Level:	149.00 ft.
Date Measured:	09/13/73	Date Measured:	03/14/74	Date Measured:	04/25/74	Date Measured:	07/25/74
Water Level:	146.00 ft.	Water Level:	143.70 ft.	Water Level:	143.45 ft.	Water Level:	143.00 ft.
Date Measured:	08/27/74	Date Measured:	11/13/74	Date Measured:	12/13/74	Date Measured:	01/09/75
Water Level:	141.25 ft.	Water Level:	146.22 ft.	Water Level:	151.45 ft.	Water Level:	141.14 ft.
Date Measured:	02/04/75	Date Measured:	03/18/75	Date Measured:	04/17/75	Date Measured:	05/13/75
Water Level:	142.62 ft.	Water Level:	149.16 ft.	Water Level:	152.56 ft.	Water Level:	150.91 ft.
Date Measured:	07/07/75	Date Measured:	08/07/75	Date Measured:	09/09/75	Date Measured:	10/27/75
Water Level:	150.37 ft.	Water Level:	151.08 ft.	Water Level:	148.87 ft.	Water Level:	148.21 ft.
Date Measured:	11/18/75	Date Measured:	12/17/75	Date Measured:	01/22/76	Date Measured:	02/25/76
Water Level:	151.95 ft.	Water Level:	148.08 ft.	Water Level:	151.66 ft.	Water Level:	149.83 ft.
Date Measured:	03/24/76	Date Measured:	04/23/76	Date Measured:	05/24/76	Date Measured:	09/23/76
Water Level:	151.04 ft.	Water Level:	149.67 ft.	Water Level:	150.06 ft.	Water Level:	152.60 ft.
Date Measured:	10/26/76	Date Measured:	12/06/76	Date Measured:	12/28/76	Date Measured:	03/07/77
Water Level:	154.30 ft.	Water Level:	154.00 ft.	Water Level:	153.83 ft.	Water Level:	152.40 ft.
Date Measured:	04/01/77	Date Measured:	05/03/77	Date Measured:	06/08/77	Date Measured:	11/01/77
Water Level:	122.75 ft.	Water Level:	118.00 ft.	Water Level:	138.40 ft.	Water Level:	136.50 ft.
Date Measured:	08/07/79	Date Measured:	08/31/79	Date Measured:	02/18/80	Date Measured:	10/24/80
Water Level:	124.00 ft.	Water Level:	124.50 ft.	Water Level:	139.00 ft.	Water Level:	125.00 ft.
Date Measured:	01/30/81	Date Measured:	02/27/81	Date Measured:	05/01/81	Date Measured:	06/29/81
Water Level:	127.00 ft.	Water Level:	119.00 ft.	Water Level:	120.00 ft.	Water Level:	115.00 ft.
Date Measured:	08/03/81	Date Measured:	10/02/81	Date Measured:	11/02/81	Date Measured:	12/03/81
Water Level:	114.00 ft.	Water Level:	114.00 ft.	Water Level:	112.00 ft.	Water Level:	109.00 ft.
Date Measured:	05/05/82	Date Measured:	07/01/82	Date Measured:	08/12/82	Date Measured:	10/27/82
Water Level:	110.00 ft.	Water Level:	108.00 ft.	Water Level:	108.00 ft.	Water Level:	105.00 ft.
Date Measured:	02/11/83	Date Measured:	03/21/83	Date Measured:	05/23/83	Date Measured:	11/22/83
Water Level:	109.00 ft.	Water Level:	111.00 ft.	Water Level:	108.00 ft.	Water Level:	108.00 ft.
Date Measured:	03/08/84	Date Measured:	07/17/84	Date Measured:	10/10/84	Date Measured:	01/07/85
Water Level:	109.00 ft.	Water Level:	96.50 ft.				
Date Measured:	01/06/86	Date Measured:	01/12/88				

00101

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Southern Quadrant)

BASIC WELL DATA

Site ID:	294247094545801	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1951	County:	Chambers
Altitude:	23.00 ft.	State:	Texas
Well Depth:	105.00 ft.	Topographic Setting:	Flat surface
Depth to Water Table:	23.70 ft.	Prim. Use of Site:	Unused
Date Measured:	12101965	Prim. Use of Water:	Unused

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Cenozoic-Quaternary-Pleistocene
Principal Lithology of Unit:	Not Reported
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Water Level:	20.62 ft.	Water Level:	20.01 ft.	Water Level:	22.25 ft.	Water Level:	20.77 ft.
Date Measured:	03/09/72	Date Measured:	03/15/73	Date Measured:	10/02/73	Date Measured:	03/28/74
Water Level:	20.19 ft.	Water Level:	20.30 ft.	Water Level:	20.10 ft.	Water Level:	19.97 ft.
Date Measured:	03/03/75	Date Measured:	10/15/75	Date Measured:	03/17/76	Date Measured:	10/06/76
Water Level:	22.94 ft.	Water Level:	20.52 ft.	Water Level:	20.43 ft.	Water Level:	20.29 ft.
Date Measured:	03/08/77	Date Measured:	10/14/77	Date Measured:	10/03/78	Date Measured:	02/08/79
Water Level:	19.80 ft.	Water Level:	19.93 ft.	Water Level:	19.81 ft.	Water Level:	20.24 ft.
Date Measured:	10/01/79	Date Measured:	03/03/80	Date Measured:	11/05/80	Date Measured:	01/30/81
Water Level:	20.32 ft.	Water Level:	20.11 ft.	Water Level:	20.74 ft.	Water Level:	19.98 ft.
Date Measured:	10/15/81	Date Measured:	03/05/82	Date Measured:	10/25/82	Date Measured:	02/09/83
Water Level:	20.70 ft.	Water Level:	19.82 ft.	Water Level:	20.20 ft.	Water Level:	19.99 ft.
Date Measured:	01/11/84	Date Measured:	02/04/85	Date Measured:	10/31/85	Date Measured:	01/31/86
Water Level:	19.64 ft.	Water Level:	20.40 ft.	Water Level:	20.22 ft.		
Date Measured:	01/12/88	Date Measured:	01/24/91	Date Measured:	01/30/92		

00102

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Western Quadrant)

BASIC WELL DATA

Site ID:	294459094560301	Distance from TP:	1/2 - 1 Mile
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1952	County:	Harris
Altitude:	22.00 ft.	State:	Texas
Well Depth:	390.00 ft.	Topographic Setting:	Flat surface
Depth to Water Table:	80.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	07161952	Prim. Use of Water:	Public supply

LITHOLOGIC DATA

Geologic Age ID (Era/System/Series):	Cenozoic-Quaternary-Pleistocene
Principal Lithology of Unit:	Not Reported
Further Description:	Not Reported

WATER LEVEL VARIABILITY

Water Level:	80.00 ft.	Water Level:	147.00 ft.	Water Level:	162.00 ft.	Water Level:	132.92 ft.
Date Measured:	07/16/52	Date Measured:	02/16/56	Date Measured:	05/23/62	Date Measured:	10/28/80
Water Level:	116.08 ft.	Water Level:	119.82 ft.	Water Level:	125.10 ft.	Water Level:	117.75 ft.
Date Measured:	12/01/80	Date Measured:	12/30/80	Date Measured:	06/22/81	Date Measured:	07/23/81
Water Level:	118.80 ft.	Water Level:	118.80 ft.	Water Level:	110.01 ft.	Water Level:	117.58 ft.
Date Measured:	10/20/81	Date Measured:	10/26/81	Date Measured:	11/23/81	Date Measured:	12/17/81
Water Level:	123.27 ft.	Water Level:	134.42 ft.	Water Level:	137.65 ft.	Water Level:	111.22 ft.
Date Measured:	01/25/82	Date Measured:	02/25/82	Date Measured:	03/22/82	Date Measured:	04/26/82
Water Level:	115.79 ft.	Water Level:	113.88 ft.	Water Level:	112.46 ft.	Water Level:	111.83 ft.
Date Measured:	06/01/82	Date Measured:	06/24/82	Date Measured:	07/28/82	Date Measured:	08/25/82
Water Level:	111.05 ft.	Water Level:	110.77 ft.	Water Level:	110.49 ft.	Water Level:	108.10 ft.
Date Measured:	09/30/82	Date Measured:	10/27/82	Date Measured:	11/24/82	Date Measured:	01/12/83
Water Level:	108.38 ft.	Water Level:	108.96 ft.	Water Level:	105.02 ft.	Water Level:	106.56 ft.
Date Measured:	04/18/83	Date Measured:	07/20/83	Date Measured:	10/07/83	Date Measured:	02/03/84
Water Level:	106.93 ft.	Water Level:	108.03 ft.	Water Level:	106.69 ft.	Water Level:	106.30 ft.
Date Measured:	01/29/85	Date Measured:	02/08/88	Date Measured:	01/25/89	Date Measured:	01/19/90
Water Level:	103.94 ft.	Water Level:	97.11 ft.				
Date Measured:	01/24/91	Date Measured:	01/17/92				

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Water Well Information:

Well Within 1/8 - 1/4 Mile of Target Property (Northern Quadrant)

Well Number:	6417203		
Owner:	Dick Haden		
Driller:	Not Reported		
Basin:	Neches-Trinity Rivers		
Accuracy of Coordinates:	Accurate to +/- 5 second		
Latitude:	945522	Longitude:	294442
Info Source:	Texas Water Development Board	Previous Well Number:	E56
FIPS County Code:	71	County:	Chambers
Zone:	2	Region Number:	8
Aquifer Code:	112CHCTU	Users Code Economics:	Not Reported
Ground Elevation AMSL:	20	Elevation Method:	Interpolated from topographic maps
Date Drilled:	1939	Well Type:	Withdrawal of Water
Well Depth (ft):	22	Source of Depth Data:	Not Reported
Type of Lift:	None	Type of Power:	NO POWER SOURCE
Horsepower:	Not Reported	Tertiary Water Use:	Not Reported
Primary Water Use:	Unused	Secondary Water Use:	Not Reported
Well Schedule in file:	Yes	Construction Method:	Not Reported
Method of Finish:	Not Reported	Lithological Log Type:	Not Reported
Casing Material:	Not Reported	Screen Material:	Not Reported
Lithological Interpreter:	Not Reported	Interpretation Date:	Not Reported
Qlty Analysis Available:	Yes	Level Data Available:	Miscellaneous water-level measurements
Data Collection Date:	1941	Reporting Agency:	U.S. Geological Survey
Water Logs Available:	Not Reported		
Other Data Available:	Not Reported		
Aquifer:	CHICOT AQUIFER,UPPER		

Water Quality Information::

Sample Number:	Not Reported	Sample Date:	3/4/1941
Temperature (C):	Not Reported	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Unbalanced	Collection Agency:	Other Federal Agency
Silica Flag:	Not Reported	Silica MGL:	Not Reported
Calcium Flag:	Not Reported	Calcium MGL:	125.0
Magnesium Flag:	1	Magnesium MGL:	Not Reported
Sodium Flag:	c	Sodium MGL:	332.0
Potassium Flag:	Not Reported	Potassium MGL:	Not Reported
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	421.0
Sulfate Flag:	Not Reported	Sulfate MGL:	74.0
Chloride Flag:	Not Reported	Chloride MGL:	490.0
Fluoride Flag:	Not Reported	Fluoride MGL:	Not Reported
Nitrate Flag:	Not Reported	Nitrate Flag:	20.0
pH Flag:	Not Reported	pH:	Not Reported
Total Dissolved Fluids:	Not Reported	Total Hardness:	392
Phenol Alkalinity:	0.0	Total Alkalinity:	345.08
SAR:	7.31	RSC:	0.0
Specific Conductance:	Not Reported	Spec. Conductance Flag:	Not Reported
Percent Sodium:	64		
Collection Remark:	Analytical results from M-035		
Reliability Remark:	Chemical analysis taken from a report. Sample collection and preservation procedures unknown		
Lab Name:	WPA		

Water Level Information::

Measurement Number:	01		
Depth from LSD:	-11.1	Measurement Date:	3/4/1941
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	Not Reported
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Well Within 1/8 - 1/4 Mile of Target Property (Eastern Quadrant)

Well Number:	6417208		
Owner:	(b) (6)		
Driller:	Not Reported		
Basin:	Neches-Trinity Rivers		
Accuracy of Coordinates:	Accurate to +/- 1 second		
(b) (9)			
Info Source:	Texas Water Development Board	Previous Well Number:	E62
FIPS County Code:	71	County:	Chambers
Zone:	2	Region Number:	8
Aquifer Code:	112CHCTU	Users Code Economics:	Not Reported
Ground Elevation AMSL:	18	Elevation Method:	Interpolated from topographic maps
Date Drilled:	Not Reported	Well Type:	Withdrawal of Water
Well Depth (ft):	25	Source of Depth Data:	Not Reported
Type of Lift:	None	Type of Power:	NO POWER SOURCE
Horsepower:	Not Reported	Tertiary Water Use:	Not Reported
Primary Water Use:	Unused	Secondary Water Use:	Not Reported
Well Schedule in file:	Yes	Construction Method:	Not Reported
Method of Finish:	Not Reported	Lithological Log Type:	Not Reported
Casing Material:	Not Reported	Screen Material:	Not Reported
Lithological Interpreter:	Not Reported	Interpretation Date:	Not Reported
Qlty Analysis Available:	No	Level Data Available:	Miscellaneous water-level measurements
Data Collection Date:	Not Reported	Reporting Agency:	U.S. Geological Survey
Water Logs Available:	Not Reported		
Other Data Available:	Not Reported		
Aquifer:	CHICOT AQUIFER,UPPER		

Water Level Information::

Measurement Number:	01		
Depth from LSD:	-11.9	Measurement Date:	4/5/1941
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	Not Reported
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Remarks:

Tin casing. Bored well.

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Well Within 1/4 - 1/2 Mile of Target Property (Southern Quadrant)

Well Number:	6417209		
Owner:	(b) (6)		
Driller:	Amos Jennische		
Basin:	Neches-Trinity Rivers		
Accuracy of Coordinates:	Not Reported		
(b) (9)			
Info Source:	Texas Water Development Board	Previous Well Number:	E57
FIPS County Code:	71	County:	Chambers
Zone:	2	Region Number:	8
Aquifer Code:	112CHCTL	Users Code Economics:	Not Reported
Ground Elevation AMSL:	16	Elevation Method:	Interpolated from topographic maps
Date Drilled:	1931	Well Type:	Withdrawal of Water
Well Depth (ft):	410	Source of Depth Data:	Not Reported
Type of Lift:	Air Lift	Type of Power:	Not Reported
Horsepower:	Not Reported	Tertiary Water Use:	Not Reported
Primary Water Use:	Domestic	Secondary Water Use:	Stock
Well Schedule in file:	No	Construction Method:	Not Reported
Method of Finish:	Not Reported	Lithological Log Type:	Not Reported
Casing Material:	Not Reported	Screen Material:	Not Reported
Lithological Interpreter:	Not Reported	Interpretation Date:	Not Reported
Qlty Analysis Available:	Yes	Level Data Available:	Miscellaneous water-level measurements
Data Collection Date:	Not Reported	Reporting Agency:	U.S. Geological Survey
Water Logs Available:	Not Reported		
Other Data Available:	Not Reported		
Aquifer:	CHICOT AQUIFER,LOWER		

Water Quality Information::

Sample Number:	Not Reported	Sample Date:	3/4/1941
Temperature (C):	Not Reported	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Balanced	Collection Agency:	Other Federal Agency
Silica Flag:	Not Reported	Silica MGL:	Not Reported
Calcium Flag:	Not Reported	Calcium MGL:	22.0
Magnesium Flag:	6	Magnesium MGL:	Not Reported
Sodium Flag:	c	Sodium MGL:	432.0
Potassium Flag:	Not Reported	Potassium MGL:	Not Reported
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	431.0
Sulfate Flag:	Not Reported	Sulfate MGL:	183.0
Chloride Flag:	Not Reported	Chloride MGL:	340.0
Fluoride Flag:	Not Reported	Fluoride MGL:	1.4
Nitrate Flag:	Not Reported	Nitrate Flag:	Not Reported
pH Flag:	Not Reported	pH:	Not Reported
Total Dissolved Fluids:	Not Reported	Total Hardness:	80
Phenol Alkalinity:	0.0	Total Alkalinity:	353.18
SAR:	21.01	RSC:	5.46
Specific Conductance:	Not Reported	Spec. Conductance Flag:	Not Reported
Percent Sodium:	92		
Collection Remark:	Analytical results from M-035		
Reliability Remark:	Chemical analysis taken from a report. Sample collection and preservation procedures unknown		
Lab Name:	WPA		

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Sample Number:	Not Reported	Sample Date:	2/18/1952
Temperature (C):	Not Reported	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Balanced	Collection Agency:	U.S. Geological Survey
Silica Flag:	Not Reported	Silica MGL:	15.0
Calcium Flag:	Not Reported	Calcium MGL:	26.0
Magnesium Flag:	9	Magnesium MGL:	Not Reported
Sodium Flag:	c	Sodium MGL:	432.0
Potassium Flag:	Not Reported	Potassium MGL:	Not Reported
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	439.0
Sulfate Flag:	Not Reported	Sulfate MGL:	183.0
Chloride Flag:	Not Reported	Chloride MGL:	350.0
Fluoride Flag:	Not Reported	Fluoride MGL:	Not Reported
Nitrate Flag:	Not Reported	Nitrate Flag:	1.5
pH Flag:	Not Reported	pH:	8.2
Total Dissolved Fluids:	Not Reported	Total Hardness:	104
Phenol Alkalinity:	0.0	Total Alkalinity:	359.73
SAR:	18.36	RSC:	5.1
Specific Conductance:	2050	Spec. Conductance Flag:	Not Reported
Percent Sodium:	89		
Collection Remark:	Not Reported		
Reliability Remark:	Chemical analysis taken from a report. Sample collection and preservation procedures unknown		
Lab Name:	Not Reported		

Water Level Information::

Measurement Number:	01		
Depth from LSD:	-20.0	Measurement Date:	//1931
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	Not Reported
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Measurement Number:	01		
Depth from LSD:	-91.5	Measurement Date:	4/15/1954
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	Not Reported
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

00107

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Well Within 1/2 - 1 Mile of Target Property (Western Quadrant)

Well Number:	6417201		
Owner:	City of Baytown		
Driller:	Layne Texas		
Basin:	Trinity-San Jacinto Rivers		
Accuracy of Coordinates:	Accurate to +/- 1 second		
Latitude:	945603	Longitude:	294459
Info Source:	Texas Water Development Board	Previous Well Number:	1A
FIPS County Code:	201	County:	Harris
Zone:	1	Region Number:	8
Aquifer Code:	112CHCTL	Users Code Economics:	Not Reported
Ground Elevation AMSL:	22	Elevation Method:	METHOD UNKNOWN
Date Drilled:	1952	Well Type:	Withdrawal of Water
Well Depth (ft):	390	Source of Depth Data:	Not Reported
Type of Lift:	Turbine Pump	Type of Power:	Not Reported
Horsepower:	75	Tertiary Water Use:	Not Reported
Primary Water Use:	Public Supply	Secondary Water Use:	Not Reported
Well Schedule in file:	Not Reported	Construction Method:	Not Reported
Method of Finish:	Not Reported	Lithological Log Type:	Not Reported
Casing Material:	Not Reported	Screen Material:	Not Reported
Lithological Interpreter:	Not Reported	Interpretation Date:	Not Reported
Qlty Analysis Available:	Yes	Level Data Available:	Current water-level observation well
Data Collection Date:	Not Reported	Reporting Agency:	Not Reported
Water Logs Available:	Not Reported		
Other Data Available:	Not Reported		
Aquifer:	CHICOT AQUIFER,LOWER		

Water Quality Information::

Sample Number:	Not Reported	Sample Date:	2/18/1953
Temperature (C):	Not Reported	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Balanced	Collection Agency:	Not Reported
Silica Flag:	Not Reported	Silica MGL:	15.0
Calcium Flag:	Not Reported	Calcium MGL:	5.0
Magnesium Flag:	2	Magnesium MGL:	Not Reported
Sodium Flag:	Not Reported	Sodium MGL:	150.0
Potassium Flag:	Not Reported	Potassium MGL:	Not Reported
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	327.0
Sulfate Flag:	Not Reported	Sulfate MGL:	10.0
Chloride Flag:	Not Reported	Chloride MGL:	48.0
Fluoride Flag:	Not Reported	Fluoride MGL:	0.0
Nitrate Flag:	Not Reported	Nitrate Flag:	0.2
pH Flag:	Not Reported	pH:	8.2
Total Dissolved Fluids:	Not Reported	Total Hardness:	19
Phenol Alkalinity:	0.0	Total Alkalinity:	268.03
SAR:	14.34	RSC:	4.94
Specific Conductance:	638	Spec. Conductance Flag:	Not Reported
Percent Sodium:	94		
Collection Remark:	Not Reported		
Reliability Remark:	RELIABILITY UNKNOWN, NOT AVAILABLE, OR NOT YET ENTERED INTO DATABASE		
Lab Name:	Not Reported		

00103

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Sample Number:	Not Reported	Sample Date:	7/29/1963
Temperature (C):	23	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Unbalanced	Collection Agency:	Not Reported
Silica Flag:	Not Reported	Silica MGL:	Not Reported
Calcium Flag:	Not Reported	Calcium MGL:	Not Reported
Magnesium Flag:	Not Reported	Magnesium MGL:	Not Reported
Sodium Flag:	Not Reported	Sodium MGL:	Not Reported
Potassium Flag:	Not Reported	Potassium MGL:	Not Reported
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	318.0
Sulfate Flag:	Not Reported	Sulfate MGL:	7.0
Chloride Flag:	Not Reported	Chloride MGL:	47.0
Fluoride Flag:	Not Reported	Fluoride MGL:	Not Reported
Nitrate Flag:	Not Reported	Nitrate Flag:	Not Reported
pH Flag:	Not Reported	pH:	7.5
Total Dissolved Fluids:	Not Reported	Total Hardness:	Not Reported
Phenol Alkalinity:	0.0	Total Alkalinity:	260.66
SAR:	Not Reported	RSC:	Not Reported
Specific Conductance:	620	Spec. Conductance Flag:	Not Reported
Percent Sodium:	Not Reported		
Collection Remark:	Not Reported		
Reliability Remark:	RELIABILITY UNKNOWN, NOT AVAILABLE, OR NOT YET ENTERED INTO DATABASE		
Lab Name:	Not Reported		

Sample Number:	Not Reported	Sample Date:	3/31/1971
Temperature (C):	Not Reported	Sampled Aquifer Code:	Not Reported
Top of sampled interval:	Not Reported	Bottom of sampled interval:	Not Reported
Balanced/unbal Analysis:	Balanced	Collection Agency:	Not Reported
Silica Flag:	Not Reported	Silica MGL:	14.0
Calcium Flag:	Not Reported	Calcium MGL:	7.0
Magnesium Flag:	2	Magnesium MGL:	Not Reported
Sodium Flag:	Not Reported	Sodium MGL:	140.0
Potassium Flag:	Not Reported	Potassium MGL:	1.0
Strontium Flag:	Not Reported	Strontium MGL:	Not Reported
Carbonate MGL:	0.0	Bicarbonate MGL:	320.0
Sulfate Flag:	Not Reported	Sulfate MGL:	8.0
Chloride Flag:	Not Reported	Chloride MGL:	45.0
Fluoride Flag:	Not Reported	Fluoride MGL:	1.2
Nitrate Flag:	Not Reported	Nitrate Flag:	0.0
pH Flag:	Not Reported	pH:	8.0
Total Dissolved Fluids:	Not Reported	Total Hardness:	24
Phenol Alkalinity:	0.0	Total Alkalinity:	262.3
SAR:	12.01	RSC:	4.73
Specific Conductance:	642	Spec. Conductance Flag:	Not Reported
Percent Sodium:	91		
Collection Remark:	Not Reported		
Reliability Remark:	RELIABILITY UNKNOWN, NOT AVAILABLE, OR NOT YET ENTERED INTO DATABASE		
Lab Name:	Not Reported		

Water Level Information::

Measurement Number:	01		
Depth from LSD:	-80.0	Measurement Date:	7/16/1952
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Unknown	Measuring Agency:	Registered Water Well Driller
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Measurement Number:	01		
Depth from LSD:	-147.0	Measurement Date:	2/16/1956
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Unknown	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Measurement Number: 01
Depth from LSD: -162.0 Measurement Date: 5/23/1962
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Unknown Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -132.92 Measurement Date: 10/28/1980
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -116.08 Measurement Date: 12/1/1980
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -119.82 Measurement Date: 12/30/1980
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -125.1 Measurement Date: 6/22/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -117.75 Measurement Date: 7/23/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -118.8 Measurement Date: 10/20/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Not Reported Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -118.8 Measurement Date: 10/26/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -110.01 Measurement Date: 11/23/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -117.58 Measurement Date: 12/17/1981
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number: 01
Depth from LSD: -123.27 Measurement Date: 1/25/1982
Visit Mark: Publishable - water-level is indicative of aquifer's piezometric surface
Measurement Method: Steel Tape Measuring Agency: U.S. Geological Survey
Remark: MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE

Measurement Number:	01		
Depth from LSD:	-134.42	Measurement Date:	2/25/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-137.65	Measurement Date:	3/22/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-111.22	Measurement Date:	4/26/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-115.79	Measurement Date:	6/1/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-113.88	Measurement Date:	6/24/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-112.46	Measurement Date:	7/28/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-111.83	Measurement Date:	8/25/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-111.05	Measurement Date:	9/30/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-110.77	Measurement Date:	10/27/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-110.49	Measurement Date:	11/24/1982
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-108.1	Measurement Date:	1/12/1983
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Measurement Number:	01		
Depth from LSD:	-108.38	Measurement Date:	4/18/1983
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-108.96	Measurement Date:	7/20/1983
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-105.02	Measurement Date:	10/7/1983
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-106.56	Measurement Date:	2/3/1984
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-106.93	Measurement Date:	1/29/1985
Visit Mark:	*Publishable - water-level is indicative of aquifer's piezometric surface*		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-108.03	Measurement Date:	2/8/1988
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-106.69	Measurement Date:	1/25/1989
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-106.3	Measurement Date:	1/19/1990
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Not Reported	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-103.94	Measurement Date:	1/24/1991
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-97.11	Measurement Date:	1/17/1992
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		
Measurement Number:	01		
Depth from LSD:	-91.69	Measurement Date:	1/4/1993
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Measurement Number:	1		
Depth from LSD:	-94.67	Measurement Date:	1/10/1994
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Measurement Number:	01		
Depth from LSD:	-89.64	Measurement Date:	1/4/1995
Visit Mark:	Publishable - water-level is indicative of aquifer's piezometric surface		
Measurement Method:	Steel Tape	Measuring Agency:	U.S. Geological Survey
Remark:	MEASUREMENT GOOD. NO UNUSUAL CONDITIONS NOTED AT OR NEAR WELL SITE		

Infrequent Constituent Information::

Sample Number:	1	Storet Number:	00900
Sample Flag:	Not Reported	Sample Date:	7/29/1963
Constituent Value:	24	Confidence (+ or -):	Not Reported
Storet Code Description:	HARDNESS, TOTAL (MG/L AS CACO3)		
Constituent Name:	TOT HARD	Unit of Measurement:	MG/L

Sample Number:	1	Storet Number:	01020
Sample Flag:	Not Reported	Sample Date:	3/31/1971
Constituent Value:	200.	Confidence (+ or -):	Not Reported
Storet Code Description:	BORON, DISSOLVED (UG/L AS B)		
Constituent Name:	BORON	Unit of Measurement:	UG/L

Remarks:

Screen from 300 to 380 ft. Reported yiedl 554 gpm iwth 44 ft drawdown
when drilled. Well 1-A.

GEOCHECK VERSION 2.1
PUBLIC WATER SUPPLY SYSTEM INFORMATION

Searched by Nearest PWS.

PWS SUMMARY:

PWS ID:	TX1011832	PWS Status:	Active	Distance from TP:	>2 Miles
Date Initiated:	Not Reported	Date Deactivated:	Not Reported	Dir relative to TP:	West
PWS Name:	FIVE OAKS MOBILE HOME SUBDIVISION C/O WINDY HILL UTILITIES INC P O BOX 9449 WOODLAND, TX 77387				
Addressee / Facility:	System Owner/Responsible Party DAN WORKMAN				
Facility Latitude:	29 44 07		Facility Longitude:	094 58 37	
City Served:	Not Reported				
Treatment Class:	Treated		Population Served:	501 - 1,000 Persons	

PWS currently has or has had major violation(s): Yes

Violations information not reported.

EPA Waste Codes Addendum

Code	Description
D001	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
D002	A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A *CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION* WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D035	METHYL ETHYL KETONE
F001	THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F003	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F005	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM RECORDS:

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 08/27/98
Date Made Active at EDR: 10/06/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 09/03/98
Elapsed ASTM days: 33
Date of Last EDR Contact: 08/27/98

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/30/98
Date Made Active at EDR: 07/20/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 07/14/98
Elapsed ASTM days: 6
Date of Last EDR Contact: 07/10/98

NPL: National Priority List
Source: EPA
Telephone: 703-603-8852
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 03/06/98
Date Made Active at EDR: 07/09/98
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/09/98
Elapsed ASTM days: 30
Date of Last EDR Contact: 09/21/98

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 07/01/98
Date Made Active at EDR: 10/06/98
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 08/27/98
Elapsed ASTM days: 40
Date of Last EDR Contact: 08/14/98

CORRACTS: *Corrective Action Report*
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/15/97
Date Made Active at EDR: 02/02/98
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 01/05/98
Elapsed ASTM days: 28
Date of Last EDR Contact: 08/14/98

FEDERAL NON-ASTM RECORDS:

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/95
Database Release Frequency: Biennially
Date of Last EDR Contact: 09/22/98
Date of Next Scheduled EDR Contact: 12/21/98

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: Varies
Database Release Frequency: Varies
Date of Last EDR Contact: Varies
Date of Next Scheduled EDR Contact: N/A

FINDS: Facility Index System
Source: EPA/NTIS
Telephone: 703-908-2493
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 09/30/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 10/23/98
Date of Next Scheduled EDR Contact: 12/21/98

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 07/22/98
Date of Next Scheduled EDR Contact: 10/26/98

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/28/98
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/13/98
Date of Next Scheduled EDR Contact: 10/12/98

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 08/28/98
Date of Next Scheduled EDR Contact: 11/23/98

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/22/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 08/18/98
Date of Next Scheduled EDR Contact: 11/16/98

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 09/14/98
Date of Next Scheduled EDR Contact: 12/14/98

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 10/09/98
Date of Next Scheduled EDR Contact: 01/18/99

TRIS: Toxic Chemical Release Inventory System
Source: EPA/NTIS
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 09/28/98
Date of Next Scheduled EDR Contact: 12/28/98

TSCA: Toxic Substances Control Act
Source: EPA/NTIS
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site. USEPA has no current plan to update and/or re-issue this database.

Date of Government Version: 12/31/94
Database Release Frequency: Annually
Date of Last EDR Contact: 07/22/98
Date of Next Scheduled EDR Contact: 10/26/98

STATE OF TEXAS ASTM RECORDS:

LUST: Leaking Petroleum Storage Tank Database
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-2200
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/01/98
Date Made Active at EDR: 07/27/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 06/29/98
Elapsed ASTM days: 28
Date of Last EDR Contact: 07/07/98

SHWS: State Superfund Registry
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-5680
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 03/31/97
Date Made Active at EDR: 11/10/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 09/15/97
Elapsed ASTM days: 56
Date of Last EDR Contact: 09/18/98

LF: Permitted Solid Waste Facilities
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-6786
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 07/07/98
Date Made Active at EDR: 09/23/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 08/24/98
Elapsed ASTM days: 30
Date of Last EDR Contact: 10/05/98

UST: Petroleum Storage Tank Database
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-2160
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 04/01/98
Date Made Active at EDR: 06/19/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/18/98
Elapsed ASTM days: 32
Date of Last EDR Contact: 07/07/98

STATE OF TEXAS NON-ASTM RECORDS:

AST: Petroleum Storage Tank Database
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-2160
Registered Aboveground Storage Tanks.

Date of Government Version: 04/01/98
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/07/98
Date of Next Scheduled EDR Contact: 10/05/98

IHW: Industrial & Hazardous Waste Database
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-0985
Summary reports reported by waste handlers, generators and shippers in Texas.

Date of Government Version: 09/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 09/15/98
Date of Next Scheduled EDR Contact: 12/14/98

MM: Multi Media Enforcement Cases
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-6012
Any enforcement case with more than one media (water, waste, etc.) violation.

Date of Government Version: 04/30/98
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 09/18/98
Date of Next Scheduled EDR Contact: 12/14/98

SPILLS: Spills Database
Source: Texas Natural Resource Conservation Commission
Telephone: 512-239-0983

Date of Government Version: 04/01/98
Database Release Frequency: Quarterly
Date of Last EDR Contact: 09/21/98
Date of Next Scheduled EDR Contact: 12/28/98

VCP: Texas Natural Resource Conservation Commission
Source: Voluntary Cleanup Program Sites
Telephone: 512-239-1948
The Texas Voluntary Cleanup Program was established to provide administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in Texas.

Date of Government Version: 02/19/98
Database Release Frequency: Quarterly
Date of Last EDR Contact: 09/04/98
Date of Next Scheduled EDR Contact: 12/14/98

WASTEMGT: Commercial Hazardous & Solid Waste Management Facilities
Source: Texas Natural Resource Consevation Commission
Telephone: 512-239-2920
This list contains commercial recycling facilities and facilities permitted or authorized (interim status) by the Texas Natural Resource Conservation Commission.

Date of Government Version: 09/01/96
Database Release Frequency: Annually
Date of Last EDR Contact: 08/12/98
Date of Next Scheduled EDR Contact: 11/09/98

Historical and Other Database(s)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Former Manufactured Gas (Coal Gas) Sites The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

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DELISTED NPL: NPL Deletions
Source: EPA
Telephone: 703-603-8769
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/06/98
Date Made Active at EDR: 07/09/98
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/09/98
Elapsed ASTM days: 30
Date of Last EDR Contact: 09/28/98

NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 08/27/98
Date Made Active at EDR: 10/03/98
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 09/03/98
Elapsed ASTM days: 30
Date of Last EDR Contact: 08/27/98

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SWDIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1996 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in March 1997 from the U.S. Fish and Wildlife Service.

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Water Dams: National Inventory of Dams
Source: Federal Emergency Management Agency
Telephone: 202-646-2801
National computer database of more than 74,000 dams maintained by the Federal Emergency Management Agency.

Texas Groundwater Database
Source: Texas Water Development Board
Telephone: 512-936-0837

Texas Oil and Gas Wells: Inventory of oil and gas wells in select Texas counties
Source: Texas Railroad Commission

Texas Public Water Supply Database on Ground and Surface Water
Source: Texas Natural Resource Conservation Commission

Texas Harris-Galveston Coastal Subsidence District Water Well Database
Source: Harris-Galveston Coastal Subsidence District

Texas Water Development Board Groundwater Database
Source: Texas Water Development Board
Telephone: 512-936-0833

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
BAYTOWN	S101901017	STOP N GO MARKETS 10	2219 HWY 201	77520	LUST	0039718
BAYTOWN	U003040553	STOP N GO #2007	2219 HWY 201	77520	UST	0039718
BAYTOWN	U003201779	FORMER GIFFORD HILL	FM 565 & HWY 1405	77520	UST	007004
BAYTOWN	S102833113	SHELL SERVICE STATION	6011 HWY 73		LUST	0033124
BAYTOWN	1001216337	FIRST CHEMICAL TEXAS LP	8480 W BAY RD	77520	RCRIS-LQG	
BAYTOWN	S103169063	EPC - NITROGEN BENZENE TRANSFER STATION	BAYWAY DRIVE		TX VCP	593
BAYTOWN	S103168688	FORMER LESCO TRUCKING PROPERTY	INTERSECTION SJOLANDER AND WALLISVILLE		TX VCP	140
BAYTOWN	S103168672	CEDAR CROSSING BUSINESS PARK\KOPPEL STEE	5200 E MCKINNEY RD STE 100		TX VCP	128

Site	Database(s)	EDR ID Number EPA ID Number
STOP N GO MARKETS 10 **2219 HWY 201** **BAYTOWN, TX 77520**	**LUST**	**S101901017** **N/A**

LUST:

Facility ID:	0039718	Discovery Date:	3/1/89
Data Entry Date:	4/4/89	Lead Office:	1P/1/1P/1
PST Coordinator:	AES/SKV/AES/RAS	RPR Coordinator:	JBH
Region:	12	Region City ID:	Houston
Leaking Tank #:	092777		
Responsible Party:	Diamond Shamrock Ref & Mktg Co		
RP Contact:	Louis Mosconi 4840 Dacoma St Houston, TX 77092		
RP Telephone:	713/263-7377		
Facility Location:	2219 Hwy 201		
County Code:	101		
Priority:	GW IMPACT, PUB/DOM WATER SUPPLY WELL W/IN .25 - .5 mi		
Status:	PHASE 3 IN PROGRESS AND QUARTERLY MONITORING IN PROGRESS		

Site	Database(s)	EDR ID Number EPA ID Number
STOP N GO #2007 **2219 HWY 201** **BAYTOWN, TX 77520**	**UST**	**U003040553** **N/A**

UST:

Facility ID:	0039718	Customer ID:	21599
Tank ID:	2	Installation Date:	01/01/81
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	No	Status Date:	Not reported
Capacity:	10000	Unit ID:	001050

Tank Material of Construction:	Fiberglass-Reinforced Plastic (FRP)
Pipe Material of Construction:	Fiberglass-Reinforced Plastic (FRP)
Other Materials of Construction:	Not reported
Tank Status:	In Use
Tank Construction & Containment:	Not reported
Pipe Construction & Containment:	Not reported
Other Construction & Containment:	Not reported
Tank Substance Stored:	Gasoline
Other Substance Stored:	Not reported
Tank Release Detection:	Inventory Control
Tank Release Detection II:	Unknown/None
Pipe Release Detection:	A
Other Release Detection:	MTG
Tank Corrosion Protection:	Noncorrodible Material (c.g. FRP)
Pipe Corrosion Protection:	None
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)
Other Corrosion Protection:	Not reported
Spill and Overfill Protection:	Automatic Overfill Device - Flow Restricter Valve
Spill and Overfill Protection II:	Tight-Fill Fitting
Vapor Recovery Equipment Status:	Not reported
Equipment Installed Date:	Not reported
Equipment Installer:	Not reported
Contractor Registration Number:	Not reported
Tank Registration Date:	05/08/86
Installer License Number:	Not reported

Facility ID:	0039718	Customer ID:	21599
Tank ID:	1	Installation Date:	01/01/81
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	No	Status Date:	Not reported

Site	Database(s)	EDR ID Number EPA ID Number

STOP N GO #2007 (Continued) U003040553

Capacity:	10000	Unit ID:	001050
Tank Material of Construction:	Fiberglass-Reinforced Plastic (FRP)		
Pipe Material of Construction:	Fiberglass-Reinforced Plastic (FRP)		
Other Materials of Construction:	Not reported		
Tank Status:	In Use		
Tank Construction & Containment:	Not reported		
Pipe Construction & Containment:	Not reported		
Other Construction & Containment:	Not reported		
Tank Substance Stored:	Gasoline		
Other Substance Stored:	Not reported		
Tank Release Detection:	Inventory Control		
Tank Release Detection II:	Unknown/None		
Pipe Release Detection:	A		
Other Release Detection:	MTG		
Tank Corrosion Protection:	Noncorrodible Material (c.g. FRP)		
Pipe Corrosion Protection:	None		
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)		
Other Corrosion Protection:	Not reported		
Spill and Overfill Protection:	Automatic Overfill Device - Flow Restricter Valve		
Spill and Overfill Protection II:	Tight-Fill Fitting		
Vapor Recovery Equipment Status:	Not reported		
Equipment Installed Date:	Not reported		
Equipment Installer:	Not reported		
Contractor Registration Number:	Not reported		
Tank Registration Date:	05/08/86		
Installer License Number:	Not reported		

Facility ID:	0039718	Customer ID:	21599
Tank ID:	3	Installation Date:	01/01/81
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	No	Status Date:	Not reported
Capacity:	10000	Unit ID:	001050
Tank Material of Construction:	Fiberglass-Reinforced Plastic (FRP)		
Pipe Material of Construction:	Fiberglass-Reinforced Plastic (FRP)		
Other Materials of Construction:	Not reported		
Tank Status:	In Use		
Tank Construction & Containment:	Not reported		
Pipe Construction & Containment:	Not reported		
Other Construction & Containment:	Not reported		
Tank Substance Stored:	Gasoline		
Other Substance Stored:	Not reported		
Tank Release Detection:	Inventory Control		
Tank Release Detection II:	Unknown/None		
Pipe Release Detection:	A		
Other Release Detection:	MTG		
Tank Corrosion Protection:	Noncorrodible Material (c.g. FRP)		
Pipe Corrosion Protection:	None		
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)		
Other Corrosion Protection:	Not reported		
Spill and Overfill Protection:	Automatic Overfill Device - Flow Restricter Valve		
Spill and Overfill Protection II:	Tight-Fill Fitting		
Vapor Recovery Equipment Status:	Not reported		
Equipment Installed Date:	Not reported		
Equipment Installer:	Not reported		
Contractor Registration Number:	Not reported		
Tank Registration Date:	05/08/86		
Installer License Number:	Not reported		

Site	Database(s)	EDR ID Number EPA ID Number
FORMER GIFFORD HILL **FM 565 & HWY 1405** **BAYTOWN, TX 77520**	**UST**	**U003201779** **N/A**

UST:

Facility ID:	0070049	Customer ID:	50841
Tank ID:	1	Installation Date:	08/31/87
Tank Installer:	Not reported	Tank Tested:	No
Tank Emptied:	No	Status Date:	08/07/97
Capacity:	550	Unit ID:	001846

Tank Material of Construction:	Steel
Pipe Material of Construction:	Steel
Other Materials of Construction:	Not reported
Tank Status:	Removed from the Ground
Tank Construction & Containment:	Single Wall
Pipe Construction & Containment:	Single Wall
Other Construction & Containment:	Single Wall
Tank Substance Stored:	Gasoline
Other Substance Stored:	Single Wall
Tank Release Detection:	Line Leak Detectors
Pipe Release Detection:	Line Leak Detectors
Other Release Detection:	Not reported
Tank Corrosion Protection:	None
Pipe Corrosion Protection:	None
Pipe Corrosion Protection II:	Noncorrodible Material (c.g. FRP)
Other Corrosion Protection:	Not reported
Spill and Overfill Protection:	Unknown/None
Spill and Overfill Protection II:	Tight-Fill Fitting
Vapor Recovery Equipment Status:	Not reported
Equipment Installed Date:	Not reported
Equipment Installer:	Not reported
Contractor Registration Number:	Not reported
Tank Registration Date:	10/13/97
Installer License Number:	Not reported

SHELL SERVICE STATION **6011 HWY 73** **BAYTOWN, TX**		**LUST**	**S102833113** **N/A**

LUST:

Facility ID:	0033124	Discovery Date:	2/21/94
Data Entry Date:	3/21/94	Lead Office:	DISTRICT LEAD
PST Coordinator:	RPR	RPR Coordinator:	RPR
Region:	12	Region City ID:	Houston
Leaking Tank #:	107868		
Responsible Party:	Shell Oil Co		
RP Contact:	Kim Kingsbury 520 Post Oak Blvd #250 Houston, TX 77027		
RP Telephone:	713/241-7768		
Facility Location:	6011 Highway 73 @ I-10/M		
County Code:	101		
Priority:	MINOR SOIL CONTAMINATION - DOES NOT REQUIRE A RAP		
Status:	FINAL CONCURRENCE ISSUED, CASE CLOSED		

Site	Database(s)	EDR ID Number EPA ID Number
FIRST CHEMICAL TEXAS LP **8480 W BAY RD** **BAYTOWN, TX 77520**	**RCRIS-LQG**	**1001216337** **TXR000024836**

RCRIS:

Owner: FIRST CHEMICAL TEXAS LP
(281) 383-1400

Contact: ROGER DILLON
(281) 383-1400

Record Date: 11/25/1997

Classification: Large Quantity Generator

Used Oil Recyc: No

Violation Status: No violations found

EPC - NITROGEN BENZENE TRANSFER STATION — **TX VCP** — **S103169063**
BAYWAY DRIVE — **N/A**
BAYTOWN, TX

TX VCP:

Facility ID:	593	Project Number:	315030
Type Lead:	Owner	PCA Number:	38503
Project Number:	Wehner	Phase:	Rejected
Region:	12	Facility Type:	Pipeline System for Benzene Transfer
Media Affected:	Soils/Groundwater	Acres at Site:	0.34

Contaminant Categories:	TPH
Date Application Received at VCP:	8/13/97
Applicant:	Exxon Pipeline Company P.O. Box 2220 Houston, TX 77252
Applicant Contact:	Brian T. Magruder
Applicant Contact Title:	Senior Staff Regulatory Analyst
Applicant Phone:	713-656-2190
Applicant Fax:	713-656-1933
Consultant/Attorney:	Exxon Pipeline Company P.O. Box 2220 Houston, TX 77252
Consultant/Attorney Contact:	Ms. A. P. McAdams
Consultant/Attorney Contact Title:	General Counsel
Consultant/Attorney Phone:	713-656-4850
Consultant/Attorney Fax:	713-656-5593
TNRCC Solid Waste Registration:	Not reported
Leaking Petroleum Storage Registration Tank:	Not reported
EPA Texas ID/CERCLIS Registration:	Not reported
EPA Registration:	Not reported
Application Signed By Applicant:	Not reported
Risk Reduction or Petroleum Storage Tank:	RRR
Standards:	3
Certificate of Completion:	Not reported
Lat/long:	29-44-05 / 95-01-29

Site	Database(s)	EDR ID Number EPA ID Number
FORMER LESCO TRUCKING PROPERTY **INTERSECTION SJOLANDER AND WALLISVILLE** **BAYTOWN, TX**	**TX VCP**	**S103168688** **N/A**

TX VCP:

Facility ID:	140	Project Number:	310480
Type Lead:	Owner	PCA Number:	38048
Project Number:	Ellington	Phase:	Completed
Region:	12	Facility Type:	Former Commercial Property
Media Affected:	Soils	Acres at Site:	278

Contaminant Categories:	Metals, TPH, BTEX
Date Application Received at VCP:	11/1/95
Applicant:	Lone Star Steel Company P.O. Box 1000 Lone Star, TX 75668
Applicant Contact:	Leah A. Cooper
Applicant Contact Title:	Manager, Environmental Projects
Applicant Phone:	903-656-6313
Applicant Fax:	Not reported
Consultant/Attorney:	Lone Star Steel Company P.O. Box 1000 Lone Star, TX 75668
Consultant/Attorney Contact:	Leah A. Cooper
Consultant/Attorney Contact Title:	Manager, Env., Projects
Consultant/Attorney Phone:	903-656-6313
Consultant/Attorney Fax:	Not reported
TNRCC Solid Waste Registration:	Not reported
Leaking Petroleum Storage Registration Tank:	Not reported
EPA Texas ID/CERCLIS Registration:	Not reported
EPA Registration:	Not reported
Application Signed By Applicant:	11/9/95
Risk Reduction or Petroleum Storage Tank:	RRR
Standards:	2
Certificate of Completion:	1/15/98
Lat/long:	29-49-53 / 94-56-42

CEDAR CROSSING BUSINESS PARK\KOPPEL STEE **5200 E MCKINNEY RD STE 100** **BAYTOWN, TX**	**TX VCP**	**S103168672** **N/A**

Site	Database(s)	EDR ID Number EPA ID Number

CEDAR CROSSING BUSINESS PARK\KOPPEL STEE (Continued) S103168672

TX VCP:

Facility ID:	128	Project Number:	310300
Type Lead:	Owner	PCA Number:	38030
Project Number:	Frew	Phase:	Investigation
Region:	12	Facility Type:	Drainage Ditch Area of Business Park
Media Affected:	Soils	Acres at Site:	Not reported

Contaminant Categories:	TPH, Metal
Date Application Received at VCP:	10/3/95
Applicant:	Mannesmann Oilfield Tubular 1990 Post Oak Blvd. 17th Floor Houston, TX 77056
Applicant Contact:	Dr. Oskar Reepmeyer
Applicant Contact Title:	Manager, Technical Services
Applicant Phone:	713-383-3340
Applicant Fax:	Not reported
Consultant/Attorney:	Envirotest, Inc. 3902 Braxton Houston, TX 77063
Consultant/Attorney Contact:	Thomas Adams
Consultant/Attorney Contact Title:	Operations Manager
Consultant/Attorney Phone:	713-782-4101
Consultant/Attorney Fax:	Not reported
TNRCC Solid Waste Registration:	Not reported
Leaking Petroleum Storage Registration Tank:	Not reported
EPA Texas ID/CERCLIS Registration:	026362459
EPA Registration:	Not reported
Application Signed By Applicant:	11/12/95
Risk Reduction or Petroleum Storage Tank:	RRR
Standards:	2
Certificate of Completion:	Not reported
Lat/long:	29-43-00 / 94-55-54

00130

Appendix D
Site Photographs

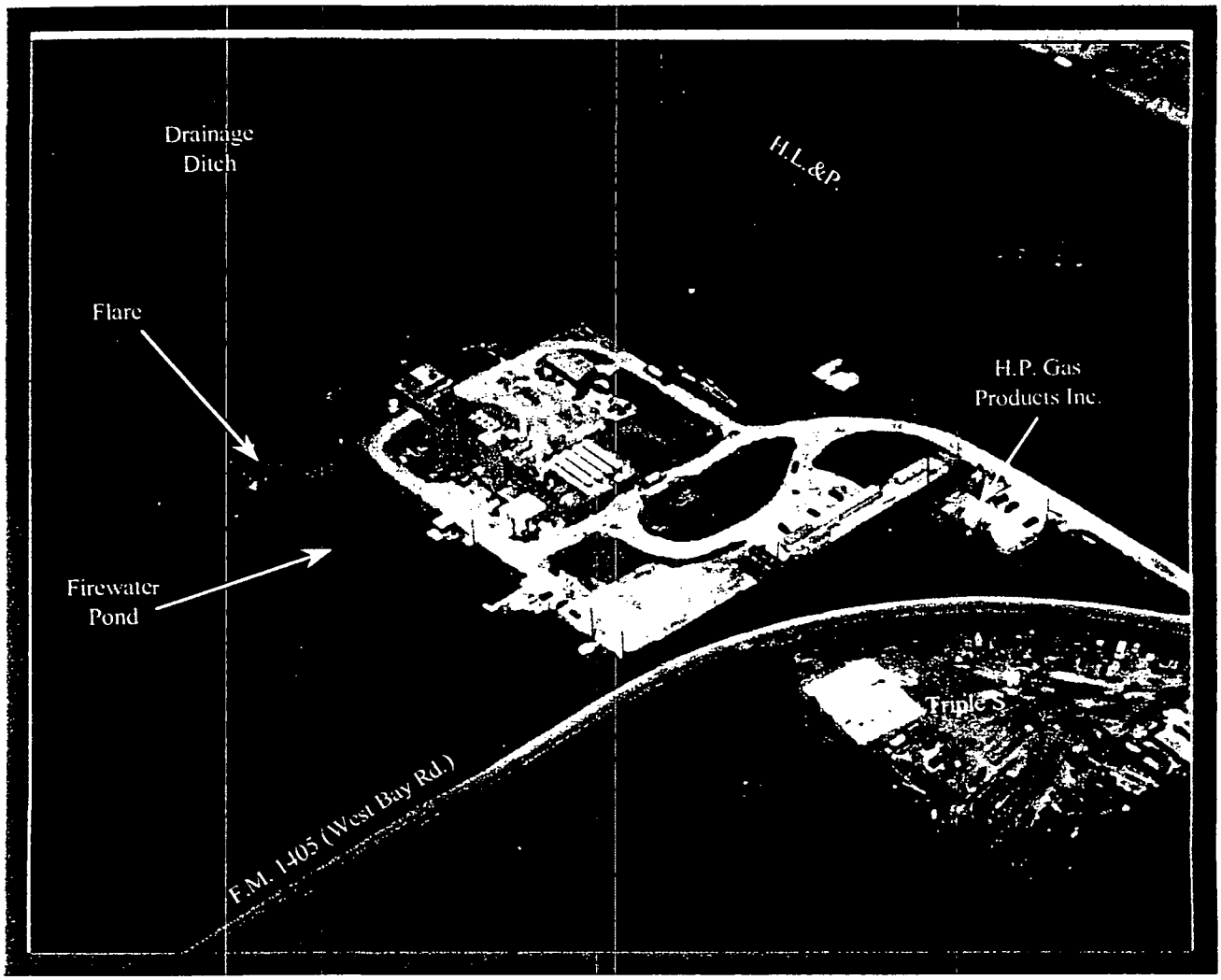


Figure 1
Aerial View of Fine Organics Corporation Property
(Facing Northwest)

Photograph provided by F.O.C. (Date: 1997)
scale: approx. 1" = 240 feet

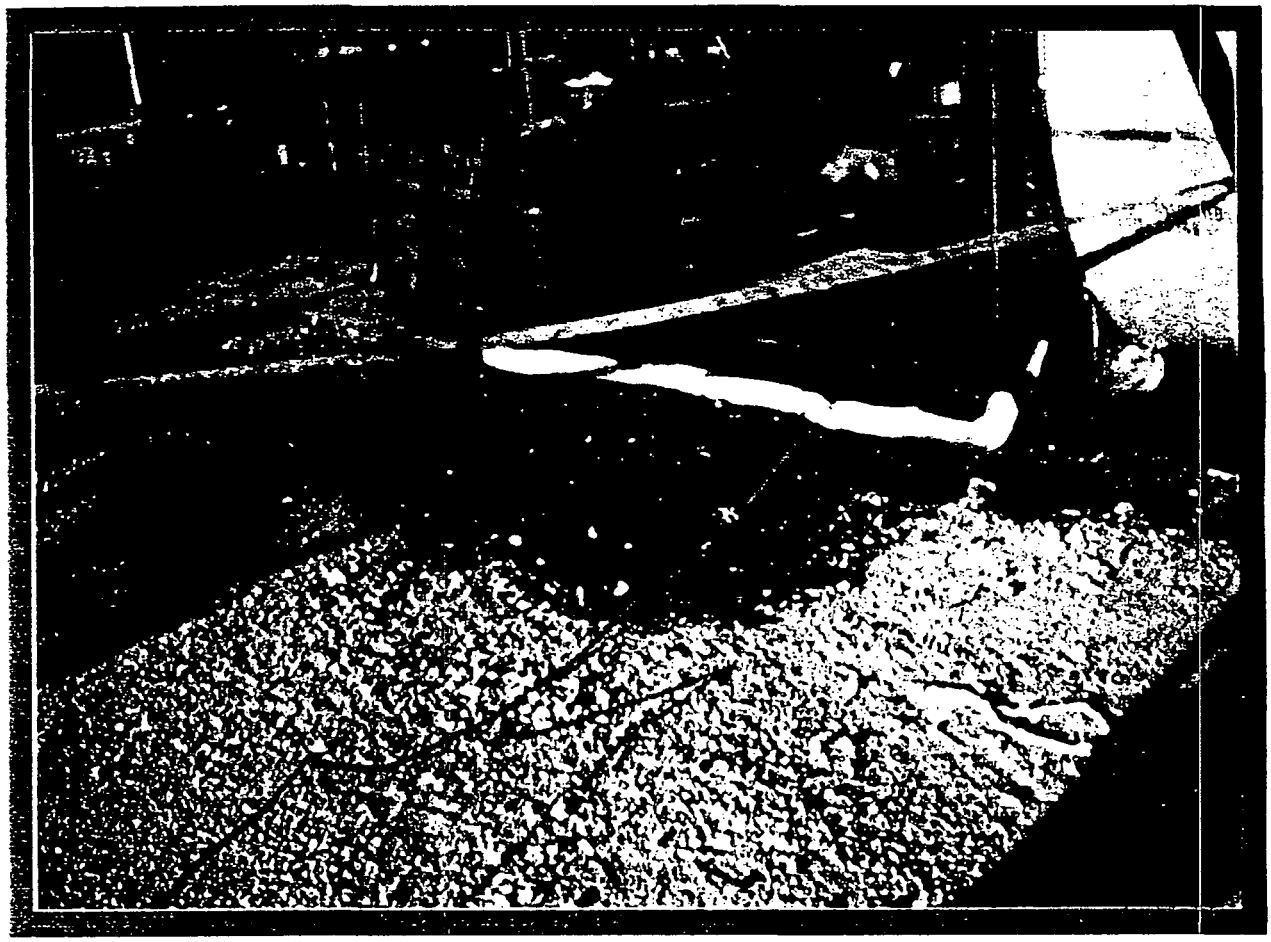


Figure 2
Isotainer Spill Area

Photograph provided by F.O.C. (Date: May, 1997)

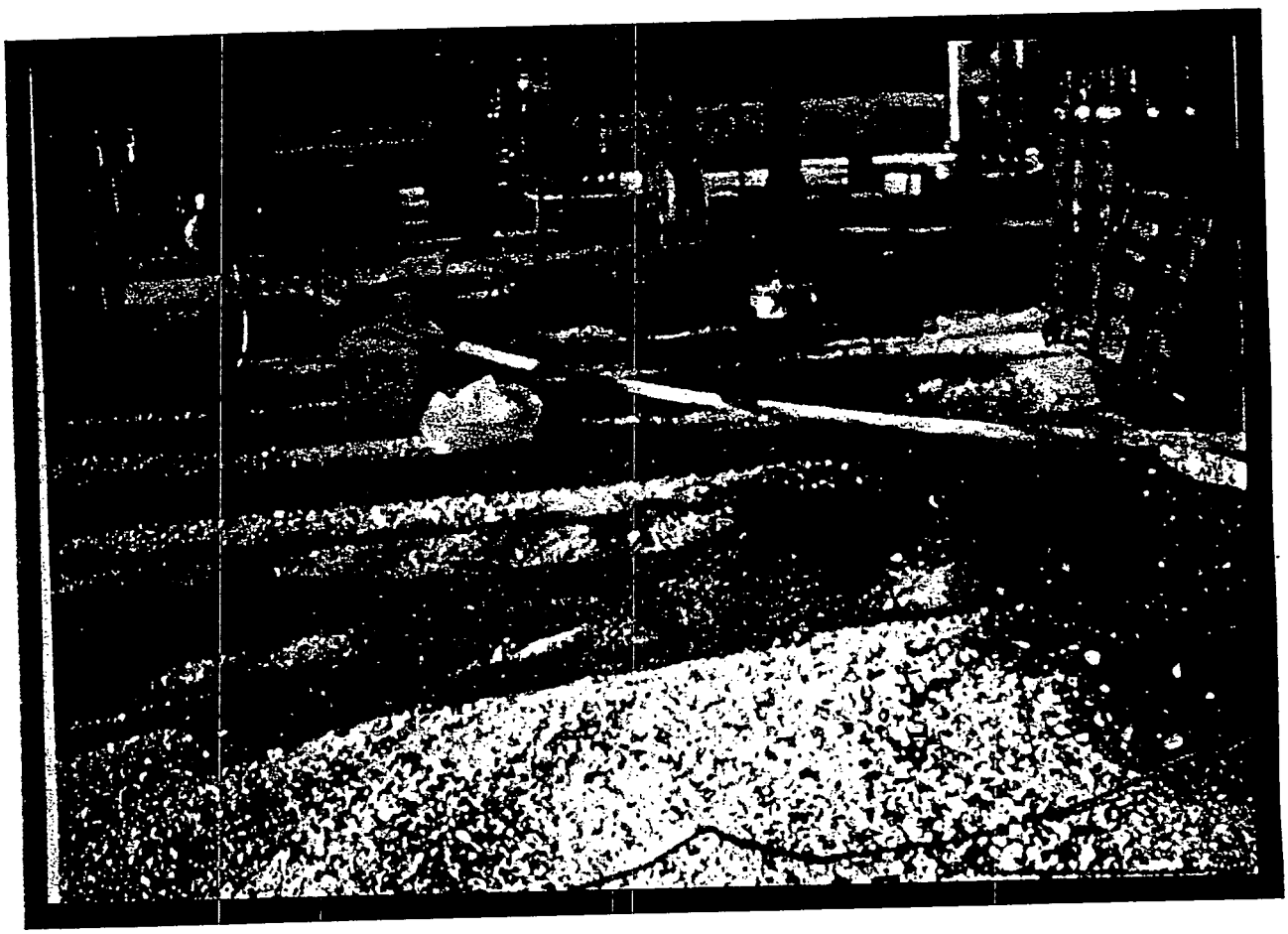


Figure 3
Isotainer Spill Area
(Facing Southwest)

Photograph provided by F.O.C. (Date: May 5, 1997)

Figure 4
Isotainer Spill
(Facing East)

Photograph provided by F.O.C. (Date: May, 1997)

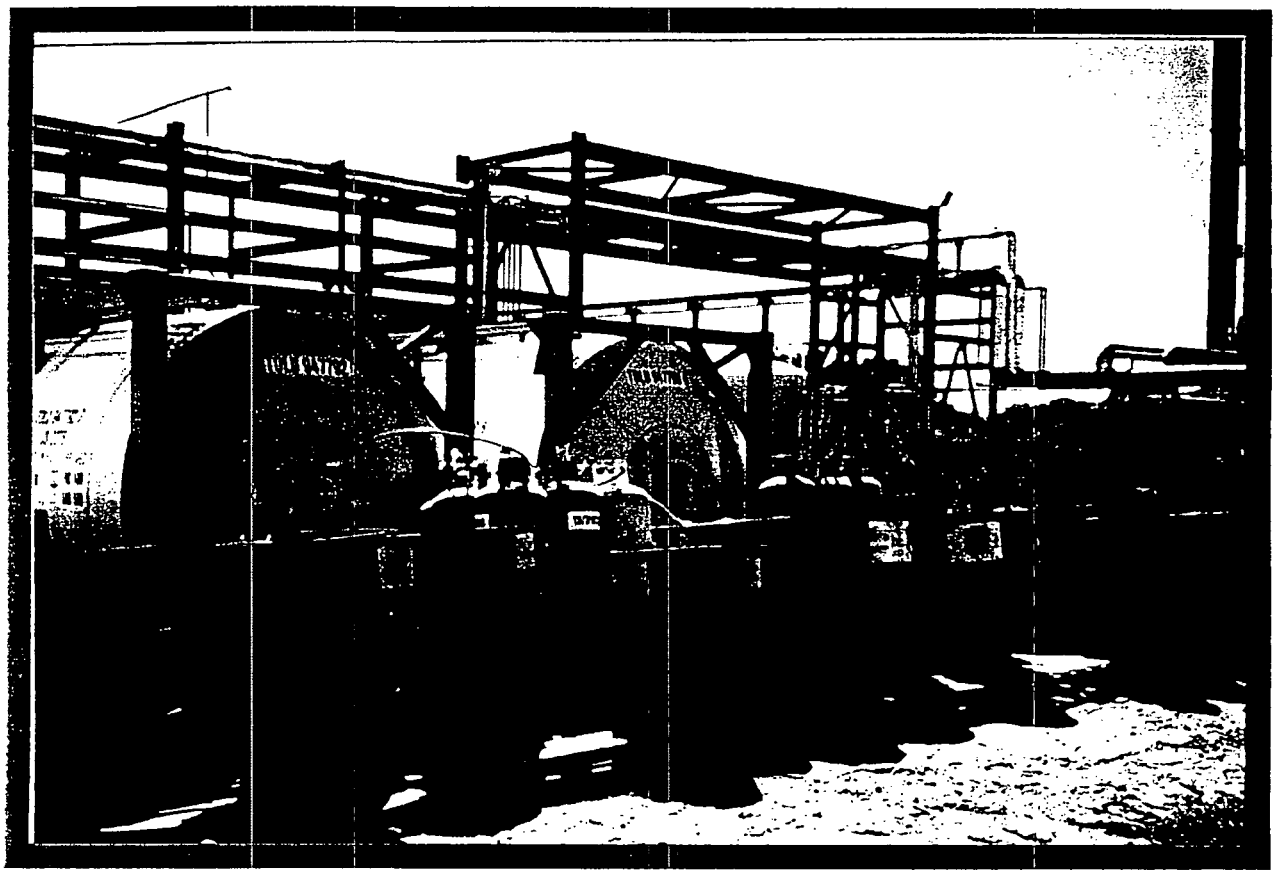


Figure 5
Isotainer Area and Drums of Waste
(Facing Southwest)

Photograph taken on date of site inspection. (November 2, 1998)

Figure 6
North Side of Pole Barn
(Facing East)

Photograph taken on date of site inspection. (November 2, 1998)

Figure 7
Spill Response Area Storage
Note Staged Drums of Unknown Waste

Photograph taken on date of site inspection. (November 2, 1998)

Figure 8
View of a Portion of the Parking Lot
and 2 Roll-off Boxes with Contaminated Soil
(Facing South)

Photograph taken on date of site inspection. (November 2, 1998)

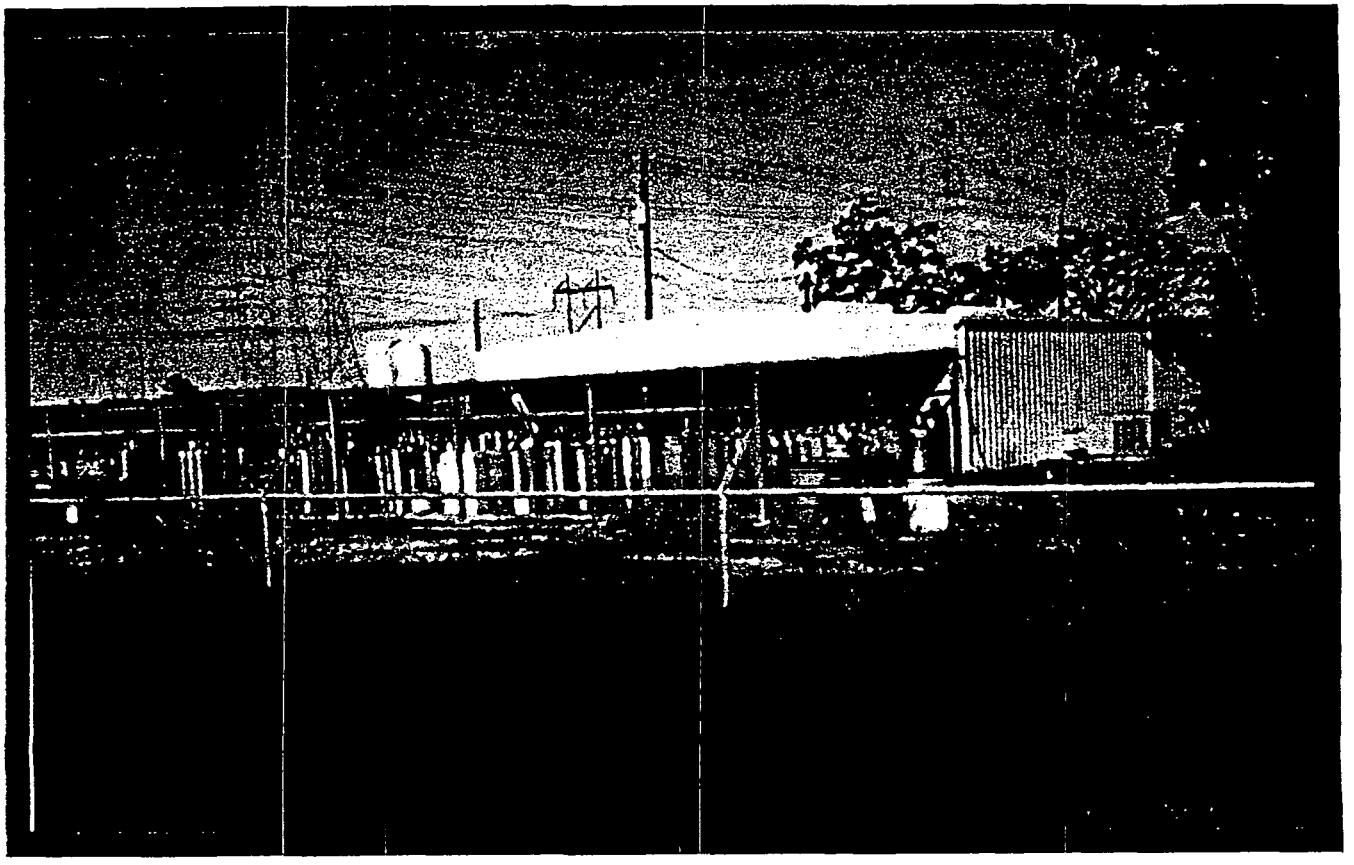


Figure 9
View of west side of H.P. Gas Products, Inc. Facility
Note Numerous Storage Cylinders
(Facing East)

Photograph taken on date of site inspection. (November 2, 1998)

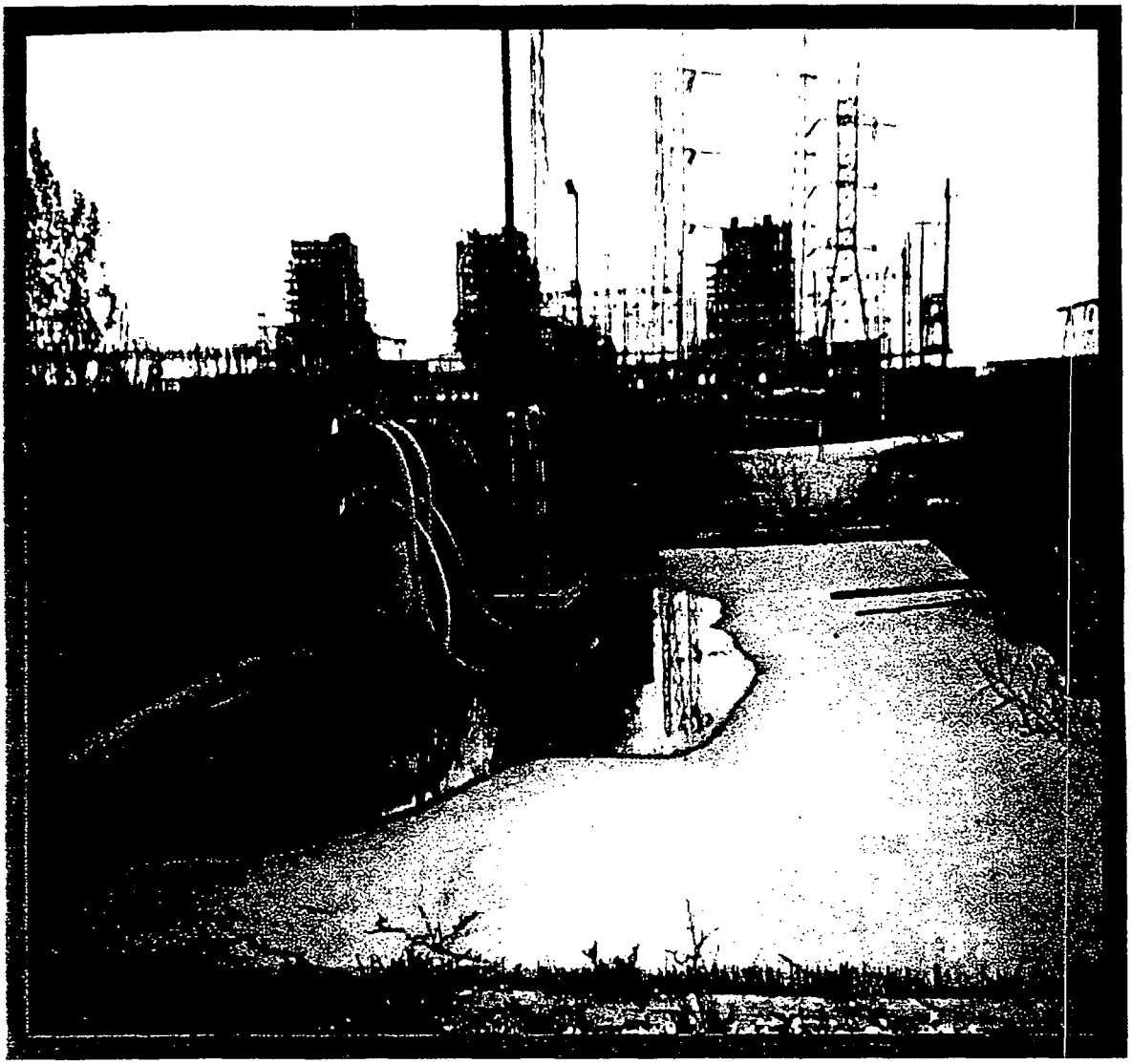


Figure 10
View of Loading Dock and Staging Area
H.L.&P. Facility in Background
(Facing North)

Photograph taken on date of records/file review. (November 6, 1998)

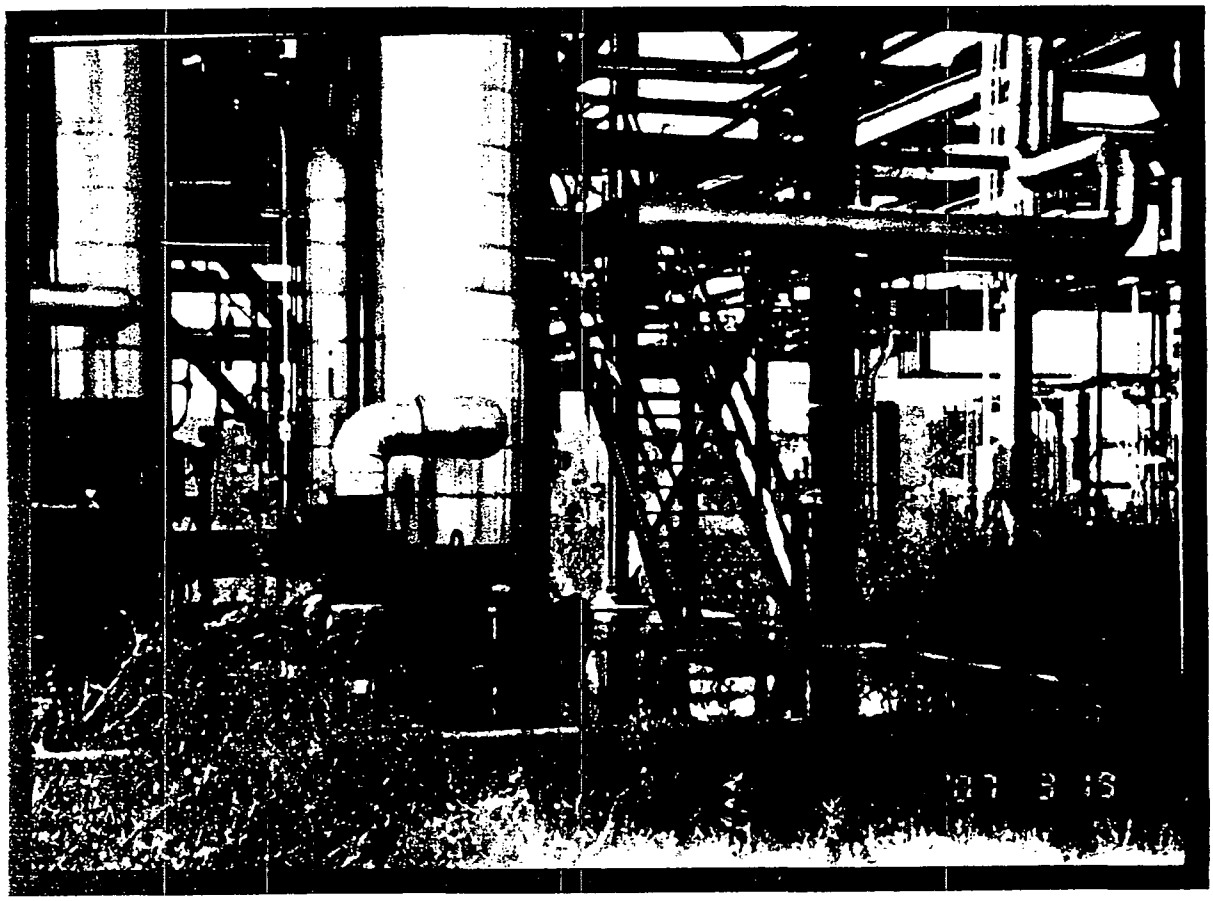


Figure 11
Process Area Sump filled with Water
(Facing Northwest)

Photograph taken on date of records/file review. (November 6, 1998)

Figure 12
View of Potentially Remediated Loading Dock Spill Site
and Office/Trailer (background)
(Facing East)

Photograph taken on date of records/file review. (November 6, 1998)

BOOKMARK

Appendix E
Well Log Information and TNRCC Public Water Supply Inspection Reports

Well Log Data

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087**

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) [redacted]

2) **ADDRESS OF** (b) (9) [redacted]
County _____ **GRID #** 64-09-7

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 4 May 19 95
Completed 5 May 19 95

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 5/8	Surface	305
3 7/8	305	320

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

N

From (ft.)	To (ft.)	Description and color of formation material
0	65	Clay
65	105	sand
105	305	Clay
305	320	Sand

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other Dual String
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	+2	305	40
2 1/2	N	PVC	300	310	40
2 1/2	N	PVC Slotted	310	320	40

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 305 ft. to 105 ft. No. of sacks used 20
0 ft. to 15 ft. No. of sacks used 10
Method used Gravity
Cemented by Self
Distance to septic system field lines or other concentrated contamination 100 ft.
Method of verification of above distance Custom Mean

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) **WATER LEVEL:**
Static level 103 ft. below land surface Date 5 May 95
Artesian flow _____ gpm. Date _____

12) **PACKERS:** Type Depth

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 147 ft.

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnson Well Service (Type or print) **WELL DRILLER'S LICENSE NO.** 1807 WPK

ADDRESS 8933 Talcott Ln (Street or RFD) Ho (City) TX (State) 77049 (Zip)

(Signed) R Johnson (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00001

TNRCC-0199 (Rev. 11-01-94)

TNRCC COPY

1.3 m. SINK
.2 m. EIWN

Please use black ink.
Send original copy by certified mail to the
Texas Water Commission
P.O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County ~~[illegible]~~ Harris ____ miles in ____ (N.E., S.W., etc.) direction from See Map (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
(3) ☒ See attached map. 0165-08-6

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other ____

5) DRILLING METHOD (Check):
☐ Driven ☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other ____

6) WELL LOG:
Date Drilling: Started 8-12 1985 Completed 8/12/ 1985

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
	Surface	
4"	0	76
6 3/4		

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	35	red clay
35	65	blue Clay
65	86	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other ____
If Gravel Packed give interval . . . from ____ ft. to ____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4"	N		0	66	40	
4	N	10' 4" Slotted 4"	66	76		40

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from ____ ft. to ____ ft. No. of Sacks Used ____
____ ft. to ____ ft. No. of Sacks Used ____
Method used ____
Cemented by ____

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 15' ft. below land surface Date ____
Artesian flow ____ gpm. Date ____

12) PACKERS: X Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 63 ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☒ Estimated
Yield: 15 gpm with ____ ft. drawdown after ____ hrs.

APR 15 87
Texas Water Commission

(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☒ No

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Well Service (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TEX (State) 77562 (Zip)

(Signed) Millard M Smith (Licensed Water Well Driller) (Signed) ____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-17-2
Located on map ____

00002

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

640995

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

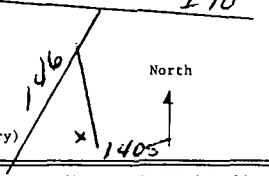
For TWDB use only
Well No. 64-09-911
Located on map 4-5
Received: 2-7-77

1) OWNER:
Person having well drilled PAT BOND CO. (Name) Address P.O. BOX 981 (Street or RFD) BAYTOWN (City) TX (State)

Landowner Chambers (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County ~~HARRIS~~ 3½ miles in E (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* (Use reverse side if necessary)



or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) ~~TYPE OF~~ WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) ~~TYPE OF~~ WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 4½ in. Depth drilled 108 ft. Depth of completed well 108 ft. Date drilled 11-29-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	top
3	27	clay
27	30	sand
30	51	clay
51	110	sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
2"	0	100	SCH 40

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	100	108	.012

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 18 ft. below land surface Date 11-29-76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 45 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Air Compressor
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller)

O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

03003

64-17-3A Dup

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

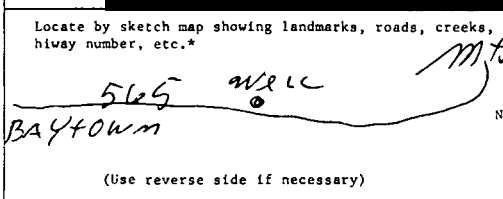
For TWDB use only
Well No. 64-17-3A
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): ✓ Domestic Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): ✓ Rotary Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 320 ft. Depth of completed well 320 ft. Date drilled 7/1877
All measurements made from / ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	2	SURF
2	100	YELLOW
100	200	GRAY
200	300	BLUE
300	320	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2	310	320	12

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 71 ft. below land surface Date
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, (jet), etc., 105 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? SOFT depth of strata 320

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C.D. HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS R2 BOX 176 (Street or RFD) BAYTOWN (City) TEX (State)

(Signed) C.D. Harmon (Water Well Driller) H W W Well (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00001

64-17-3A

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

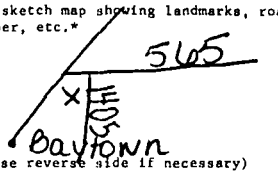
For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]
(Name) (Street or RFD) (City) (State)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION:
County (b) (9) [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) ~~TYPE OF WORK~~ (Check):
(New Well) Deepening
Reconditioning Plugging

4) ~~PROPOSED~~ USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) ~~TYPE OF~~ WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 388 ft. Depth of completed well 388 ft. Date drilled 2-19-78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Clay Top
2	136	Clay
136	156	Sand
156	239	Clay
239	260	Poor Sand
260	310	Clay
310	388	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from Blacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	370	40
2 1/2	358	378	80

10) SCREEN:
Type Everflo
Perforated Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2 1/2	378	378	12

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 120 ft. below land surface Date 2/19/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 160 ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Our
Yield: 100 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 162 (Street or RFD) Pearland (City) Texas. (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co. Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00005

64-17-3A

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

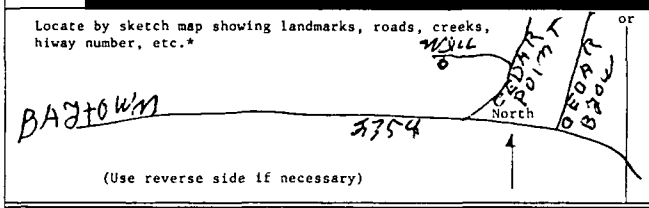
For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATI (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening; Reconditioning; Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial; Municipal; Irrigation; Test Well; Other

5) TYPE OF WELL (Check): Rotary ✓ Driven; Dug; Cable; Jetted; Bored

6) WELL LOG:
Diameter of hole 5 ½ in. Depth drilled 80 ft. Depth of completed well 80 ft. Date drilled 9-3-70
All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	2	SURF
2	20	SHELL SHALE
20	65	BLUE CLAY
65	80	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old; New ✓ Steel ✓ Plastic; Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type BAKER PLAST
Perforated; Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
	70	80	12

7) COMPLETION (Check):
Straight wall ✓ Gravel packed; Other
Under reamed; Open Hole

8) WATER LEVEL:
Static level 6 ft. below land surface Date
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, (jet.) etc., 42 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes; No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes; No ✓
Did any strata contain undesirable water? Yes; No ✓
Type of water? HARD depth of strata 65-80

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS R 2 BOX 172 (Street or RFD) BAYTOWN (City) TEX (State)

(Signed) C D Harmon (Water Well Driller) H-W WATER WELL (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

WDBE-GW-53

00000

8½ SW 64-17-204

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-58

WELL SCHEDULE 64-17-204

Date 4-4, 1941 Field No. 647

Record by L. G. Davis Office No. 77

Source of data [redacted]

1. *Location:* State Texas County Chambers
Map 15 Miles W of Anahuac
¼ ¼ sec. T N R E

2. *Owner:* [redacted] Address [redacted]
Tenant [redacted] Address do
Driller — Address

3. *Topography* Gentle slope to Bayou

4. *Elevation* 1[illegible] ft. above/below SL

5. *Type:* Dug, drilled, driven, bored, jetted — 1926 ?

6. *Depth:* Rept. 212 ft. Meas. — ft.

7. *Casing:* Diam. 2 in., to — in., Type WI
Depth 212 ft., Finish Open (rept) Unable to see

8. *Chief Aquifer* — From — ft. to — ft.
Others Slow

9. *Water level* 8.70 ft. rept. meas. 4-4 1941 above/below Top of ground which is 0 ft. above/below surface

10. *Pump:* Type Lift Capacity 1¼" pipe G. M. —
Power: Kind Hand Horsepower —

11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
Drawdown — ft. after — hours pumping — G. M.

12. *Use:* Dom, Stock, PS., RR., Ind., Irr., Obs.
Adequacy, permanence Never fails - Used to flow quit in 1926 (rept)

13. *Quality* — Temp — °F.
Taste, odor, color — Sample Yes/No 4-4-41
Unfit for Rept. until 1926. Rept
Stowed when drilled

14. *Remarks:* (Log, Analyses, etc.) When drilled went through small strata of sand + 50' of [illegible] sand, Next morning water was flowing ever [illegible] the outside of casing. So they [illegible] to 212'

Over

U. S. GOVERNMENT PRINTING OFFICE 6—7478

00007

State: Texas 4 9 (1 2) County: Chambers D H (3 4) Well No. [redacted] (b) (9)

Seq. No. 1 (19) 2 Date M D Y 4 4 4 1 (20 25) Sampling Depth (26 29) Type (30)

Local Well No. DH-64-17-204 Location

Owner: E. R. Kilgore Date drilled: Depth: 212 WBF C Prod. intervals KEY PUNCHED Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

		ppm	epm
K x 10^6	R KCl ____ R sample ____		31 35
pH		36 38	
Temperature °F		39 41	
Density at 20°C		ppm	epm
SiO_2	____ ml; A sample ____	42 44	
Al	____ ml; A 0.00250 mg ____; .00625 mg ____; .0125 mg ____; .025 mg ____; Sample ____	____ ppm	
Fe	A 0.025 mg ____; ____ ml ____ Sample Total ____ ppm; ____ ml ____ Sample Diss. ____ ppm		
Mn	Total ____ ppm; Dissolved ____ ppm		
Ca	____ ml	37. (45 49)	
Mg		15. (50 53)	
Na		54 58	
	Na + K Calc.	260.	
K		59 61	
Percent error	Total cations		

		ppm	epm
HCO_3	____ ml; Total Alk as CO_3 ____	482 (62 65)	
CO_3	____ ml	66 67	
SO_4	____ ml; Blk ____; Std ____; Sample ____	27. (68 72)	
Cl	____ ml	210. (73 78)	
Source	79 8 Card No. 80 Q		
F	____ ml; A 1.00 ppm ____; 2.00 ppm ____; A sample ____	26 28	
NO_3	____ ml std. ____ ml; A sample ____; A ____ ml std ____; A ____ ml std ____ Factor ____	<20. (29 32)	
NO_2	____ ml ____ ppm; A 0.01 mg ____; .02 mg ____; .05 mg ____; Sample ____		
PO_4	____ ml Ortho ____ Total; A 0.0050 mg ____; .0100 mg ____; .0250 mg ____; .0500 mg ____; Sample ____	33 35	
Total anions			

Equivalents per million

Na+K — Cl

Ca — HCO_3+CO_3

Mg — SO_4

B	A ____ mg ____; ____ mg ____; ____ mg ____; ____ mg ____	____ ml (36 38)
Al	39 41	
Fe	42 45	
Mn	46	
Cu	50 52	
Pb	53 54	
Zn	55 57	
Dissolved solids:	Determined (58 63)	Calculated 786 (64 69)
Hardness	____ ml; epm Ca + Mg ____; epm Alk ____; epm NCH ____	Ca+Mg 154 (70 73); NCH (74 77)
Color	78 79	Card No. R 80
Br	26 28	I 29 31
Alk. as $CaCO_3$	32 35	Free CO_2 38
Percent Na	SAR 39 41	RSC 44
MBAS	45 47	NO_2 67 68; Card No. S 80

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----------	
Owner----------	

DEPTH 212 (67 70)

WBF C (71 72)

Recorded by: ____ Punched by: ____ Date: ____

9-185—July 193
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-66

WELL SCHEDULE DH 64-17-303

Date 11-9, 19[illegible] Field No. J-7

Record by [illegible] Office No. [illegible]

Source of data DH67-17-303

1. *Location:* State [illegible] County [illegible]
   Map 14 miles W of [illegible]
   ¼ ¼ sec T N R E
2. *Owner:* (b) (6) [redacted]
   Tenant [illegible] Address [illegible]
   Driller [illegible] Address [illegible]
3. *Topography* [illegible]
4. *Elevation* [illegible] ft. above/below [illegible]
5. *Type:* Dug, drilled, driven, bored, jetted 5 1948
6. *Depth:* Rept. 375 ft. Meas. [illegible] ft.
7. *Casing:* Diam. 4 in., to [illegible] in., Type [illegible]
   Depth 355 ft., Finish [illegible]
8. *Chief Aquifer* [illegible] From 355 ft. to [illegible] ft.
   Others [illegible]
9. *Water level* [illegible] ft. rept./meas. 5-6-1948 above/below [illegible]
   [illegible] which is [illegible] ft. above/below surface
10. *Pump:* Type [illegible] Capacity 20 G. M. [illegible]
    Power: Kind [illegible] Horsepower [illegible]
11. *Yield:* Flow [illegible] G. M., Pump 200 G. M., Meas., Rept. Est. [illegible]
    Drawdown [illegible] ft. after [illegible] hours pumping [illegible] G. M.
12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs. [illegible]
    Adequacy, permanence [illegible]
13. *Quality* [illegible] Temp [illegible] °F.
    Taste, odor, color [illegible] Sample Yes/No [illegible]
    Unfit for [illegible]
14. *Remarks:* (Log, Analyses, etc.) [illegible]

U. S. GOVERNMENT PRINTING OFFICE 6—7473

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8SW 64-17-206

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-60

WELL SCHEDULE

Date 3-4, 1941 Field No. 508

Record by L. G. Davis Office No. [illegible]

Source of data (b) (6) [redacted]

1. *Location:* State Texas County Chambers
   Map 14½ Miles W of Anahuac
   ¼ ¼ sec T N R E
2. *Owner:* (b) (6) [redacted]
   Tenant — Address —
   Driller Amos Jernische Address Cedar Bay Tex
3. *Topography* Side of small draw
4. *Elevation* 15± ft. above/below —
5. *Type:* Dug, drilled, driven, bored, jetted — 1939
6. *Depth:* Rept. 90 ft. Meas. — ft.
7. *Casing:* Diam. 4 in., to 2 in., Type St
   Depth 90 ft., Finish 10 screen
8. CV *Chief Aquifer* — From 90 ft. to 90 ft.
   Others
9. *Water level* 17 ft. rept./meas. — 1939 above/below Top of ground which is 0 ft. above/below surface
10. *Pump:* Type Lift Capacity 1¼" pipe G. M. —
    Power: Kind Wind Horsepower —
11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
    Drawdown — ft. after — hours pumping — G. M.
12. Repys *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.
    Adequacy, permanence Never fails.
13. *Quality* Temp °F.
    Taste, odor, color Sample Yes/No 3-4-41
    Unfit for
14. *Remarks:* (Log, Analyses, etc.) Unable to measure due to collar in 4" casing 15' of sand [illegible]

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00010

Ground water analysis

Austin, Texas

State: Texas 4 9 (1 2) County: Chambers DH (3 4) Well No. (b) (9) [redacted] Seq. No. 1 (19) 2 Date M D Y 3 4 4 1 (20 25) Sampling Depth (26 29) Type (30)

Local Well No. DH-64-17-206 Location

Owner: Joe Syer Date drilled: Depth 90 WBF C Prod. intervals KEY PUNCHED Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

K x 10^6 (31 35)

R KCl ____ R sample ____

pH (36 38) Temperature °F (39 41)

Density at 20°C	ppm	epm
SiO_2 ____ ml; A sample ____	42 44	
Al ____ ml; A 0.00250 mg ____; .00625 mg ____; .0125 mg ____; .025 mg ____; Sample ____	____ ppm	
Fe A 0.025 mg ____; ____ ml ____ Sample Total ____ ppm; ____ ml ____ Sample Diss. ____ ppm		
Mn Total ____ ppm; Dissolved ____ ppm		
Ca ____ ml	45 49	1 2 6
Mg	50 53	2 3
Na	54 58	
Na + K Calc.		2 7 7
K	59 61	
Percent error Total cations		

	ppm	epm
HCO_3 ____ ml; Total Alk as CO_3 ____	62 65	4 7 6
CO_3 ____ ml	66 67	
SO_4 ____ ml; Blk ____; Std ____; Sample ____	68 72	1 5
Cl ____ ml	73 78	4 8 0
Source 79 8 Card No. 80 Q		
F ____ ml; A 1.00 ppm ____; 2.00 ppm ____; A sample ____	26 28	.4
NO_3 ____ ml std. ____ ml; A sample ____; A ____ ml std ____; A ____ ml std ____ Factor ____	29 32	2 0
NO_2 ____ ml ____ ppm; A 0.01 mg ____; .02 mg ____; .05 mg ____; Sample ____		
PO_4 ____ ml Ortho ____ Total; A 0.0050 mg ____; .0100 mg ____; .0250 mg ____; .0500 mg ____; Sample ____	33 35	
Total anions		

Equivalents per million

Na+K — Cl

Ca — HCO_3+CO_3

Mg — SO_4

B A ____ mg ____ ____ ml (36 38); ____ mg ____; ____ mg ____; ____ mg ____

Al (39 41) Fe (42 45) Mn (46 49)

Cu (50 52) Pb (53 54) Zn (55 57)

Dissolved solids: Determined (58 63) Calculated (64 69) 1 1 9 0

Hardness ____ ml; epm Ca + Mg ____; epm Alk ____; epm NCH ____; Ca+Mg (70 73) 4 3 4; NCH (74 77)

Color (78 79) Card No. 80 R

Br (26 28) I (29 31)

Alk. as $CaCO_3$ (32 35) Free CO_2 (36 38)

Percent Na SAR (39 41) RSC (42 44)

MBAS (45 47) NO_2 (67 68) Card No. 80 S

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----------	
Owner----------	

DEPTH (67 70) 3 0

WBF (71 72)

Recorded by: ____ Punched by: ____ Date: ____

00011

7½ SW

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-55

WELL SCHEDULE 64-17-212

Date 3-4, 1941 Field No. 507

Record by L. G. Davis Office No. 67

Source of data Obs. & Driller

1. *Location:* State Texas County Chambers
Map 14 3/4 Miles W of Anahuac
¼ ¼ sec T N R E

2. *Owner:* (b) (6) [redacted]
Tenant — Address —
Driller Hans Jennische Address Cedar Bayou

3. *Topography* Gentle slope to Bayou

4. *Elevation* + ft. above / below —

5. *Type:* Dug, drilled, driven, bored, jetted — 1925

6. *Depth:* Rept. 346 ft. Meas. — ft.

7. *Casing:* Diam. 4 in., to 2 in., Type st
Depth 40' 4" reduced to 2" to Bottom ft., Finish — Screen 15'

8. *Chief Aquifer* — Sand From 3[illegible] ft. to 346 ft.
Others — See log —

9. *Water level* 25 ft. rept. / meas. 1929 1941 above / below Top of
34.72 4-5 bottom half of 2" Union which is 2.30 ft. above / below surface

10. *Pump:* Type Air Compressor Capacity 3 x 3½ G. M. —
Power: Kind Electricity Horsepower 3/4

11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
Drawdown — ft. after — hours pumping — G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.
Adequacy, permanence —

13. *Quality* — Temp °F.
Taste, odor, color — Sample Yes / No 3-4-41
Unfit for —

14. *Remarks:* (Log, Analyses, etc.) [illegible]

U. S. GOVERNMENT PRINTING OFFICE 6—7472

00012

Ground Water Analysis — Austin, Texas

State: Texas 49 (1 2) County: Chambers DH (3 4) Well No. [redacted] (b) (9) Seq. No. 1 2 (19) Date M 12 D 14 Y 41 (20–25) Sampling Depth (26–29) Type (30)

Local Well No. DH-64-17-212 Location

Owner: C. Vickers Date drilled: Depth 246 WBF CA Prod. intervals

KEY PUNCHED

Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

	ppm	epm
K x 10^6 (31–35)		
R KCl ____ R sample ____		
pH (36–38)		
Temperature °F (39–41)		
Density at 20°C		
SiO_2 ____ml (42–44)		
A sample ____		
Al ____ml		
A 0.00250 mg ____	____ppm	
.00625 mg ____		
.0125 mg ____		
.025 mg ____		
Sample ____		
Fe A 0.025 mg ____		
____ml ____ Sample Total ____ppm		
____ml ____ Sample Diss. ____ppm		
Mn Total ____ppm		
Dissolved ____ppm.		
Ca ____ml 816 (45–49)		
Mg 236 (50–53)		
Na (54–58)		
Na + K Calc. 1318		
K (59–61)		
Percent error Total cations		

	ppm	epm
HCO_3 ____ml 317 (62–65)		
Total Alk as CO_3 ____		
CO_3 ____ml (66–67)		
SO_4 ____ml 14 (68–72)		
Blk ____		
Std ____		
Sample ____		
Cl ____ml 144 (73–78)		
Source 79 [ ] Card No. 80 [Q]		
F ____ml (26–28)		
A 1.00 ppm ____		
2.00 ppm ____ A sample ____		
NO_3 ____ml std. ____ml 20 (29–32)		
A sample ____		
A ____ml std ____		
A ____ml std ____ Factor ____		
NO_2 ____ml ____ppm		
A 0.01 mg ____		
.02 mg ____		
.05 mg ____		
Sample ____		
PO_4 ____ml Ortho ____ Total (33–35)		
A 0.0050 mg ____		
.0100 mg ____		
.0250 mg ____		
.0500 mg ____		
Sample ____		
Total anions		

Equivalents per million

Na+K — Cl

Ca — HCO_3+CO_3

Mg — SO_4

B A ____mg ____ml (36–38)
____mg
____mg
____mg

Al (39–41) Fe (42–45) Mn (46–49)

Cu (50–52) Pb (53–54) Zn (55–57)

Dissolved solids: Determined (58–63) Calculated 3614 (64–69)

Hardness ____ml Ca+Mg 37 (70–73)
epm Ca + Mg ____
epm Alk ____
epm NCH ____ NCH (74–77)

Color (78–79) Card No. R (80)

Br (26–28) I (29–31)

Alk. as $CaCO_3$ (32–35) Free CO_2 (36–38)

Percent Na SAR (39–41) RSC (42–44)

MBAS (45–47) NO_2 (67–68) Card No. S (80)

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----------	
Owner----------	

DEPTH 246 (67–73)

WBF CA (74–75)

Recorded by: ____ Punched by: ____ Date: ____

Send onginal copy by certified return receipt requested mail to: **TNRCC, MC 177, P.O. Box 13087, Austin, TX 78711-3087**

ATTENTION OWNER: *Confidentiality Privilege Notice on on reverse side of Well Owner's copy (pink)*

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** Triple "S" (Name) **ADDRESS** ~~6700 W. Bay Road~~ P.O. Box 363 (Street or RFD) Baytown (City) Tx (State) 77520 (Zip)

2) **ADDRESS OF WELL:** County Chambers 6700 W. Bay Rd (Street, RFD or other) Baytown (City) Tx (State) 77520 (Zip) **GRID #** 64-09-8

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ ~~Domestic~~ ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling: Started 1-3 19 98 Completed 1-3 19 98

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
2	Surface	90

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ ~~Mud~~ Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

N

From (ft.)	To (ft.)	Description and color of formation material
0	70	C/Ay
70	90	SAND

(Use reverse side of Well Owner's copy, if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☑ ~~Straight Wall~~ ☐ Underreamed ☐ Gravel Packed ☐ Other
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2	N	Plastic Casing	0	80	40ga
2	N	Plastic Screen Slotted	80	90	10 ga

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 0 ft. to 50 ft. No. of sacks used 20
_____ ft. to _____ ft. No. of sacks used _____
Method used Poured + Pumped
Cemented by J.W. GREAK JR.
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance NONE installed

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ ~~Specified~~ Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

13) **TYPE PUMP:**
☐ Turbine ☑ ~~Jet~~ ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 40 ft.

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☑ ~~Jetted~~ ☐ Estimated
Yield: 30 gpm with 10 ft. drawdown after 1 hrs.

11) **WATER LEVEL:**
Static level 18 ft. below land surface Date 1-3-98
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ ~~No~~ If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ ~~No~~

12) **PACKERS:**

Type	Depth
1 Shirt tail	79

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Greak Water Well Drilling (Type or print) **WELL DRILLER'S LICENSE NO.** 2130WI

ADDRESS P. O. Box 92 (Street or RFD) Liberty (City) Texas (State) 77575 (Zip)

(Signed) J.W. Greak (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

SEP 03 1998

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 05-21-96) *White - TNRCC Yellow - DRILLER Pink - WELL OWNER*

7314 SW 64-17-203

9–135—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-56

~~E-57~~

WELL SCHEDULE

Date 3-4, 1941 Field No. 506

Record by J. G. Davis Office No. ~~64~~

Source of data ~~Owner~~

1. *Location:* State Texas County Chambers

Map 14½ Miles W of Anahuac

¼ ¼ sec. T N/S R E/W

2. *Owner:* (b) (6)

Tenant ~~Haynes~~ Address

Driller c/o Address —

3. *Topography* Flat

4. *Elevation* ~~22~~ ft. above / below —

5. *Type:* Dug, drilled, driven, bored, jetted 1939

6. *Depth:* Rept. 22 ft. Meas. 22-0-22 ft. below ground

7. *Casing:* Diam. 5 in., to — in., Type Galv Iron

Depth 22 ft., Finish Open

8. *Chief Aquifer* — From — ft. to — ft.

Others

9. *Water level* 11.50 ft. rept. / meas. 3-4 1941 above / below Top of casing which is 0.40 ft. above / below surface

10. *Pump:* Type Turb Capacity 1½" pipe G. M. —

Power: Kind Hand pump Horsepower —

11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —

Drawdown — ft. after — hours pumping — G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.

Adequacy, permanence Good for domestic

13. *Quality* Temp °F.

Taste, odor, color — Sample Yes / No 3-4-41

Unfit for —

14. *Remarks:* (Log, Analyses, etc.)

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00015

State: Texas 49 (1 2) County: Chambers (3 4) Well No. [redacted] Seq. No. 12 (19) Date M 12 D 14 Y 11 (20 25) Sampling Depth (26 29) Type (30)

Local Well No. D11-44-17-203 Location

Owner: Dick Hayden Date drilled: Depth: 22 WBF C Prod. intervals KEY PUNCHED Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

		ppm	epm
$K \times 10^6$	R KCl ____ R sample ____ (31 35)		
pH (36 38)	Temperature °F (39 41)		
Density at 20°C			
SiO_2	ml ____ A sample ____ (42 44)		
Al	ml ____ A 0.00250 mg ____ .00625 mg ____ .0125 mg ____ .025 mg ____ Sample ____	ppm	
Fe	A 0.025 mg ____ ml ____ Sample Total ____ ppm ml ____ Sample Diss. ____ ppm		
Mn	Total ____ ppm Dissolved ____ ppm		
Ca	ml ____ (45 49)	112.5	
Mg	(50 53)	19.0	
Na	(54 58)		
Na + K Calc.		321.2	
K	(59 61)		
Percent error	Total cations		

		ppm	epm
HCO_3	ml ____ Total Alk as CO_3 ____ (62 65)	421.1	
CO_3	ml ____ (66 67)		
SO_4	ml ____ Blk ____ Std ____ Sample ____ (68 72)	174.0	
Cl	ml ____ (73 78)	490.0	
Source 79 [2]	Card No. 80 [Q]		
F	ml ____ A 1.00 ppm ____ 2.00 ppm ____ A sample ____ (26 28)		
NO_3	ml std. ____ ml ____ A sample ____ A ____ ml std ____ A ____ ml std ____ Factor ____ (29 32)	42.0	
NO_2	ml ____ ppm ____ A 0.01 mg ____ .02 mg ____ .05 mg ____ Sample ____		
PO_4	ml ____ Ortho ____ Total ____ A 0.0050 mg ____ .0100 mg ____ .0250 mg ____ .0500 mg ____ Sample ____ (33 35)		
Total anions			

Equivalents per million

Na+K — Cl

Ca — HCO_3+CO_3

Mg — SO_4

B A ____ mg ____ ml ____ (36 38)
mg ____
mg ____
mg ____

Al (39 41) Fe (42 45) Mn (46)

Cu (50 52) Pb (53 54) Zn (55 57)

Dissolved solids: Determined (58 63) Calculated 1250 (64 69)

Hardness ____ ml Ca+Mg 392 (70 73)
epm Ca + Mg ____
epm Alk ____
epm NCH ____ NCH (74 77)

Color (78 79) Card No. R (80)

Br (26 28) I (29 31)

Alk. as $CaCO_3$ (32 35) Free CO_2 (38)

Percent Na | SAR (39 41) | RSC (44)

MBAS (45 47) NO_2 (67 68) Card No. S (80)

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----	
Owner----	

D 221 (67 70)

WSP 21 (71 72)

Recorded by: ____ Punched by: ____ Date: ____

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) (b) (6) [redacted]

2) ADDRESS OF WELL: Co (b) (9) [redacted] GRID # 64-09-7

3) **TYPE OF WORK (Check):** ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 06-24-1995
Completed 06-27-1995

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	330
4	330	350

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

N

From (ft.)	To (ft.)	Description and color of formation material
0	60	CLAY
60	90	SAND
90	330	CLAY
330	350	SAND

JUL 24 1995

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	NEW	PLASTIC CASING	SURF	330	
2 1/2	N	BLANK PIPE PLASTIC	320	340	
2 1/2	N	SLOTTED SCREEN	340	350	10

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 330 ft. to 250 ft. No. of sacks used 10
SURFACE ft. to 20 ft. No. of sacks used 05
Method used HALIBURTON
Cemented by B & L WATER WELLS
Distance to septic system field lines 150 ft.
Method of verification of above distance TAPE MEASURE

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 140 ft.

14) **WELL TESTS:**
Type test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with 0 ft. drawdown after 01 hrs.

11) **WATER LEVEL:**
Static level 90 ft. below land surface Date 06-27-95
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:**

Type	Depth
01 RUBBER O RING	320

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME B & L WATER WELLS (Type or print) WELL DRILLER'S LICENSE NO. 01952 WI

ADDRESS 1703 BECKMAN DR (Street or RFD) HUFFMAN (City) TX (State) 77336 (Zip)

(Signed) William A White (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00017

TNRCC-0199 (Rev. 09-01-93)

TNRCC COPY

2 m. NISH
2 m. WIEN

Please use black ink.
Send original copy by certified mail to the
Texas Water Commission
P.O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

(14) ☑ See attached map. on 65-03-2

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check): ☐ Driven ☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 4/30 19 80
Completed 5/1 19 80

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	350

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0-5		Surface
5-15		yellow clay
15-35		blue clay
35-65		Sand
65-155		red clay
155-180		Sand
180-330		blue clay
330-350		Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	340	40
2½	N	Plas. slotted	340	350	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 265 ft. to 340 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used pressure
Cemented by driller

10) SURFACE COMPLETION
N/A ☐ Specified Surface Slab Installed [Rule 319.44(c)]
☑ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 145 ft. below land surface Date 5/1/80
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth
N/A

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 189 ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☑ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

APR 1 5 87
Texas Water Commission

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A&L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

(Signed) Milford M. Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-09-7
Located on map _____

00018

WWD-012 (Rev.01-28-87)

TEXAS WATER COMMISSION COPY

D#64-09-904

6 Y A S

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-50

904

WELL SCHEDULE

Date 3-22, 1941 Field No. 575

Record by L. S. Davis Office No. 1-3

Source of data

1. *Location:* State Texas County Chambers
Map 13 1/2 Miles W of Anahuac
1/4 1/4 sec T N/S R E/W

2. O[redacted] Address
Tenant — Address
Driller Amos Jernisch Address Cedar Bayou

3. *Topography* Gentle slope to Bayou

4. *Elevation* 18 ft. above/below

5. *Type:* Dug, drilled, driven, bored, jetted Oct 1940

6. *Depth:* Rept. 85 ft. Meas. — ft.

7. *Casing:* Diam. 3 in., to 3 in., Type st
Depth 40 ft., Finish 45 ft 2" — 6 ft 5 ft

8. *Chief Aquifer* Cu From 70 ft. to ft.
Others 1 ft Producing Sand

9. *Water level* 10 ft. rept./meas. 4-5-41 19 above/below
10.20 ground which is — ft. above/below surface

10. *Pump:* Type Capacity 140/100 G. M. —
Power: Kind Horsepower —

11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
Drawdown — ft. after — hours pumping G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs. Used in dairy.
Adequacy, permanence Strong Supply

13. *Quality* — Temp °F.
Taste, odor, color — Sample Yes/No 3-22-41
Unfit for —

14. *Remarks:* (Log, Analyses, etc.) Unable to measure due to bucking in 3" casing
4-5-41 → casing pulled, well abandoned
hole caved in at 20'

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00010

(b) (9)

State: Texas 4 9 (1 2) County: [illegible] 0 H (3 4) Well No [redacted] Eq. 1 (19) 2 Date M D Y (20 25) Sampling Depth (26 29) Type (30)

KEY PUNCHED

Local Well No. DH-64-[illegible] Location

Owner: Ivan Lee Kirkpatrick Date drilled: Depth 85 WBF 0 Prod. intervals Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

K x 10^6 (31 35)
R KCl ____ R sample ____

pH (36 38) Temperature °F (39 41)

Density at 20°C	ppm	epm
SiO_2 ____ ml		
A sample ____	42 44	
Al ____ ml		
A 0.00250 mg ____	____ ppm	
.00625 mg ____		
.0125 mg ____		
.025 mg ____		
Sample ____		
Fe A 0.025 mg ____		
____ ml ____ Sample Total ____ ppm		
____ ml ____ Sample Diss. ____ ppm		
Mn		
Total ____ ppm		
Dissolved ____ ppm		
Ca ____ ml	45 49	
Mg	50 53	
Na	54 58	
Na + K Calc.		
K	59 61	

Percent error Total cations

	ppm	epm
HCO_3 ____ ml	62 65	
Total Alk as CO_3 ____		
CO_3 ____ ml	66 67	
SO_4 ____ ml	68 72	
Blk ____		
Std ____		
Sample ____		
Cl ____ ml	73 78	
Source 79 8 Card No. 80 Q		
F ____ ml	26 28	
A 1.00 ppm ____		
2.00 ppm ____ A sample ____		
NO_3 ____ ml std. ____ ml	29 32	
A sample ____		
A ____ ml std ____		
A ____ ml std ____ Factor ____		
NO_2 ____ ml ____ ppm		
A 0.01 mg ____		
.02 mg ____		
.05 mg ____		
Sample ____		
PO_4 ____ ml Ortho ____ Total	33 35	
A 0.0050 mg ____		
.0100 mg ____		
.0250 mg ____		
.0500 mg ____		
Sample ____		
Total anions		

Equivalents per million

Na+K ——— Cl
Ca ——— HCO_3+CO_3
Mg ——— SO_4

B A ____ mg ____ ____ ml (36 38)
____ mg ____
____ mg ____
____ mg ____

Al (39 41) Fe (42 45) Mn (46 49)

Cu (50 52) Pb (53 54) Zn (55 57)

Dissolved solids: Determined (58 63) Calculated (64 69)

Hardness ____ ml Ca+Mg (70 73)
epm Ca + Mg ____
epm Alk ____ NCH (74 77)
epm NCH ____

Color (78 79) Card No. R (80)

Br (26 28) I (29 31)

Alk. as $CaCO_3$ (32 35) Free CO_2 (38)

Percent Na SAR (39 41) RSC (42 44)

MBAS (45 47) NO_2 (67 68) Card No. S (80)

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----------	
Owner----------	

DEPTH (67 70)

WBF (71 72)

Recorded by: Punched by: Date:

9 S 64-17-307

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-77

WELL SCHEDULE

Date 3-31, 1941 Field No. 634

Record by GERALD H. CROMACK Office No. 91

Source of data Driller

1. *Location:* State Tex County Chambers
   Map 14 Miles SW of Anahuac
   ¼ ¼ sec T N R E
2. *Owner* (b) (6) [redacted]
   Tenant — Address —
   Driller Amos Jenkins Address Cedar Bayou
3. *Topography* Flat side of old canal
4. *Elevation* — ft. above / below —
5. *Type:* Dug, drilled, driven, bored, jetted Nov 1926
6. *Depth:* Rept. 96 ft. Meas. — ft.
7. *Casing:* Diam. 4 in., to 2 in., Type WI
   Depth 40' - 21' - 21' to 2 ft., Finish Bottom - 20'
8. *Chief Aquifer* Sand From 80 ft. to 96 ft.
   Others See log
9. *Water level* 20 ft. rept. meas. 1926 above / below Top of collar on 4" casing 27.19 4-5-41 which is 1 ft. above / below surface
10. *Pump:* Type C left Capacity 1¼" pipe G. M. —
    Power: Kind Wind Horsepower —
11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
    Drawdown — ft. after — hours pumping — G. M.
12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.
    Adequacy, permanence —
13. *Quality* — Temp — °F.
    Taste, odor, color — Sample Yes / No —
    Unfit for —
14. *Remarks:* (Log, Analyses, etc.) Sucker rod broken & could not get sample.

Fill of 1 ft for 150 yds down canal

Screen

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00021

9 S

64-17-308

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-78
~~E-54~~

WELL SCHEDULE

Date 3-4, 1941 Field No. 511

Record by L. G. Davis Office No. 8[illegible]

Source of data [redacted]

1. *Location:* State Texas County Chambers
   Map 14½ Miles S W of Anahuac
   ¼ ¼ sec. T N S R E W
2. *Owner:* [redacted]
   Tenant Address —
   Driller Amos Jennische Address do.
3. *Topography* Flat
4. *Elevation* [illegible] ft. above / below —
5. *Type:* Dug, drilled, driven, bored, jetted Nov 1926
6. *Depth:* Rept. 97 ft. Meas. — ft.
7. *Casing:* Diam. 4 in., to 2 in., Type st
   40'-4" - reduced 2" - to Bottom
   Depth ft., Finish 2" - to Bottom - 10' Screen
8. *Chief Aquifer* — From — ft. to — ft.
   Others —
9. *Water level* 24 ft. rept. / meas. Nov 1926 above / below —
   ground which is 0 ft. above / below surface
10. *Pump:* Type Lift Capacity 1½ gpm G. M. —
    Power: Kind Wind Horsepower —
11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
    Drawdown — ft. after — hours pumping — G. M.
12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs. Unable to measure
    Adequacy, permanence Never fails. due to cellar
13. *Quality* — Temp — °F.
    Taste, odor, color — Sample Yes / No 3-4-41
    Unfit for —
14. *Remarks:* (Log, Analyses, etc.) ~~Pumped for days~~
    ~~[illegible] first drilled and~~
    ~~did not fail~~
    ~~20' [illegible]~~

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00002

Austin, Texas

State: Texas 49 (1 2) County: Chambers (3 4) Well No. [redacted] Seq. No. 1 2 (19) Date M D Y 3 4 4 1 (20 25) Sampling Depth (26 29) Type (30)

Local Well No. DH-64-17-308 Location

Owner: E. D. Fisher Date drilled: Depth 97 WBF C Prod. intervals KEY PUNCHED Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

	ppm	epm
$K \times 10^6$ R KCl ____ R sample ____ (31 35)		
pH (36 38) Temperature °F (39 41)		
Density at 20°C		
SiO_2 ____ml A sample ____ (42 44)		
Al ____ml A 0.00250 mg ____ .00625 mg ____ .0125 mg ____ .025 mg ____ Sample ____	____ppm	
Fe A 0.025 mg ____ ____ml ____ Sample Total ____ppm ____ml ____ Sample Diss. ____ppm		
Mn Total ____ppm Dissolved ____ppm		
Ca ____ml (45 49)	114.	
Mg (50 53)	21.2	
Na (54 58)		
Na + K Calc.	23.1	
K (59 61)		
Percent error Total cations		

HCO_3 ____ml (62 65)	464	
Total Alk as CO_3 ____		
CO_3 ____ml (66 67)		
SO_4 ____ml Blk ____ Std ____ Sample ____ (68 72)		
Cl ____ml (73 78)	330.	
Source 79 [6] Card No. 80 [Q]		
F ____ml A 1.00 ppm ____ 2.00 ppm ____ A sample ____ (26 28)	.5	
NO_3 ____ml std. ____ml A sample ____ A ____ml std ____ A ____ml std ____ Factor ____ (29 32)	1.6	
NO_2 ____ml ____ppm A 0.01 mg ____ .02 mg ____ .05 mg ____ Sample ____		
PO_4 ____ml Ortho ____ Total A 0.0050 mg ____ .0100 mg ____ .0250 mg ____ .0500 mg ____ Sample ____ (33 35)		
Total anions		

Equivalents per million

Na+K — Cl

Ca — HCO_3+CO_3

Mg — SO_4

B A ____mg ____mg ____mg ____mg ____ml (36 38)	
Al (39 41) Fe (42 45) Mn (46 49)	
Cu (50 52) Pb (53 54) Zn (55 57)	
Dissolved solids: Determined (58 63) Calculated (64 69)	726
Hardness ____ml epm Ca + Mg ____ epm Alk ____ epm NCH ____	Ca+Mg (70 73) 274 NCH (74 77)
Color (78 79)	Card No. 80 [R]
Br (26 28)	I (29 31)
Alk. as $CaCO_3$ (32 35)	Free CO_2 (36 38)
Percent Na	SAR (39 41) RSC (42 44)
MBAS (45 47)	NO_2 (67 68) Card No. 80 [S]

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----	
Owner----	

DH 25 (67 70)

WBF C (71)

Recorded by: ____ Punched by: ____ Date: ____

64.17.3C

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-17-3C
Located on map YES
Received: TH

1) OWNER (b) (6) [redacted]

2) LOCATION O[redacted]
County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. Map on 64-18 1P

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 6-12-79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	122

7) BOREHOLE COMPLETION: ☐ Open Hole ☒ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	64	Clay
64	70	Sand
70	86	Clay
86	124	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	112	40
4	N	Everflo	112	122	20

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 29 ft. below land surface Date 6-12-79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 45 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

00024

8m: WIEL

Please use black ink.
Send original copy by certified mail to the
Texas Water Commission
P.O. Box 13087
Austin, Tex

State of Texas
WATER WELL REPORT

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

(b) (6)

1) OWNER [redacted]

2) LOCATION OF WELL:
County Chambers _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

4

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. ON 64-10-5

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 1/24 1986 Completed 1/25 1986

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	330

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	30	Sand
30	185	Blue clay
185	220	Sand
220	290	blue clay
290	330	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	320	Sch 40
2 3/8	N	P. Slotted	320	330	12 ga

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 255 ft. to 320 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Pressure
Cemented by Driller

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 70 ft. below land surface Date 1/25/86
Artesian flow _____ gpm. Date _____

12) PACKERS: Type N/A Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 147 ft.

14) WELL TESTS:
Type Test: ☒ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ~~5~~ 15 gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

APR 15 87

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) 77562 (Zip)

(Signed) Millard M Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-10-7
Located on map _____

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

0003

64099G

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-9G
Located on map yes
Received: 77
26

1) OWNER:
Person having well drille[redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WEL[redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

3 64-17-3B North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 105 ft. Depth of completed well 105 ft. Date drilled 6/30/77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	85	Red Clay
85	105	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from N/A ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	95	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
4"	95	105'	12ga

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 25 ft. below land surface Date 6/30/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 85 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex. (State)

(Signed) Millard M. Smith Jr (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00 00026

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XX See attached map. mapon 64-10-4X

3) TYPE OF WORK (Check):
XX☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX☐ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 7/22/82

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	202

7) BOREHOLE COMPLETION:
☐ Open Hole XX☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	80	Clay
80	126	Sand
126	189	Clay
189	202	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	192	40
4	N	Everflo	192	202	08

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

16

RECEIVED
SEP -1 1982
DEPT. OF WATER RESOURCES

9) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer XX☐ Jetted ☐ Estimated
Yield: 30 gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland, Tx. (City) 77581 (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-09-9B
Located on map 409 C-15

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

000037

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION (b) (9) County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. map on 64-09-2J

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 6-9-83

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	197

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	85	Clay
85	108	Sand
108	160	Clay
160	197	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	PVC	0	186		40
4	N	Everflo	186	196		10

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 60 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.

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(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-09-9B
Located on map YESC-PS.

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

00023

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION (b) (9) County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map. mapon 64-10-4X

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 8-28-81

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	547

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	95	Sand
95	108	Clay
108	167	Sand
167	274	/Clay
274	285	Sand
285	524	Clay
524	547	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	522	40
21/2	N	PVC	517	537	80
21/2	N	Everflo	537	547	10

CEMENTING DATA
Cemented from 20 sacks ft. to _____ ft.
Method used pressure
Cemented by O'Day Drilling Co., Inc. (Company or Individual)

9) WATER LEVEL:
Static level 110 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 40 gpm with _____ ft. drawdown after _____ hrs.

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SEP - 1 1982
DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) TX (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) Orlen O'Day (Registered Driller Trainee)

For TDWR Use Only
Well No. 64-09-9B
Located on map YOS C.F.S.

Please attach electric log, chemical analysis, and other pertinent information, if available.

-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

00009

.5 m. SWL
.7 m: EIWL

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Woodland Academy (Name) Address Fm 146 (Street or RFD) Baytown (City) Tex (State) 77520 (Zip)

2) LOCATION OF WELL: County Harris 2 miles in N (N.E., S.W., etc.) direction from Baytown (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

#1 ☑ See attached map.

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☑ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled July 15 1986

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
	Surface	
6 3/4"	0	336
3 3/4"	336	358

7) BOREHOLE COMPLETION: ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	2	topsoil
2	40	Red Clay
40	50	Sand
50	231	Clay
231	262	Sand coarse
262	336	Gray Clay
336	358	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4"	new	Steel	336	358	10
		Ever Flo Screen			

CEMENTING DATA
Cemented from 0 ft. to 336 ft.
Method used Pressure Concrete
Cemented by B+L Water Wells (Company or Individual)

9) WATER LEVEL:
Static level 105 ft. below land surface Date July 15 1986
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 294 ft.

12) WELL TESTS: ☐ Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 80 gpm with 0 ft. drawdown after 4 hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

RECEIVED NOV 10 86 Commission

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME B+L Water Wells (Type or Print) Water Well Driller's License No. 2402

ADDRESS 25717 E Forest Circle (Street or RFD) Huffman (City) Tex (State) 77336 (Zip)

(Signed) Leroy Spear (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

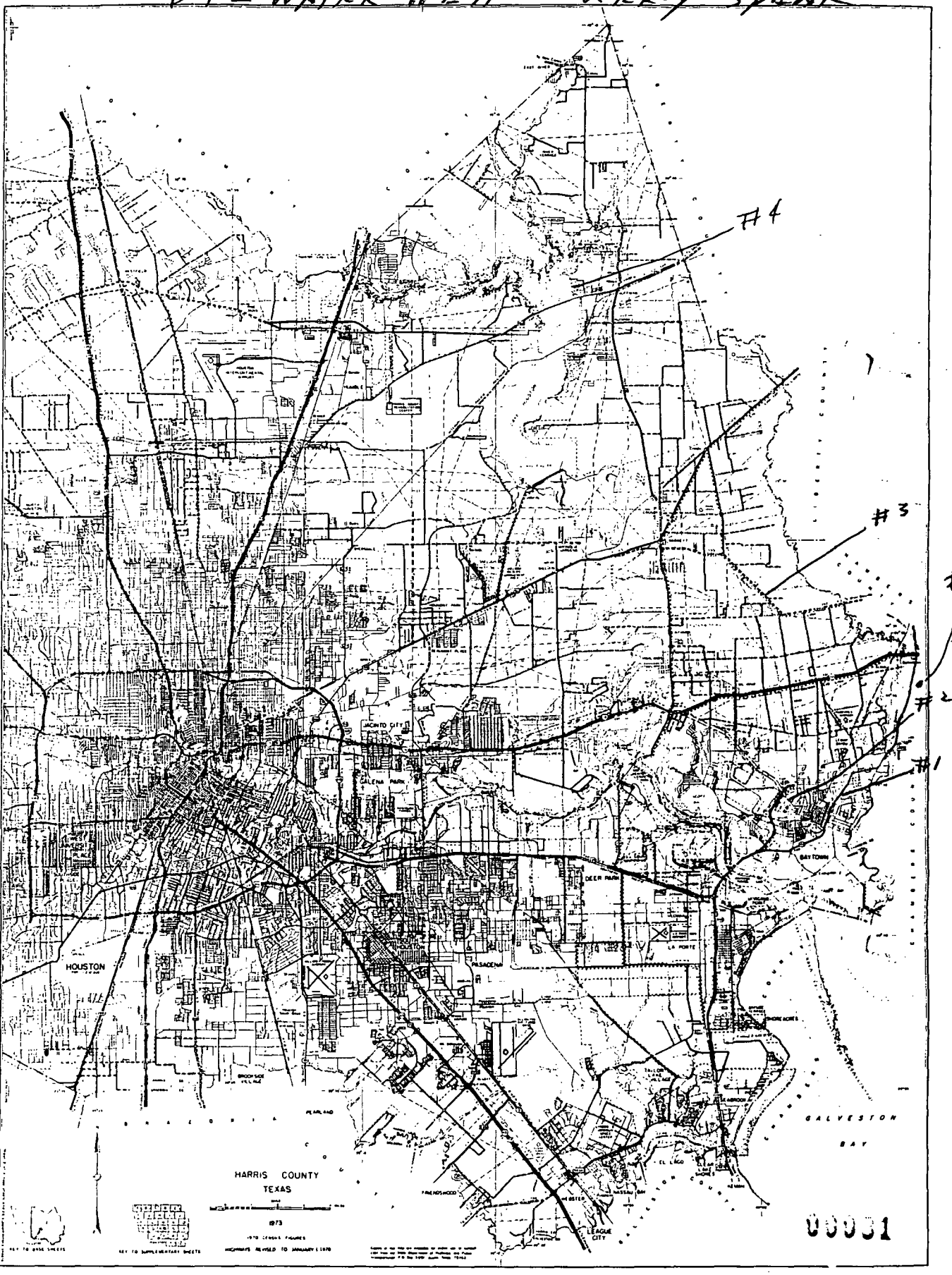
Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only Well No. 64-17-2 Located on map _____

00030

TDWR 0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

B+L WATER WELL LEROY SPEAR



HARRIS COUNTY Map 102

64098R GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. 64-09-8R Located on map 1/2 Received: 76 Form GW 8 Form GW 9

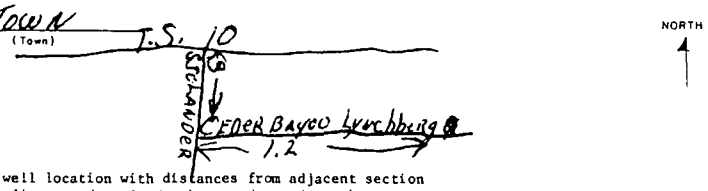
1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL: Harris County Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in 5 N (NE, SW, etc) direction from BAYTOWN (Town)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check): New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check): Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check): Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 7/26/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE			
5	45	Yellow CLAY			
45	60	SAND			
60	303	Blue CLAY			
303	360	SAND			
					(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall ☐ Gravel packed ☐ Other ☑ Under reamed ☐ Open hole ☐

8) WATER LEVEL: Static level 146' ft. below land surface Date 7/26/75
Artesian pressure ___ lbs. per square inch Date ___

9) CASING: Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 270 ft. to 350 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	345	SCH 40

10) SCREEN: Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	350	360	12 gn.

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: ___ gpm with ___ ft. drawdown after ___ hrs
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs
Artesian flow ___ gpm Date ___
Temperature of water ___
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ___ depth of strata ___

12) PUMP DATA:
Manufacturer's Name Fairbanks Morse
Type Sub - H.P. 1
Designed pumping rate ___ gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220' ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587
Address 2103 N Main (Street or RFD) Highlands (City) Texas (State)
(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00502

6409 8R

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

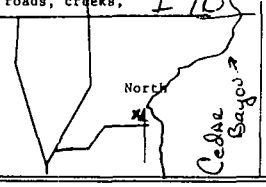
For TWDB use only
Well No. 64-09-8R
Located on map yes
Received: 76 /
dlb

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner _____ (Name) Address _____ (Street or RFD) _____ (City) TX (State)

2) LOCATION [redacted]
County (b) (9) [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* I 10 or



(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 329 ft. Depth of completed well 329 ft. Date drilled 5-24-76

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	1	Top
1	20	Clay
20	35	Sand
35	85	Clay
85	100	Sand
100	294	Clay
294	329	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other

Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	315	Sch 40
2 1/2	304	319	Sch 80

10) SCREEN:
Type Everflo

Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	319	329	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 147 ft. below land surface Date 5-24-76

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., 220 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air Compressor

Yield: 75 gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata 35

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00053

6409 9R GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

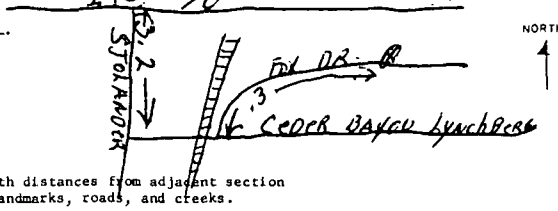
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 25-29-90
Located on map
Received:
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled (b) (6) [redacted]
Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)
miles in 6 N (NE, SW, etc) direction from BAYTOWN (Town).



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 353 ft. Depth of completed well 353 ft. Date drilled 9/6/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	155	RED CLAY
155	305	BLUE CLAY
305	353	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 148' ft. below land surface Date 9/16/75
Artesian pressure lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 265 ft. to 340 ft.

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	340	SCH 40

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	343	353	14 gal

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Fairbanks Morse
Type Sub H.P. 1
Designed pumping rate gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220' ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD M. SMITH JR (Type or Print) Water Well Drillers Registration No. 587
Address 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TEXAS (State)
(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

U0051

6409SR

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

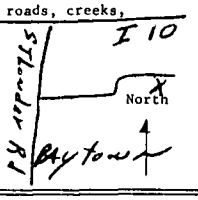
For TWDB use only
Well No. 64-09-8R
Located on map
Received:

1) OWNER:
Person having well (b) (6)

Landowner

2) LOCATION OF WELL:
County (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
X New Well | Deepening | Reconditioning | Plugging

4) PROPOSED USE (Check):
X Domestic | Industrial | Municipal | Irrigation | Test Well | Other

5) TYPE OF WELL (Check):
X Rotary | Driven | Dug | Cable | Jetted | Bored

6) WELL LOG:
Diameter of hole 4½ in. Depth drilled 368 ft. Depth of completed well 368 ft. Date drilled 7-30-76

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	17	Clay
17	33	Sandy Clay
33	338	Clay
338	368	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old X New Steel X Plastic Other

Cemented from 0 ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
2	0	358	Sch40

10) SCREEN:
Type Plastic W.O.P.

Perforated Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	358	368	12Ga.

7) COMPLETION (Check):
X Straight wall | Gravel packed | Other
Under reamed | Open Hole

8) WATER LEVEL:
Static level 143 ft. below land surface Date 7-30-76

Artesian pressure lbs. per square inch Date

Depth to pump bowls, cylinder, jet, etc., ft.

below land surface.

11) WELL TESTS:
Was a pump test made? Yes No X If yes, by whom?

Yield: gpm with ft. drawdown after hrs.

Bailer test gpm with ft. drawdown after hrs.

Artesian flow gpm

Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No X

Did any strata contain undesirable water? Yes No X

Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME H.T. Chapman (Type or Print) Water Well Drillers Registration No. 1387

ADDRESS Route 1, Box 191-B (Street or RFD) XXXXXX Dayton (City) Texas (State)

(Signed) H.T. Chapman (Water Well Driller) Chapman Water Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00033

64 09 8R

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

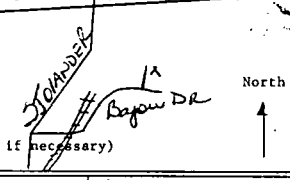
For TWDB use only
Well No. 64-09-8R
Located on map Yes
Received: 2-6-76

1) OWNER:
Person having well drilled (b) (6)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION
County (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 362 ft. Depth of completed well 362 ft. Date drilled 5-21-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	1	top soil
1	46	Clay
46	55	Sand
55	160	Clay
160	180	Sand
180	225	Clay
225	245	Sand
245	320	Clay
320	362	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	340	Sch 40
2	332	352	Sch 80

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	352	362	.012

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 157 ft. below land surface Date 5-21-76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Air Compressor
Yield: 75 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME O'DA Olen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Olen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00003

64 09 8M

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

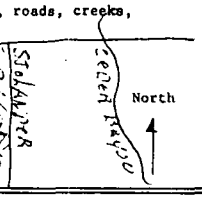
For TWDB use only
Well No. 64-09-8M
Located on map Yes
Received: 2-5-75
26

1) OWNER:
Person having well drilled (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS, 5 miles in N (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* I.S. 10



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 365 ft. Depth of completed well 365 ft. Date drilled 2/21/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	35	yellow clay
35	70	Blue clay
70	90	SAND
90	240	Blue clay
240	255	SAND
255	330	Blue clay
330	365	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 300 ft. to 340 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	340	Sch 40

10) SCREEN:
Type PLASTIC
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	345	365	14GA

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom? _____
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Willard Smith (Type or Print) Water Well Drillers Registration No. 587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TEXAS (State)

(Signed) Willard Smith (Water Well Driller) A-1 Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00037

64 09 9D

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

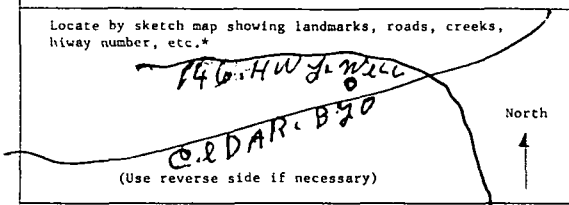
For TWDB use only
Well No. 64-09-8D
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS, CO miles in CITY (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening; Reconditioning; Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal; Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug; Cable Jetted Bored

6) WELL LOG:
Diameter of hole 3 in. Depth drilled 140 ft. Depth of completed well 140 ft. Date drilled 12.5.70

All measurements made from / ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	4	BLACK
4	80	YELLOW
80	110	SAND & SHALE
110	120	SHALE
120	130	BLUE
130	140	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel ✓ Plastic Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage

10) SCREEN:
Type BAKER
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
3	130	140	12 G

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 20 ft. below land surface Date 12570
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? SALT depth of strata 10

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS R. 3 BOX 176 (Street or RFD) BAYTOWN (City) TX (State)

(Signed) C D Harmon (Water Well Driller) H-W-W WELL SERV (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

6409 SR Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8R
Located on map yes
Received: 76
alt

1) OWNER:
Person having well drilled R. W. Johnson Constr. Co. (Name) Address P.O. Box 1247 (Street or RFD) Baytown (City) Texas (State)

Landowner Same (Name) Address Same (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, 8 miles in W (N.E., S.W., etc.) direction from Baytown (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

See Map# 1 [illegible] 10-63-7m Dup

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well X Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic X Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary X Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 7-26-75

All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	18	Top Soil & Clay
18	25	Sand
25	70	Clay
70	110	Sand & Gravel
110	119	Clay
119	140	Rock w/Clay
140	150	Clay
150	170	Sand
170	200	Clay
200	220	Sand
220	320	Mixed Sand, Clay, Rock)

Type Over (Use reverse side if necessary)

9) Casing:
Type: Old New X Steel Plastic X Other

Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
6	0	330	S40

10) SCREEN:
Type Plastic

Perforated Slotted X

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
6	330	340	16G

7) COMPLETION (Check):
Straight wall X Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 85 ft. below land surface Date 7-26-75

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No X If yes, by whom?

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No X

Did any strata contain undesirable water? Yes No X

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Randy Gilbert (Type or Print) Water Well Drillers Registration No. 1527

ADDRESS Rt, 2Box 609 (Street or RFD) Cleveland (City) Texas (State) 77327

(Signed) Randy Gilbert (Water Well Driller) Gilbert's Water Well Drilling Company (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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off Fort Dr

(75-7044) 64 09 8D Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

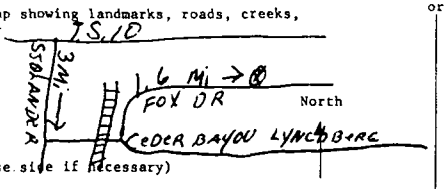
For TWDB use only
Well No. 64-09-8D
Located on map 1 of 5
Received: 76
dG

1) OWNER:
Person having well drilled [redacted] (Name) (Street or RFD) (City) (State)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, 5 miles in N (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* TS.10



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) ~~TYPE OF WORK~~ (Check): New Well, Deepening, Reconditioning, Plugging

4) ~~PROPOSED~~ USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) ~~TYPE OF~~ WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 348 ft. Depth of completed well 348 ft. Date drilled 11/17/75

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	155	RED CLAY
155	305	BLUE CLAY
305	348	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other

Cemented from 250 ft. to 330 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	330	SCH 40

10) SCREEN:
Type Plastic

Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	338	348	12 ga.

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 155 ft. below land surface Date 11/17/75

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00010

6409 8AA

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8AA
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner SAME (Name) Address SAME (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS, 3 miles in NE (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE MAP

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) ~~TYPE OF WORK~~ (Check):
(New Well) Deepening
Reconditioning Plugging

4) ~~PROPOSED~~ USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 ¼ in. Depth drilled 332 ft. Depth of completed well 332 ft. Date drilled 7-15-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	top
3	70	clay
70	101	Sand
101	290	clay
290	332	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	310	40
2½	302	322	80

10) SCREEN:
Type Everlo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	322	332	12

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 7-15-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Own
Yield: 40 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

U3041

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

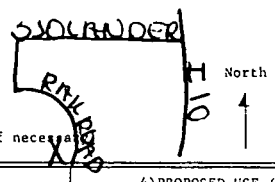
WATER WELL REPORT

For TWDB use only
Well No. 64-09-8C
Located on map
Received:

1) OWNER:
Person having [redacted] (b) (6)
Landowner [redacted]
(Name) (Street or RFD) (City) (State)

2) LOCATION (b) (9)
County [redacted]
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 332 ft. Depth of completed well 332 ft. Date drilled 6-8-78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	59	clay
59	60	rock
60	70	clay
70	72	sand
72	110	clay
100	115	sandy clay
115	220	clay w/streaks
220	310	clay
310	332	sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 16 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	310	40
2 1/2	302	332	

10) SCREEN:
Type Everflo
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	302	332	12

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 6-8-78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? aircomp.
Yield: 30 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO BOX 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD 8

GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. ____ Located on map ____ Received: ____ Form GW 8 ____ Form GW 9 ____

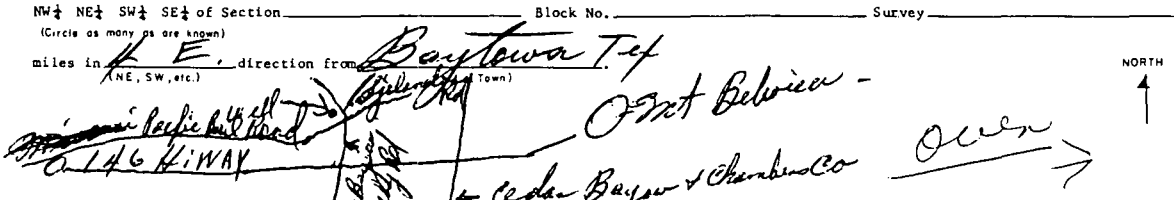
1) OWNER:
Person having well drilled (b) (6) [redacted] (Name)

Landowner SAME (Name) (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris Labor ____ League ____ Abstract No. ____

NW¼ NE¼ SW¼ SE¼ of Section ____ Block No. ____ Survey ____
(Circle as many as are known)

miles in N E. (NE, SW, etc.) direction from Baytown Tex (Town)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 4½ in. Depth drilled 101 ft. Depth of completed well 100 ft. Date drilled 1-30-69
All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	2	sandy surface	60	67	sand
2	9	yellow Clay	67	86	Blue Clay
9	10	sand + clay	86	99	sand coarse
10	14	yellow Clay	99	101	gravel
14	18	sand fine			
18	24	Blue Clay			
24	40	yellow Clay			
40	60	Blue Clay			(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☑ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 23 ft. below land surface Date 1-30-69
Artesian pressure ____ lbs. per square inch Date ____

9) CASING:
Type: old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐
Cemented from ____ ft. to ____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
2"	0 ft	90 ft	40

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2"	90	900	12

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom?
Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm Date ____
Temperature of water ____
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ____ depth of strata ____

12) PUMP DATA:
Manufacturer's Name Sears
Type Jet H.P. ____
Designed pumping rate 600 gpm ☐ gph ☑
Type power unit Jet Elect.
Depth to bowls, cylinder, jet, etc., 63 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Charles R. Walker (Type or Print) Water Well Drillers Registration No. 983

Address Rt 2 Box 175-B (Street or RFD) BAYTOWN (City) Tex (State)

(Signed) Charles R. Walker (Water Well Driller) H & W Water Well Ser (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00023

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8[illegible]
Located on map
Received:

1) OWNER:
Person having well drille [redacted]

Landowner

2) LOCATION [redacted]
County (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

I 10
Crosby Cedar Bayou Dr
Sjolander Rd
North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): (Domestic) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 4 in. Depth drilled 97 ft. Depth of completed well 97 ft. Date drilled 2-20-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top soil
2	20	Clay
20	26	Sand
26	75	Clay
75	97	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
2	0	89	Sch 40

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	89	97	.012

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 15 ft. below land surface Date
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 42 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Air Compressor
Yield: 25 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? depth of strata 22

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

#4.31.8

Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

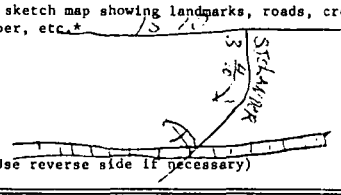
For TWDB use only
Well No. 64-09-8C
Located on map yes
Received: 75
dw

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner SAME

2) LOCA (b) (9) [redacted]
Coun

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* 15 10



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 367 ft. Depth of completed well 367 ft. Date drilled 5/22/75

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	30	yellow clay
30	45	RED clay
45	75	Blue clay
75	110	SAND
110	185	Blue clay
185	205	SAND
205	307	Blue clay
307	367	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other

Cemented from 300 ft. to 355 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	355	Sch 40

10) SCREEN:
Type PLASTIC

Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	357	367	10 gA

7) COMPLETION (Check):
Straight wall, Gravel packed, Other ✓
Under reamed, Open Hole

8) WATER LEVEL:
Static level 155 ft. below land surface Date 5/22/75

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., 240 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD SMITH (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TEXAS (State)

(Signed) Millard Smith (Water Well Driller) A&L Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

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State of Texas

WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TWDB use only
Well No. 64-09-82
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

2 [illegible] 15 [illegible] North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 7/11/77

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	25	Yellow clay
25	45	RED clay
45	95	Blue clay
95	125	SAND
125	300	Blue clay
300	345	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other

Cemented from 250 ft. to 335 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	335	Sch 40

10) SCREEN:
Type Plastic

Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
3 1/2	335	345	1.2 gal

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 7/11/77

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

00046

64-17-28

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

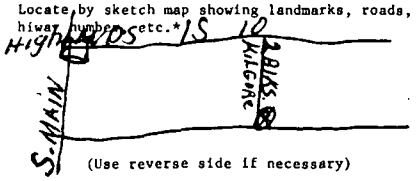
For TWDB use only
Well No. 64-17-28
Located on map yes
Received: 76

1) OWNER:
Person having well drilled (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, miles in (N.E., S.W., etc.) direction from (Town)

Locate by sketch map showing landmarks, roads, creeks, highways, numbers, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): (Domestic) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 346 ft. Depth of completed well 346 ft. Date drilled 1/26/76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	180	Blue c/Ay
180	225	SAND
225	305	Blue c/Ay
305	346	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 240 ft. to 320 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	320	SCH 40

10) SCREEN:
Type Plastic
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	331	346	14 ga.

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 235 ft. below land surface Date 1/26/76
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 280 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No.
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD M. SMITH, JR (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. MAIN - HIGHLANDS (Street or RFD) (City) TEXAS (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

0007

18

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-17-18
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) (Name) (Street or RFD) (City) (State)

Landowner Same (Name) Address Same (Street or RFD) (City) (State)

2) LOCATION OF WELL: (b) (9)
County (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

H-41

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 117 ft. Depth of completed well 117 ft. Date drilled 4-10-78

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	18	clay
18	28	sand
28	95	clay
95	117	sand

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	107	Sch 40

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
4	107	117	.012

(Use reverse side if necessary)

7) COMPLETION (Check):
(Straight wall) Gravel packed
Under reamed Open Hole

8) WATER LEVEL:
Static level 5 ft. below land surface Date 4-10-78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? air comp
Yield: 60 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 152 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO. INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDB-WD-6

00013

16

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-17-15
Located on map
Received: 12-1-77

1) OWNER:
Person having well drilled [redacted]

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION
County [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

Sec 13 Blk 39 H&TC RR

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 388 ft. Depth of completed well 388 ft. Date drilled 12-28-77

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top
2	30	clay
30	40	Sand
40	200	clay
200	225	sand
225	370	clay
370	388	sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 16 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4"	0	370	Sch 40
2½"	358	378	Sch 80

10) SCREEN:
Type EVERFLO
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	378	388	.012

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 110 ft. below land surface Date 12-28-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom?
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 162 (Street or RFD) Pearland (City) TX (State)

(Signed) _____ (Water Well Driller) O'Day Drilling Co. INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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STATE OF TEXAS WATER WELL REPORT

1) Owner: (b) (6) [redacted]
2) LOCATION OF WELL:
County: (b) (9) [redacted]

LEGAL DESCRIPTION:
Section No.: G 13 Block No.: NW Township: BAYTOWN
Abstract No.: RACOON RD. Survey Name: WES HARTLESS
Distance and direction from two intersecting section or survey lines: SJLOLANDER & CEDAR BAYOU

H-13

3) TYPE OF WORK: NEW WELL
4) PROPOSED USE: DOMESTIC
5) DRILLING METHOD: MUD ROTARY

On 65-13-9

6) WELL LOG:

DIAMETER OF HOLE

DIAMETER	FROM	TO
6.5	0	344

7) BOREHOLE METHOD:
STRAIGHT WALL
IF GRAVEL... FROM FT TO FT

Date Drilled: 09/16/89

Km5012

GEOLOGICAL DESCRIPTION:

FROM	TO	DESCRIPTION
0	3	TOP SOIL
3	55	CLAY
55	70	SAND
70	85	CLAY
85	115	SAND
115	125	CLAY
125	147	SAND
147	310	CLAY
310	344	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

DIA	NEW/USED	DESCRIPTION	FROM	TO	GAGE CASING SCREEN
4	N	PVC CASING	0	320	WW
2.5	N	PVC LINER	314	334	80
2.5	N	EVERFLO SCREEN	334	344	10

9) CEMENTING DATA:
Cemented from 320 FT. TO 0 FT.
FT. TO FT.
Method used: PRESSURE
Cemented by: ODCI

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FEB 28 1990
TEXAS WATER COMMISSION

10) SURFACE COMPLETION:
OTHER

11) WATER LEVEL:
STATIC LEVEL : 130 FT. DATE 09/16/89
ARTESIAN FLOW: GPM. DATE / /

12) PACKERS:

TYPE	DEPTH
SEAL	314

13) TYPE PUMP:
SUBMERSIBLE
DEPTH TO PUMP:

14) WELL TEST:
JETTED
YIELD: 40 GPM WITH FT DRAWDOWN AFTER HRS

15) WATER QUALITY:
TYPE OF WATER: GOOD WATER DEPTH OF STRATA: 34
NO STRATA OF UNDESIRABLE WATER PENETRATED

NO CHEMICAL ANALYSIS MADE

00050

COMPANY NAME: O'DAY DRILLING CO., INC. WATER WELL DRILLER'S LICENSE NO.: 1877
ADDRESS: P. O. BOX 162 CITY: PEARLAND STATE: TX ZIP CODE: 77588

(signed) Michael O'Day (signed)

64-17-1

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087**

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) [redacted]

2) **ADDR** (b) (9) [redacted] **GRID #** 64-09-7

County _____ (Zip)

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 14 Nov 19 94
Completed 14 Nov 19 94

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 5/8	Surface	90

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

N

From (ft.)	To (ft.)	Description and color of formation material
0	14	Clay
14	16	Sand
16	70	Clay
70	90	Sand

8) **Borehole Completion (Check):** ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4"	N	PVC	80 +2	80	40
4"	N	PVC Slotted #10	80	90	40

(Use reverse side if necessary)

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from _____ ft. to _____ ft. No. of sacks used _____
0 ft. to 15 ft. No. of sacks used 10
Method used _____
Cemented by _____
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance NO Sewer.

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 63 ft.

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) **WATER LEVEL:**
Static level 30 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:**

Type	Depth
Rubber	80'
"	70'
"	10'

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnsons Well Co (Type or print) **WELL DRILLER'S LICENSE NO.** 1807 WPK

ADDRESS 8933 Acoll Ln. (Street or RFD) Ho (City) TX (State) 77049 (Zip)

(Signed) Ronald Johnson (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

00051

Please attach electric log, chemical analysis, and other pertinent information, if available.

.8 m. NISL
.1 m. WIEN

Please use black ink.
Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County Harris miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

(10)

☑ See attached map. ON 65-16-2

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check): ☐ Driven ☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 8/25 1983
Completed 8/26 1983

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	340

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	10	yellow clay
10	85	blue clay
85	105	Sand
105	125	blue clay
125	140	Sand
140	255	red clay
255	280	white clay
280	320	blue clay
320	340	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	320	Sch 40
2½	N	Plas. slotted	330	340	12 ga

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 245 ft. to 320 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used driller
Cemented by pressure

10) SURFACE COMPLETION
☑ Specified Surface Slab Installed [Rule 319.44(c)]
☑ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 117 ft. below land surface Date 8/26/83
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth
N/A

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 168 ft.

14) WELL TESTS:
Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

(Signed) Millard M Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-09-7
Located on map _____

00052

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

9-185—Jul, Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

6407916

WELL SCHEDULE

Date Mo. 22 1966 Field No. _____

Record by J. O. Wesselman, Don Reid Office No. _____

Source of data Obs. DH 6[illegible]-09-916

1. *Location:* State Texas County Chambers

Map _____

¼ ~~Hatch~~ ¼ sec. _____ T _____ N R RD 5829 7 [illegible]

2. *Owner:* (b) (6) [redacted]

Tenant [redacted]

Driller Workmen Address _____

3. *Topography* _____

4. *Elevation* 21' ft. above/below _____

5. *Type:* Dug, drilled, driven, bored, jetted _____ 1954

6. *Depth:* Rept. 387' ft. Meas. _____ ft.

7. *Casing:* Diam. 4" in., to _____ in., Type _____

Depth _____ ft., Finish _____

8. *Chief Aquifer* CA CL From _____ ft. to _____ ft.

Others _____

9. *Water level* — ft. rept./meas. _____ 19__ above/below _____

_____ which is _____ ft. above/below surface

10. *Pump:* Type Sub Capacity _____ G. M. _____

Power: Kind _____ Horsepower 5

11. *Yield:* Flow _____ G.M., Pump _____ G.M., Meas., Rept. Est. _____

Drawdown _____ ft. after _____ hours pumping _____ G.M.

12. *Use:* Dom., Stock, PS, RR., Ind., Irr., Obs. _____

Adequacy, permanence _____

13. *Quality* _____ Temp _____ °F.

Taste, odor, color _____ Sample Yes/No _____

Unfit for _____

14. *Remarks:* (Log, Analyses, etc.) Supplies about 7 [illegible]

00053

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (9) [redacted]

2) LOCATION OF WELL:
County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. 64-19-2H

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply
☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored
☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 5/16/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	184

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	75	Clay
75	102	Sand
102	110	Clay
110	125	Sand
125	169	Clay
169	184	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	170	40
2 1/2	N	PVC	164	174	80
2 1/2	N	Everflo	174	184	10

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 8 sacks ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, Inc.

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 35 ft. below land surface Date 5/17/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

45

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(Use reverse side if necessary)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, INC. (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-6CC
Located on map yeomm

DEPARTMENT OF WATER RESOURCES COPY

TDWR-0392 (12/29/83)

00054

Send original copy by certified mail to the Texas Department of Water Resources, P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION County (b) (9) [redacted]
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
XXX See attached map.

3) TYPE OF WORK (Check):
XXX☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XXX☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XXX☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 9-16-83

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	202

7) BOREHOLE COMPLETION:
☐ Open Hole XXX☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	80	Clay
80	110	Sand
110	130	Clay
130	150	Sand
150	185	Clay
185	202	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	185	40
2½	N	PVC	172	192	80
2½	N	Everflo	192	202	08

CEMENTING DATA
Cemented from 10 sacks ft. to _____ ft.
Method used Pressure
Cemented by O'Day DRilling
(Company or Individual)

9) WATER LEVEL:
Static level 40 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

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11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XXX☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XXX☒ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer XXX☒ Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

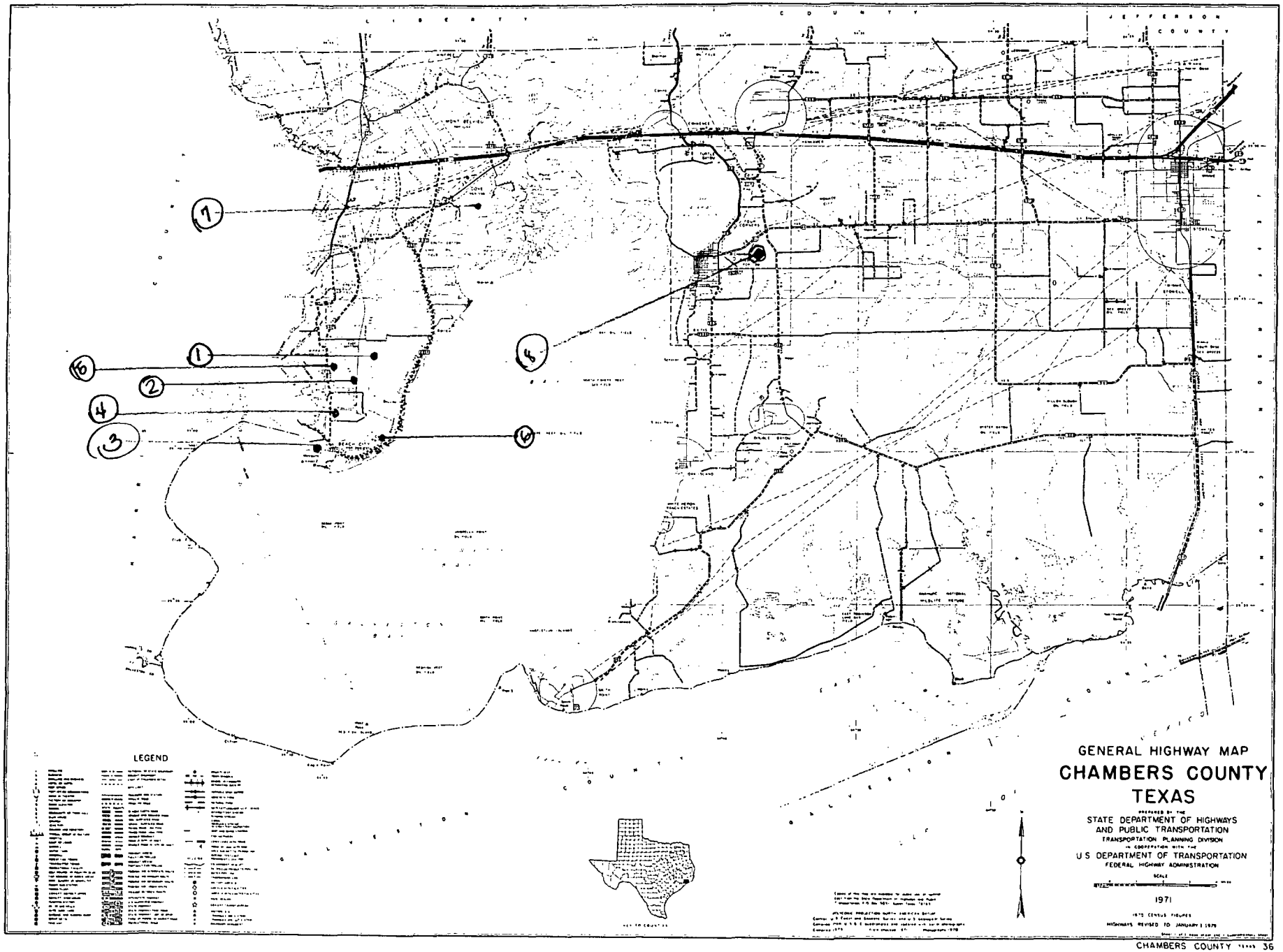
ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-34
Located on map yes c.f.s.

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY


GENERAL HIGHWAY MAP
CHAMBERS COUNTY
TEXAS
PREPARED BY THE
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
IN COOPERATION WITH THE
U S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
SCALE
1971
1970 CENSUS FIGURES
HIGHWAYS REVISED TO JANUARY 1 1979
LEGEND
LIBERTY COUNTY
JEFFERSON COUNTY
1
2
3
4
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7
8

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6)

2) LOCATION OF WELL:
County (b) (9) (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XX See attached map. 64-19-2H

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX Domestic ☐ Industrial ☐ Public Supply
☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored
☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 7/30/84

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	107

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	90	Clay
90	107	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	97	40
4	N	Everflo	97	107	12

35

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from _____ ft. to _____ ft.
_____ ft. to _____ ft.
Method used _____
Cemented by _____

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 27 ft. below land surface Date 7/30/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.

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(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use
Well No. 64-19-2H
Located on map

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (12/29/83)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL County (b) (9) (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map. mapsm 64-17-3L

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 11-4-83

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	332

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	66	Clay
66	90	Sand
90	140	Clay
140	163	Sand
163	310	Clay
310	333	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	310	40
2½	N	PVC	302	312	80
2½	N	Everflo	312	332	12

CEMENTING DATA
Cemented from 16 sacks ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling (Company or Individual)

9) WATER LEVEL:
Static level 130 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.

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(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-3K
Located on map yes C.F.S.

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

00003

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCA (b) (9) [redacted] Cou (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map. map on 64-10-4X

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	92

Date drilled 12-11-81

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	70	Clay
70	92	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	82	40
4	N	Everflo	82	92	12

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 21 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 10 gpm with _____ ft. drawdown after _____ hrs.

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DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day DrillingCo., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) TX (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-36
Located on map YCS C.F.S

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

00053

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-17-30
Located on map Yes
Received: C.F.S.

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION [redacted]
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

RE J.L MEYERS X See attached map. map on 64-10-4X

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 5-3-82

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	4 7/8	Surface	90

7) BOREHOLE COMPLETION:
☒ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	70	Clay
70	90	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	PVC	0	80	40	
2	N	Everflo	80	88		06

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 17 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

RECEIVED
SEP - 1 1982
DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen W. O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland, Texas (City) 77581 (State) (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co., Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79) DEPARTMENT OF WATER RESOURCES COPY 00000

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County (b) (9) [redacted] (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. Mapon 64-10-4X

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 1-20-82

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6¼	Surface	358

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	17	Clay
17	25	Sand
25	110	Clay
110	140	Sand
140	340	Clay
340	355	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	318	40
2½	N	PVC	318	338	80
2½	N	Everflo	338	358	10

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 120 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

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SEP - 1 1982
DEPT. OF
WATER RESOURCES
(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 51 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) TX (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-3E
Located on map yes c.f.s.

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

00001

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) **ADDRESS** (b) (9) County **GRID #** 64-09-6

3) **TYPE OF WORK (Check):** ☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling: Started 25 Apr 19 94 Completed 26 Apr 19 94

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	320
3 7/8	320	346

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

N

From (ft.)	To (ft.)	Description and color of formation material
0	82	Clay
82	110	Gravel
110	310	Clay
310	346	Sand

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other Dual String
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	+2	320	40
2 1/2	N	PVC	336	316	40
2 1/2	N	PVC Slotted #10	336	346	40

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 320 ft. to Surface ft. No. of sacks used 30
_____ ft. to _____ ft. No. of sacks used _____
Method used Gravity
Cemented by Self
Distance to septic system field lines or other concentrated contamination 65 ft.
Method of verification of above distance Customer Measure

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) **WATER LEVEL:**
Static level 103 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

12) **PACKERS:** Type Depth

13) **TYPE PUMP:** ☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnson Well Service (Type or print) **WELL DRILLER'S LICENSE NO.** 1807 WPK

ADDRESS 3933 Talcott Rd TX (Street or RFD) 77049 (City) (State) (Zip)

(Signed) Randall Johnson (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 11-01-94) TNRCC COPY

64099F

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

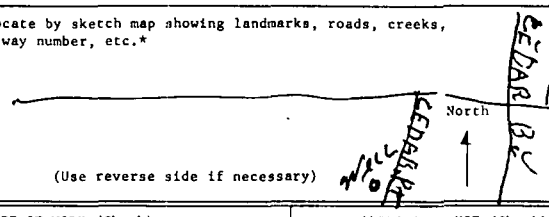
For TWDB use only
Well No. 64-09-9F
Located on map Yes
Received: 7-6

1) OWNER:
Person having well drille (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCA (b) (9)
Coun (Rural, Star, etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 110 ft. Depth of completed well 110 ft. Date drilled 32876
All measurements made from ↑ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	4	SURF
4	80	YELLOW
80	90	GRAY
90	100	BLUE
100	110	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage

10) SCREEN:
Type PLASTIC
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	100	110	10

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 23 ft. below land surface Date 32876
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 63 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? HARD depth of strata 110

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS 19 ½ BOX 176 BAYTOWN (City) TEX (State)

(Signed) C D Harmon (Water Well Driller) H&W WELL SERV (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00003

64 09 9E

GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-9E
Located on map 163
Received: 75
Form GW 8

1) OWNER:
Person having well drilled (b) (6)

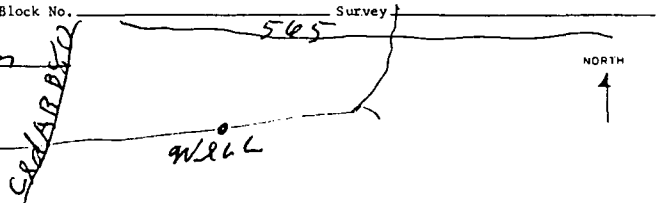
Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County CHAMBERS Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in NE SW, etc. direction from BAYTOWN (Town)

BAYTOWN 2354



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 194 ft. Depth of completed well 194 ft. Date drilled 8.8.74

All measurements made from / ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	3	SURF
3	80	YELLOW
80	100	SANDY SHALE
100	175	GRAY
175	184	BLUE
184	194	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☑ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 24 ft. below land surface Date
Artesian pressure lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from ft. to ft.

10) SCREEN:
Type PLASTIC
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2	184	194	10

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☑ No
Type of water? SOFT depth of strata

12) PUMP DATA:
Manufacturer's Name STARITE
Type H.P. 3/4 S. STAR
Designed pumping rate gpm ☐ gph ☐
Type power unit
Depth to bowls, cylinder, (jet), etc., 42 ft.
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

Address R 2 BOX 176 (Street or RFD) BAYTOWN (City) TEX (State)

(Signed) C D Harmon (Water Well Driller) H W WELL (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00054

64-09-9K

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-9K
Located on map
Received: 77

1) OWNER:
Person having well drilled (b) (6)

Landowner _____ Address _____

2) LOCATION
County (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

I 10

North

(Use reverse side if necessary) H43-146

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 4-11-77

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	top soil
3	90	Clay
90	130	Sand
130	260	Clay
260	340	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	320	Sch 40
2 1/2	310	350	Sch 80

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	330	340	.012

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 4-11-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air Compressor
Yield: 80 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. BOX 162 (Street or RFD) PEARLAND (City) TEX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

U00055

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

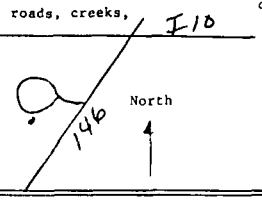
For TWDB use only
Well No. 64-09-9K
Located on map Yes
Received: 78

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner _____ (Name) Address _____ (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County (b) (9) [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well (circled) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic (circled) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary (circled) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 312 ft. Depth of completed well 312 ft. Date drilled 3-13-78

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top
2	35	clay
35	40	sand (not good)
40	60	clay
60	90	sand
90	180	clay
180	250	sand + clay
250	286	clay
286	312	sand

(Use reverse side if necessary)

9) Casing:
Type: Old New (circled) Steel Plastic (circled) Other

Cemented from 15 packs ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	295	40
2 1/2	282	302	80

10) SCREEN:
Type Everflo

Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	302	312	012

7) COMPLETION (Check):
Straight wall Gravel packed Other (circled)
Under reamed Open Hole

8) WATER LEVEL:
Static level 120 ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes (circled) No If yes, by whom? AIR COMP.
Yield: 45 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No (circled)
Did any strata contain undesirable water? Yes No (circled)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO BOX 162 (Street or RFD) Pearland (City) Tex. (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co. Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00003

DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-9K
Located on map YES
Received: TH

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County (b) (9)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 6-15-79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	200

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	97	Clay
97	100	Sand
100	115	Clay
115	119	Sand
119	175	Clay
175	184	Sand
184	185	Clay
185	200	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	186	40
4	N	Everflo	186	196	20

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 100 ft. below land surface Date 6-15-79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 70 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-9K
Located on map 40
Received: 78

1) OWNER:
Person having well drilled (b) (8) [redacted]
(Name) (Street or RFD) (City) (State)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCAT (b) (9) [redacted]
Count

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE HARRIS COUNTY MAP

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 in. Depth drilled 325 ft. Depth of completed well 325 ft. Date drilled 10/11/77
All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	28	Clay
28	32	Sand
32	105	Clay
105	116	Sand
116	195	Clay
195	205	Sand
205	290	Clay
290	325	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 2 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	325	40

10) SCREEN:
Type _____
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
4	325	335	12

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Owner
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co. Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

0 0 0 0 0

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

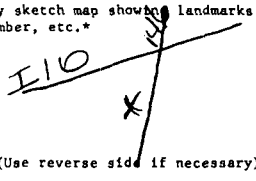
WATER WELL REPORT

For TWDB use only
Well No. 64-09-9K
Located on map
Received: 78

1) OWNER:
Person having well drilled (b) (6)
Landowner [redacted]
(Name) (Street or RFD) (City) (State)

2) LOCATION:
County (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): (Domestic) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 337 ft. Depth of completed well 337 ft. Date drilled 2/16/78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top
2	260	Clay
260	268	Sand
268	300	Clay
300	337	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 15 SACKS ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	320	40
2½	302	327	80

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	327	337	

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 132 ft. below land surface Date 2/16/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? AIR COMPRESSOR
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786
ADDRESS POBOX 162 (Street or RFD) PEARLAND (City) TEXAS (State)
(Signed) Orlen O'Day (Water Well Driller)
O'DAY DRILLING CO, INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATIO[redacted] County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. map on 64-10-4X

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 11-11-81

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	500

7) BOREHOLE COMPLETION: ☐ Open Hole ☒ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	123	Clay
123	140	Sand
140	478	Clay
478	500	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	478	40
21/2	N	PVC	460	480	80
21/2	N	Everflo	480	500	12

CEMENTING DATA
Cemented from 20 sacks ft. to _____ ft.
Method used pressure
Cemented by O'Day Drilling Co., Inc. (Company or Individual)

9) WATER LEVEL:
Static level 100 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

RECEIVED SEP - 1 1982 DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: ☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) TX (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) Orlen O'Day (Registered Driller Trainee)

For TDWR use only
Well No. 64-09-9P
Located on map yes C.F.B.

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR 0392 (Rev. 5-27 82) DEPARTMENT OF WATER RESOURCES COPY

00070

64099H

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

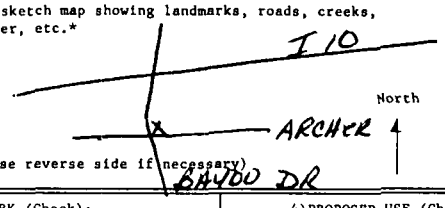
For TWDB use only
Well No. 64-09-9H
Located on map yes
Received: 11 [illegible]

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Flemming Reality (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Chambers, 4 miles in N (N.E., S.W., etc.) direction from Baytown (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor ____ League ____
Block ____ Survey ____
Abstract No. ____
(NW¼ NE¼ SW¼ SE¼) of Section ____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6½ in. Depth drilled 351 ft. Depth of completed well 351 ft. Date drilled 4-1-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top soil
2	80	Clay
80	84	Sand
84	150	Clay
150	165	Sand
165	310	Clay
310	330	Sand
330	331	Clay
331	351	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 15 sacks ft. to ____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	328	Sch 40
2½	311	331	Sch 80

10) SCREEN:
Type Everflo
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	331	351	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 4-1-77
Artesian pressure ____ lbs. per square inch Date ____
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air Compressor
Yield: 80 gpm with ____ ft. drawdown after ____ hrs.
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs.
Artesian flow ____ gpm
Temperature of water ____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? ____ depth of strata ____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WO-8

00071

64099H

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

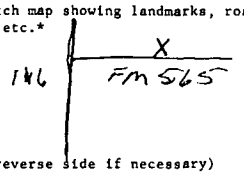
WATER WELL REPORT

For TWDB use only
Well No. 64-89-9H
Located on map Yes
Received: 78

1) OWNER:
Person having well drilled (b) (6)
Landowner (Name) (Street or RFD) (City) (State)

2) LOCATION:
County (b) (9) (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(~~Rotary~~) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 225 ft. Depth of completed well 225 ft. Date drilled 12-19-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	top
3	45	Clay
45	60	sand
60	142	Clay
142	156	sand
156	210	clay
210	225	sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	215	40

10) SCREEN:
Type Ever Flo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
4	215	225	12

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 30 ft. below land surface Date 12-19-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Air Comp
Yield: 60 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 162 (Street or RFD) Pearland (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co INC (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD 8

64099F Dup

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

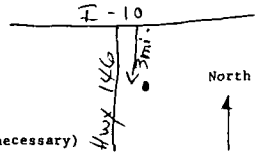
For TWDB use only
Well No. 64-09-9F
Located on map 45
Received: 5/7
dlr

1) OWNER:
Person having well drilled Cedar Bayou Mobile Home Park (Name) Address 6310 Hwy 146, (Street or RFD) Baytown (City) (State)

Landowner (Name) Address (Street or RFD) (City) 77520 (State)

2) LOCATION OF WELL:
County Chambers, 3 miles in N. (N.E., S.W., etc.) direction from Baytown (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic Industrial (Municipal) Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 372 ft. Depth of completed well 364 ft. Date drilled 10-7-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top soil
2	40	Clay
40	46	Sand
46	90	Clay
90	94	Sand
94	220	Clay
220	233	Sand
233	336	Clay
336	364	Sand
364	372	sandy clay

(Use reverse side if necessary)

9) Casing:
Type: Old New (Steel) Plastic Other
Cemented from 336 ft. to 0 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4"	0	336	Sch. 40 galv.
2½"	323	344	Sch. 40 galv.
2½"	364	372	Sch. 80

10) SCREEN:
Type Gravels
(Perforated) Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	344	364	.012 ga.

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 10-7-76
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 252 ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Air Compressor
Yield: 70 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME O'Day Drilling Co. (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581

(Signed) (Water Well Driller) O'Day Drilling Co. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WO-6

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Send onginal copy by certified return receipt requested mail to: **TNRCC, MC 177, P.O. Box 13087, Austin, TX 78711-3087**

ATTENTION OWNER: *Confidentiality Privilege Notice on on reverse side of Well Owner's copy (pink)*

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) OWNER (b) (6) [redacted]

2) ADDRESS (b) (9) [redacted]
County (Street, RFD or other) (City) (State) (Zip)

3) **TYPE OF WORK (Check):** ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☒ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 1-3 19 98
Completed 1-3 19 98

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
2	Surface	90

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☒ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft.)	To (ft.)	Description and color of formation material
0	70	CLAY
70	90	SAND

(Use reverse side of Well Owner's copy, if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☒ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other
If Gravel Packed give interval ... from ____ ft. to ____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting	Gage Screen
2	N	Plastic Casing	0	80	40 ga	
2	N	Plastic Screen Slotted	80	90		10 ga

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 0 ft. to 20 ft. No. of sacks used 10
____ ft. to ____ ft. No. of sacks used ____
Method used Poured & Pumped
Cemented by J.D. Greak Jr.
Distance to septic system field lines or other concentrated contamination ____ ft.
Method of verification of above distance None Installed

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☒ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

13) **TYPE PUMP:**
☐ Turbine ☒ Jet ☐ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 40 ft.

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 30 gpm with 10 ft. drawdown after 1 hrs.

11) **WATER LEVEL:**
Static level 18 ft. below land surface Date 1-3-98
Artesian flow ____ gpm. Date ____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☒ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☒ No

12) **PACKERS:**

Type	Depth
Shirttailed	79

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

SEP 0 3 1998

COMPANY NAME Greak Water Well Drilling (Type or print) **WELL DRILLER'S LICENSE NO.** 2130WI

ADDRESS P. O. Box 92 (Street or RFD) Liberty (City) Texas (State) 77575 (Zip)

(Signed) J.D. Greak (Licensed Well Driller) **(Signed)** ____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 05-21-96) *White - TNRCC Yellow - DRILLER Pink - WELL OWNER*

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8AB
Located on map yes
Received: C.F.S.

1) OWNER SolesBee Const Co. (Name) Address 400 South Ashbel (Street or RFD) Baytown (City) Tex (State) 77520

2) LOCATION OF WELL:
County Chambers miles in 3 N.E (N.E., S.W., etc.) direction from Baytown Tex (Town)
North of Cedar Bayou Bridge 1 mile on 146 HY Baytown Tex

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description: North
Section No. _____ Block No. _____ Township Baytown Tex
Abstract No. 22 Survey Name Christian Smith League
Distance and direction from two intersecting section or survey lines _____
☑ See attached map. Well #1

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☑ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct 9, 1982

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
4	Surface	2
0-370		370-399

7) BOREHOLE COMPLETION: ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Black Land Clay
3	20	Dary Gray Clay
20	100	Light Gray Clay
100	250	Light Red Clay
250	350	Red Clay
350	399	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
12	New	Steel	370	399	12

CEMENTING DATA
Cemented from 0 ft. to 370 ft.
Method used Recovered
Cemented by B+L (Company or Individual)

RECEIVED
JAN 18 1983
DEPT. OF WATER RESOURCES

9) WATER LEVEL:
Static level 70 ft. below land surface Date Oct 9 1982
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 270 ft.

12) WELL TESTS: ☐ Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 60 gpm with 0 ft. drawdown after 4 hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☑ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME William A. White (Type or Print) Water Well Drillers Registration No. 1952

ADDRESS 1703 Beckman Dr. (Street or RFD) Huffman (City) Tex (State) 77336 (Zip)

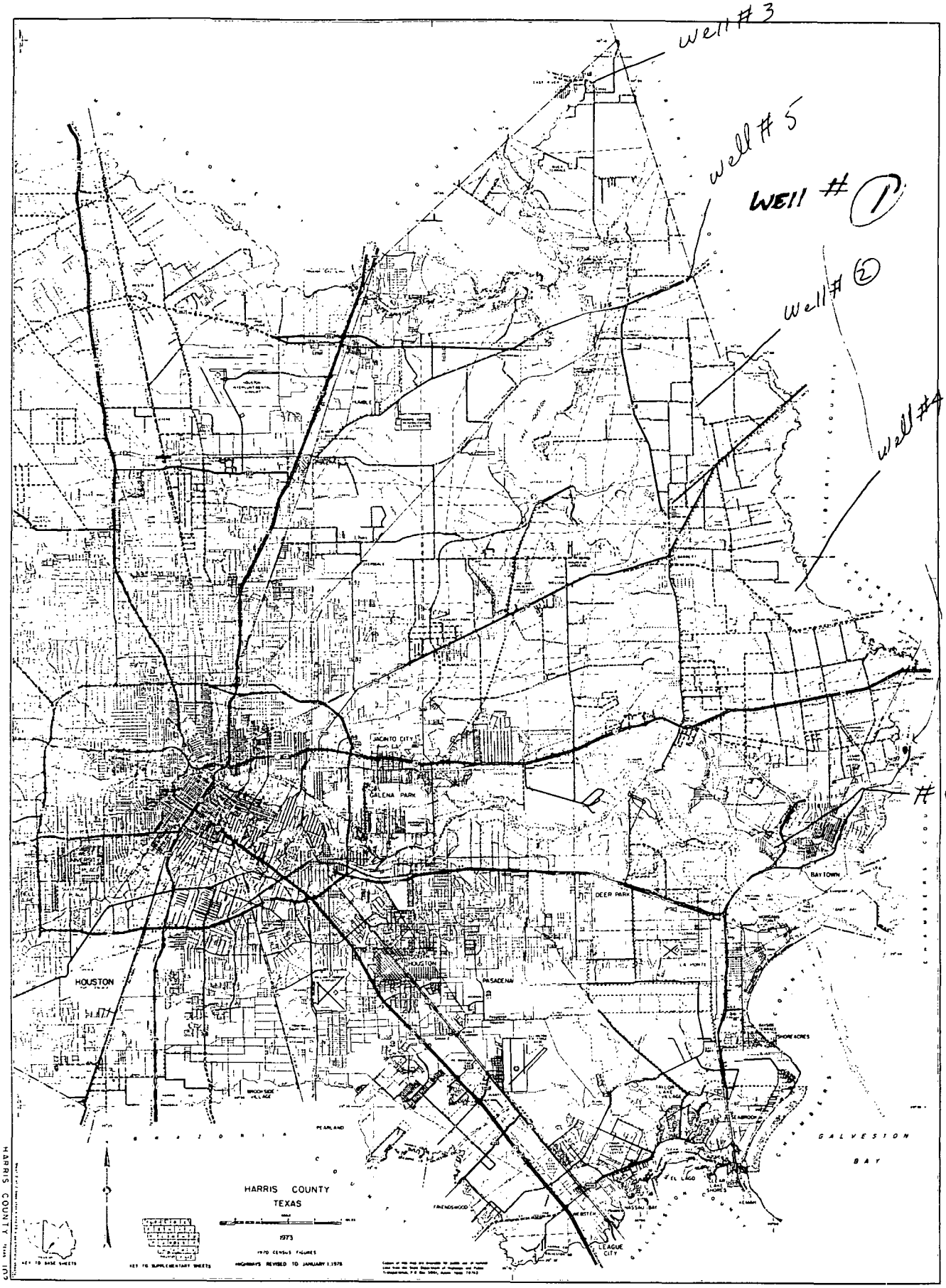
(Signed) William A White (Water Well Driller) B + L Water Well (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

00075


well #3
well #5
WELL #1
well #2
well #4
#6
HOUSTON
PASADENA
DEER PARK
BAY TOWN
GALENA PARK
PEARLAND
LEAGUE CITY
GALVESTON BAY
HARRIS COUNTY
TEXAS
1973
1970 CENSUS FIGURES
HIGHWAYS REVISED TO JANUARY 1, 1973
KEY TO BASE SHEETS
KEY TO SUPPLEMENTARY SHEETS

00073

1) OWNER: (b) (6) [redacted]

2) LOCATION OF WELL: County: (b) (9) [redacted]

C-2

LEGAL DESCRIPTION:

Section No.: G-14 Block No.: E Township: BAYTOWN

Abstract No.: KENDALL RD Survey Name: WES HARTLESS

Distance and direction from two intersecting section or survey lines: FM 1405 & KENDAL RD

3) TYPE OF WORK: NEW WELL 4) PROPOSED USE: DOMESTIC 5) DRILLING METHOD: MUD ROTARY

6) WELL LOG: 13020

DIAMETER OF HOLE

DIAMETER	FROM	TO
6.5	0	304

7) BOREHOLE METHOD:

STRAIGHT WALL

IF GRAVEL... FROM FT. TO FT.

FROM FT. TO FT.

DATE DRILLED: 08/01/91

GEOLOGICAL DESCRIPTION:

FROM	TO	DESCRIPTION
0	3	TOP SOIL
3	60	CLAY
60	75	SAND
75	150	CLAY
150	178	SAND
178	280	CLAY
280	304	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

DIA	NEW/USED	DESCRIPTION	FROM	TO	GAGE CASING SCREEN
4	N	PVC CASING	0	283	WW
2.5	N	PVC LINER	277	294	80
2.5	N	PVC WRAPPED SCREEN	294	304	06

9) CEMENTING DATA:

Cemented from 283 FT. TO 0 FT.

FT. TO FT.

Method used: PRESSURE

Cemented by: ODCI

RECEIVED

JAN 13 1992

TEXAS WATER COMMISSION

10) SURFACE COMPLETION:

OTHER

11) WATER LEVEL:

STATIC LEVEL : 160 FT. DATE: 08/01/91

ARTESIAN FLOW: GPM. DATE:

12) PACKERS:

TYPE	DEPTH
B P VALVE	277

13) TYPE PUMP:

SUBMERSIBLE

DEPTH TO PUMP:

14) WELL TEST:

JETTED

YIELD: 20 GPM WITH FT DRAWDOWN AFTER HRS

15) WATER QUALITY:

TYPE OF WATER: N/A DEPTH OF STRATA: 24 NO CHEMICAL ANALYSIS MADE

NO STRATA OF UNDESIRABLE WATER PENETRATED

COMPANY NAME: O'DAY DRILLING CO., INC. WATER WELL DRILLER'S LICENSE NO.: 1877

ADDRESS: P. O. BOX 162 CITY: PEARLAND STATE: TX ZIP CODE: 77588

FOR TDWR USE ONLY

WELL NO.

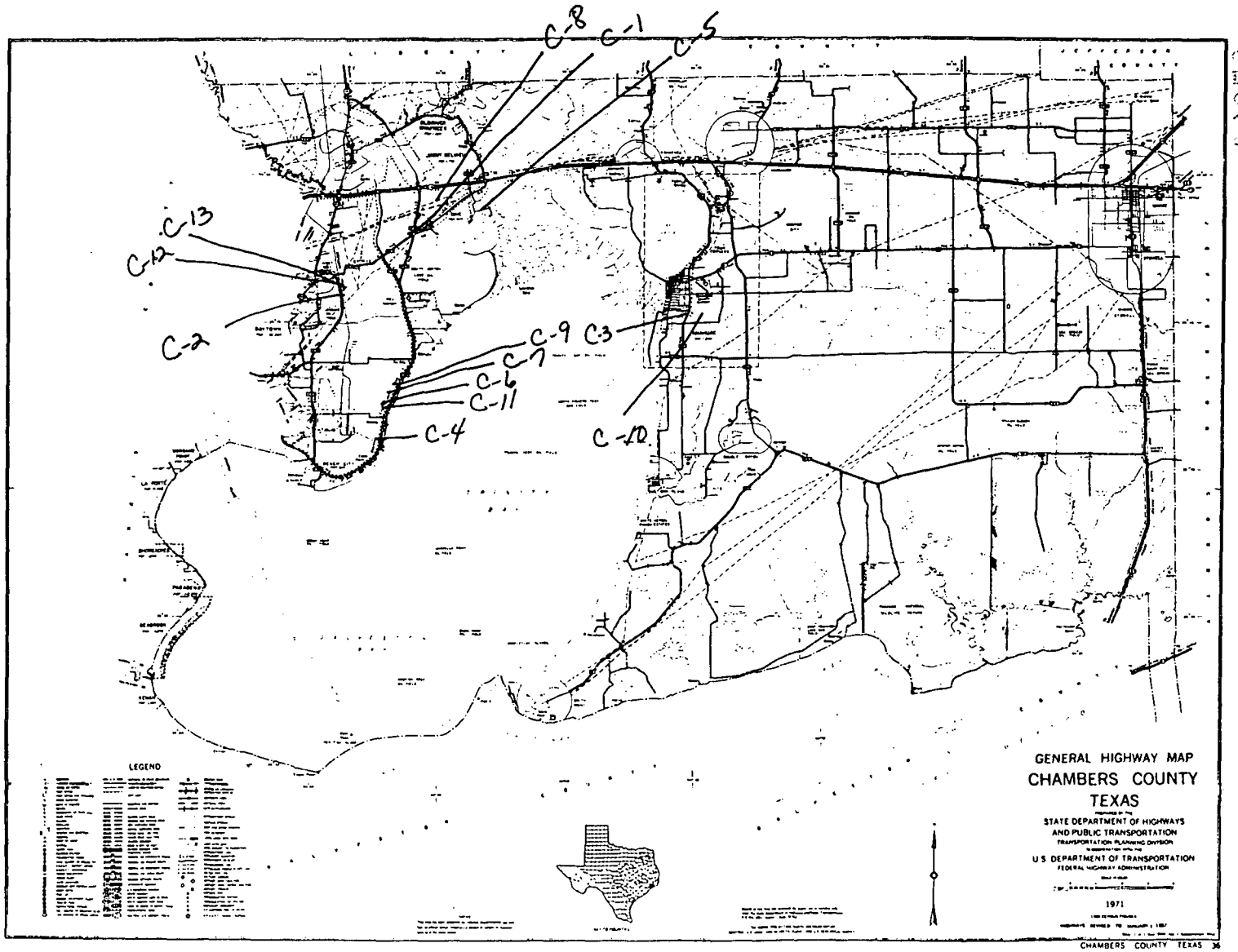
LOCATED ON MAP 64.9.9

I HEREBY CERTIFY THAT THIS WELL WAS DRILLED BY ME (OR UNDER MY SUPERVISION) AND THAT EACH AND ALL OF THE STATEMENTS HEREIN ARE TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I UNDERSTAND THAT FAILURE TO COMPLETE ITEMS 1 THRU 12 WILL RESULT IN THE LOG(S) BEING RETURNED FOR COMPLETION AND RESUBMITTAL.

(signed) [signature] (LICENSED WATER WELL DRILLER)

(signed) Angel Bautista (REGISTERED DRILLER TRAINEE)

00077


C-8
C-1
C-5
C-13
C-12
C-2
C-9
C-3
C-7
C-6
C-11
C-4
C-10
LEGEND
GENERAL HIGHWAY MAP
CHAMBERS COUNTY
TEXAS
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
U S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
1971

1) OWNER: U. S. STEEL ADDRESS: 4702 FM 1405 CITY: BAYTOWN STATE: TX ZIP: 77520-

2) LOCATION OF WELL: County: CHAMBERS 1.5 miles in E direction from BAYTOWN

LEGAL DESCRIPTION:

Section No.: G-13 Block No.: SE Township: BAYTOWN

Abstract No.: FM 1405 Survey Name: (b) (6)

Distance and direction from two intersecting section or survey lines: FM 146 & FM 1405

0n64-09-3

3) TYPE OF WORK: NEW WELL 4) PROPOSED USE: DOMESTIC 5) DRILLING METHOD: MUD ROTARY

6) WELL LOG: 12389

DIAMETER OF HOLE

DIAMETER	FROM	TO
6.5	0	514

7) BOREHOLE METHOD:

STRAIGHT WALL

IF GRAVEL... FROM FT. TO FT.

FROM FT. TO FT.

DATE DRILLED: 10/13/90

GEOLOGICAL DESCRIPTION:

FROM	TO	DESCRIPTION
0	3	TOP SOIL
3	77	CLAY
77	107	SAND
107	410	CLAY
410	420	SAND
420	446	CLAY
446	479	SAND
479	485	CLAY
485	514	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

DIA	NEW/USED	DESCRIPTION	FROM	TO	GAGE CASING SCREEN
4	N	PVC CASING	0	500	MW
2.5	N	GALVANIZED LINER	483	504	MW
2.5	N	PVC WRAPPED SCREEN	504	514	10

9) CEMENTING DATA:

Cemented from 500 FT. TO 0 FT.

FT. TO FT.

Method used: PRESSURE

Cemented by: ODCI

10) SURFACE COMPLETION:

OTHER

11) WATER LEVEL:

STATIC LEVEL : 170 FT. DATE: 10/

ARTESIAN FLOW: GPM. DATE:

RECEIVED

FEB 15 1991

TEXAS WATER WELL DRILLERS BOARD

12) PACKERS:

TYPE	DEPTH
B P VALVE	483

13) TYPE PUMP:

SUBMERSIBLE

DEPTH TO PUMP:

14) WELL TEST:

JETTED

YIELD: 40 GPM WITH FT DRAWDOWN AFTER HRS

15) WATER QUALITY:

TYPE OF WATER: GOOD WATER DEPTH OF STRATA: 29 NO CHEMICAL ANALYSIS MADE

NO STRATA OF UNDESIRABLE WATER PENETRATED

COMPANY NAME: O'DAY DRILLING CO., INC. WATER WELL DRILLER'S LICENSE NO.: 1877

ADDRESS: P. O. BOX 162 CITY: PEARLAND STATE: TX ZIP CODE: 77588

FOR TDWR USE ONLY

WELL NO. 64-09-9

LOCATED ON MAP

I HEREBY CERTIFY THAT THIS WELL WAS DRILLED BY ME (OR UNDER MY SUPERVISION) AND THAT EACH AND ALL OF THE STATEMENTS HEREIN ARE TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I UNDERSTAND THAT FAILURE TO COMPLETE ITEMS 1 THRU 12 WILL RESULT IN THE LOG(S) BEING RETURNED FOR COMPLETION AND RESUBMITTAL.

(signed) _____ (signed) _____

(LICENSED WATER WELL DRILLER) (REGISTERED DRILLER TRAINEE)

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087**

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) [redacted]

2) **ADDRESS** (b) (9) [redacted] **GRID #** 64-08-9
County

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling: Started NOV 19 84
Completed _____ 19 ___

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
4½	Surface	300

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

N

From (ft.)	To (ft.)	Description and color of formation material
0	285	clay
285	300	Sand

8) **Borehole Completion (Check):** ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
2	N	PVC	+2	290	40
2	N	PVC slotted #8	290	300	40

(Use reverse side if necessary)

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 290 ft. to 150 ft. No. of sacks used 10
0 ft. to 15 ft. No. of sacks used 60
Method used _____
Cemented by _____
Distance to septic system field lines or other concentrated contamination 150 ft.
Method of verification of above distance Customer Meas

13) **TYPE PUMP:**
☐ Turbine ☑ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 120 ft.

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) **WATER LEVEL:**
Static level 86 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:**

Type	Depth
Rubber	250
	270
	20

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnsons Well Service (Type or print) **WELL DRILLER'S LICENSE NO.** 1807 WPK

ADDRESS 8933 Talcotte Ln (Street or RFD) Houston (City) TX (State) 77049 (Zip)

(Signed) Randall Johnson (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

00030

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 11-01-94)

TNRCC COPY

2m: Elwa

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County Chambers miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map. on 64-10-5

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 4/18 19 83 Completed 4/19 19 83

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	6 3/4	Surface	360

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	25	Yellow clay
25	90	white clay
90	145	yellow clay
145	255	red clay
255	330	blue clay
330	360	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	345	40
2½	N	Plas. slotted	350	360	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 260 ft. to 345 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used pressure
Cemented by driller

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Sanitary Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 120 ft. below land surface Date 4/19/83
Artesian flow _____ gpm. Date _____

12) PACKERS: Type N/A Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 189 ft.

14) WELL TESTS:
Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No APR 15 87

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

(Signed) Millard M Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-09-9
Located on map _____

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

00001

640990

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

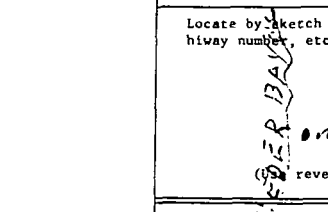
For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drilled ANAHUAC-TOWING & WELL Address ANAHUAC TEX
(Name) (Street or RFD) (City) (State)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County CHAMBERS, 3 miles in W direction from BAYTOWN
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/8 in. Depth drilled 144 ft. Depth of completed well 144 ft. Date drilled 8/20/73
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	127	Clay
127	144	Sand

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	134	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
4	134	144	.010

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 16 ft. below land surface Date 8/20/73
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ANDY E FRANKLAND (Type or Print) Water Well Drillers Registration No. 354

ADDRESS Box 323 (Street or RFD) ANAHUAC (City) TEX (State)

(Signed) Andy E Frankland (Water Well Driller) Frankland Well Service Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

03502

V

WRD Exp. (GW)
April 1966

Well No. LJ-64-17-102

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by TRF (1951) Source of data File Date 6-17-68 Map Morgan Point 1956 1:24,000

State Texas 48 County (or town) Harris LJ

Latitude: 29 44 22 N Longitude: 094 57 51 Sequential number: 1

Lat-long accuracy: 1 T. ___ S, R ___ W, Sec ___, ¼, ¼, ¼ ___

Local well number: LJ-64-17-102 Other number: B & M No 4

Local use: ___ Owner or name: City of Baytown

Owner or name: CITY OF BAYTOWN Address: Main & Alexander Sts

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist ___ M

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, Ind, (N) P S, (P) Rec, (R) Stock, (S) Instit, (T) Unused, (U) Repressure, (V) Recharge, (W) Desal-P S, (X) Desal-other, (Z) Other ___ P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (Φ) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed W

DATA AVAILABLE: Well data ___ Freq. W/L meas.: old obs. 1949-1956 M Field aquifer char. ___

Hyd. lab. data: ___

Qual. water data; type: ___

Freq. sampling: 7-31-71 Q Pumpage inventory: yes / no, period: ___

Aperture cards: ___ yes

Log data: ___

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 467 ft 4617 Meas. (rept) accuracy 6

Depth cased: (first perf.) — ft Casing type: S ; Diam. 2 in

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (Φ) open end, (P) perf., screen, sd. pt., (S) shored, (T) open hole, (X) other ___

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other ___ H

Date Drilled: 1941 9 4 1 Pump intake setting: ___ ft

Driller: ___ (name), ___ (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other T Deep Shallow D

Power (type): diesel, (elec), nat gas, gasoline, hand, LP gas, wind; H.P. 75 V Trans. or meter no. ___

Descrip. MP ___ ft above below LSD, Alt. MP ___

Alt. LSD: 34 3 4 Accuracy: (source) Topo 5' 3

Water Level 151 ft above below MP; Ft above below LSD 1 5 1 Accuracy: rept. (air line) ___

Date meas: 5-23-49 5 4 9 Yield: ___ gpm Method determined ___

Drawdown: ___ ft Accuracy: ___ Pumping period ___ hrs

QUALITY OF WATER DATA: Iron ___ ppm Sulfate ___ ppm Chloride ___ ppm Hard. ___ ppm

Sp. Conduct ___ K x 10^6 Temp. ___ °F Date sampled ___

Taste, color, etc. ___

Well No. LJ-64-17-102

00003

Well No. LJ-64-, 102

Latitude-longitude 29 44 22 (N) S 094 57 51
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19) Physiographic Province: Coastal Plain [0 3] (20–21) Section: W. 6 C. P

[F] (22) Drainage Basin: [5 1 S] (23–25) Subbasin: [ ] (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) nillside, (T) terrace, (U) undulating, (V) valley flat [ ] (27)

MAJOR AQUIFER: system, series [Q G] (28–29) Lower Chicot aquifer, formation, group [C L] (30–31)

Lithology: sand [S] (32–33) Origin: deltaic [ ] (34) Aquifer Thickness: ft

[ ] (35–37) Length of well open to: ft [ ] (38–40) Depth to top of: ft [ ] (41–43)

MINOR AQUIFER: system, series [ ] (44–45) aquifer, formation, group [ ] (46–47)

Lithology: [ ] (48–49) Origin: [ ] (50) Aquifer Thickness: ft

[ ] (51–53) Length of well open to: ft [ ] (54–56) Depth to top of: ft [ ] (57–59)

Intervals Screened:

Depth to consolidated rock: ft [ ] (60–63) Source of data: [ ] (64)

Depth to basement: ft [ ] (65–68) Source of data: [ ] (69)

Surficial material: [ ] (70–71) Infiltration characteristics: [ ] (72)

Coefficient Trans: gpd/ft [ ] (73–75) Coefficient Storage: [ ] (76–78)

Coefficient Perm: gpd/ft^2; Spec cap: gpm/ft; Number of geologic cards: [ ] (79)

Water level meas. in file

Main & Marion sts.

WL 193' summer 1956

27' of drawdown pumping 808 GPM

Information from 'Doc.' Satterwhite (Humble)

Reworked 5-23-49
TD 467'
305' liner
151' static
Pump set 225'-226' of airline
Pumping 1050 GPM w/ 37' pulldown

1-28-72 - Pumping CR7

5-5-72 252.86' MP = BREATHER +3.0'
CW3 AL = 26

Well No. LJ-64-17-102

GPO 857-700

00001

WRD Exp. (GW)
April 1966

Well No. LJ-6 -17-103

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by: [illegible] Source of data: File Date: [illegible] Map: 1:24,000 Maroon Point 1956

State: [illegible] (48) County (or town): HARRIS

Latitude: 29 deg 43 min 58.1 sec N (1) Longitude: 094 deg 57 min 35 sec W (2) Sequential number: 1

Lat-long accuracy: 1 (20) T. ____ S, R ____ W, Sec ____, ____ ¼, ____ ¼, ____ ¼ ____

Local well number: LJ-64-17-103 (21-34) Other number: No.5 B & M

Local use: (35-51)

Owner or name: CITY OF BAYTOWN (52-66) Address: Goose Creek E. James & 7th St.

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist: M (67)

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Z) Desal-other, Other: P (68)

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed: W (69)

DATA AVAILABLE: Well data (70) Freq. W/L meas.: W/L meas. in 1952-1962 I (71) Field aquifer char. (72)

Hyd. lab. data: (73)

Qual. water data; type: (74)

Freq. sampling: 2-3-71 D (75) Pumpage inventory: yes / no, period: (76)

Aperture cards: yes (77)

Log data: E-Log DD-39 0-574 E (78-79)

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD (1-19) Depth well: 494 ft 494 (20-23) Meas. rep accuracy 3 (24)

Depth cased; (first perf.) 378 ft 378 (25-28) Casing type: [illegible]; Diam. [illegible] in (29-30)

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (Φ) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other: G (31)

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) wash, (Z) other: C (32)

Date Drilled: 3-[illegible] 71 (33-35) Pump intake setting: ____ ft (36-38)

Driller: [illegible] name, [illegible] address

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple, (cent.), (M) multiple, (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other: T (39) Deep / Shallow: D (40)

Power (type): diesel, elec, nat gas, gasoline, hand, LP gas, wind; H.P. ____: V (41) Trans. or meter no. ____

Descrip. MP ____ ft above/below LSD. Alt. MP ____

Alt. LSD: 32 (42-45) Accuracy: (source) Topo 5' 3 (47)

Water Level 176 ft above/below MP; Ft above/below LSD 176 (48-51) Accuracy: Rept D (52)

Date meas: 9-30-52 (53-55) Yield: 1072 gpm 1022 (56-60) Method determined (61)

Drawdown: 33 ft 33 (62-64) Accuracy: 1952 rept 3 (65) Pumping period 24 hrs 24 (66-68)

QUALITY OF WATER DATA: Iron ____ ppm (69) Sulfate ____ ppm (70) Chloride ____ ppm (71) Hard. ____ ppm (72)

Sp. Conduct ____ K x 10^6 (73) Temp. ____ °F (74-76) Date sampled (77-79)

Taste, color, etc.

Plotted 1/20

U3535

Well No. LJ-64-17-103

Well No. LJ-64-1, 103

Latitude-longitude 29 43 58 (N) S 094 57 35
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19) Physiographic Province: Coastal Plain [0 3] (20–21) Section: W.G.C.P

[F] (22) Drainage Basin: [5 1 S] (23–25) Subbasin: [ ] (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat [F] (27)

MAJOR AQUIFER: system, series [Q G] (28–29) Lower Chicot aquifer, formation, group [C L] (30–31)

Lithology: sand [S] (32–33) Origin: deltaic [3] (34) Aquifer Thickness: ft

[ ] (35–37) Length of well open to: 103 ft [1 0 3] (38–40) Depth to top of: ft [ ] (41–43)

MINOR AQUIFER: system, series [ ] (44–45) aquifer, formation, group [ ] (46–47)

Lithology: [ ] (48–49) Origin: [ ] (50) Aquifer Thickness: ft

[ ] (51–53) Length of well open to: ft [ ] (54–56) Depth to top of: ft [ ] (57–59)

Intervals Screened: 378-481

Depth to consolidated rock: ft [ ] (60–63) Source of data: [ ] (64)

Depth to basement: ft [ ] (65–68) Source of data: [ ] (69)

Surficial material: [ ] (70–71) Infiltration characteristics: [ ] (72)

Coefficient Trans: gpd/ft [ ] (73–75) Coefficient Storage: [ ] (76–78)

Coefficient Perm: gpd/ft^2; Spec cap: gpm/ft; Number of geologic cards: [ ] (79)

SS WW .030 GA 378-481

SPEC. [illegible] 23 [illegible]
ELEC. LOG IN OUR FILES TO 574'
WL - 194' BELOW SURFACE 5-23-62
260' OF AIR LINE
TEST 9/30/[illegible]
STATIC [illegible] @ START 167'
[illegible]
PL 209
YIELD 1022

5	MIN	178
10	"	178
15	"	177
20	"	176.5
25	"	176
30	"	176

East James & 7th St.

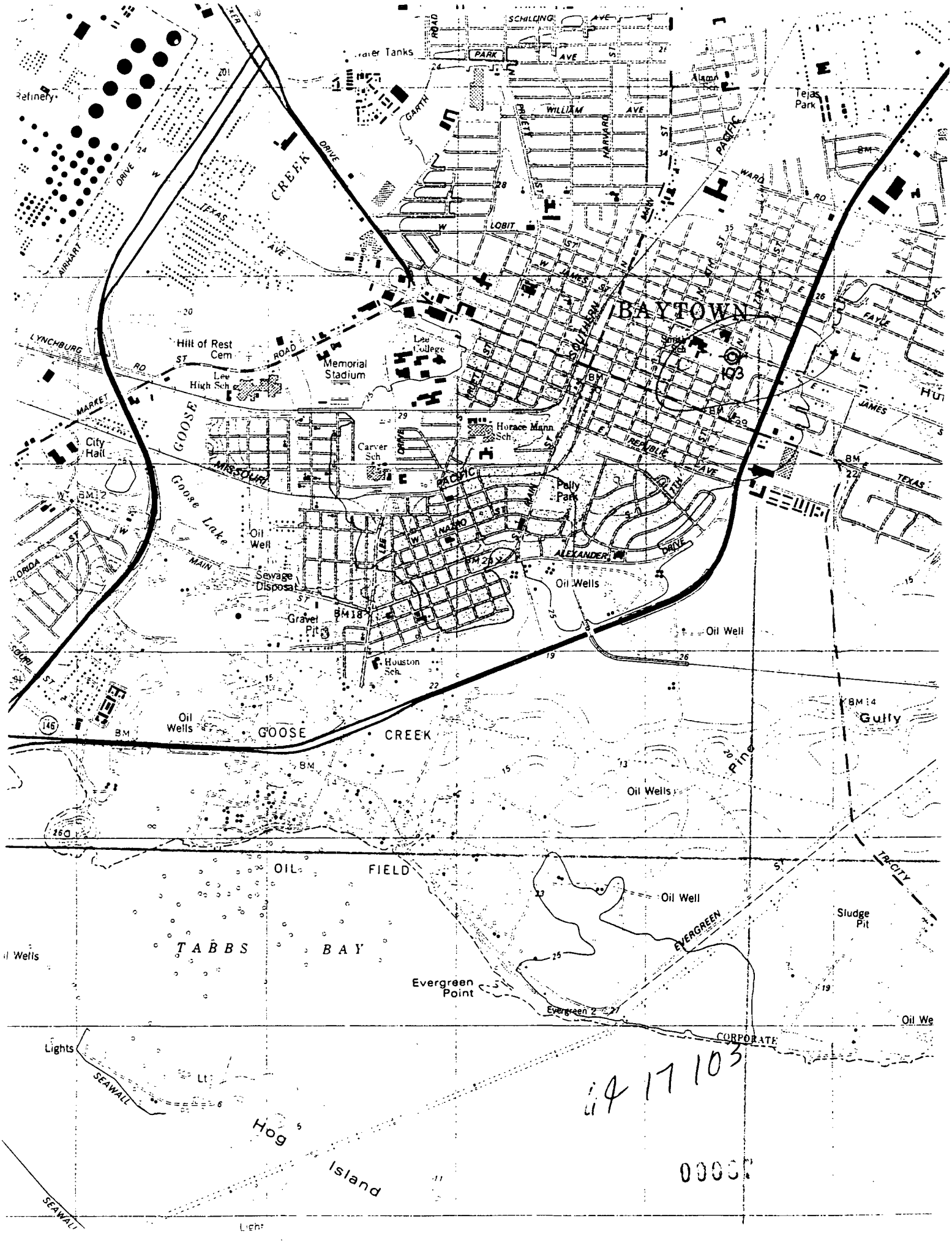
368' of 20" csg.
12 3/4" from 289-494'

2-15-56 static 189 ft.
Pump 950 gpm drawdown 41 ft.

Well No. LJ-64-17-103

00086

GPO 857-700



4 17 103

00007

Water Quality Sampling Run

SWN: 6417103 Sample No. 672

County: Harris Date: 7/11/90 13:00

Aquifer(s): By: D. R. Jones

	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total
	1 liter Anions	1 liter Cations/HM	1 gallon Radioactivity	500 ml Nitrate/ Phosphate	1 Qt.(glass) (TOC) Organics	500 ml Cyanide		Sub-Samples
		2 ml ↓	5 ml ↓	1 ml ↓	unfiltered			All filtered unless otherwise stipulated. All on ice.
Preserve with:	--	HNO_3 (Nitric)	HNO_3 (Nitric)	H_2SO_4 (Sulfuric)	--	NaOH (Sodium Hydroxide)	KEY PUNCHED	

Water Level _____ LSD

Temperature (00010) 25.4 °C

Specific Conductance (00094) 1445 µmhos/cm

pH (00400) 7.99 @ 25.4 °C

Eh (00090) -107.1 mv @ 25.4 °C

Phenol ALK (82344) 0 mg/l

Total ALK (00481) 338 mg/l

Carbonate (00452) 0 meq/l 0 mg/l

Bicarbonate (00453) _____ meq/l 412.4 mg/l

Total Cations (+) _____

Total Anions (-) _____

Total Hardness (46870) 80

Dissolved Solids (70301) 889 calc. (968 meter)

Notes & Calculations

Ph 7.94 at start of Alk. Test.

16.9 ml acid to 50 ml sample : ph of 4.50

Texas Water Development Board

Chemical Water Analysis Report

GWN- DRJ 1990 672
(Nitrogen Cycle)

TWDB Use Only
Work No. 320-3202
IAC No.

James St. WP11

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom
State Well Number: 6417103
County: Harris
Date & Time: 7/11/90 13:00
Owner: B.A.W.A.
☑ Send Copy To Owner c/o Jerry James 77521
Address: 7415 Thompson Rd. Baytown, TX.
Sampled After Pumping: 1 Hours
Date Drilled: Depth: Yield: GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 7.99 Use: P.S. Temperature: 25.4 °C
By: D.R. Jones
Specific Conductance: 1445

Requested C

Laboratory No. EB 0-2028 Date Received: JUL 13 19[illegible] Date Reported: AUG 7 19[illegible]

KEY PUNCHED

THD-Sample No. EB0 2028 Date Received 07/13/90 Date Reported 08/07/90

00623	00625-TKN as N mg/L	0.3
00608	00610-Ammonia as N mg/L	0.14
00613	00615-Nitrite as N mg/L	< 0.01
00618	00620-Nitrate as N mg/L	0.02
	00671-Orthophosphate as P mg/L	0.05

*Note: To convert NO_3-N to NO_3, multiply by 4.427.

00000

890091-D

Texas Water Development Board

Chemical Water Analysis Report

MISC- DRJ - 1990 - 672

TWDB Use Only	
Work No.	320-3202
IAC No.	

James St. Well

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom
State Well Number: 6417103
County: Harris
Date & Time: 7/11/90 13:00
Owner: B.B.W.A.
☑ Send Copy To Owner C/o Jerry James
Address: 7425 Thompson Rd. Baytown, TX. 77521
Sampled After Pumping: 1 Hours
Date Drilled: _____ Depth: _____ Yield: _____ GPM ☐ Measured ☐ Estimated
Collection Point: FAU pH 7.99 Use: P.S. Temperature: 25.4 °C
By: D.R. Jones
Specific Conductance: 1445

Requested Ch

Laboratory No.: EB 0-2054
Date Received: JUL 13 1990
Date Reported: JUL 24 1990
KEY PUNCHED

THD-Sample No. EB0 2054		Date Received 07/13/90	Date Reported 07/24/90
		MG/L	MG/L
TOC	(00680)	< 1	

890091-A

Texas Water Development Board

Chemical Water Analysis Report

GWR- D.R.J.-1990-672
(Anions)

TWDB Use Only	
Work No.	320-320Z
IAC No.	

James St. Well

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom
State Well Number: 6417103
County: Harris
Date & Time: 7/11/90 13:00
Owner: B.A.W.A.
☑ Send Copy To Owner c/o Jerry James
Address: 7425 Thompson Rd. Baytown, TX. 77521
Sampled After Pumping: 1 Hours
Date Drilled: ____ Depth: ____
Yield: ____ GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 7.99
Use: P.S. Temperature: 25.4 °C
By: D.R. Jones
Specific Conductance: 1445

Requested Chemical Analysis

Laboratory No.: EB 0-1987
Date Received: JUL 13 1990
Date Reported: AUG 3 1990
KEY PUNCHED

THD-Sample No. EB0 1987 Date Received 07/13/90 Date Reported 08/03/90

		MG/L
Silica	(00955)	27
P.Akalinity	(00415)	0
T.Akalinity	(00410)	340
Sulfate	(00946)	104
Chloride	(00941)	207
Fluoride	(00950)	1.98
Iodide	(71865)	< 0.1
Boron	(*****)	0.61
Bromide	(71870)	0.6

00031

890091-C

Texas Water Development Board

Chemical Water Analysis Report

RAD - DRJ-1990-672
RAD = Radioactivity Sample

TWDB Use Only
Work No. 320-3202
IAC No. _____

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

James St. Well

Attention: P. Nordstrom
State Well Number: 6417103
County: Harris
Date & Time: 7/11/90 13:00
Owner: B.A.W.A.
☑ Send Copy To Owner C/o Jerry James
Address: 7425 Thompson Rd. Baytown, TX. 77521
Sampled After Pumping: 1 Hours
Date Drilled: _____ Depth: _____
Yield: _____ GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 7.99
Use: P.S. Temperature: 25.4 °C
By: D.R. Jones
Specific Conductance: 1445

Requested Chemical Analysis

Laboratory No.: EB 0-1959
Date Received: JUL 13 1990
KEY PUNCHED
Date Reported: NOV 01 [illegible]

Alpha	(01503)	2.7 ± 2.5	pCi/l
Beta	(03503)	< 4.0	pCi/l
Radium 226	(09503)	< 0.2	pCi/l
Radium 228	(81366)	< 1.0	pCi/l
Total Radium*	(11500)		pCi/l
Thorium*	(26403)		pCi/l
Uranium*	(22703)		pCi/l

03032

* Do not analyze unless it is checked *yes*.

890091-F

Texas Water Development Board

Chemical Water Analysis Report

HM- D.R.J. 1990 672

HM = Heavy Trace and Alkaline-Earth Metals

James St. Well

TWDB Use Only

Work No. 320.320 2

IAC No.

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom

State Well Number: 6417103

County: Harris

Date & Time: 7/11/90 13:00

Owner: B.A.W.A.

☑ Send Copy To Owner c/o Jerry James 77521

Address: 7425 Thompsom Rd. Baytown, TX.

Sampled After Pumping: 1 Hours

Date Drilled: _____ Depth: _____

Yield: _____ GPM ☐ Measured ☐ Estimated

Collection Point: FAW pH 7.99

Use: P.S. Temperature: 25 4 °C

By: D.R Jones

Specific Conductance: 1145

Requested Ch

EB 0-2005

Laboratory No.

Date Received: JUL 13 1990

KEY PUNCHED

Date Reported: AUG 9 1990

		me/l	mg/l			me/l	mg/l
Calcium	(00915)		23	Sodium	(00930)		313
Magnesium	(00925)		5.7	Potassium	(00935)		3.6

		µg/l			µg/l
Aluminum	(01106)	<50	Manganese	(01056)	35
Arsenic	(01000)	<10	Mercury	(71890)	<0.2
Barium	(01005)	192	✓ Molybdenum*	(01062)	<20
Cadmium	(01025)	<10	Selenium	(01145)	<2
Chromium	(01030)	<20	Silver	(01075)	<10
Copper	(01040)	<20	✓ Strontium*	(01080)	490
Iron	(01046)	76	✓ Vanadium*	(01085)	<20
Lead	(01049)	<50	Zinc	(01090)	<20

* Do not analyze unless it is checked.
Note: Crossout those elements not to be analyzed.

00003

890091-E

WRD Exp. (GW)
April 1966

Well No. 64-17-201

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by [illegible] Source of data File Date [illegible] Map Morgan Point 1956 1:24,000

State Texas [4 8] County (or town) Harris [illegible]

Latitude: [illegible] deg min sec N S Longitude: 0 9 4 5 6 0 3 degrees min sec Sequential number: 1

Lat-long accuracy: 1 T. ___ N S, R ___ E W, Sec ___, ___ ¼, ___ ¼, ___ ¼

Local well number: LJ-64-17-201 Other number: No. 1A B & M

Local use: Owner or name: Baytown

Owner or name: CITY OF BAYTOWN Address: Cedar Bayou Formerly WCCID #30

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — M

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other — P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (Φ) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed — W

DATA AVAILABLE: Well data [ ] Freq. W/L meas.: [ ] I Field aquifer char. [ ]

Hyd. lab. data: [ ]

Qual. water data; type: [ ]

Freq. sampling: 2-18-53 [ ] I Pumpage inventory: yes no, period: [ ]

Aperture cards: yes [ ]

Log data: E-Log DD-41 [ ] E

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 390 ft [3 9 0] Meas. rept accuracy [ ] 3

Depth cased: (first perf.) 300 ft [3 0 0] Casing type: S ; Diam. 14-8⅝-6⅝ in [ ] 14

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (Φ) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other — G

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other — H

Date Drilled: June-1952 [9 5 2] Pump intake setting: ___ ft [ ]

Driller: LAYNE-TEXAS Co. (name), HOUSTON TEXAS (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other — T Deep Shallow D

Power (type): diesel, elec, nat gas, gasoline, hand, LP gas, wind; H.P. 75 [ ] V Trans. or meter no. ___

Descrip. MP THRU 1" BREATHER (10-28-80) + 2.0 ft above below LSD. Alt. MP ___

Alt. LSD: 22 [2 2] Accuracy: (source) Topo 5' [ ] 3

Water Level 80 ft above below MP; Ft above below LSD [8 0] Accuracy: rept [ ] D

Date meas: 7-16-52 [7 5 2] Yield: 554 gpm [5 5 4] Method determined [ ]

Drawdown: 44 ft [4 4] Accuracy: rept [ ] 3 Pumping period 24 hrs [ ]

QUALITY OF WATER DATA: Iron ___ ppm [ ] Sulfate ___ ppm [ ] Chloride ___ ppm [ ] Hard. ___ ppm [ ]

Sp. Conduct ___ K x 10⁶ [ ] Temp. ___ °F [ ] Date sampled [ ]

Taste, color, etc.

SWL 10-28-80: 132.92' (below LSD), wms.

Well No. LJ-64-17-201

00001

Well No. LJ-64- 201

Latitude-longitude 29 44 59 (N) S 094 56 03
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19) Physiographic Province: Coastal Plain [0 3] (20–21) Section: W.G.C.P

[F] (22) Drainage Basin: [5 1 S] (23–25) Subbasin: [ ] (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat [F] (27)

MAJOR AQUIFER: system, series [Q G] (28–29) Lower Chicot aquifer, formation, group [C L] (30–31)

Lithology: sand [S] (32–33) Origin: deltaic [3] (34) Aquifer Thickness: ft

[ ] (35–37) Length of well open to: 80 ft [8 0] (38–40) Depth to top of: ft [ ] (41–43)

MINOR AQUIFER: system, series [ ] (44–45) aquifer, formation, group [ ] (46–47)

Lithology: [ ] (48–49) Origin: [ ] (50) Aquifer Thickness: ft

[ ] (51–53) Length of well open to: ft [ ] (54–56) Depth to top of: ft [ ] (57–59)

Intervals Screened: .030 Gage 300-380

Depth to consolidated rock: ft [ ] (60–63) Source of data: [ ] (64)

Depth to basement: ft [ ] (65–68) Source of data: [ ] (69)

Surficial material: [ ] (70–71) Infiltration characteristics: [ ] (72)

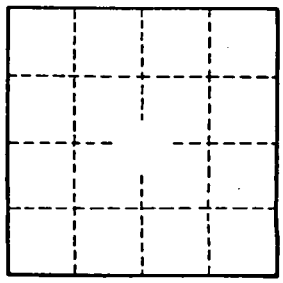
Coefficient Trans: gpd/ft [ ] (73–75) Coefficient Storage: [ ] (76–78)

Coefficient Perm: gpd/ft^2; Spec cap: gpm/ft; Number of geologic cards: [ ] (79)

CSG: 14" FROM 0-284
8 5/8" FROM 225-294
6 5/8 FROM 294-390
TEST: 24 HR. 7-16-52
P.L. 174' @ 554 GPM

(9) W.L. 147' REPT. 2-16-56
162' " 5-23-62

Kilgore & Cedar Bayou Rd



Well No. LJ-64-17-201

GPO 857-700

00005

640985

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8
Located on map yes
Received: 76
dlr

1) OWNER:
Person having well drilled [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, 6 miles in N (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* 1.5, 10

2.1 MI. ST. OLANDER

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 4/17/

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	60	RED CLAY
60	70	SAND
70	333	Blue CLAY
333	360	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 270 ft. to 350

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	350	SCH 4

10) SCREEN:
Type Plastic
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2"	350	360	12 ga

7) COMPLETION (Check):
Straight wall, Gravel packed, Other
Under reamed, Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 4/17/76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 220 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ h.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main - Highlands Texas (Street or RFD) (City) (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00006

64090A

SEP 14 1978

DEPT. OF WATER RESOURCES

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

For TDWR use only
Well No. 64-09-[illegible]
Located on map
Received:

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

8

3

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☑ See attached map. 65-16-28

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply
☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored
☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 10/3/77

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	326

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0-5		Surface
5-40		Yellow clay
40-225		Red clay
225-290		Blue clay
290-326		Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	316	[illegible]
2½	N	Plas-Slot	316	326	[illegible]

CEMENTING DATA
Cemented from 230 ft. to 316 ft.
Method used Pressure
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 155 ft. below land surface Date 10/3/7
Artesian flow _____ gpm. Date _____

10) PACKERS: Type X Depth

11) TYPE PUMP:
☐ Turbin ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 231 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) (Zip)

(Signed) Millard M Smith (Water Well Driller) A & L Pump & Well Ser. (Company Name)

00007

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

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SEP 14 1978

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TWDB use only
Well No. 64-09-8
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted] Address Same (Street or RFD) (City) (State)

Landowner [redacted] (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, ____ miles in ____ direction from ____ (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

15

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor ____ League ____

Block ____ Survey ____

Abstract No. ____

(NW¼ NE¼ SW¼ SE¼) of Section ____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 325 ft. Depth of completed well 325 ft. Date drilled 5/16/78

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	25	yellow clay
25	40	Red clay
40	140	Blue clay
140	150	SAND
150	295	Blue clay
295	325	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 240 ft. to 315

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	315	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	315	325	10

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 155 ft. below land surface Date 5/16/78
Artesian pressure ____ lbs. per square inch Date ____
Depth to pump bowls, cylinder, jet, etc., [redacted] 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm
Temperature of water ____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? ____ depth of strata ____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main, (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00003

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

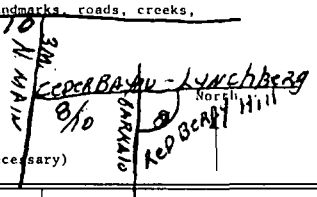
For TWDB use only
Well No. 64-09-7J
Located on map
Received:

1) OWNER:
Person having well drille[redacted] (b) (6)
(Name) (Street or RFD) (City) (State)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION [redacted] (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* T.S. 10 N. MAIN 3M. CEDERBAYOU - LYNCHBERG 8/10 BARKALO RED BERRY HILL North



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 4/30/74
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	10	yellow clay
10	25	SAND
25	75	Blue clay
75	90	SAND
90	180	Red clay
180	240	Blue clay
240	250	SAND
250	305	Blue clay
305	340	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New Steel Plastic Other
Cemented from 275 ft. to 325 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	325	Sch 40

10) SCREEN:
Type PLASTIC
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	230	240	14 ga

7) COMPLETION (Check):
Straight wall Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 4/30/74
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD SMITH (Type or Print) Water Well Drillers Registration No. 467

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TEXAS (State)

(Signed) Millard Smith (Water Well Driller) A+L Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

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Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

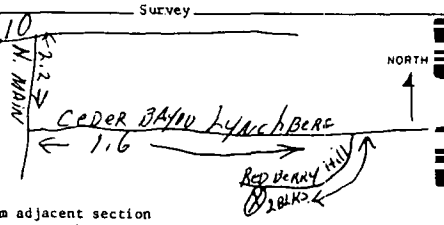
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-
Located on map
Received:
Form GW 8
Form GW 9

1) OWNER: Person having we
(b) (6)
Landowner (Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL: County Harris Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)
miles in (b) (9)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check): New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check): Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check): Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG: Diameter of hole 6 3/4 in. Depth drilled 288 ft. Depth of completed well 288 ft. Date drilled 7/22/
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	65	RED CLAY
65	80	SAND
80	270	BLUE CLAY
270	288	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall ☐ Gravel packed ☐ Other ☑ Under reamed ☐ Open hole ☐

8) WATER LEVEL: Static level 170 ft. below land surface Date 7/22/7
Artesian pressure ____ lbs. per square inch Date ____

9) CASING: Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 210 ft. to 270 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	278'	SCH 40

10) SCREEN: Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	288	288	12 ga

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm Date ____
Temperature of water ____
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ____ depth of strata ____

12) PUMP DATA:
Manufacturer's Name Fairbanks-Morse
Type Sub H.P. 1
Designed pumping rate ____ gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

Address 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

RECEIVED

SEP 14 1978 640986

DEPT. OF WATER RESOURCES

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received: [illegible]

1) OWNER:
Person having well drilled [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

13 North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 326 ft. Depth of completed well 326 ft. Date drilled 5/10/7[illegible]

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	68	RED CLAY
68	88	SAND
88	245	RED CLAY
245	290	BLUE CLAY
290	326	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 240 ft. to 316 ft

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	316	Sch 4[illegible]

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	316	326	12 ga[illegible]

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 165 ft. below land surface Date 5/10/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Servi[illegible] (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00101

640996

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. Located on map Received: Form GW 8 Form GW 9

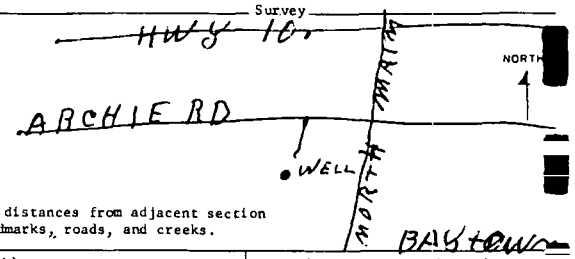
1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner S[redacted] (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS CO Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in CITY LIMITS (NE, SW, etc.) direction from BAYTOWN (Town).



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored

6) WELL LOG:
Diameter of hole 4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 430

All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
1	5	SUR			
5	80	YELLOW			
80	120	SAND			
120	205	GRAY			
205	220	SAND			
220	295	BLUE			
295	345	SAND			
					(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 168 ft. below land surface Date 430
Artesian pressure lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	330	345	12

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?

Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☑ No
Type of water? SOFT depth of strata

12) PUMP DATA:
Manufacturer's Name STARITE SUB
Type H.P. 1
Designed pumping rate gpm ☐ gph ☐
Type power unit
Depth to bowls, cylinder, jet, etc., 231 ft below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

Address R2 BOX 176 BAYTOWN (Street or RFD) (City) (State)

(Signed) C D Harmon (Water Well Driller) H-W-W-WELL CO (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00102

64098K

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

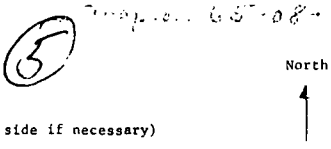
For TWDB use only
Well No. 64-09-8
Located on map
Received: 9/7

1) OWNER:
Person having well drilled (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening / Reconditioning / Plugging /

4) PROPOSED USE (Check): Domestic ✓ Industrial / Municipal / Irrigation / Test Well / Other /

5) TYPE OF WELL (Check): Rotary ✓ Driven / Dug / Cable / Jetted / Bored /

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 354 ft. Depth of completed well 354 ft. Date drilled 6/18/77

All measurements made from ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	140	yellow c/AY
140	250	RED c/AY
250	305	Blue c/AY
305	354	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old / New ✓ Steel / Plastic ✓ Other /
Cemented from 260 ft. to 340 ft

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	340	Sch 4

10) SCREEN:
Type Plastic
Perforated / Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	344	354	12ga

7) COMPLETION (Check):
Straight wall / Gravel packed / Other ✓
Under reamed / Open Hole /

8) WATER LEVEL:
Static level 155 ft. below land surface Date 6/18/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes / No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes / No ✓
Did any strata contain undesirable water? Yes / No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, JR (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TX (State)

(Signed) Millard M. Smith Jr (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WO-8

UJ133 Δ

64098E

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

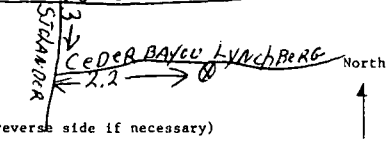
For TWDB use only
Well No. 64-09-[illegible]
Located on map [illegible]
Received: [illegible]

1) OWNER:
Person having well drill[redacted] (b) (6)

Landowner Sa[redacted]

2) LOCATIO[redacted] (b) (9)
County [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* 1510



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 365 ft. Depth of completed well ~~350~~ 365 ft. Date drilled 5/25/[illegible]

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	45	Yellow clay
45	165	RED clay
165	340	Blue clay
340	365	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 305 ft. to 340

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	340	Sch 4

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	330	340	12 g

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 155 ft. below land surface Date 5/25/76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 220 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hr
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Serv (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TDWR use only
Well No.
Located on map
Received:

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 2

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
☐ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 8/20/77

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	332

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other 2-String
If Gravel Packed give interval . . . from ft. to ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	55	Yellow c/Ay
55	150	RED c/Ay
150	195	Blue c/Ay
195	200	SAND
200	305	Blue c/Ay
305	332	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gag Cas Scre
4	N	Plastic	0	322	Sc 4
2½	N	Plas-Slot	322	332	12 9

CEMENTING DATA
Cemented from 240 ft. to 322 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 140 ft. below land surface Date 8/30/77
Artesian flow gpm. Date

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbin ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard D. Smith Sr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State) (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

U3103

64 09 8[redacted]

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

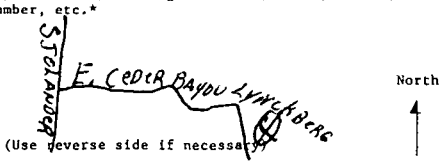
WATER WELL REPORT

For TWDB use only
Well No. 64-09-8[redacted]
Located on map yes
Received: 7[redacted]

1) OWNER:
Person having well drilled [redacted] (b) (6)
Landowner Same [redacted]
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL [redacted] (b) (9)
County [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 4/12/[illegible]
All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	35	Yellow clay
35	220	Red clay
220	300	Blue clay
300	345	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 250 ft. to 330 f

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	330	Sch 4

10) SCREEN:
Type Plastic
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	335	345	12 g[illegible]

7) COMPLETION (Check):
Straight wall, Gravel packed, Other
Under reamed, Open Hole

8) WATER LEVEL:
Static level 125 ft. below land surface Date 4/12/76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 220 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER (b) (6) [redacted]
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL
County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines

Map 1 #12 ☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 7/19/79

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	322

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 4x2½
If Gravel Packed give interval . . . from ft. to ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	Yellow clay
55	65	SAND
65	185	Red Clay
185	290	Blue Clay
290	322	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casi Scre
4	N	Plastic	0	310	Sch
2½	N	Plas-Slot	312	322	12

CEMENTING DATA
Cemented from 260 ft. to 310 f
Method used
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level ft. below land surface Date 7/19/79
Artesian flow gpm. Date

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tx (State) 77562 (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79) DEPARTMENT OF WATER RESOURCES COPY

64098T

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

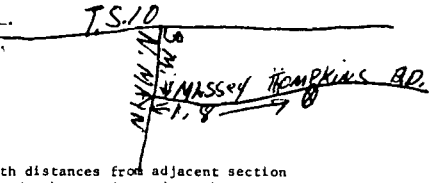
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-89-
Located on map
Received:
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled
Landowner Sam [redacted]
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as
miles in [redacted]



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 350 ft. Depth of completed well 350 ft. Date drilled 11/3/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	90	WHITE CLAY
90	110	SAND
110	240	RED CLAY
240	326	BLUE CLAY
326	350	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 149 ft. below land surface Date 11/3/75
Artesian pressure lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 260 ft. to 340 ft.

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	340	SCH 40

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	340	350	12 ga

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Jacuzzi
Type Sub H.P. 1
Designed pumping rate gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220 ft
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr. (Type or Print) Water Well Drillers Registration No. 1587

Address 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Send original copy by certified mail to: **Texas Water Commission, P.O. Box 13087, Austin, Texas 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) **OWNER** (b) (6) [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) **LOCATION OF WELL** County HARRIS _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ **LEGAL DESCRIPTION:**

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☑ **SEE ATTACHED MAP** 9

3) **TYPE OF WORK (Check):** ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) **DRILLING METHOD (Check):** ☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) **WELL LOG:**

Date Drilling: Started 1/27 93 Completed 1/28 19__

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	340

7) **BOREHOLE COMPLETION:**

☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2 STRING

If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	65	YELLOW CLAY
65	75	SAND
75	190	RED CLAY
190	310	BLUE CLAY
310	340	SAND

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(Use reverse side if necessary)

8) **CASING, BLANK PIPE, AND WELL SCREEN DATA:**

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	0	323	SCH 40
2	N	PVC SLOTTED	330	340	12GA

9) **CEMENTING DATA** [Rule 287.44(1)]

Cemented from 150 ft. to 323 ft. No. of Sacks Used 10
_____ ft. to _____ ft. No. of Sacks Used _____
Method used PRESSURE
Cemented by A&L

10) **SURFACE COMPLETION**

☐ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

11) **WATER LEVEL:**

Static level 90 ft. below land surface Date 1/28/93
Artesian flow _____ gpm. Date _____

12) **PACKERS:** Type Depth

N/A

13) **TYPE PUMP:**

☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other _____

Depth to pump bowls, cylinder, jet, etc., 210 ft.

14) **WELL TESTS:**

Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 10 gpm with _____ ft. drawdown after _____ hrs.

15) **WATER QUALITY:**

Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A&L Pump & Well Ser. (Type or print) WELL DRILLER'S LICENSE NO. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TX (State) 77562 (Zip)

(Signed) Millard M Smith Jr. (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. 9 Located on map 64-9-8

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

DEER PARK
LA PORTE
MORGANS POINT
BAYTOWN
CLOVERLEAF
CHANNELVIEW
SHELDON
LAKE HOUSTON
CROSBY
BARRETT
HUFFMAN
CHAMBERS COUNTY
LIBERTY COUNTY
HARRIS COUNTY

Send original copy by certified mail to: **Texas Water Commission, P.O. Box 13087, Austin, Texas 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) **OWNER** (b) (6) [redacted]

2) **LOCATION OF WELL:** County HARRIS , _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ **LEGAL DESCRIPTION:**
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ **SEE ATTACHED MAP** 5

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):**
☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) **DRILLING METHOD (Check):**
☐ Driven ☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) **WELL LOG:**
Date Drilling: Started 8/27 19 92 Completed 8/28 19 __

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	340

7) **BOREHOLE COMPLETION:**
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2 STRING
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	55	RED C/AY
55	135	YELLOW C/AY
135	190	BLUE C/AY
190	205	SAND
205	290	BLUE C/AY
290	340	SAND

RECEIVED 1992 TEXAS WATER COMMISSION

(Use reverse side if necessary)

8) **CASING, BLANK PIPE, AND WELL SCREEN DATA:**

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	320	S40
2½	N	PVC SLOTTED	330	340	12GA

9) **CEMENTING DATA** [Rule 287.44(1)]
Cemented from 200 ft. to 320 ft. No. of Sacks Used 10
_____ ft. to _____ ft. No. of Sacks Used _____
Method used PRESSURE
Cemented by A&L

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

11) **WATER LEVEL:**
Static level 110 ft. below land surface Date 8/28/92
Artesian flow _____ gpm. Date _____

12) **PACKERS:** Type N/A Depth

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 240 ft.

14) **WELL TESTS:**
Type Test: ☑ Pump ☐ Baller ☐ Jetted ☐ Estimated
Yield: 10 gpm with _____ ft. drawdown after _____ hrs.

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A&L Pump + Well Service (Type or print) WELL DRILLER'S LICENSE NO. 2587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

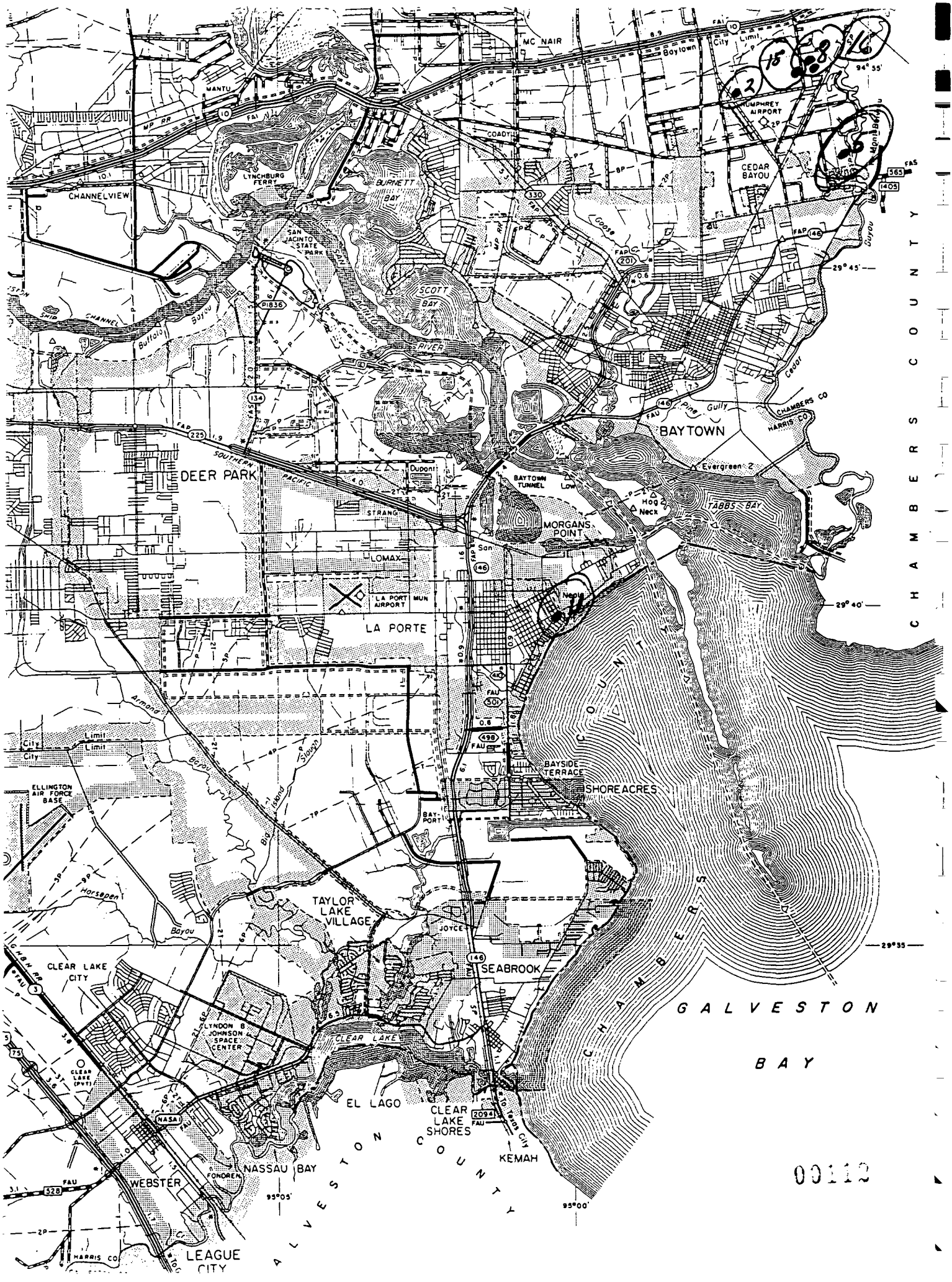
(Signed) Milford M Smith Jr. (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee) 00111

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. 5 Located on map 64-4-8

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY


MC NAIR
Baytown City Limit
MANTU
HUMPHREY AIRPORT
COADY
CEDAR BAYOU
LYNCHBURG FERRY
BURNETT BAY
CHANNELVIEW
SAN JACINTO STATE PARK
SCOTT BAY
SAN JACINTO RIVER
Buffalo Bayou
SHIP CHANNEL
Goose Cr
Cedar Bayou
Pine Gully
CHAMBERS CO
HARRIS CO
BAYTOWN
Evergreen 2
DEER PARK
SOUTHERN PACIFIC
Dupont
BAYTOWN TUNNEL
Low
Hog Neck
TABBS BAY
STRANG
MORGANS POINT
LOMAX
San
LA PORT MUN AIRPORT
LA PORTE
Neale
Armand Bayou
Big Island Slough
City Limit
ELLINGTON AIR FORCE BASE
BAYSIDE TERRACE
SHOREACRES
BAY-PORT
Horsepen Bayou
TAYLOR LAKE VILLAGE
JOYCE
SEABROOK
CLEAR LAKE CITY
LYNDON B JOHNSON SPACE CENTER
CLEAR LAKE
CLEAR LAKE (PVT)
EL LAGO
CLEAR LAKE SHORES
To Texas City
KEMAH
NASA
NASSAU BAY
FONDREN
WEBSTER
LEAGUE CITY
HARRIS CO
CHAMBERS COUNTY
GALVESTON BAY
GALVESTON COUNTY
94° 55'
29° 45'
29° 40'
29° 35'
95° 05'
95° 00'
00112

Send original copy by certified mail to: TNRCC, P.O. Box 13087, Austin, TX 78711-3087

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-371-6299

1) **OWNER** (b) (6) [redacted]

2) **ADDRESS OF WELL:** County HARRIS
(Street or RFD) (City) (State) (Zip)

STATE WELL # 64-09-8

3) **TYPE OF WORK (Check):** ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling: Started 5/6 19 96 Completed 5/7 19 ___

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6¾	Surface	340

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other ___

N

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	35	YELLOW CLAY
35	125	RED CLAY
125	140	SAND
140	315	BLUE CLAY
315	340	SAND

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 2 STRING
If Gravel Packed give interval ... from ___ ft. to ___ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 180 ft. to 320 ft. No. of sacks used 10
___ ft. to ___ ft. No. of sacks used ___
Method used PRESSURE
Cemented by A+L
Distance to septic system field lines N/A ft.
Method of verification of above distance ___

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) **WATER LEVEL:**
Static level 90 ft. below land surface Date 5/7/96
Artesian flow ___ gpm. Date ___

12) **PACKERS:** Type Depth
N/A

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other ___
Depth to pump bowls, cylinder, jet, etc., 210 ft.

14) **WELL TESTS:**
Type test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 10 gpm with ___ ft. drawdown after ___ hrs.

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ___ Depth of strata ___
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A+L Well Service (Type or print) WELL DRILLER'S LICENSE NO. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

(Signed) Millard M Smith Jr. (Licensed Well Driller)

(Signed) ___ (Registered Driller Trainee)

00113

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 09-01-93)

TNRCC COPY

101

Send original copy by certified mail to: **Texas Water Commission, P.O. Box 13087, Austin, Texas 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) **OWNER** Town & Country Grooming (Name) **ADDRESS** 5218 Rail Road (Street or RFD) Baytown (City) (State) (Zip)

2) **LOCATION OF WELL:** County Harris . _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ **LEGAL DESCRIPTION:**

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☑ **SEE ATTACHED MAP** (5) ANG5-08-5

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):**
☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) **DRILLING METHOD (Check):** ☐ Driven
☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) **WELL LOG:**
Date Drilling: Started 7-21 19 90 Completed 7-22 19 90

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	340

7) **BOREHOLE COMPLETION:**
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2 STRING
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	45	Yellow clay
45	60	SAND
60	90	Red clay
90	125	SAND
125	195	Red clay
195	310	Blue clay
310	340	SAND

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SEP 19 1990
TEXAS WATER COMMISSION

(Use reverse side if necessary)

8) **CASING, BLANK PIPE, AND WELL SCREEN DATA:**

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	0	320	Sch 40
6 3/4	N	Slotted	330	340	12 GA

9) **CEMENTING DATA** [Rule 287.44(1)]
Cemented from 170 ft. to 320 ft. No. of Sacks Used 10
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Pressure
Cemented by A+L

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

14) **WELL TESTS:**
Type Test: ☑ Pump ☐ Baller ☐ Jetted ☐ Estimated
Yield: 10 gpm with 0 ft. drawdown after _____ hrs.

11) **WATER LEVEL:**
Static level 115 ft. below land surface Date 7-21-90
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:** Type Depth
N/A

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A+L Pump & Well Ser (Type or print) **WELL DRILLER'S LICENSE NO.** 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TX (State) 77562 (Zip)

(Signed) Milford M Smith (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. 64-09-8 Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Send original copy by certified mail to: **Texas Water Commission, P.O. Box 13087, Austin, Texas 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) **OWNER** (b) (6) [redacted]
(Name) (Street or RFD) (City) (State) (Zip)

2) **LOCATION OF WELL:** County HARRIS miles in _____ direction from _____
(NE, SW, etc.) (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ **LEGAL DESCRIPTION:**
Section No. _____ Block No. 2 Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ **SEE ATTACHED MAP** ON 65-16-4

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):**
☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) **DRILLING METHOD (Check):**
☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____ ☐ Driven

6) **WELL LOG:**
Date Drilling: Started 7/10 1986 Completed 7/11 1986

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	360

7) **BOREHOLE COMPLETION:**
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-STRING
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	90	YELLOW CLAY
90	110	SAND
110	190	RED CLAY
190	245	YELLOW CLAY
245	320	BLUE CLAY
320	360	SAND

(Use reverse side if necessary)

8) **CASING, BLANK PIPE, AND WELL SCREEN DATA:**

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PLASTIC	0	340	SCH 40
2½	N	PLASTIC-SLOTTED	350	360	12 GA

9) **CEMENTING DATA** [Rule 287.44(1)]
Cemented from 195 ft. to 340 ft. No. of Sacks Used 10
_____ ft. to _____ ft. No. of Sacks Used _____
Method used PRESSURE
Cemented by A&L

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 168

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AUG 17 1990
TEXAS WATER COMMISSION

14) **WELL TESTS:**
Type Test: ☑ Pump ☐ Baller ☐ Jetted ☐ Estimated
Yield: 18 gpm with 0 ft. drawdown after _____ hrs.

11) **WATER LEVEL:**
Static level 105 ft. below land surface Date 7/11/86
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:**

Type	Depth
N/A	

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A+L Well Ser. (Type or print) **WELL DRILLER'S LICENSE NO.** 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TX (State) 77562 (Zip)

(Signed) Mildred M Smith Jr. (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. 64-09-8 Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

64098E DJP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER (b) (6) [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines

Map 1 #3 ☑ See attached map.

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG: Date drilled 8/9/78

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	338

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other 4 x 2½
If Gravel Packed give interval . . . from ft. to ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	35	Yellow Clay
35	48	Sand
48	195	Red Clay
195	220	Brown Clay
220	300	Blue Clay
300	338	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	320	Sch 40
2½	N	Plas.-slot	328	338	12 ga

CEMENTING DATA
Cemented from 270 ft. to 320 ft.
Method used
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 145 ft. below land surface Date 8/9/78
Artesian flow gpm. Date

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tx. (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

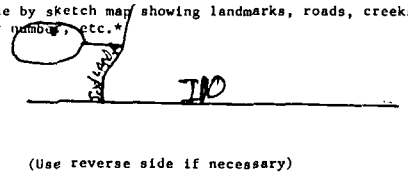
For TWDB use only
Well No. 64-09-8V
Located on map yes
Received: 77
26

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner S Amb (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, 2 miles in N (N.E., S.W., etc.) direction from Bay Town (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* #1



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 ½ in. Depth drilled 351 ft. Depth of completed well 351 ft. Date drilled 3-19-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	120	clay
120	126	sand
126	200	clay
200	225	sand
225	230	clay
230	300	sand
300	326	clay
326	330	sand
330	351	sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	315	Sch 40
2½	311	331	Sch 80

10) SCREEN:
Type Ever Flow
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	331	351	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other
Under reamed, Open Hole

8) WATER LEVEL:
Static level 170 ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 300 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air compressor
Yield: 70 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

WDBE-WD-8

DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8V
Located on map
Received:

1) OWNER [redacted] (b) (6)
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County [redacted] (b) (9)
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map. TR

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 6-14-79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	365

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	60	Clay
60	95	Sand
95	130	Clay
130	170	Sand
170	180	Clay
180	230	Sand
230	315	Clay
315	340	Sand
340	347	Clay
347	365	Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	PVC	0	348	40	
2 1/2	N	PVC	340	355	80	
2 1/2	N	Everflo	355	365		12

CEMENTING DATA
Cemented from 15 Sacks ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Co., Inc.
(Company or Individual)

9) WATER LEVEL:
Static level 160 ft. below land surface Date 6-14-79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

64098X DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Te

State of Texas
WATER WELL REPORT

For TDWR use only
Well No. 64-09-8x
Located on map YES

1) OWNE (b) (6)

2) LOCATION (b) (9)
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 5-20-80

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	6 3/4"	Surface	350

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	4	Top Soil
4	30	Red Clay
30	50	Red Sand
50	110	White Clay
110	136	White Sand
136	180	Blue Clay
180	260	Sand
260	290	Red Clay
290	350	Grey Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4"	New	P.V.C	Surface	340	
2½"	New	P.V.C Screen Slotted	340	350	12

CEMENTING DATA
Cemented from 0 ft. to 340' ft.
Method used Pressure
Cemented by Thomas (Company or Individual)

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9) WATER LEVEL:
Static level 130 ft. below land surface Date 5-20-80
Artesian flow 50 gpm. Date 5-20-80

10) PACKERS:

	Type	Depth
1 -	K-Packer	330'

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 180' ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 50 gpm with 20 ft. drawdown after 2 hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Thomas Bufkin (Type or Print) Water Well Drillers Registration No. 1944

ADDRESS 414 Bufkin (Street or R.F.D.) Houston (City) Texas (State) 77037 (Zip)

(Signed) _____ (Water Well Driller) Thomas Water Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

64098X

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

RECEIVED SEP 14 1978

For TDWR use only
Well No. X
Located on map 4-3
Received: 9-14

1) OWNER (b) (6) [redacted] Address _____ (Street or RFD) _____ (City) _____ (State) _____ (Zip)

2) LOCATION OF WELL:
County _____, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 12 2

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 8/18/77

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	334

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	Yellow C/Ay
55	155	Red C/Ay
155	200	Blue C/Ay
200	210	Sand
210	300	Blue C/Ay
300	334	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	Plastic	0	324	Sch 40	
2½	N	Plas-Slot	324	335		13 ga

CEMENTING DATA
Cemented from 240 ft. to 324 ft.
Method used Pressure
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 220 ft. below land surface Date 8/18/77
Artesian flow _____ gpm. Date _____

10) PACKERS: Type _____ Depth _____

11) TYPE PUMP:
☐ Turbin ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 252 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 100 gpm with 20 ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 3103 N. Main (Street or RFD) Highlands (City) Tex (State) (Zip)

(Signed) Millard M. Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

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State of Texas
WATER WELL REPORT

For TDWR use only
Well No. 64-09-806
Located on map
Received:

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Harris, ____ miles in ____ direction from ____ (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 3 3

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☐ See attached map.

3) TYPE OF WORK (Check): ☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:

Date drilled 10/20/77

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	357'

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	30	White Clay
30	40	Sand
40	165	Red Clay
165	305	Blue Clay
305	357	Sand

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from ____ ft. to ____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	347	Sch 40
2 1/2	N	Plas-Slot	347	357	12 Slot

CEMENTING DATA
Cemented from 260 ft. to 347 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 165 ft. below land surface Date 10/20/77
Artesian flow ____ gpm. Date ____

10) PACKERS: Type ____ Depth ____

11) TYPE PUMP:
☐ Turbin ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 231 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after ____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State) (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER (b) (6) [redacted]
(Name) (Street or R.F.D.) (City) (State) (Zip)

2) LOCATION OF WELL
County Harris miles in _____ direction from _____
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
2 #5 ☑ See attached map. 65-16-8X ?

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 5/24/79

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	360

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 4 X 2½
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	86	Red Clay
85	145	Yellow Clay
145	265	Red Clay
265	335	Blue Clay
335	360	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	350	Sch 40
2½	N	Plast-slot	350	360	12ga.

CEMENTING DATA
Cemented from 300 ft. to 350 ft.
Method used _____
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 145 ft. below land surface Date 5/24/79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or R.F.D.) Highlands (City) Tx. (State) 77562 (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-29-8[illegible]
Located on map [illegible]
Received: [illegible]

1) OWNER:
Person having well drille[redacted] (b) (6)

Landowner _____ (Name) Address _____ (Street or RFD) (City) (State)

2) LOCATION O[redacted] (b) (9)
County [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE MAP

[illegible]

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6½ in. Depth drilled 332 ft. Depth of completed well 332 ft. Date drilled 10/18/77

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top soil
2	20	Sand
90	120	Sand
290	332	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other

Cemented from 15 sacks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	316	40
2½	302	322	80

10) SCREEN:
Type Everflo

Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	322	332	12

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 10/18/77

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Au

Yield: 30 gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 162 (Street or RFD) Pearland (City) Tx (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co. Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-B

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State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8J
Located on map YES
Received: C.R.S.

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip) 77

2) LOCATION OF WELL
County Harris miles in (N.E., S.W., etc.) direction from (Town)
See Map on 64-09-2A Dup

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

14

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 10/4/79

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
	Surface	
6 3/4	0	330

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	30	SAND
30	75	blue clay
75	95	SAND
95	185	RED CLAY
185	200	SAND
200	245	blue clay
245	330	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	320	SCH 40
2 1/2	N	Plastic - Slot	320	330	14GA

CEMENTING DATA
Cemented from 260 ft. to 320 ft.
Method used Pumping
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 170' ft. below land surface Date 10/4/79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth
N/A

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

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(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8Q
Located on map YES
Received: 6-5-82

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County Harris — miles in ____ (N.E., S.W., etc.) direction from ____ (Town)

See Map on 64-09-2A Dup

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

9

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☑ See attached map.

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:

Date drilled 8/11/79

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	360

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	45	Yellow c/Hy
45	285	Blue c/Hy
285	295	Red c/Hy
295	335	Blue c/Hy
335	360	SAND

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel-Packed give interval . . . from ____ ft. to ____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4"	N	Plastic	0	350	Sch 40
2½"	N	Plastic - Slot.	350	360	12 gpm

CEMENTING DATA
Cemented from ~~360~~ 350 ft. to ~~360~~ ft.
Method used Pumping
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 127' ft. below land surface Date 8/11/79
Artesian flow ____ gpm. Date ____

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10) PACKERS: Type Depth

(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8V
Located on map Yes
Received

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL
County Harris miles in (N.E., S.W., etc.) direction from (Town)
See map on 65-09-2A Dup

☐ Legal description:

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

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Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____

☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:
Date drilled 11/2/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	353

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from ____ ft. to ____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	White clay
55	70	SAND
70	185	RED clay
185	305	Blue clay
305	353	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	340	Sch 40
2½	N	Plastic slot	340	353	13ga

CEMENTING DATA
Cemented from 280 ft. to 340 ft.
Method used Pumping
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 130 ft. below land surface Date 11/2/79
Artesian flow ____ gpm. Date ____

10) PACKERS: Type Depth
N/A

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11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☑ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

Dup

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Tex

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8W
Located on map yes
Received: [illegible]

(b) (6) [redacted]

1) OWNER [redacted]

2) LOCATION OF WELL:
County Harris miles in _____ (N.E., S.W., etc.) direction from _____ (Town)
See Map on 65-09-2A Dup

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

8

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 9/3/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	355

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0-5		SURFACE
5-20		yellow clay
20-35		SAND
35-75		Blue clay
75-85		SAND
85-205		white clay
205-305		Blue clay
305-355		SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	345	Sch 40
2½	N	Plastic-Slot	345	355	12 gal

CEMENTING DATA
Cemented from 285 ft. to 345 ft.
Method used Pumping
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 140 ft. below land surface Date 9/3/79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth
N/A

RECEIVED
JUN 2 1982
CR/TDWR

(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 140 ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Dup
64-09-8W

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

640980 DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-39-83
Located on map
Received:

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL
County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines

Map 1 #9 ☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 7/14/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	330

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 4 x 2½
If Gravel Packed give interval . . . from ft. to ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	35	Yellow c/Clay
35	45	Sand
45	195	Red c/Clay
195	225	Brown c/Clay
225	300	Blue c/Clay
300	330	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	320	Sch 40
2½	N	Plas-Slot	320	330	12 ga.

CEMENTING DATA
Cemented from 270 ft. to 320 ft.
Method used
Cemented by A & L (Company or Individual)

9) WATER LEVEL:
Static level 130 ft. below land surface Date 7/14/79
Artesian flow gpm. Date

10) PACKERS: Type Depth

(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tx (State) 77562 (Zip)

(Signed) (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

64098E DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map

1) OWNER (b) (6) [redacted]

2) LOCATION (b) (9) [redacted]
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 6-14-79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	336

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	80	Clay
80	95	Sand
95	170	Clay
170	198	Sand
198	265	Clay
265	280	Sand
280	317	Clay
317	336	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	320	40
2 1/2	N	PVC	311	326	80
2 1/2	N	Everflo	326	336	12

CEMENTING DATA
Cemented from 15 Sacks ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Co., Inc.
(Company or Individual)

(Use reverse side if necessary)

9) WATER LEVEL:
Static level 140 ft. below land surface Date 6-15-79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 55 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

64049E GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

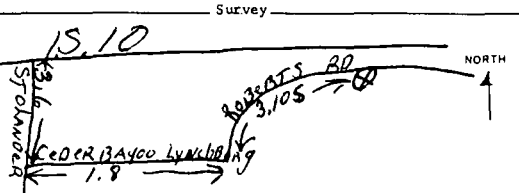
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received:
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled (b) (6) [redacted]
Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)
miles in (b) (9) [redacted] (NE, SW, etc.) (County)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6-3/4 in. Depth drilled 348 ft. Depth of completed well 348 ft. Date drilled 8/25/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	95	YELLOW CLAY
95	145	RED CLAY
145	305	BLUE CLAY
305	348	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 152' ft. below land surface Date 8/25/75
Artesian pressure ___ lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 250 ft. to 338 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	335	SCH 40

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	338	348	14 gw

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: ___ gpm with ___ ft. drawdown after ___ hrs
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs
Artesian flow ___ gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ___ depth of strata ___

12) PUMP DATA:
Manufacturer's Name Fairbanks-Morse
Type Sub H.P. 1
Designed pumping rate ___ gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 200' ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587
Address 2103 N Main (Street or RFD) Highlands (City) Texas
(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

64098E

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-32-5E
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION
County (b) (9) [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE MAP

(Use reverse side if necessary)

North

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
(New Well) Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
(Domestic) Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
(Rotary) Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 ½ in. Depth drilled 354 ft. Depth of completed well 354 ft. Date drilled 7-14-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	top
3	96	Clay
96	130	Sand
130	310	Clay
310	354	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from Rocks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	330	40
2½	324	344	80

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	344	354	12

7) COMPLETION (Check):
(Straight wall) Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 7-14-77
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 310 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? Owner
Yield: 40 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO, INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00131

64 09 8E

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible] SE
Located on map [illegible]
Received: [illegible]

1) OWNER:
Person having well drilled (b) (6) [redacted]
(Name) (Street or RFD) (City) (State)

Landowner Lame (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

3.

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 9/3/69

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	45	Yellow clay
45	70	Sand
70	180	Yellow clay
180	205	Sand
205	296	Blue clay
296	340	Sand

9) Casing:
Type: Old (New) (Steel) Plastic Other
Cemented from 275 ft. to 315 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	315	Sch. 40

10) SCREEN:
Type plastic wrapped
Perforated ✓ Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	300	315	12

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 136 ft. below land surface Date 9/3/69
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 310 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith (Type or Print) Water Well Drillers Registration No. 467

ADDRESS 12401 Kayla Ln. (Street or RFD) Houston (City) Texas (State)

(Signed) Millard M. Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

00132

DUP

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8U
Located on map VG
Received: 6-6-80

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL
County Harris miles in (N.E., S.W., etc.) direction from (Town)
See Map on 65-09-2A Pump

☐ Legal description:
Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 15
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 10/12/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	355

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from ft. to ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	White clay
55	70	SAND
70	185	Red clay
185	300	Blue clay
300	355	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	345	Sch 40
2½	N	Plastic - Slot	345	355	12 ga

CEMENTING DATA
Cemented from 285 ft. to 345 ft.
Method used Pumping
Cemented by A&L (Company or Individual)

RECEIVED JUN 2 1980 GROUNDWATER

9) WATER LEVEL:
Static level 135 ft. below land surface Date 10/12/79
Artesian flow gpm. Date

10) PACKERS: Type Depth
N/A

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☑ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main, Highlands Texas 77562 (Street or RFD) (City) (State) (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

00133

.3 m. S/NL
1.2 m. E/WL

Please use black ink.
Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
(2) ☑ See attached map. ON 65-24-3

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 10/28 1981 Completed 10/29 1981

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	350

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	40	red clay
40	55	Sand
55	160	red clay
160	225	white clay
225	270	red clay
270	320	blue clay
320	350	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	330	40
3½	N	Plas. slotted	340	350	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 255 ft. to 330 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used pressure
Cemented by driller

10) SURFACE COMPLETION
N/A Specified Surface Slab Installed [Rule 319.44(c)]
N/A Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 140 ft. below land surface Date 10/29/81
Artesian flow _____ gpm. Date _____

12) PACKERS: Type N/A Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

14) WELL TESTS:
Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

APR 15 81
Texas Water Commission

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TX (State) 77562 (Zip)

(Signed) Milbert M Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 44-09-8
Located on map _____

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

75 Dup

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-86
Located on map yes
Received: C.F.S.

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County (b) (9) [redacted]
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XXX See attached map. map on 65-14-6K

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XXX Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 10/3/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	343

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	87	Clay
87	106	Sand
106	221	Clay
221	225	Sand
225	309	Clay
309	343	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	322	40
2 1/2	N	PVC	313	333	80
2 1/2	N	Everflo	333	343	10

CEMENTING DATA
Cemented from 15 Sacks ft. to _____ ft.
Method used Pressure
Cemented by O'DAY DRILLING CO., INC.
(Company or Individual)

9) WATER LEVEL:
Static level 170 ft. below land surface Date 10/4/79
Artesian flow _____ gpm. Date _____

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MAR 26 1982
CR/TL

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet XX Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XXX No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 40 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland, Tx. 77581 (City) (State) (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00135

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8U
Located on map yes
Received: 77
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as many as are known)

miles in 3 N (NE, SW, etc) direction from BAYTOWN (Town).

NORTH

12 Highway 65-08-3R

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☐ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 7/31/76

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	55	YELLOW CLAY
55	90	RED CLAY
90	155	WHITE CLAY
155	295	BLUE CLAY
295	340	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 165 ft. below land surface Date 7/31/76
Artesian pressure ____ lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 250 ft. to 330 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	330	Sch 40

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	330	340	12 ga.

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?

Yield: ____ gpm with ____ ft. drawdown after ____ hrs
Bailer test ____ gpm with ____ ft. drawdown after ____ hrs
Artesian flow ____ gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☑ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Fairbanks-Morse
Type Sub H.P. 2
Designed pumping rate 25 gpm ☑ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

Address 2103 D. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00133

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64099K

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

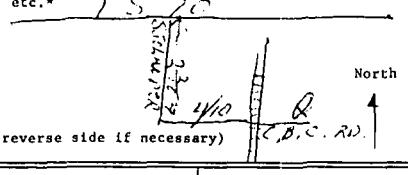
WATER WELL REPORT

For TWDB use only
Well No. 64-09-8K
Located on map yes
Received: 7-5

1) OWNER:
Person having well drilled (b) (6)
Landowner SAME
(Name) (Street or RFD) (City) (State)

2) LOCATION
County (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 330' ft. Depth of completed well 330' ft. Date drilled 4/16/74
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	45	YELLOW CLAY
45	65	BLUE CLAY
65	95	SAND
95	180	RED CLAY
180	320	BLUE CLAY
320	330	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New Steel Plastic Other
Cemented from 250 ft. to 316 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	316	Sch 40

10) SCREEN:
Type PLASTIC
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	320	330	12.040

7) COMPLETION (Check):
Straight wall Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 155' ft. below land surface Date 4/16/74
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 220' ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No.
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME WILLARD SMITH (Type or Print) Water Well Drillers Registration No. 1557

ADDRESS 3103 N. MAIN (Street or RFD) Highlands (City) TEXAS (State) 77562

(Signed) Willard Smith (Water Well Driller) A&L Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00137

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SEP 14 1978
DEPT. OF WATER RESOURCES

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8V
Located on map yes
Received: 25

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Sam [redacted]
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ direction from _____
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

14

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 326 ft. Depth of completed well 326 ft. Date drilled 5/12/78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	10	Surface
10	40	Red Clay
40	65	Sand
65	255	Red Clay
255	300	Blue Clay
300	326	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 240 ft. to 316 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	316	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	316	326	12 gal

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 165 ft. below land surface Date 5/12/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr Water Well Drillers Registration No. 1587
(Type or Print)

ADDRESS 2103 N. Main Highlands Texas
(Street or RFD) (City) (State)

(Signed) Millard M. Smith A&L Pump & Well Service
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

64 09 8G Dup

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8G
Located on map yes
Received: 3/7/77

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

map on
11 65-08-5R North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 347 ft. Depth of completed well 347 ft. Date drilled 3/7/77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	45	yellow clay
45	55	RED SAND
55	245	RED CLAY
245	305	Blue clay
305	347	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 220 ft. to 347 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4"	0	337	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
3½	337	347	12 ga.

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 3/7/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210' ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M Smith Jr. (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

U0150

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Please use black ink.
Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER [redacted] (b) (6)
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION [redacted] (b) (9) (b) (6)
County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XX See attached map. 65-30-288

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 2/23/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	332

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	70	Clay
70	90	Sand
90	110	Clay
110	120	Sand
120	310	Clay
310	332	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	310	40
2 1/2	N	PVC	302	322	80
2 1/2	N	Everflo	322	332	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 15 sacks ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, Inc.

15

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 120 ft. below land surface Date 2/24/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

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AUG 16 1984
DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 65-09-806
Located on map Lyons

VOID

DEPARTMENT OF WATER RESOURCES COPY

TDWR 0292 (12/30/82)

64098A

File original copy with Texas Water Commission P. O. Box 12311, Capitol Station Austin, Texas 78711	State of Texas **DRILLERS LOG AND WELL DATA REPORT**	For use by TWC only Well No. 64-09-8a Located on map [illegible] By [illegible] Date [illegible] Map no. [illegible]

1) Well Owner: (b) (6) [redacted]

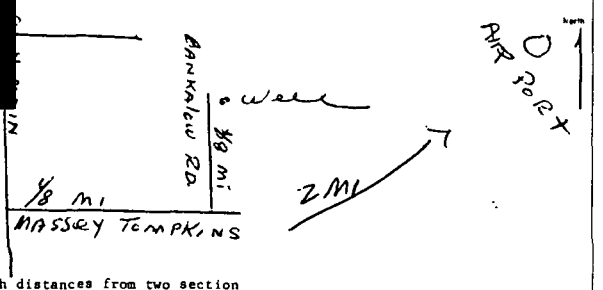
2) Land Owner: Same (Name) (Street or RFD) (City) (State)

3) Intended use: Industrial ☐ Municipal ☐ Irrigation ☒ Other Home

4) Location of well: County HARRIS Labor ____ League ____ Abstract No. ____

NW¼ NE¼ SW¼ SE¼ of Section ____ Block No. ____ Survey ____
(Circle as many as are known)

(b) (9) [redacted]



Sketch map of well location with distances from two section or survey lines, and to landmarks, roads, and creeks.

DRILLERS LOG OF WELL

Method of drilling: Rotary Diameter of hole 3 in. Date drilled 12-23-64

All measurements made from 1 ft. above ground level.

From (ft)	To (ft)	Description and color of formation material	From (ft)	To (ft)	Description and color of formation material
0	10	Surface			
10	30	Sand			
30	50	R. Clay			
50	70	Blue Clay			
70	80	Sand			
80	120	Red Clay			
120	310	Blue Clay			
310	340	Sand			(Use continuation sheets if necessary)

COMPLETION DATA

COMPLETION

Straight wall ☒
Under reamed ☐
Gravel packed ☐
Open hole ☐
Other ____

CASING

Type: Old ☐ New ☒
Cemented from ____ ft.
to ____ ft.

Diameter (inches)	Setting from (ft)	Setting to (ft)
3	0	330

SCREEN

Type Bar lug
Perforated ☒ Slotted ☐

Diameter (inches)	Setting from (ft)	Setting to (ft)
3	330	340

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

M M Smith (Signature) A+L Well Service (Company Name) Reg. No. 241

Please attach electric log, chemical analysis, and other pertinent information if available.

If well was tested by your company or if you installed the permanent pump please complete the following:

WATER LEVEL AND PUMP DATA

Static water level 140 ft. below ____

Pumping level

feet	hours	gpm

Pump type Jet

Designed pumping rate 300+ gpm ☐ gph ☒

Type power unit Electric

Horsepower 2

Depth to bowls, cylinder, jet, etc., 168 ft. below pump base.

Name of contractor testing well or installing permanent pump if other than your company: ____

C-34 (62-4)

C Wl. #151

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8CC
Located on map Yes
Received: C.F.S.

1) OWNER Shell Oil (Name) Address P.O. Box 61931 (Street or RFD) New Orleans (City) La. (State) 70161 (Zip)

2) LOCATION OF WELL: FM 565
County Harris ____ miles in ____ (N.E., S.W., etc.) direction from ____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☐ See attached map. Mapsco 65-05-9RRR

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12 1/4	Surface	410

Date drilled 6-11-83

7) BOREHOLE COMPLETION:
☐ Open Hole ☑ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other ____
If Gravel Packed give interval . . . from ____ ft. to ____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	15	Clay
15	35	Surface Sand
35	335	Clay
335	410	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	Black Steel w/c	0	357	
6	N	Black w/c	347	370	
6	N	G.S.R. B.	370	410	.016

CEMENTING DATA
Cemented from 0 ft. to 357 ft.
Method used Halliburton
Cemented by Bussell & Son, Inc. (Company or Individual)

9) WATER LEVEL:
Static level 104 ft. below land surface Date 6-12-83
Artesian flow ____ gpm. Date ____

10) PACKERS: Type ____ Depth ____

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DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., ____ ft.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Craig O. Bussell (Type or Print) Water Well Drillers Registration No. 2035

ADDRESS P.O. Box 874 (Street or RFD) Tomball (City) Texas (State) 77375 (Zip)

(Signed) ____ (Water Well Driller) Bussell & Son, Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79) DEPARTMENT OF WATER RESOURCES COPY

SEP 14 1978

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TDWR use only
Well No. 61-09-5Y
Located on map
Received:

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 10 3

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 11/14/77

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	345

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	30	Yellow clay
30	40	Sand
40	125	White clay
125	230	Red clay
230	305	Blue clay
305	345	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from ft. to ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	Plas-	0	335		40
2½	N	Plas-Slot	335	345		13 Ga

CEMENTING DATA
Cemented from 255 ft. to 335 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 145 ft. below land surface Date 11/14/77
Artesian flow gpm. Date

10) PACKERS: Type Depth
X

11) TYPE PUMP:
☐ Turbin ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 231 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard D. Smith Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N Main (Street or RFD) Highlands (City) Tex (State) (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Ser. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

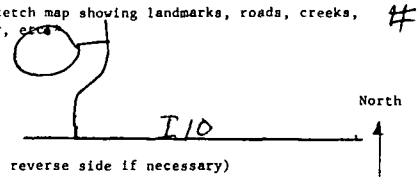
For TWDB use only
Well No. 64-09-8V
Located on map yes
Received: 77
dlr

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner SAme (Name) Address (Street or RFD) (City) (State)

2) LOCATION O (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc. #2



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 351 ft. Depth of completed well 351 ft. Date drilled 3-20-77
All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	TOP
2	120	CLAY
120	126	SAND
126	200	CLAY
200	225	SAND
225	230	CLAY
230	300	SAND
300	330	CLAY
330	351	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 15 Scaks ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	326	Sch 40
2 1/2	321	331	Sch 80

10) SCREEN:
Type Ever Flow
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	331	351	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 170 ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 300 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? AIR COMPRESSOR
Yield: 70 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLen ODAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O Box 162 (Street or RFD) PEARLAND (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

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DEPT. WATER RESOURCES

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8V
Located on map
Received: 9-8

1) OWNER:
Person having well drill (b) (6)
Landowner Sam
(Name) (Street or RFD) (City) (State)

2) LOCATION (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

3 65-15-6 North

(Use reverse side if necessary)

Or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 347 ft. Depth of completed well 347 ft. Date drilled 11/17/77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	35	Yellow CLAY
35	60	RED CLAY
60	70	SAND
70	145	RED CLAY
145	315	Blue CLAY
315	347	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 285 ft. to 335 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	335	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	337	347	12gA

7) COMPLETION (Check): Straight wall Gravel packed Other ✓ Under reamed Open Hole

8) WATER LEVEL:
Static level 152 ft. below land surface Date 11/17/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc. 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD M. SMITH SR (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. MAIN (Street or RFD) HIGHLANDS (City) TEXAS (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A+L Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

U01.5

Send original copy by certified return receipt requested mail to: **TNRCC, MC 177, P.O. Box 13087, Austin, TX 78711-3087**

ATTENTION OWNER: *Confidentiality Privilege Notice on on reverse side of Well Owner's copy (pink)*

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) OWNER (b) (6) [redacted]

2) ADDRESS (b) (9) [redacted] GRID # 64-09-8

County

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) WELL LOG:
Date Drilling: Started 7-8 1998 Completed 7-9 1998

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
4	Surface	340

7) DRILLING METHOD (Check): ☐ Driven ☑ Mud Rotary ☐ Bored ☐ Air Rotary ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft.)	To (ft.)	Description and color of formation material
0	40	Clay
40	50	SAND
50	230	clay
230	260	SAND
260	300	Clay
300	340	Sand

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion (Check): ☐ Open Hole ☑ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic Casing	0	300	40 ga
2 1/2	N	Plastic Liner	260	330	40 ga
2 1/2	N	Plastic Slotted Scr.	330	340	40 ga

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 100 ft. No. of sacks used 15
250 ft. to 300 ft. No. of sacks used 5
Method used Poured & pumped
Cemented by J.W. Greak JR
Distance to septic system field lines or other concentrated contamination 150 ft.
Method of verification of above distance By owners tape

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 140 ft.

14) WELL TESTS:
Type test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 80 gpm with 10 ft. drawdown after 1 hrs.

11) WATER LEVEL:
Static level 95 ft. below land surface Date 7-9-98
Artesian flow _____ gpm. Date _____

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) PACKERS:

Type	Depth
None	

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Greak Water Well Drilling (Type or print) WELL DRILLER'S LICENSE NO. 2130 WI

ADDRESS P.O. Box 92 (Street or RFD) Liberty (City) TX (State) 77575 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00116

TNRCC-0199 (Rev. 05-21-96) *White - TNRCC Yellow - DRILLER Pink - WELL OWNER*

.2 m. S/NL
.5 m: E/WL

Please use black ink.
Send original copy by certified mail to the
Texas Water Commission
P.O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

(b) (6)

1) OWNER [redacted]

2) LOCATION OF WELL: County Harris miles in _____ direction from _____
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
(10) ☑ See attached map. ON 65-24-3

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 7/19 19 81 Completed 7/30 19 81

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	6 3/4	Surface	350

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	40	Sand
40	70	blue clay
70	85	Sand
85	160	red clay
160	240	white clay
240	310	blue clay
310	350	Sand

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	330	40
2½	N	Plas. Slotted	340	350	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 255 ft. to 330 ft. No. of Sacks Used 5
_____ ft. to _____ ft. No. of Sacks Used _____
Method used pressure
Cemented by driller

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☑ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 130 ft. below land surface Date 7/30/81
Artesian flow _____ gpm. Date _____

12) PACKERS: Type N/A Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 189 ft.

14) WELL TESTS:
Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

APR 15 8

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A & L Pump & Well (Type or Print) Water Well Driller's License No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TX (State) 77562 (Zip)

(Signed) Millard M Smith (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. 64-17-2
Located on map _____

00117

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

64-17-1A

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-17-1A
Located on map
Received:

1) OWNER:
Person having well drille [redacted]

Landowner SAUL (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* BAYOU (Use reverse side if necessary) North

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 2½ in. Depth drilled 90 ft. Depth of completed well 90 ft. Date drilled 2-23-69
All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	11	SAND ✓
11	18	CLAY
18	30	SAND
30	60	CLAY
60	70	SAND
70	80	SAND & C
80	90	SAND & GRAVEL

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel ✓ Plastic Other
Cemented from ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
2	84	90	12.6

10) SCREEN:
Type PLASTIC
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	84	90	10

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 21 ft. below land surface Date 2-25-69
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 65 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME (Type or Print) Water Well Drillers Registration No.
ADDRESS (Street or RFD) (City) (State)
(Signed) (Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

09115

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER American Geothermal Solar Inc (Name) Address P. O. Box 58731 (Street or RFD) Houston (City) Tx (State) 77258 (Zip)

2) LOCATION OF WELL: County Harris 1.5 miles in N (N.E., S.W., etc.) direction from BAYTOWN (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. Mapon 64-17-1 G

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 3-20-84

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
4	Surface	102

From (ft.)	To (ft.)	Description and color of formation material
0	4	Top Soil
4	14	Clay
14	25	Sand Tan .006
25	78	Clay
78	102	Sand Grey S & P .006 .008

7) BOREHOLE COMPLETION: ☐ Open Hole ☒ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing & Screen
2	N	PVC Casing	0	90	40
2	N	Screen			
		Slotted .006	90	100	40

CEMENTING DATA
Cemented from 0 ft. to 10 ft.
Method used Grouted
Cemented by Micky D. Tower (Company or Individual)

9) WATER LEVEL:
Static level 18 ft. below land surface Date 3-20-84
Artesian flow ------ gpm. Date ------

10) PACKERS: Type Depth
Rubber Formation 89' 83' 20

RECEIVED
JUN 21 1984
DEPT. OF WATER RESOURCES

11) TYPE PUMP:
☐ Turbine ☒ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 40 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Good Depth of strata ~~22'~~ 24'
Was a chemical analysis made? ☐ Yes ☒ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 35 gpm with Air ft. drawdown after -- hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Walker Water Well Serv., Inc (Type or Print) Texas Well Driller's License No. 2245

ADDRESS P. O. Box 752 (Street or RFD) Alvin (City) Tx (State) 77512-0752 (Zip)

(Signed) Micky D Tower (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use only
Well No. 64-17-14
Located on map Yes DLF

Please attach electric log, chemical analysis, and other pertinent information, if available.

VOID

TDWR 0702 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address Same (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS, 4 miles in N (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE MAP

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): (Domestic) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 353 ft. Depth of completed well 353 ft. Date drilled 4-9-78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	38	clay
38	46	sand
46	72	clay
72	115	sand
115	218	clay
218	240	sand
240	314	clay
314	353	sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 16 sacks ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	285	40
2 1/2	273	343	80

10) SCREEN:
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2 1/2	343	353	12

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 4-9-78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? air comp
Yield: 80 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller)

O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

0050

GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. 64-00-7B Located on map yes Received: 62 Form GW 8 Form GW 9

1) OWNER:
Person having well drilled ASSEMBLY OF GOD CHURCH (Name) Address Cedar Bayou Lynchburg Rd (Street or RFD) Baytown (City) Tex (State)

Landowner SAME (Name) Address Cedar Bayou Lynchburg Rd (Street or RFD) Baytown (City) Tex (State)

2) LOCATION OF WELL: County HARRIS Labor _____ League _____ Abstract No. _____

NW¼ NE¼ SW¼ SE¼ of Section _____ Block No. _____ Survey _____
(Circle as many as are known)

miles in _____ (NE, SW, etc.) direction from Baytown (Town).

NORTH

ON BACK

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check): New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check): Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check): Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 4½ in. Depth drilled 99 ft. Depth of completed well 99 ft. Date drilled 2-19-68

All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	8	surface			
8	20	sand fine			
20	38	Clay - yellow			
38	56	Clay Grey			
56	80	Clay Blue			
80	84	Shale Blue			
84	99	sand			
					(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall ☑ Gravel packed ☐ Other ☐ Under reamed ☐ Open hole ☐

8) WATER LEVEL: Static level 22 ft. below land surface Date 2-19-68
Artesian pressure ____ lbs. per square inch Date _____

9) CASING: Type: old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
2½"	0	89	

10) SCREEN: Type PLASTIC
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
	89	99	12 Gauge

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom?

Yield: _____ gpm with _____ ft. drawdown after _____ hrs
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs
Artesian flow _____ gpm Date _____
Temperature of water _____
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? _____ depth of strata _____

12) PUMP DATA:
Manufacturer's Name RUTH BERRY
Type JET H.P. 1 H.P.
Designed pumping rate 500 gpm ☐ gph ☑
Type power unit ELECT
Depth to bowls, cylinder, jet, etc., 43 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME CHARLES R. WALKER (Type or Print) Water Well Drillers Registration No. 983

Address RT II Box 175-B (Street or RFD) BAYTOWN (City) Tex (State)

(Signed) Charles R. Walker (Water Well Driller) H. J + W WALKER Wld Ser (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00151

64-09-70 GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. 4-09-70 Located on map 4-5 Received: [illegible] Form GW 8 Form GW 9

1) OWNER: (b) (6) [redacted]
Person havi[redacted]
Landowner [redacted]

2) LOCATION OF WELL: County Harris Labor _____ League _____ Abstract No. _____
NW¼ NE¼ SW¼ SE¼ of Section _____ Block No. _____ Survey _____
(Circle as many) (b) (9) [redacted]
miles in _____ (NE[redacted]

NORTH

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check): New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check): Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check): Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG: Diameter of hole 6¾ in. Depth drilled 350 ft. Depth of completed well 346 ft. Date drilled 8-24-67
All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	4	surface	160	180	Clay yellow
6	20	clay yellow	180	188	Clay & sand
20	45	clay yellow	188	222	Clay yellow
45	60	clay blue	222	268	Clay
60	76	clay & sand	268	283	sand & clay
76	95	sand	283	298	clay & sand
95	145	Clay blue	298	350	sand
145	160	clay & sand			(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall ☑ Gravel packed ☐ Other ☐ Under reamed ☐ Open hole ☐

8) WATER LEVEL: Static level 168 ft. below land surface Date 8-24-67
Artesian pressure ____ lbs. per square inch Date _____

9) CASING: Type: old ☐ New ☐ Steel ☐ Plastic ☐ Other ☐
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	336	sch 40

10) SCREEN: Type Stainless
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
	336	346	12 gauge

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs
Artesian flow _____ gpm Date _____
Temperature of water _____
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? _____ depth of strata _____

12) PUMP DATA:
Manufacturer's Name Ruth Berry
Type Submersible H.P. 1
Designed pumping rate 1200 gpm ☐ gph ☑
Type power unit Elect
Depth to bowls, cylinder, jet, etc., 210 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME L. D. HARMON (Type or Print) Water Well Drillers Registration No. 666
Address Rt II Box 176 (Street or RFD) BAYTOWN (City) Tex (State)
(Signed) L D Harmon (Water Well Driller) H. J. & W. Well Ser. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00102

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

Map #2 #2

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 6/25/79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	310

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 4 x 2 1/2
If Gravel Packed give interval . . . from _____ ft. to _____ f

From (ft.)	To (ft.)	Description and color of formation material
0-5		Surface
5-70		Red Clay
70-85		Sand
85-195		Red Clay
195-290		Blue Clay
290-310		Sand

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gag Casi Scre
4	N	Plastic	0	300	Sch
2 1/2	N	Plas-slot	300	310	12

CEMENTING DATA
Cemented from 250 ft. to 300 f
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 170 ft. below land surface Date 6/25/79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tx. (State) 77562 (Zip)

(Signed) Millard M. Smith (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

00103

RECEIVED
JUL 25 1978

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TWDB use only
Well No. 62-44
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) (Name) (Street or RFD) (City) (State)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS CO., CITY miles in (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

BAYTOWN NORTH MAIN

WELL

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 8 in. Depth drilled 97 ft. Depth of completed well 97 ft. Date drilled 6-23-78
All measurements made from / ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	3	SOIL
3	80	YELLOW
80	87	BLUE
87	97	SAND

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from ft. to

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type PLASTIC
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
8	7	97	1

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight Well, Gravel packed, Other
Under reamed, Open Hole

8) WATER LEVEL:
Static level 36 ft. below land surface Date 6-23-78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, (jet,) etc., 50 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? HARD depth of strata 97

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS R 2 BOX 176 (Street or RFD) BAYTOWN (City) (State)

(Signed) C D Harmon (Water Well Driller) H W W WELL (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00154

Dup

ı copy by
ıil to the
: Development Board
13087
Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-7[illegible]
Located on map [illegible]
Received: [illegible]

.ER:
.rson having well drill[redacted] (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL: (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

18 [illegible] 35-08-5R North

(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 10/15/[illegible]
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	Yellow clay
55	225	Red clay
225	325	Blue clay
325	360	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 270 ft. to 350 ft

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	350	Sch 4[illegible]

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	350	360	12 ga

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 10/15/76
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 200 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WO-8

0

00155

Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-7C
Located on map
Received: 77

1) OWNER:
Person having well drille[redacted] (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL (b) (9)
County [redacted]

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

18 map on 65-38-5R North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 10/11/

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	55	Yellow clay
55	225	Red clay
225	325	Blue clay
325	345	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 255 ft. to 335

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	335	Sch 4

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	335	345	12 ga

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 175 ft. below land surface Date 10/11/76
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 240 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after h
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00156 0

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

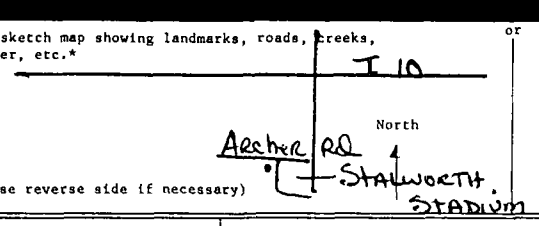
For TWDB use only
Well No. 64-09-7
Located on map yes
Received: 77
dir

1) OWNER:
Person having well drill[redacted] (b) (6) Address (Street or RFD) (City) (State)

Landowner (Name) Address (Street or RFD) (City) (State)

2) LOCAT[redacted] (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 354 ft. Depth of completed well 354 ft. Date drilled 3-1-77
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top soil
2	80	Clay
80	110	Sand
110	130	Clay
130	154	Gravel
154	180	Clay
180	215	Sand
215	316	Clay
316	325	Sand
325	330	Clay
330	354	

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 15 sacks ft. to ft

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	320	Sch 40
2 1/2	316	344	Sch 80

10) SCREEN:
Type Everflo
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	344	354	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 3-2-77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air Compressor
Yield: 60 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? depth of strata 24

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P.O. Box 162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller) O'Day Drilling Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-70
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Williams (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL (b) (9) [redacted]
County (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

18 [illegible] 65-08-5R
North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 355 ft. Depth of completed well 355 ft. Date drilled 4/16/
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	55	yellow clay
55	225	RED CLAY
225	325	Blue clay
325	355	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 255 ft. to 330

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	330	SCH

10) SCREEN:
Type Plastic
Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	345	355	12 g.

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 175 ft. below land surface Date 4/16/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after h
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A & L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

SEP 14 1978

For TDWR use only
Well No. 64-09-16
Located on map
Received:

1) OWNER [redacted] (b) (6)
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 4 3

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☑ See attached map. 64-16-35

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:
Date drilled 10/18/77

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	350

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	30	WHITE CLAY
30	45	SAND
45	175	RED CLAY
175	310	BLUE CLAY
310	350	SAND

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from ____ ft. to ____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gag-Casi Scre
4	N	Plastic	0	340	Sc 4
2½	N	Plas-Slot	340	350	1/8

CEMENTING DATA
Cemented from 265 ft. to 340 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 165 ft. below land surface Date 10/18/77
Artesian flow ____ gpm. Date ____

10) PACKERS: Type ____ Depth ____

11) TYPE PUMP:
☐ Turbin ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 332 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after ____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr. (Type or Print) Water Well Drillers Registration No. 1587
ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State) (Zip)
(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Ser. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

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GW

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. 64-09-7[redacted] Located on map yes Received: 77

(b) (6) [redacted]

1) OWNER:
Person having well drilled

Landowner Other (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as

(b) (9) [redacted]

miles in

NORTH

18 [illegible] 65-08-5R

Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 7/29/

All measurements made from ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE			
5	55	yellow clay			
55	225	RED CLAY			
225	325	Blue clay			
325	345	SAND			
					(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 171 ft. below land surface Date 7/29/7
Artesian pressure lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 255 ft. to 335 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	335	Sch 40

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	335	345	12 ga.

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?

Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☑ No
Did any strata contain undesirable water? ☐ Yes ☑ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Jacuzzi
Type Sub H.P. 1
Designed pumping rate 850 gpm ☐ gph ☑
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 220 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

Address 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr. (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00100 0

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL: County Harris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
#8
☑ See attached map.

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:

Date drilled 11/17/78

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	340

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	15	Yellow Clay
15	25	Sand
25	145	Red Clay
145	210	Blue Clay
210	215	Sand & Clay
215	300	Blue Clay
300	340	Sand

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 4x2½
If Gravel Packed give interval . . . from ft. to ft

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casin Scree
4	N	Plastic	0	330	Sch
2½	N	Plastic - Slot.	330	340	17

CEMENTING DATA
Cemented from 290 ft. to ~~340~~ 330 ft
Method used
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 140 ft. below land surface Date 11/17/78
Artesian flow gpm. Date

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex. (State) 77562 (Zip)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79) DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-7D
Located on map yes
Received: 77
db

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL: (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

9 ... 08-5R North

(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 3/26/7
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0-5		SURFACE
5-70		WHITE CLAY
70-95		SAND
95-205		RED CLAY
205-325		BLUE CLAY
325-360		SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 235 ft. to 350

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	350	SCH 4

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	350	360	10 g

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 165 ft. below land surface Date 3/26/77
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after h.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No.
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith Jr (Water Well Driller) A & L Pump & Well Servi (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

00100 0

RECEIVED
SEP 14 1978
DEPT. OF WATER RESOURCES

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map [illegible]
Received: [illegible]

1) OWNER:
Person having well dril[redacted]
Landowner Sa[redacted] (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

16

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 345 ft. Depth of completed well 345 ft. Date drilled 5/20/78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	20	yellow clay
20	60	Blue clay
60	75	SAND
75	180	RED CLAY
180	300	Blue clay
300	345	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 260 ft. to 335 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	335	Sch 4[illegible]

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	335	345	12 ga

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 165 ft. below land surface Date 5/20/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00103

SEP 14 1978

Send original copy by certified mail to the,
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

DEPT. OF WATER RESOURCES

For TDWR use only
Well No.
Located on map
Received:

1) OWNER [redacted] (b) (6) (Name) Address (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County Ferris miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form. 20 2

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
☐ See attached map.

3) TYPE OF WORK (Check):
☐ ~~New Well~~ ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ ~~Domestic~~ ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check):
☐ ~~Mud Rotary~~ ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:
Date drilled 9/9/77

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	330

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	Yellow c/Ay
55	150	Red c/Ay
150	160	Sand
160	300	Blue c/Ay
300	330	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ ~~Other~~ 2-String
If Gravel Packed give interval . . . from ft. to ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	G C S
4	N	Plastic	0	320	
2½	N	Plas-Slot	320	330	

CEMENTING DATA
Cemented from 140 ft. to 320 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 175 ft. below land surface Date 9/9/77
Artesian flow gpm. Date

10) PACKERS: Type Depth
X

11) TYPE PUMP:
☐ Turbin ☐ Jet ☐ ~~Submersible~~ ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 231 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ ~~Jetted~~ ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate ~~any~~ strata which contained undesirable water? ☐ Yes ☐ ~~No~~
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ ~~No~~

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587
ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State)
(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

00134

Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

For TDWR use only
Well No. [illegible]
Located on map
Received:

1) OWNER [redacted] (b) (6)
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION [redacted] (b) (9)
County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

X See attached map.

3) TYPE OF WORK (Check):
X New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
X Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
X Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 3-28-79

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/2	Surface	301

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	15	Clay
15	29	Sand
29	80	Clay
80	95	Sand
95	185	Clay
185	215	Sand
215	288	Clay
288	301	Sand

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open Hole X Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing/Screen
4	N	PVC	0	286	40
2 1/2	N	PVC	271	291	80
2 1/2	N	Everflo	291	301	8

CEMENTING DATA
Cemented from 15 sacks ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Co., Inc. (Company or Individual)

9) WATER LEVEL:
Static level 165 ft. below land surface Date 3-28-79
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbin ☐ Jet X Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer X Jetted ☐ Estimated
Yield: 35 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes X No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes X No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

[illegible]

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No.
Located on map
Received:

1) OWNER [redacted] (City) (State) (Zip)

2) LOCATION OF WELL: County HARRIS miles in (N.E., S.W., etc.) direction from (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. Block No. Township
Abstract No. Survey Name
Distance and direction from two intersecting section or survey lines
☑ See attached map. (1)

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other

5) DRILLING METHOD (Check): ☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:

Date drilled 12/14/78

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
~~4"~~ 6¾	Surface 0	~~330~~ 330

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 4X2½"
If Gravel Packed give interval . . . from ft. to

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	25	White clay
25	32	Sand
32	45	Red clay
45	70	Blue clay
70	85	Sand
85	155	Red clay
155	190	Yellow clay
190	310	Blue clay
310	360	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gr. Ca. Sc.
4	New	PLASTIC	0	330	Sch
2½	"	" - SLOT	340	350	125

CEMENTING DATA
Cemented from 270 ft. to 330
Method used
Cemented by (Company or Individual)

9) WATER LEVEL:
Static level 145 ft. below land surface Date 12/14/78
Artesian flow gpm. Date

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 210' ft.

12) WELL TESTS:
☐ Type Test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with ft. drawdown after hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) TEX (State) 77562 (Zip)

(Signed) Millard Smith (Water Well Driller) A+L Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79) DEPARTMENT OF WATER RESOURCES COPY

RECEIVED
SEP 14 1978

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 63-37-
Located on map
Received:

1) OWNER:
Person having well drilled
Landowner Sam (b) (6) (Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, miles in direction from (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

8

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 334 ft. Depth of completed well 334 ft. Date drilled 7/12/7
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	90	Yellow CLAY
90	110	SAND
110	155	RED CLAY
155	300	Blue CLAY
300	334	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 260 ft. to 324 ft

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4"	0	324	Sch 4

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	324	334	12 ga.

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 167 ft. below land surface Date 7/12/78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

63-37-

RECEIVED
SEP 14 1978
DEPT. OF WATER RESOURCES

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6)
Landowner San (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, miles in (N.E., S.W., etc.) direction from (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

9

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 350 ft. Depth of completed well 350 ft. Date drilled 7/7/7
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	25	Yellow CLAY
25	40	SAND
40	90	RED CLAY
90	280	RED CLAY
280	310	Blue CLAY
310	350	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 270 ft. to 340

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4"	0	340	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	340	350	10

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 161 ft. below land surface Date 7/7/78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587
ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State)
(Signed) Millard M Smith (Water Well Driller) A&L Pump & Well Serv (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

00-00

le original copy with
xas Water Commission
. O. Box 2311, Capitol Station
ustin 11, Texas

State of Texas

DRILLERS LOG AND WELL DATA REPORT

For use by TWC only
Well No. 64-09-7ac
Located on map 7
By _____ Date _____
Map no. _____

1) Well Owner: (b) (6) [redacted]
Name Street or RFD City State

2) Land Owner: _____
Name Street or RFD City State

3) Intended use: Industrial ☐ Municipal ☐ Irrigation ☐ Other Home

4) Location of well: County ~~Chambers~~ Harris Labor _____ League _____ Abstract No. TR 11 AB 709
NW¼ NE¼ SW¼ SE¼ (Circle as many as are known) of Section _____ Block No. _____ Survey J.W.Singleton

_____ miles in In NE. SW. etc. direction
from (b) (9) [redacted]

water well--> 0 <-------- 426'------>
L39'

Sketch map of well location with distances from two section or survey lines, and to landmarks, roads, and creeks.

DRILLERS LOG OF WELL

Method of drilling: Rotary Diameter of hole 5 in. Date drilled 10/23/63

All measurements made from 3 ft. above ground level.

From (ft)	To (ft)	Description and color of formation material	From (ft)	To (ft)	Description and color of formation material
0	14	Surface-White-Hard			
14	22	Sand-White			
22	40	Clay-Brown-Hard			
40	52	" sandy-Brown			
52	66	" -Grey-Hard			
66	79	" sandy-Blu			
79	97	Sand fine- Salt & Pepper (out of sand)			

(Use continuation sheets if necessary)

COMPLETION DATA

COMPLETION

Straight wall ☒
Under reamed ☐
Gravel packed ☐
Open hole ☐
Other _____

CASING

Type: Old ☐ New ☒
Cemented from _____ ft.
to _____ ft.

Diameter (inches)	Setting from (ft)	Setting to (ft)
2 1/2	0	84.55

SCREEN

Type Stainless Steel, ribbe
.014" Gauge. w/ Shale Tr
Perforated ☐ Slotted ☐

Diameter (inches)	Setting from (ft)	Setting to (ft)
2 1/2	84.55	95.68

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

G.R.Pitre Signature PITRE WATER WELL DRLG.& SUPPLY COMPANY Company Name Reg. No. 145

Please attach electric log, chemical analysis, and other pertinent information if available.

If well was tested by your company or if you installed the permanent pump please complete the following:

WATER LEVEL AND PUMP DATA

Static water level 35
ft. below ground level

Pumping level

feet	hours	gpm
Produced	w/ air	60

Pump type Berkeley D.W.JET
Designed pumping rate 600 gpm ☐ gph ☐
Type power unit Electric
Horsepower 1/2
Depth to bowls, cylinder, jet, etc., 63 ft. below pump ba

Name of contractor testing well or installing permanent pump if other than your company: _____

C-34 (62-4)

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County _____ (b) (9)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

North

(Use reverse side if necessary)

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 92 ft. Depth of completed well 92 ft. Date drilled 1996

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel ✓ Plastic Other
Cemented from _____ ft. to _____

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage

10) SCREEN:
Type PLASTIC
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2	84	92	15

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level _____ ft. below land surface Date 12-2-96
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 52 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom? _____
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? HARD depth of strata 92

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME [illegible] Water Well Drillers Registration No. [illegible]
(Type or Print)

ADDRESS [illegible]
(Street or RFD) (City) (State)

(Signed) [illegible] [illegible]
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

UNITED CAP

Send original copy by certified return receipt requested mail to: TNRCC, MC 177, P.O. Box 13087, Austin, TX 78711-3087

ATTENTION OWNER: *Confidentiality Privilege Notice on on reverse side of Well Owner's copy (pink)*

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) [redacted]

2) **ADDRESS OF WELL:**
County Harris — same as above (Street, RFD or other) (City) (State) (Zip) — GRID # 64 09 7

3) **TYPE OF WORK (Check):**
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☒ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 03-22 1998
Completed 03-24 1998

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
6½	Surface	320
3½	320	340

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☒ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft.)	To (ft.)	Description and color of formation material
000	070	clay
070	120	sand
120	300	clay
300	340	sand

(Use reverse side of Well Owner's copy, if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☒ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
04	N	plastic casing	2 above	to 320	
2½	N	plas blank pipe	310	330	
2½	N	slotted screen	330	340	08

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 320 ft. to 150 ft. No. of sacks used 12
surface ft. to 60 ft. No. of sacks used _____
Method used haliburton style
Cemented by B & L Water Wells
Distance to septic system field lines or other concentrated contamination 100 ft.
Method of verification of above distance measured

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☒ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) **WATER LEVEL:**
Static level 90 ft. below land surface Date 03-24-98
Artesian flow _____ gpm. Date _____

12) **PACKERS:**

Type	Depth
K rubber	310

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet, etc., 140 ft.

14) **WELL TESTS:**
Type test: ☒ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 15 gpm with 0 ft. drawdown after 02 hrs.

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☒ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

FILE #
GRID #
COMMENT

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME B & L Water Wells (Type or print) — **WELL DRILLER'S LICENSE NO.** 01952WI 1998

ADDRESS 1703 Beckman Dr. (Street or RFD) Huffman (City) Tx (State) 77336 (Zip)

(Signed) _____ (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 05-21-96) *White - TNRCC Yellow - DRILLER Pink - WELL OWNER*

9-185—July
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

WELL SCHEDULE

Date 11 Aug 22, 1966 Field No. 6409917

Record by J.B. Wesselman Office No.

Source of data DH 64-09-917

1. *Location:* State Texas County Chambers

Map

¼ ¼ sec. T N R E

2. *Owner:* (b) (6) [redacted]

Tenant Address

Driller Noak Address Bo Chester [illegible]

3. *Topography*

4. *Elevation* 27' ft. above/below Sea level

5. *Type:* Dug, drilled, driven, bored, jetted 1959

6. *Depth:* Rept. 365 ft. Meas. ft.

7. *Casing:* Diam. 4" in., to in., Type

Depth ft., Finish

8. *Chief Aquifer* CA Gala W.W. From 345 ft. to 365' ft.

Others CL

9. *Water level* 181 ft. rept/meas. 1966 above/below

which is ft. above/below surface

10. *Pump:* Type Sub Capacity G. M.

Power: Kind E Horsepower 5

11. *Yield:* Flow G.M., Pump G.M., Meas., Rept. Est.

Drawdown ft. after hours pumping G.M.

12. *Use:* Dom., Stock, PS, RR., Ind., Irr., Obs.

Adequacy, permanence

13. *Quality* Temp °F.

Taste, odor, color Sample Yes/No

Unfit for

14. *Remarks:* (Log, Analyses, etc.) 12 Houses Now

3 lots - Standby well

00172

DH64-09-612

4Y4SW

9-185—July 1935
Revised

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

E-25

WELL SCHEDULE

Date 4-2, 1941 Field No. 644

Record by L. G. Davis Office No. 51

Source of data (b) (6) [redacted]

1. *Location:* State Texas County Chambers
Map 13 Y2 Miles W of Anahuac
¼ ¼ sec. T N S R E W

2. *Owner:* (b) (6) [redacted]
Tenant — Address —
Driller Amos Jennische Address Cedar Bay Tex

3. *Topography* Flat

4. *Elevation* — ft. above / below —

5. *Type:* Dug, drilled, driven, bored, jetted — 1915?

6. *Depth:* Rept. 340 ft. Meas. — ft.

7. *Casing:* Diam. 3 to 90' in., to — in., Type W.I.
Depth — ft., Finish —

8. *Chief Aquifer* CA — CL From — ft. to — ft.
Others —

9. *Water level* 45.63 ft. rept. / meas. 4-2 1941 above / below Top of bottom half 1/2" union which is 1.0 ft. above / below surface

10. *Pump:* Type [illegible] Capacity [illegible] G. M. —
Power: Kind [illegible] Horsepower 3/4

11. *Yield:* Flow — G. M., Pump — G. M., Meas., Rept. Est. —
Drawdown — ft. after — hours pumping — G. M.

12. *Use:* Dom., Stock, PS., RR., Ind., Irr., Obs.
Adequacy, permanence

13. *Quality* — Temp — °F.
Taste, odor, color — Sample Yes / No 4-2-41
Unfit for —

14. *Remarks:* (Log, Analyses, etc.) rept. surface water seeping into well.

U. S. GOVERNMENT PRINTING OFFICE 6—7473

00170

(b) (9) [redacted]

State: Texas 4 9 (1 2) County: Chambers D H (3 4) Well No [redacted] Seq. No. 2 (19) Date M D Y 2 2 4 1 (20 25) Sampling Depth (26 29) Type (30)

KEY PUNCHED

Local Well No. DH-64-09-[illegible] Location

Owner: C. Airington Date drilled: Depth: 340 WBF CA Prod. intervals Water level

Sampled after pumping Yield GPM Pt. of coll. Appearance Use Collector

		ppm	epm
R x 10^6	R KCl ____ R sample ____		31 35
pH		36 38	
Temperature °F		39 41	
Density at 20°C			
SiO_2	____ ml; A sample ____	42 44	
Al	____ ml; A 0.00250 mg ____; .00625 mg ____; .0125 mg ____; .025 mg ____; Sample ____	____ ppm	
Fe	A 0.025 mg ____; ____ ml ____ Sample Total ____ ppm; ____ ml ____ Sample Diss. ____ ppm		
Mn	Total ____ ppm; Dissolved ____ ppm		
Ca	____ ml	45 49	
Mg		50 53	
Na		54 58	
Na + K Calc.			
K		59 61	
Percent error	Total cations		

		ppm	epm
HCO_3	____ ml; Total Alk as CO_3 ____	62 65	
CO_3	____ ml	66 67	
SO_4	____ ml; Blk ____; Std ____; Sample ____	68 72	
Cl	____ ml	73 78	
Source	79	Card No. 80	
F	____ ml; A 1.00 ppm ____; 2.00 ppm ____; A sample ____	26 28	
NO_3	____ ml std. ____ ml; A sample ____; A ____ ml std ____; A ____ ml std ____ Factor ____	29 32	
NO_2	____ ml ____ ppm; A 0.01 mg ____; .02 mg ____; .05 mg ____; Sample ____		
PO_4	____ ml Ortho ____ Total; A 0.0050 mg ____; .0100 mg ____; .0250 mg ____; .0500 mg ____; Sample ____	33 35	
Total anions			

Equivalents per million

Na+K ——— Cl

Ca ——— HCO_3+CO_3

Mg ——— SO_4

B	A ____ mg ____; ____ mg ____; ____ mg ____; ____ mg ____	____ ml 36 38
Al	39 41	
Fe	42 45	
Mn	46 49	
Cu	50 52	
Pb	53 54	
Zn	55 57	
Dissolved solids: Determined	58 63	Calculated 64 69
Hardness	____ ml; epm Ca + Mg ____; epm Alk ____; epm NCH ____	Ca+Mg 70 73; NCH 74 77
Color	78 79	Card No. 80
Br	26 28	I 29 31
Alk. as $CaCO_3$	32 35	Free CO_2 36 38
Percent Na		SAR 39 41; RSC 42 44
MBAS	45 47	NO_2 67 68; Card No. 80

Analyst ____ Checked by ____

Date begun ____ Completed ____

Transmittals	Date
Records processing----	
Collector----------	
Owner----------	

DEPTH 340 (67 70)

WBF CA (71 74)

Recorded by: ____ Punched by: ____ Date: ____

Texas Water Development Boar
Well Schedule

State Well No. 64 09 619 Previous Well No. _____ County Chambers 071

River Basin Trinity San Jacinto 09 Zone 1 Region 08 Lat. 29 47 59 Long. 094 54 20 Source of Coord. 1

Owner's Well No. Pine Hurst #1 Location ____ 1/4, ____ 1.4, Section ____, Block ____, Survey ____

City of BAYTOWN

Owner Baytown Area Water Authority
1200 Lee Drive Baytown TX 77520

Driller O'Day Drilling Company, Inc.
420-5300 MARK LEBLANC

Address 7425 Thompson Rd. Baytown, Tx. Tenant/Oper. Same Jerry James

Date Drilled 07 20 1976 Depth 350 Source of Depth Datum D Altitude 29 Source of Alt. Datum M

Aquifer Chicot 112CHCT Well Type W User _____

Well Construction Const. Method Hydraulic Rotary H Casing Material Steel S

Completion Slotted P Screen Material Steel S

Lift Data Pump Mfr. _____ Type Subm. 5 No. Stages ____

Bowls Diam. ____ in. Setting 294 ft. Column Diam. ____ in.

Motor Mfr. ____ Fuel or Power Elec. E Horsepower ____

Yield Flow ____ GPM Pump ____ GPM Meas (Rept), Est. 150 gpm Date 7/20/76

Performance Test Date ____ Length of Test ____ Production ____ GPM

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft. Sp.Cap. ____ GPM/ft.

Quality (Remarks ____

Water Use Primary P.S. P Secondary ____ Tertiary ____

Other Data Available: Water Level M, Water Quality Y, Logs D, Other Data

	Date	Meas.	
Water Levels	07 20 1976	160.00	Driller
	____	____	____
	____	____	____

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from ____ to ____

	Diam. (in.)	Setting (feet) From	To
1	C 06	0	316
2	C 04	309	330
3	S 04	330	350
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

(20 max)

Recorded By D.R. Joner Date Record Collected or Updated 08 09 1990 Reporting Agency 01

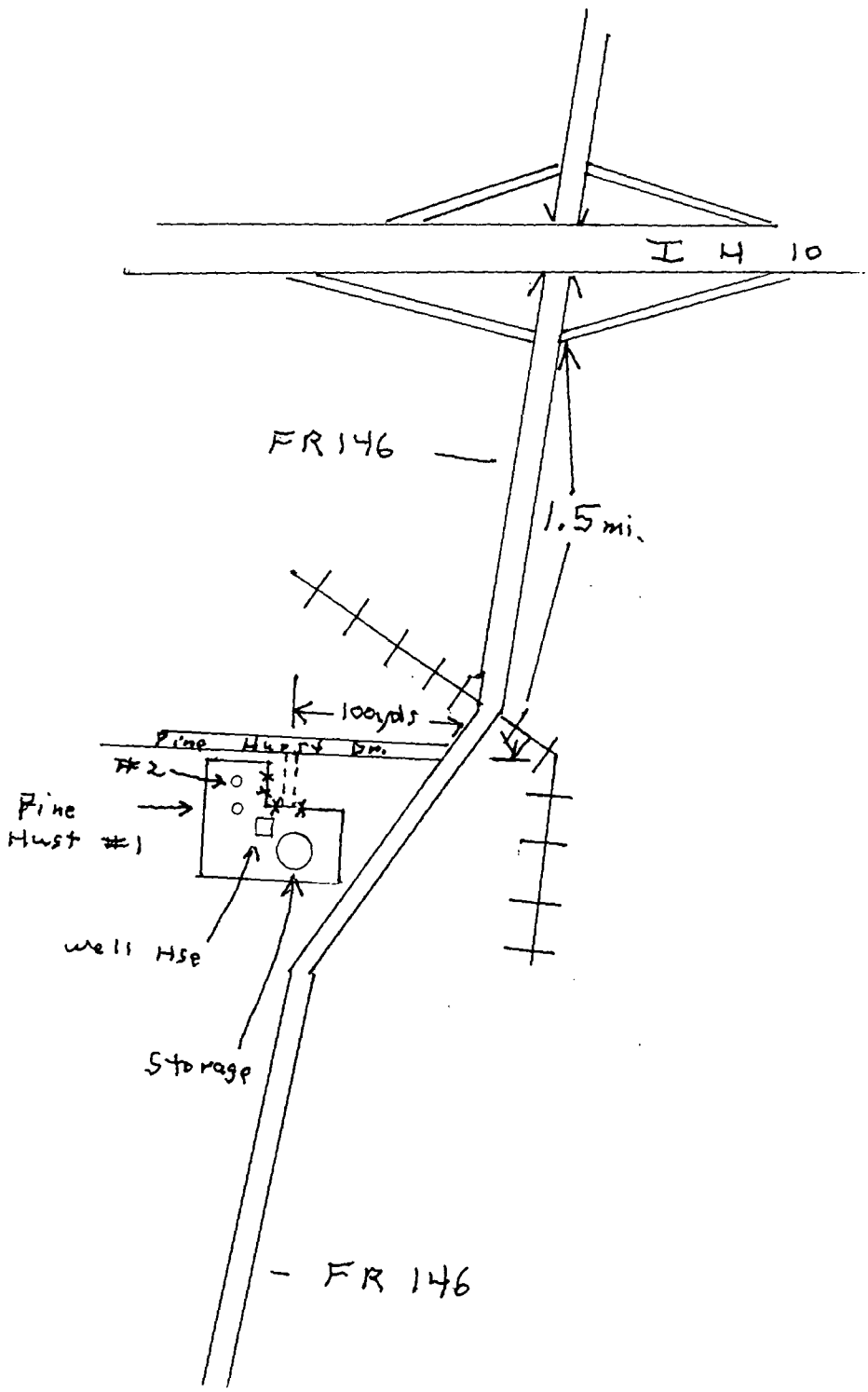
Remarks
1 Well was organally drilled for
2 Busch, Hutchison and Associates.
3
4
5
6

VOID

Aquifer Chicot

Well No. 64-09 61

900052


I H 10
FR 146
1.5 mi.
100 yds
Pine Hwy 84
#2
Pine Hwy #1
well Hse
Storage
FR 146

64-09-619

29° 4 3" N
94° 5 40" W
77'
South well

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

#1

State of Texas

WATER WELL REPORT

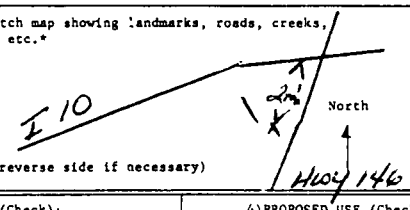
For TWDB use only
Well No. 64-09-6F
Located on map 1/85
Received: 77

1) OWNER:
Person having well drilled BUSCH, HUTCHISON + ASSIC (Name) Address 1107 FLEETWOOD (Street or RFD) BAYTOWN (City) TX (State)

Landowner _____ (Name) Address _____ (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Chambers, 4 miles in NE (N.E., S.W., etc.) direction from BAYTOWN (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 8 1/2 in. Depth drilled 350 ft. Depth of completed well 350 ft. Date drilled 7-20-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	fill
2	90	Clay
90	105	sand
105	264	Clay
264	270	Sand
270	310	Clay
310	350	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 40 sacks ft. to _____ ft

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
6"	0	316	Sch 40
4"	309	330	Sch 40

10) SCREEN:
Type Everflo
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
4"	330	350	.012

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 7-20-76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 294 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Air Compressor
Yield: 150 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

64-09-619

Water Quality Sampling Run

SWN: 6409619 Sample No. 671

County: Chambers Pine Hurst #1 Date: 7/11/90 11:30

Aquifer(s): By: D.A. Jones

	Bottle 1	Bottle 2	Bottle 3	Bottle 4 500 ml	Bottle 5	Bottle 6	Bottle 7	Total
	1 liter Anions	1 liter Cations/HM	1 gallon Radioactivity	Nitrate/ Phosphate	1 Qt.(glass) (TOC) Organics	500 ml Cyanide		Sub-Samples
		2 ml ↓	5 ml ↓	1 ml ↓	unfiltered			All filtered unless otherwise stipulated. All on ice.
Preserve with:	--	HNO_3 (Nitric)	HNO_3 (Nitric)	H_2SO_4 (Sulfuric)	--	NaOH (Sodium Hydroxide)	KEY PUNCHED	

Water Level _____ LSD

Temperature (00010) 23.8 °C

Specific Conductance (00094) 782 µmhos/cm

pH (00400) 8.27 @ 23.8 °C

Eh (00090) -112.2 mv @ 23.8 °C

Phenol ALK (82944) 0 mg/l

Total ALK (00431) 263 mg/l

Carbonate (00452) 0 meq/l 0 mg/l

Bicarbonate (00453) _____ meq/l 321 mg/l

Total Cations (+) _____

Total Anions (-) _____

Total Hardness (46570) 17.

Dissolved Solids (70301) 436 calc. (490 meter)

Notes & Calculations

Ph 8.03 at start of alk. test.

13.15 ml acid to 50 ml sample; ph of 4.49

0013

Texas Water Development Board

Chemical Water Analysis Report

HM- DRJ 1990 671

HM = Heavy Trace and Alkaline-Earth Metals

TWDB Use Only

Work No. 320-3202

IAC No. _____

Pine Hurst #1

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom

State Well Number: 6409619

County: Chambers

Date & Time: 7/11/90 11:30

Owner: B.A.W.A.

☑ Send Copy To Owner % Jerry James

Address: 7425 Thompson Rd. Baytown, Tx. 77521

Sampled After Pumping: 1 1/2 Hours

Date Drilled: _____ Depth: _____

Yield: _____ GPM ☐ Measured ☐ Estimated

Collection Point: FAW pH 8.27

Use: P.S. Temperature: 23.8 °C

By: D.R. Jones

Specific Conductance: 732

Requested Chemical Analysis

Laboratory No.: EB 0-2004

Date Received: JUL 18 1990

KEY PUNCHED

Date Reported: AUG 9 1990

		me/l	mg/l			me/l	mg/l
Calcium	(00915)		4.9	Sodium	(00930)		173
Magnesium	(00925)		1.2	Potassium	(00935)		1.4

		µg/l			µg/l
Aluminum	(01106)	<50	Manganese	(01056)	<20
Arsenic	(01000)	<10	Mercury	(71890)	<0.2
Barium	(01005)	40	✓ Molybdenum*	(01062)	<20
Cadmium	(01025)	<10	Selenium	(01145)	<2
Chromium	(01030)	<20	Silver	(01075)	<10
Copper	(01040)	<20	✓ Strontium*	(01080)	<200
Iron	(01046)	31	✓ Vanadium*	(01085)	<20
Lead	(01049)	<50	Zinc	(01090)	<20

* Do not analyze unless it is checked.
Note: Crossout those elements not to be analyzed.

00170

890091-E

Texas Water Development Board

Chemical Water Analysis Report

GWN- PRJ. 1990 671
(Nitrogen Cycle)

TWDB Use Only	
Work No.	320-3202
IAC No.	

Pine Hurst #1

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom
State Well Number: 6409619
County: Chambers
Date & Time: 7/11/90 11:30
Owner: B.A.W.A.
☑ Send Copy To Owner c/o Jerry James
Address: 7425 Thompson Rd. Baytown, Tx. 77521
Sampled After Pumping: 1 1/2 Hours
Date Drilled: ____ Depth: ____
Yield: ____ GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 8.27
Use: P.S. Temperature: 23.8 °C
By: D.R. Jones
Specific Conductance: 732

Requested Che
Laboratory No.: EB 0-2027
Date Received: JUL 19 1990
Date Reported: JUL 24 1990
KEY PUNCHED

THD-Sample No. EB0 2027 Date Received 07/13/90 Date Reported 07/24/90

		MG/L			MG/L
Nitrate as N	(00618)	< 0.01	Ammonia as N	(00608)	0.15
KJE as N	(00623)	0.2	Nitrite as N	(00613)	< 0.01
			Orthophosphate as P	(00671)	0.18

*Note: To convert NO_3-N to NO_3, multiply by 4.427.

00133

890091-D

Texas Water Development Board

Chemical Water Analysis Report

GWR- DRJ -1990- 671
(Anions)

TWDB Use Only	
Work No.	320-3202
IAC No.	

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Ping Hurst #1

Attention: P. Nordstrom
State Well Number: 6409619
County: Chambers
Date & Time: 7/11/90 11:30
Owner: B. A. W. A.
☑ Send Copy To Owner c/o Jerry James
Address: 7425 Thompson Rd. Baytown, Tx. 77521
Sampled After Pumping: 1 1/2 Hours
Date Drilled: ____ Depth: ____ Yield: ____ GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 8.27 Use: P.S. Temperature: 23.8 °C
By: D. R. Jones
Specific Conductance: 732

Requested Ch

Laboratory No. EB0-1986
Date Received: JUL 13 1990
Date Report AUG 3 1990
KEY PUNCHED

THD-Sample No. EB0 1986 Date Received 07/13/90 Date Reported 08/03/90

		MG/L
Silica	(00955)	14
P.Akalinity	(00415)	0
T.Akalinity	(00410)	267

		MG/L
Sulfate	(00946)	9
Chloride	(00941)	71
Fluoride	(00950)	1.28
Iodide	(71865)	< 0.1
Boron	(*****)	0.38
Bromide	(71870)	0.2

00151

890091-C

Texas Water Development Board

Chemical Water Analysis Report

RAD - DRJ-1990-671
RAD = Radioactivity Sample

TWDB Use Only
Work No. 320-3202
IAC No. _____

Pine Hurst #1

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstram
State Well Number: 6409619
County: Chambers
Date & Time: 7/11/90 11:30
Owner: B.A.W.A.
☑ Send Copy To Owner c/o Jerry James
Address: 7425 Thompson Rd. Baytown, TX. 77521
Sampled After Pumping: 1 1/2 Hours
Date Drilled: _____ Depth: _____
Yield: _____ GPM ☐ Measured ☐ Estimated
Collection Point: FAW pH 8.27
Use: P.S. Temperature: 23.8 °C
By: D.R. Jones
Specific Conductance: 732

Requested Chemical Analysis

KEY PUNCHED

Laboratory No.: EB 0-1958
Date Received: JUL 13 1990
Date Reported: AUG 31 1990

Alpha	(01503)	<2.0	pCi/l
Beta	(03503)	<4.0	pCi/l
Radium 226	(09503)		pCi/l
Radium 228	(81366)		pCi/l
Total Radium*	(11500)		pCi/l
Thorium*	(26403)		pCi/l
Uranium*	(22703)		pCi/l

* Do not analyze unless it is checked *yes*.

890091-F

Texas Water Development Board

Chemical Water Analysis Report

MISC- DRJ. 1990- 671

TWDB Use Only	
Work No.	320-3202
IAC No.	

Pine Hurst # 1

Send Reply To:
Ground Water Unit
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Attention: P. Nordstrom
State Well Number: 6409619

County: Chambers
Date & Time: 7/11/90 11:30

Owner: B.A.W.A.
☑ Send Copy To Owner c/o Jerry James 77521

Address: 7425 Thompson Rd. Baytown, Tx.
Sampled After Pumping: 1 1/2 Hours

Date Drilled: _____ Depth: _____
Yield: _____ GPM ☐ Measured ☐ Estimated

Collection Point: FAW pH 8.27
Use: P.S. Temperature: 33.5 °C

By: D.R. Jones
Specific Conductance: 732

Requested Chemical Analysis

Laboratory No.: EB 0-2053
Date Received: JUL 13 1990
Date Reported: JUL 24 1990
KEY PUNCHED

THD-Sample No. EB0 2053		Date Received 07/13/90	Date Reported 07/24/90
		MG/L	MG/L
TOC	(00680)	< 1	

00133

890091-A

Texas Water Development Board
Well Schedule

State Well No. 64 09 620 Previous Well No. _____ County Chambers 071

River Basin Trinity / San Jacinto 09 Zone 1 Region 08 Lat. 29 47 60 Long. 094 54 20 Source of Coord. 1

Owner's Well No. Pine Hurst #2 Location ____ 1/4, ____ 1/4, Section ____, Block ____, Survey ____

City of

Owner Baytown Area Water Authority

Driller O'Day Drilling Company, Inc.

Address 1200 Lee Drive Baytown 77522 ~~7425 Thompson Rd. Baytown, Tx~~ Tenant/Oper. 420-5300 MARK LeBLANC ~~Same Jerry James~~

Date Drilled 07 20 1976 Depth 350 Source of Depth Datum D Altitude 29 Source of Alt. Datum M

Aquifer Chicot 112CHCT Well Type W User

Well Construction Const. Method Hydraulic Rotary H Casing Material Steel S

Completion Slotted P Screen Material Steel S

Lift Data Pump Mfr. _____ Type Subm. S No. Stages ____

Bowls Diam. ____ in. Setting 273 ft. Column Diam. ____ in.

Motor Mfr. _____ Fuel or Power Elec E Horsepower ____

Yield Flow ____ GPM Pump ____ GPM Meas. (Rept), Est. 150gpm Date 7/20/76

Performance Test Date ____ Length of Test ____ Production ____ GPM

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft. Sp.Cap. ____ GPM/ft.

Quality (Remarks ____

Water Use Primary P.S. P Secondary ____ Tertiary ____

Other Data Available: Water Level M, Water Quality N, Logs D, Other Data

	Date	Meas.	
Water Levels	07 20 1976	160.00	Driller
	____	____	____
	____	____	____

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from ___ to ___

	Diam. (in.)	Setting (feet) From	To
1	C 06	0	316
2	C 04	309	330
3	S 04	330	350
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

(20 max)

Recorded By D. R. Jones Date Record Collected or Updated 05 09 1990 Reporting Agency 01

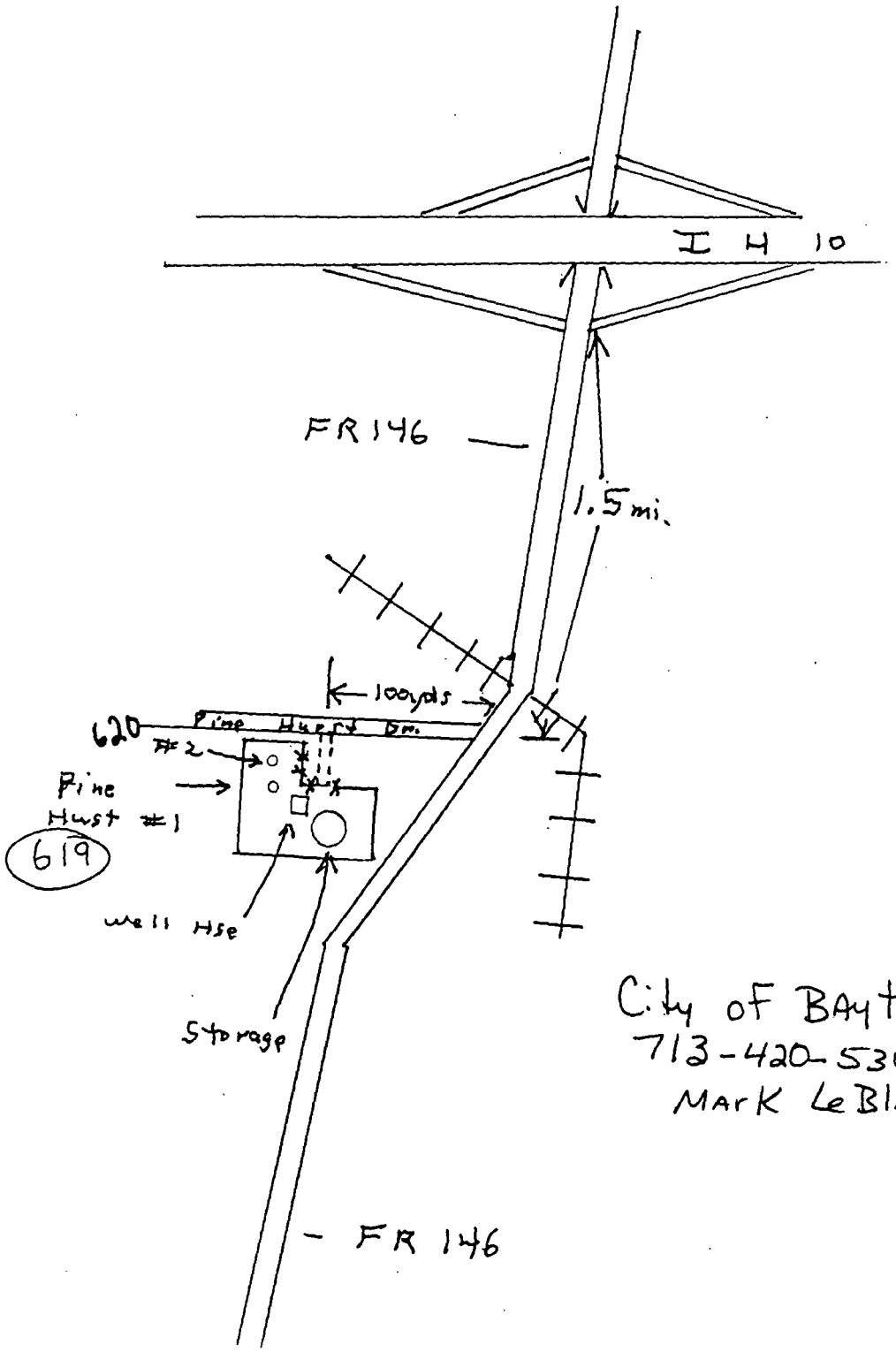
Remarks
1 Well was organaly drilled for
2 Busch, Hutchison and Associates
3
4
5
6

00104

Aquifer Chicot

Well No. 64-09-620

900052
11/21/89



City of Baytown
713-420-5300
Mark LeBlanc

00185

620
64-09-~~619~~

Water Quality Field Data

SWN: 64-09-~~619~~ 620
County: Chambers
Aquifer(s): Gulf Coast

Attn: Mark LeBlanc
Name: City of Baytown
Address: 1200 Lee Drive
Baytown TX 77522
owner's well # Pine Hurst #2

Sample No. YP-1997-1767
Date: 3/20/97
By: YPrice

Bottle1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6	Bottle 7	Total SUB-Samples
500 ml Anions	1 liter Cations	250 ml Nitrate	1 liter Radioactivity				
	2 ml HNO (Nitric)	0.5 ml H SO (Sulfuric)	2 ml HNO (Nitric)				All filtered unless otherwise stipulated

Water Level _____ LSD Remark _____
Temperature (00010) 23.8 c
Specific Conductance (00094) 778 umhos/cm
pH (00400) 8.07
Eh (00090) -301.5 mv.
Phenol ALK (82244) 0.0 mg/l
Total ALK (39086) 268.0 mg/l
Carbonate (00452) 0.0 meq/l 0.0 mg/l
Bicarbonate (00453) 5.36 meq/l 327.05 mg/l
Total Cations(+) ~~0~~
Total Anions (-) _____
Total Hardness (00900) 21
Dissolved Solids 460

Time in 09:00
Time out 10:50 Sample time 10:30
Weather partly cloudy well use public
Outside Temp 17°C
Sampling point Front O Well

Starting pH 8.14
13.4 ml. of 0.02N to
50 ml. of Sample
Ending pH 4.52

Time:	10:15	10:20	10:25	10:30		
pH:	8.09	8.06	8.06	8.07		
Temp:	23.5	23.5	23.6	23.8		
Eh:				-301.5		
Cond.	777	778	778	778		

other notes:
619 ~~was~~ is not working
620 same depth
These wells are not used - standby only

ml.	pH	ml.	pH	ml.	pH
1ml	7.90	11ml	5.94		
2ml	7.29	12ml	5.73		
3ml	7.04	13ml	5.19		
4ml	6.95	13.4	4.52		
5ml	6.68				
6ml	6.58				
7ml	6.46				
8ml	6.36				
9ml	6.23				
10ml	6.13				

LCRA
THE POWER TO MAKE A DIFFERENCE.

ENVIRONMENTAL LABORATORY SERVICES
FINAL ANALYSIS REPORT

LAB ID: 9703606 SAMPLE DESCRIPTION: Groundwater
FACILITY: TWDB SAMPLE DATE: 03/20/97
ACCT NO: SAMPLE TIME: 1030
TX WATER DEV. BOARD

DATE RECEIVED: 03/21/97
ORIGINAL DATE REPORTED: 05/19/97

LOCATION ID: 64-09-620

PARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
Alkalinity, Phenol.	<1	mg/L	00415	1	03/28/97
Alkalinity, Total	249	mg/L	00410	1	03/28/97
Bromide	0.54	mg/L	71870	0.05	03/21/97
Chloride	92.20	mg/L	00941	0.10	03/21/97
Fluoride	0.93	mg/L	00950	0.02	03/21/97
Iodide, Laboratory	<0.15	mg/L	71965	0.05	04/11/97
Nit.,Nitrate/Nitrite	<0.100	mg/L	00630	0.100	04/01/97
Nitrogen, Kjeldahl	<0.100	mg/L	00623	0.010	03/31/97
Nitrogen, ammonia	0.150	mg/L	00608	0.010	03/27/97
Silica	10.90	mg/L	00955	0.01	04/02/97
Sulfate	9.22	mg/L	00946	0.10	03/21/97
Aluminum, Dis. ICPMS	<3.0	ug/L	01106	1.0	04/03/97
Antimony, Dis. ICPMS	<1.0	ug/L	01095	1.0	04/03/97
Arsenic, Diss. ICPMS	<5.0	ug/L	01000	1.0	04/03/97
Barium, Diss. ICPMS	64.0	ug/L	01005	1.0	04/03/97
Beryllium, Dis ICPMS	<1.0	ug/L	01010	1.0	04/03/97
Boron, Diss. ICPMS	200.0	ug/L	01020	1.0	04/03/97
Calcium, Dissolved	6.30	mg/L	00915	0.50	04/01/97
Cobalt, Diss. ICPMS	<1.0	ug/L	01035	1.0	04/03/97
Copper, Diss. ICPMS	5.5	ug/L	01040	1.0	04/03/97
Iron, Diss. ICPMS	110.0	ug/L	01046	4.0	04/02/97
Lead, Diss. ICPMS	<1.0	ug/L	01049	1.0	04/03/97
Lithium, Diss. ICPMS	<2.0	ug/L	01130	1.0	04/03/97
Magnesium, Dissolved	1.50	mg/L	00925	0.05	04/01/97
Manganese, Dis ICPMS	18.0	ug/L	01056	1.0	04/03/97
Molybdenum Dis ICPMS	5.0	ug/L	01060	1.0	04/03/97

ALICIA GILL
LABORATORY MANAGER

This report shall not be reproduced, except in full, without the written approval of the laboratory management. The results in this report relate only to the items tested.

Our power is distributed to you through our partnership with the following cities and rural electric cooperatives:
City of Bastrop • Bandera Electric Cooperative, Inc. • Bluebonnet Electric Cooperative, Inc. • City of Burnet • City of Bellville • City of Boerne • City of Brenham • Central Texas Electric Cooperative, Inc. • City of Cuero • DeWitt Electric Cooperative, Inc. • Fayette Electric Cooperative, Inc. • City of Flatonia • City of Fredericksburg • City of Georgetown • City of Giddings • City of Goldthwaite • City of Gonzales • Guadalupe Valley Electric Cooperative, Inc. • City of Hallettsville • Hamilton County Electric Cooperative, Inc. • City of Hempstead • Kimble Electric Cooperative, Inc. • Kerrville Public Utility Board • City of La Grange • City of Lampasas • City of Lexington • City of Llano • City of Lockhart • City of Luling • City of Mason • McCulloch Electric Cooperative, Inc. • City of Moulton • New Braunfels Utilities • Pedernales Electric Cooperative • City of San Saba • San Bernard Electric Cooperative., Inc. • City of Schulenburg • City of Seguin • City of Shiner • San Marcos Electric Utility • City of Smithville • City of Waelder • City of Weimar • City of Yoakum

P.O. Box 220 • Austin, TX 78767-0220 • (512) 473-3200 • (512) 473-3298 FAX

LCRA
THE POWER TO MAKE A DIFFERENCE.

ENVIRONMENTAL LABORATORY SERVICES
FINAL ANALYSIS REPORT

LAB ID: 9703606 SAMPLE DESCRIPTION: Groundwater
ACILITY: TWDB SAMPLE DATE: 03/20/97
ACCT NO: SAMPLE TIME: 1030
TX WATER DEV. BOARD

DATE RECEIVED: 03/21/97
ORIGINAL DATE REPORTED: 05/19/97

OCATION ID: 64-09-620

ARAMETER	RESULTS	UNITS	STORET #	PQL in WATER	DATE ANALYZED
ickel, Diss. ICPMS	1.5	ug/L	01065	1.0	04/03/97
otassium, Dissolved	<1.00	mg/L	00935	1.00	04/01/97
elenium, Dis. ICPMS	<5.0	ug/L	01145	4.0	04/03/97
odium, Dissolved	185.00	mg/L	00930	0.10	04/01/97
trontium, Dis ICPMS	120.0	ug/L	01080	1.0	04/02/97
hallium, Diss ICPMS	<1.0	ug/L	01057	1.0	04/03/97
anadium, Diss ICPMS	3.0	ug/L	01085	1.0	04/03/97
inc, Diss. ICPMS	46.0	ug/L	01090	1.0	04/03/97

OMMENTS: Metals, silica, ammonia, TKN and NO3/NO2 analyses subcontracted.

Roland Garcia for
LICIA GILL
ABORATORY MANAGER

QA APPROVED

his report shall not be reproduced, except in full, without the written pproval of the laboratory management. The results in this report relate nly to the items tested.

Our power is distributed to you through our partnership with the following cities and rural electric cooperatives:
City of Bastrop • Bandera Electric Cooperative, Inc. • Bluebonnet Electric Cooperative, Inc. • City of Burnet • City of Bellville • City of Boerne • City of Brenham • Central Texas Electric Cooperative, Inc. • City of Cuero • DeWitt Electric Cooperative, Inc. • Fayette Electric Cooperative, Inc. • City of Flatonia • City of Fredericksburg • City of Georgetown • City of Giddings • City of Goldthwaite • City of Gonzales • Guadalupe Valley Electric Cooperative, Inc. • City of Hallettsville • Hamilton County Electric Cooperative, Inc. • City of Hempstead • Kimble Electric Cooperative, Inc. • Kerrville Public Utility Board • City of La Grange • City of Lampasas • City of Lexington • City of Llano • City of Lockhart • City of Luling • City of Mason • McCulloch Electric Cooperative, Inc. • City of Moulton • New Braunfels Utilities • Pedernales Electric Cooperative • City of San Saba • San Bernard Electric Cooperative., Inc. • City of Schulenburg • City of Seguin • City of Shiner • San Marcos Electric Utility • City of Smithville • City of Waelder • City of Weimar • City of Yoakum

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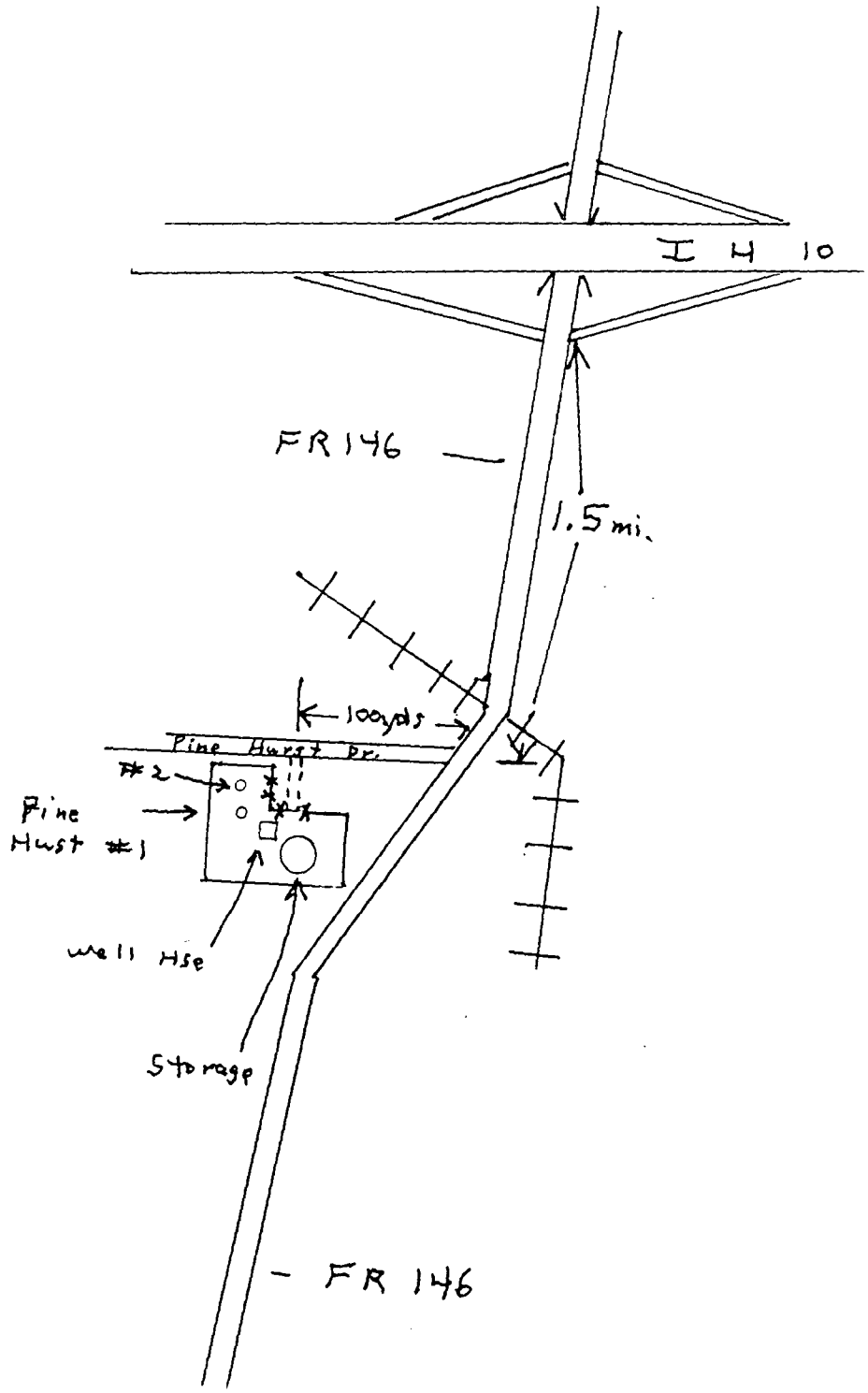
0016



00100

64-09-620

29°47'60
74°54'29"W

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

#2

State of Texas

WATER WELL REPORT

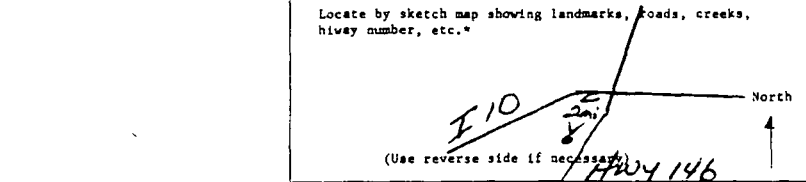
For TWDB use only
Well No. 64-09-6F
Located on map yes
Received: 7-27-76

1) OWNER:
Person having well drilled BUSCH HUTCHISON & ASSOC. (Name) Address 1107 FLEETWOOD (Street or RFD) BAYTOWN (City) TX (State)

Landowner _____ (Name) Address _____ (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Chambers 6 miles in NE (N.E., S.W., etc.) direction from Baytown (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*



(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic Industrial (Municipal) Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 8½ in. Depth drilled 350 ft. Depth of completed well 350 ft. Date drilled 7-20-76
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	fill
2	90	Clay
90	105	Sand
105	264	Clay
264	270	Sand
270	310	Clay
310	350	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) (Steel) Plastic Other
Cemented from Aconcrete ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
6"	0	316	Sch 40
4"	309	330	Sch 40

10) SCREEN:
Type Ericflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
4	330	350	.012

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 160 ft. below land surface Date 7-20-76
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 273 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? Ole Compression
Yield: 150 gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO BOX 162 (Street or RFD) PEARLAND (City) TX (State)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

64-09-620

U0100

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XX See attached map. 64-19-2H

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 7/30/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
4 1/2	Surface	126

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	80	Clay
80	126	

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2	N	PVC	0	116	40
2	N	Everflo	116	126	.12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from _____ ft. to _____ ft.
_____ ft. to _____ ft.
Method used _____
Cemented by _____

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 27 ft. below land surface Date 7/30/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

44

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WATER RESOURCES

(Use reverse side if necessary)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc. Water Well Driller's License No. 786
(Type or Print)

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-18-1BB
Located on map yeOMM

DEPARTMENT OF WATER RESOURCES COPY

TDWR 0392 (12/29/83)

00101

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION County (b) (9) [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. map on 64-17-3L

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 11-16-83

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	330

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	70	Clay
70	80	Sand
80	115	Clay
115	125	Sand
125	190	Clay
190	205	Sand
205	227	Clay
227	280	Sand
250	300	Clay
300	330	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	PVC	0	300	40	
2½	N	PVC	290	320		80
2½	N	Everflo	320	330		08

CEMENTING DATA
Cemented from 13 sacks ft. to _____ ft.
Method used pressure
Cemented by O'Day Drilling (Company or Individual)

9) WATER LEVEL:
Static level 80 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

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11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-6L
Located on map YES C F S

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER [redacted]
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County (b) (9) [redacted]
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

X☒ See attached map. 64-17-2E

3) TYPE OF WORK (Check):
X☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
X☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
X☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 3/17/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	195

7) BOREHOLE COMPLETION:
☐ Open Hole X☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	160	Clay
160	195	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	175	40
2 1/2	N	PVC	165	185	-80
2 1/2	N	Everflo	185	195	8

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 10 sacks ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, Inc.

10

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 30 ft. below land surface Date 3/17/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

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WATER RESOURCES

(Use reverse side if necessary)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes X☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes X☒ No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer X☒ Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc. Water Well Driller's License No. 786
(Type or Print)

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee) Dup

For TDWR use only
Well No. 64-17-6N
Located on map yes MM

Please attach electric log, chemical analysis, and other pertinent information, if available.

DEPARTMENT OF WATER RESOURCES COPY

TDWR-0392 (12/29/83)

00103

Please use black ink.
Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION (b) (9) [redacted]
County (b) (6) [redacted] .W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. 64-19-24

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 8/11/83

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	204

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	67	Clay
67	95	Sand
95	118	Clay
118	144	Sand
144	170	Clay
170	204	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	178	40
2 1/2	N	PVC	174	194	.80
2 1/2	N	Everflo	194	204	8

9) CEMENTING DATA (Rule 319.44(b))
Cemented from 10 sacks ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, INC.

33

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed (Rule 319.44(c))
☐ Pitless Adapter Used (Rule 319.44(d))
☐ Approved Alternative Procedure Used (Rule 319.71)

11) WATER LEVEL:
Static level 148 ft. below land surface Date 8/12/83
Artesian flow _____ gpm. Date _____

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12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 18 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-604
Located on map 1960 MM

TDWR-0392 (12/29/83)

DEPARTMENT OF WATER RESOURCES COPY

U0134

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted] Zip)

2) LOCATION OF WELL:
County (b) (9) [redacted] (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

XX See attached map. 64-17-6Q

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 3/14/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	196

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	160	Clay
160	196	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	180	40
2 1/2	N	PVC	171	186	80
2 1/2	N	Everflo	186	196	8

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 10 sacks ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, Inc.

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 80 ft. below land surface Date 3/15/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

26

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(Use reverse side if necessary)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 50 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc Water Well Driller's License No. 786
(Type or Print)

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-6T
Located on map YOMM

DEPARTMENT OF WATER RESOURCES COPY

TDWR-0392 (12/29/83)

Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION (b) (9) [redacted] County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. 64-19-2H

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 7/27/84

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
4 1/2	Surface	150

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	110	Clay
110	150	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2	N	PVC	0	140	40
2	N	Everflo	140	150	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 1 sack ft. to _____ ft.
_____ ft. to _____ ft.
Method used Pressure
Cemented by O'Day Drilling Company, Inc.

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 27 ft. below land surface Date 7/28/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

43

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13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 20 gpm with _____ ft. drawdown after _____ hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. Box 162 Pearland, Texas 77588
(Street or RFD) (City) (State) (Zip)

(Signed) [signature] (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-6BB
Located on map yeomm

DEPARTMENT OF WATER RESOURCES COPY

TDWR-0392 (12/29/83)

STATE OF TEXAS WATER WELL REPORT

1) OWNER: (b) (6) [redacted]

2) LOCATION OF WELL: County: (b) (9) [redacted]

LEGAL DESCRIPTION:
Section No.: G-13 Block No.: NE Township: BAYTOWN
Abstract No.: MABRY Survey Name: WES HARTLESS
Distance and direction from two intersecting section or survey lines: FM 146 & CEDAR BAYOU

C-1

3) TYPE OF WORK: NEW WELL 4) PROPOSED USE: DOMESTIC 5) DRILLING METHOD: MUD ROTARY

6) WELL LOG: 13894 DIAMETER OF HOLE
DIAMETER FROM TO
4.5 0 99
7) BOREHOLE METHOD:
STRAIGHT WALL
IF GRAVEL... FROM FT. TO FT.
FROM FT. TO FT.

ATE DRILLED: 10/02/92

OLOGICAL DESCRIPTION:

FROM	TO	DESCRIPTION
	3	TOP SOIL
	9	CLAY
	24	SAND
	30	CLAY
	47	SAND
	85	CLAY
	99	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

DIA	NEW/USED	DESCRIPTION	FROM	TO	GAGE CASING SCREEN
2	N	PVC CASING	0	86	WW
2	N	PVC WRAPPED SCREEN	86	96	06

9) CEMENTING DATA:
Cemented from 0 FT. TO 10 FT.
FT. TO FT.
Method used: POURED
Cemented by: ODCI

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TEXAS WATER COMMISSION

10) SURFACE COMPLETION:
OTHER

11) WATER LEVEL:
STATIC LEVEL : 17 FT. DATE: 10/02/92
ARTESIAN FLOW: GPM. DATE:

12) PACKERS: TYPE DEPTH

TYPE PUMP:
JET PUMP
DEPTH TO PUMP:

14) WELL TEST:
JETTED
YIELD: 15 GPM WITH FT DRAWDOWN AFTER HRS

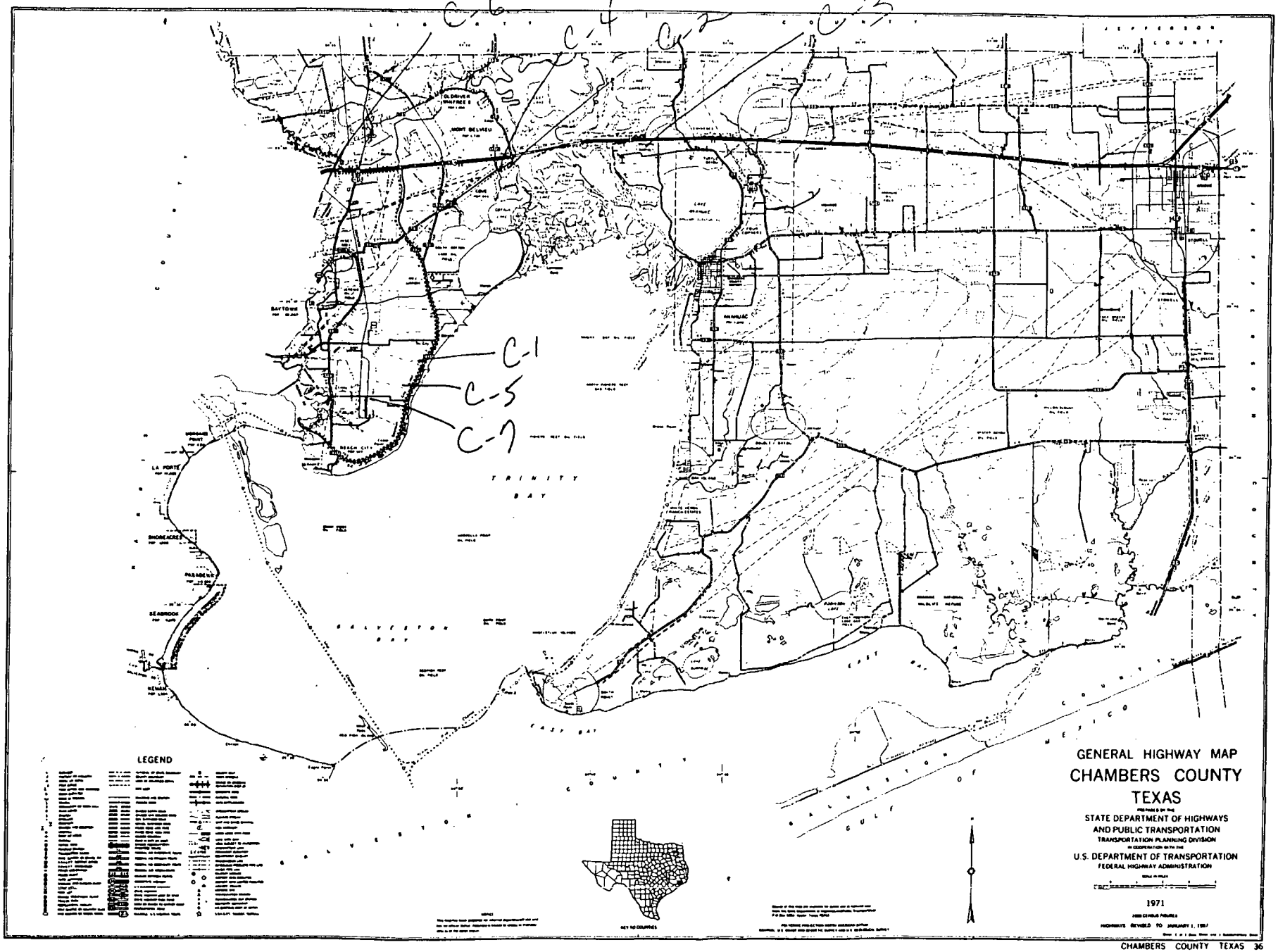
WATER QUALITY:
TYPE OF WATER: N/A DEPTH OF STRATA: 14 NO CHEMICAL ANALYSIS MADE
NO STRATA OF UNDESIRABLE WATER PENETRATED

ANY NAME: O'DAY DRILLING CO., INC. WATER WELL DRILLER'S LICENSE NO.: 1877
ESS: P. O. BOX 162 CITY: PEARLAND STATE: TX ZIP CODE: 77588

FOR TDWR USE ONLY
WELL NO.
LOCATED ON MAP 64.17.6

EBY CERTIFY THAT THIS WELL WAS DRILLED BY ME (OR UNDER MY SUPERVISION) AND THAT EACH AND ALL OF THE STATEMENTS HEREIN RUE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I UNDERSTAND THAT FAILURE TO COMPLETE ITEMS 1 THRU 12 WILL RESULT IN THE) BEING RETURNED FOR COMPLETION AND RESUBMITTAL.

ed) Michael O'Day (signed) Angel Bautista
(LICENSED WATER WELL DRILLER) (REGISTERED DRILLER TRAINEE)


C-6
C-4
C-2
C-3
C-1
C-5
C-7
TRINITY BAY
EAST BAY
GALVESTON BAY
GULF OF MEXICO
LEGEND
GENERAL HIGHWAY MAP
CHAMBERS COUNTY
TEXAS
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
1971

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Please use black ink.
Send original copy by certified mail to the
Texas Department of Water Resources
P. O. Box 13087
Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER [redacted] (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County [redacted]

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map. 64-19-2H

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 7/7/84

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	88

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top soil
3	70	Clay
70	88	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	78	40
4	N	Everflo	78	88	.8

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from _____ ft. to _____ ft.
_____ ft. to _____ ft.
Method used _____
Cemented by _____

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 27 ft. below land surface Date 7/7/84
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 100 gpm with _____ ft. drawdown after _____ hrs.

40

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(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME O'Day Drilling Company, Inc (Type or Print) Water Well Driller's License No. 786

ADDRESS P.O. BOX 162 Pearland, Texas 77588 (Street or RFD) (City) (State) (Zip)

(Signed) Orlen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-6W
Located on map 40 MM

DEPARTMENT OF WATER RESOURCES COPY

TDWR-0392 (12/29/83)

0023

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6) (Zip)

2) LOCATION (b) (9)
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

LON DUEGAY

XX See attached map. Mapson 64-09-3P

3) TYPE OF WORK (Check):
XX New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
XX Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
XX Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 10/21/82

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	339

7) BOREHOLE COMPLETION:
☐ Open Hole XX Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	322	Clay
322	339	Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	320	40
2½	N	PVC	309	329	80
2½	N	Everflo	329	339	10

CEMENTING DATA
Cemented from 12 Sacks ft. to _____ ft.
Method used Pressure
Cemented by O'DAY DRILLING CO., INC.
(Company or Individual)

9) WATER LEVEL:
Static level 130 ft. below land surface Date 10/21/82
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer XX Jetted ☐ Estimated
Yield: 40 gpm with _____ ft. drawdown after _____ hrs.

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(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes XX No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes XX No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'DAY DRILLING CO., INC. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland, Tx. (City) 77581 (State) (Zip)

(Signed) Orland O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-09-5C
Located on map Yes. F.x

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

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64-09-5A

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drille (b) (6)

Landowner Same (Name) Address Same (Street or RFD) (City) (State)

2) LOCATION (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

SEE MAP

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): (New Well) Deepening Reconditioning Plugging

4) PROPOSED USE (Check): (Domestic) Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): (Rotary) Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 340 ft. Depth of completed well 340 ft. Date drilled 4-10-78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Top
2	75	Clay
75	90	sand
90	200	clay
200	210	sand
210	312	clay
312	340	sand

(Use reverse side if necessary)

9) Casing:
Type: Old (New) Steel (Plastic) Other
Cemented from 15 sacks ft. to ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	320	40
2 1/2	310	330	80

10) SCREEN
Type Everflo
Perforated (Slotted)

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2 1/2	330	340	12

7) COMPLETION (Check):
Straight wall Gravel packed (Other)
Under reamed Open Hole

8) WATER LEVEL:
Static level 170 ft. below land surface Date 4-10-78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft.
below land surface.

11) WELL TESTS:
Was a pump test made? (Yes) No If yes, by whom? air comp
Yield: 45 gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes (No)
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS PO Box 1162 (Street or RFD) Pearland (City) Texas (State)

(Signed) Orlen O'Day (Water Well Driller)

O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-6

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Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas
DEPT. OF WATER RESOURCES
WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received: 7-25-78

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

2) LOCATION:
County (b) (9) [redacted] (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*
BAY TOWN 565
North
MIDWAY RD
HWY 146
(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.
Labor _____ League _____
Block _____ Survey _____
Abstract No. _____
(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 116 ft. Depth of completed well 116 ft. Date drilled 3,7 78
All measurements made from 1 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
[illegible]		
1	8	SUR
8	70	YELLOW
70	90	GRAY
90	100	BLUE
100	116	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage

10) SCREEN:
Type PLAST
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
10	116		15

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 3.6 ft. below land surface Date _____
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, (jet,) etc., 60 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No ✓
Type of water? HARD depth of strata 116

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME L D HARMON (Type or Print) Water Well Drillers Registration No. 666

ADDRESS RT 2 BOX 176 (Street or RFD) BAY TOWN (City) TX 77520 (State)

(Signed) L D Harmon (Water Well Driller) HWW Wells (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

U0232

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64099L GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

OCT 5 1978

WATER WELL REPORT

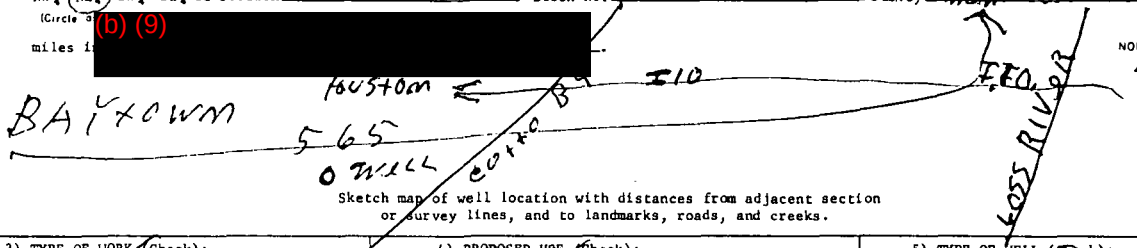
DEPT. OF

For TWDB use only
Well No. 64-09-9L
Located on map YES
Received: TH
Form GW 8

1) OWNER:
Person having well drilled (b) (6)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County CHAMBERS Labor League Abstract No.
NW¼ (NE¼) SW¼ SE¼ of Section Block No. Survey MONT BELVIEU
(Circle one)
miles in (b) (9)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 2 in. Depth drilled 126 ft. Depth of completed well 126 ft. Date drilled 7-7-78
All measurements made from / ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
1	4	SURF
4	100	SAND
100	116	BLUE
116	126	SAND

(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☑ Gravel packed ☐ Other ☐
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 21 ft. below land surface Date 7-7-78
Artesian pressure ___ lbs. per square inch Date ___

9) CASING:
Type: old ☐ New ☐ Steel ☐ Plastic ☑ Other ☐
Cemented from ___ ft. to ___ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type PLASTIC
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2	116	126	12

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?
Yield: ___ gpm with ___ ft. drawdown after ___ hrs
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs
Artesian flow ___ gpm Date ___
Temperature of water ___
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☑ No
Type of water? HARD depth of strata ___

12) PUMP DATA:
Manufacturer's Name SARREL
Type ___ H.P. 1HP 2.5
Designed pumping rate ___ gpm ☐ gph ☐
Type power unit ___
Depth to bowls, cylinder, (jet,) etc., 60 ft.
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME C D HARMON (Type or Print) Water Well Drillers Registration No. 666
Address R 2 BOX 176 BAYTOWN TEX (Street or RFD) (City) (State)
(Signed) C D Harmon (Water Well Driller) HWH WELL (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-902
Located on map yes
Received: C.R.S.

1) OWNER (b) (6) (Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION (b) (9) County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map. map on 64-10-4X

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 11-6-81

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	85

7) BOREHOLE COMPLETION:
☐ Open Hole ☑ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	3	TOP SOIL
3	60	CLAY
60	85	SAND

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
4	N	PVC	0	65	40	
4	N	EVERFLO	65	85		12

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 100 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

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11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 15 gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

(Use reverse side if necessary)

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME ORLEN O'DAY (Type or Print) Water Well Drillers Registration No. 786

ADDRESS P. O BOX 162 (Street or RFD) PEARLAND (City) TX (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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64099C GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

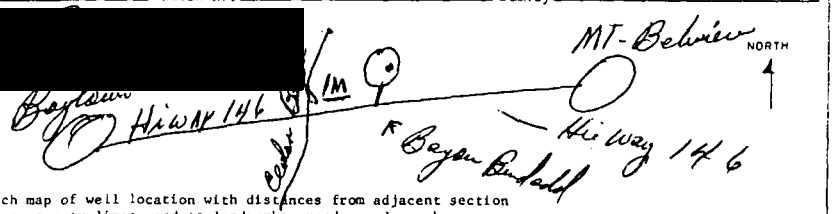
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-9C
Located on map V-5
Received: 68
Form GW 8
Form GW 9

1) OWNER: (b) (6)
Person
Landow

2) LOCATION OF WELL:
County Chambers Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as
miles in (b) (9)



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check): New Well ☑ Deepening ☐ Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check): Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check): Rotary ☑ Driven ☐ Dug ☐ Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG: Diameter of hole 6 3/4 in. Depth drilled ft. Depth of completed well 330 ft. Date drilled 10-22-67

All measurements made from ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	6	Surface
6	20	Clay yellow
20	40	Brown Clay
40	110	Blue Clay
110	120	Sandy Clay
120	160	Blue Clay
160	185	Yellow Clay
185	193	Sandy Clay
193	240	Yellow Clay
240	248	Sandy Clay
248	295	Blue Clay
295	305	Sandy Clay
305	330	Sand

(Use reverse side if necessary)

7) COMPLETION (Check): Straight wall ☑ Gravel packed ☐ Other ☐ Under reamed ☐ Open hole ☐

8) WATER LEVEL: Static level 126 ft. below land surface Date 10-22-67 Artesian pressure lbs. per square inch Date

9) CASING: Type: old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐ Cemented from ft. to ft.

10) SCREEN: Type Stainless Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	320	Sch 40

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
4"	320	330	12 Gauge

11) WELL TESTS: Was a pump test made? ☐ Yes ☑ No If yes by whom?

Yield: gpm with ft. drawdown after hrs

Bailer test gpm with ft. drawdown after hrs

Artesian flow gpm Date

Temperature of water

Was a chemical analysis made? ☐ Yes ☑ No

Did any strata contain undesirable water? ☐ Yes ☐ No

Type of water? depth of strata

12) PUMP DATA: Manufacturer's Name Ruth Benny

Type Sub. H.P. 1 hp

Designed pumping rate 1320 gpm ☐ gph ☑

Type power unit Elect

Depth to bowls, cylinder, jet, etc., 210 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME E. D. HARMON (Type or Print) Water Well Drillers Registration No. 666

Address Rt 4 Box 176 (Street or RFD) Baytown (City) Tx (State)

(Signed) E D Harmon (Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

2

00205

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-09-8P
Located on map Yes
Received: C-F-S

1) OWNER BAY-Temp Control (b) (6) (Name) Address P.O Box 1081 (Street or RFD) Baytown (City) TX (State) 77520 (Zip)

2) LOCATION OF WELL:
County Harris ____ miles in ____ (N.E., S.W., etc.) direction from ____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____

☐ See attached map. mapon 65-06-12

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other ____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	320

Date drilled 8/17/84

From (ft.)	To (ft.)	Description and color of formation material
0	23	Top Soil + CLAY
23	35	Sand
35	102	CLAY
102	148	Sand
148	262	CLAY
262	298	Sand
298	301	CLAY
301	320	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other ____
If Gravel Packed give interval ... from ____ ft. to ____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	295	
2	N	Galv.	289	310	
2	N	PVC	310	320	.025

CEMENTING DATA
Cemented from 0 ft. to 10 ft.
Cemented from .245 ft. to 295 ft.
Method used Halliburton
Cemented by Bussell & Son, Inc. (Company or Individual)

9) WATER LEVEL:
Static level 111 ft. below land surface Date 8/10/84
Artesian flow ____ gpm. Date ____

10) PACKERS: Type ____ Depth ____

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11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., ____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Baller ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Craig O. Bussell (Type or Print) Water Well Drillers Registration No. 2025

ADDRESS P.O. Box 874 (Street or RFD) Tomball (City) TX (State) 77375 (Zip)

(Signed) Craig Bussell (Water Well Driller) Bussell & Son Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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Send original copy by certified mail to the Texas Water Development Board
P. O. Box 13087
Austin, Texas 78711

State of Texas

SEP 14 1978

WATER WELL REPORT

For TWDB use only
Well No. 64-09-8P
Located on map
Received:

1) OWNER:
Person having well dri[illegible] (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, miles in direction from (N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

7

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League

Block Survey

Abstract No.

(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 4/17/78
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	35	yellow clay
35	185	Red clay
185	245	Blue clay
245	280	Red clay
280	338	Blue clay
338	360	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 275 ft. to 350 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
4	0	350	Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
2½	350	360	12 ga.

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 4/17/78
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Tex (State)

(Signed) Millard M Smith (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

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Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT WATER RESOURCES

For TWDB use only
Well No. 64-39-[illegible]
Located on map
Received:

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Sam [redacted] (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

20 North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

3) TYPE OF WORK (Check):
New Well ✓ Deepening
Reconditioning Plugging

4) PROPOSED USE (Check):
Domestic ✓ Industrial Municipal
Irrigation Test Well Other

5) TYPE OF WELL (Check):
Rotary ✓ Driven Dug
Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 360 ft. Depth of completed well 360 ft. Date drilled 6/30/78

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0-5		Surface
5-45		Yellow Clay
45-120		Red Clay
120-135		Sand
135-240		Red Clay
240-335		Blue Clay
335-360		Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel Plastic ✓ Other
Cemented from 300 ft. to 350 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	350	~~[illegible]~~ Sch 40

10) SCREEN:
Type Plastic
Perforated Slotted ✓

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	350	360	12 gal.

7) COMPLETION (Check):
Straight wall Gravel packed Other ✓
Under reamed Open Hole

8) WATER LEVEL:
Static level 161 ft. below land surface Date 6/30/78
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No ✓ If yes, by whom?
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No ✓
Did any strata contain undesirable water? Yes No.
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main Highlands Tex. (Street or RFD) (City) (State)

(Signed) Millard M. Smith (Water Well Driller) A&L Pump & Well Ser. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00003

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-17-1D
Located on map
Received:

1) OWNER (b) (6) [redacted]

2) LOCATION (b) (9) [redacted]
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 8-20-80

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6	Surface	103

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	5	Sand
5	12	Clay
12	16	Sand
16	52	Clay
52	53	Rock
53	60	Sand
60	79	Clay
79	80	Rock
80	103	Fine Sand

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☑ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plastic	0	80	40
		Open hole.	80		

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 28 ft. below land surface Date 8-20-80
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth
Rubber — 79'

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☑ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 10 gpm with 50 ft. drawdown after 20 min.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

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CR/TDWR

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Allen G Roeder (Type or Print) Water Well Drillers Registration No. _____

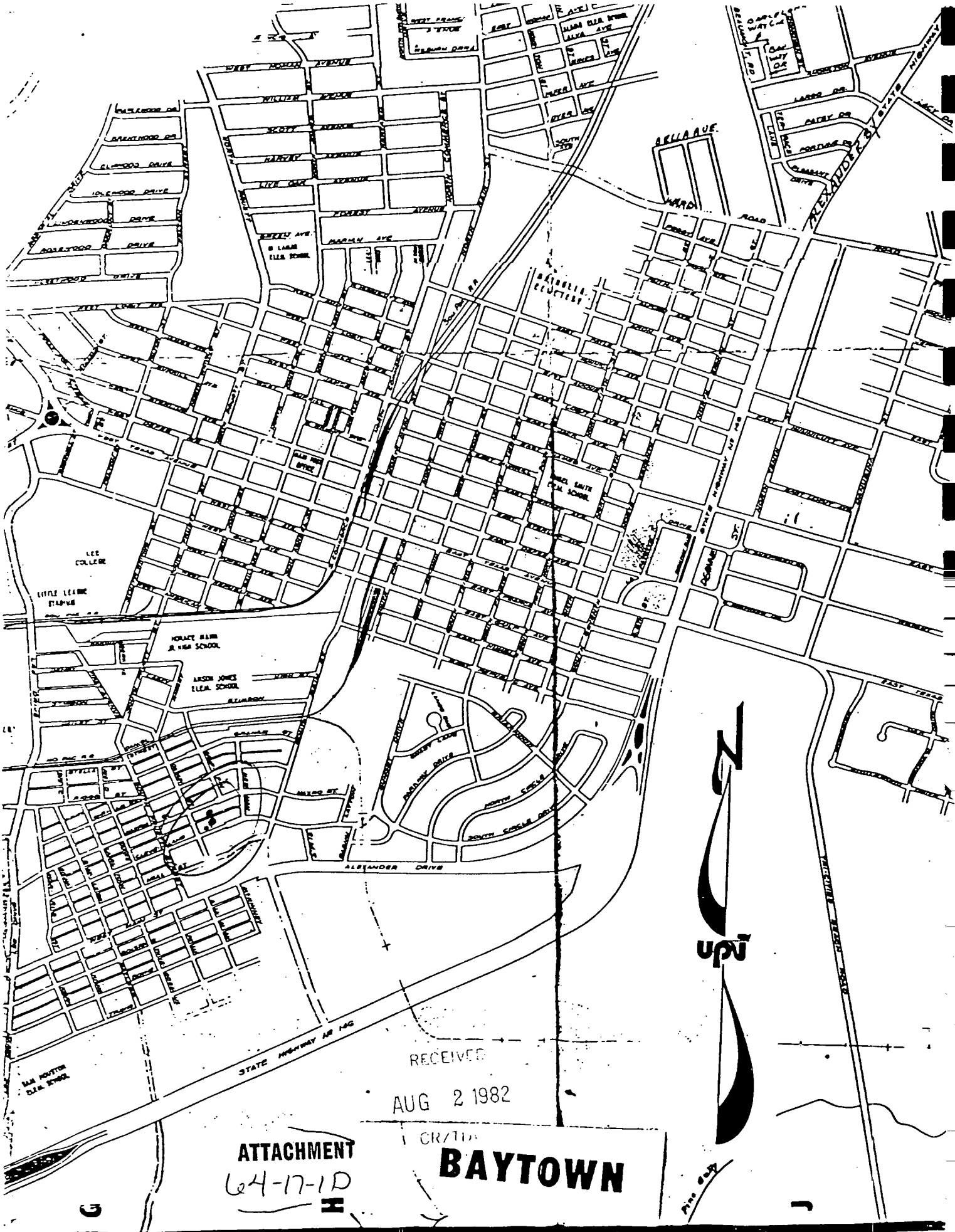
ADDRESS 312 N 6th (Street or RFD) Baytown (City) TX (State) 77520 (Zip)

(Signed) Allen G Roeder (Water Well Driller) Allen's (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY



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ATTACHMENT
64-17-1D

BAYTOWN

HARRIS COUNTY Texas 102

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 64-17-10
Located on map
Received:

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL (b) (9) [redacted]
County

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 7-15-80

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
4 4/8	Surface	123

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	12	Clay
12	16	Sand
16	52	Clay
52	53	Rock
53	60	Sand
60	79	Clay
79	80	Rock
80	103	Fine Sand

7) BOREHOLE COMPLETION:
☑ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2	N	Plastic	0	80	40
		Open Hole		80	

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 28 ft. below land surface Date 7-15-80
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Rubber Depth 77'

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☑ Cylinder
☐ Other Pitcher pump
Depth to pump bowls, cylinder, jet, etc., 30 ft.

12) WELL TESTS:
☐ Type Test: ☑ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 3 gpm with _____ ft. drawdown after _____ hrs.

RECEIVED
AUG 2 1982
CR/TD

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Allen Co. Roeder (Type or Print) Water Well Drillers Registration No. _____

ADDRESS 312 N. Main (Street or RFD) Baytown (City) TX (State) 77520 (Zip)

(Signed) Allen D Roeder (Water Well Driller) Allen (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR 0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received:

1) OWNER:
Person having well drille [redacted]

Landowner Same
(Name) Address (Street or RFD) (City) (State)

2) LOCATION O [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

2.

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6 1/2 in. Depth drilled 206 ft. Depth of completed well 206 ft. Date drilled 3/13/70
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	82	Yellow clay
82	103	Sand
103	170	Blue clay
170	206	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel ✓ Plastic Other
Cemented from 0 ft. to 189 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	189	Sch. 40

10) SCREEN:
Type Plastic wrapped
Perforated ✓ Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	191	206	52 Ga.

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 23 ft. below land surface Date
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 147 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith (Type or Print) Water Well Drillers Registration No. 467

ADDRESS 12401 Kayla Ln (Street or RFD) Houston (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER (b) (6)

2) LOCATION OF WELL County (b) (9) (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map. mapon 65-29-3Y

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 11-16-83

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	152

From (ft.)	To (ft.)	Description and color of formation material
0	3	Top Soil
3	55	Clay
55	70	Sand
70	135	Clay
135	157	Sand

7) BOREHOLE COMPLETION:
☐ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	0	142	40
4	N	Everflo	142	152	80

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: 80 gpm with _____ ft. drawdown after _____ hrs.

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JAN 23 1984
DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME O'Day Drilling Co., Inc. (Type or Print) Water Well Driller's License No. 786

ADDRESS P. O. Box 162 (Street or RFD) Pearland (City) Texas (State) 77581 (Zip)

(Signed) Allen O'Day (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. 64-17-5F
Located on map yes C.F.S.

TDWR 0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

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SEP 14 1978
DEPT. WATER RESOURCES

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas WATER WELL REPORT

For TDWR use only
Well No. 21-17-5E
Located on map
Received: 78

1) OWNER (b) (6) [redacted] (Name) Address (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:
County Harris, _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

11
3

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☑ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 11/10/77

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	535

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☑ Other 2-String
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0-5		SURFACE
5-15		yellow clay
15-25		Shale
25-130		RED clay
130-145		SAND
145-205		Blue clay
205-215		SAND
215-490		Blue clay
490-535		SAND

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	Plas.	0	520	Sch 40
2 1/2	N	Plas-Slot	520	535	12 Gal

CEMENTING DATA
Cemented from 440 ft. to 520 ft.
Method used Pressure
Cemented by A&L (Company or Individual)

9) WATER LEVEL:
Static level 200 ft. below land surface Date 11/10/77
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbin ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 273 ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: 100 gpm with 10 ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☑ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr (Type or Print) Water Well Drillers Registration No. 1587
ADDRESS 2103 N. Main (Street or RFD) Highland (City) Tex (State) (Zip)
(Signed) Millard M Smith (Water Well Driller) A&L Pump & Well Serv. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.
WR-0392

00315

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

For TDWR use only
Well No.
Located on map
Received:

1) OWNE[redacted] (b) (6)
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCAT[redacted] (b) (9)
Count

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

#38

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☐ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 6-11-78

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
4½	Surface	80

7) BOREHOLE COMPLETION:
☒ Open Hole ☒ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	2	top
2	68	Clay
68	80	sand
80	-	total depth

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2"	N	PVC casing	0	70	Sch 80
2"	N	Screen-Slotted	70	80	.020

CEMENTING DATA
Cemented from _____ ft. to _____ ft.
Method used _____
Cemented by _____ (Company or Individual)

9) WATER LEVEL:
Static level 12 ft. below land surface Date 6-11-78
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbin ☒ Jet ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Orlen O'Day (Type or Print) Water Well Drillers Registration No. 786

ADDRESS POBOX 162 (Street or RFD) Pearland (City) Tx. (State) 77581 (Zip)

(Signed) Orlen O'Day (Water Well Driller) O'DAY DRILLING CO., INC. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TDWR-0392

00316

64-09-7N GW 7

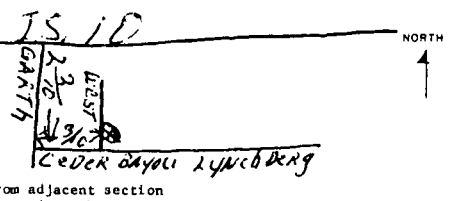
Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711	State of Texas WATER WELL REPORT	For TWDB use only Well No. [illegible] Located on map [illegible] Received: [illegible] Form GW 8 Form GW 9

1) OWNER:
Person having well dril[redacted] (Name) (Street or RFD) (City) (State)

Landowner SAME (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County HARRIS Labor League Abstract No.

NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey 5
(Circle as [redacted]
miles in [redacted]



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 355 ft. Depth of completed well 355 ft. Date drilled 2/12/72
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE			
5	65	RED CLAY			
65	90	SAND			
90	310	BLUE CLAY			
310	355	SAND			
					(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 145 ft. below land surface Date 2/12/72
Artesian pressure ___ lbs. per square inch Date ___

9) CASING:
Type: old ☐ New ☑ Steel ☑ Plastic ☐ Other ☐
Cemented from 280 ft. to 335 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	335	Sch 40

10) SCREEN:
Type PLASTIC
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	245	255	14 GA

11) WELL TESTS:
Was a pump test made? ☐ Yes ☑ No If yes by whom?

Yield: ___ gpm with ___ ft. drawdown after ___ hrs
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs
Artesian flow ___ gpm Date ___
Temperature of water ___
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? ___ depth of strata ___

12) PUMP DATA:
Manufacturer's Name FAIRBANKS MORSE
Type SCB H.P. 1
Designed pumping rate 800 gpm ☐ gph ☑
Type power unit ___
Depth to bowls, cylinder, jet, etc., 210 ft. below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME MILLARD SMITH (Type or Print) Water Well Drillers Registration No. 467
Address 2103 N. MAIN HIGHLANDS TEXAS (Street or RFD) (City) (State)
(Signed) Millard Smith (Water Well Driller) A+L Pump + Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

00217

Please use black ink.
Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board
P. O. Box 13087
Austin, Texas 78711

1) OWNER (b) (6) [redacted]

2) LOCATION OF WELL:
County Harris _____ miles in _____ (N.E., S.W., etc.) direction from _____ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

Map 12 ☒ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:
Date drilled 2Sept82

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
6½	Surface	310
3768	310	330

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☐ Other dual string
If Gravel Packed give interval . . . from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Black Gumbo
5	12	Yellow Clay
12	60	red clay
60	92	sand
92	115	red clay
115	128	blue clay
128	155	sand
155	245	red cly
245	301	blue clay
301	330	sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	PVC	t2	310	40
2½	N	PVC slotted	308	330	12

9) CEMENTING DATA [Rule 319.44(b)]
Cemented from 310 ft. to surfane ft.
_____ ft. to _____ ft.
Method used haliburton
Cemented by Self

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed [Rule 319.44(c)]
☐ Pitless Adapter Used [Rule 319.44(d)]
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:
Static level 160 ft. below land surface Date 2 Sept
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 210 ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

RECEIVED
JUL - 2 1985
DEPT. OF WATER RESOURCES

(Use reverse side if necessary)

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☒ No

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnson,s WellService (Type or Print) Water Well Driller's License No. 1807

ADDRESS 8033 Talcott Houston Texas 77049 (Street or RFD) (City) (State) (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Dup

For TDWR use only
Well No. 64-09-7CC
Located on map Yes DLE

Please attach electric log, chemical analysis, and other pertinent information, if available.

DEPARTMENT OF WATER RESOURCES COPY

00313

CB Lomelle

(75-7042) 64-09-7N Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 13087 Austin, Texas 78711

State of Texas

WATER WELL REPORT

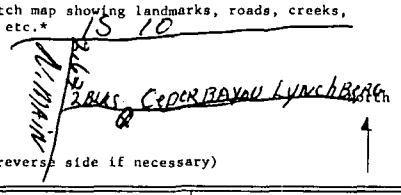
For TWDB use only
Well No. 64-09-7N
Located on map yes
Received: 76

1) OWNER:
Person having well drilled (b) (6) [redacted]

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF (b) (9) [redacted]
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.* 15 10



(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): Rotary, Driven, Dug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 335 ft. Depth of completed well 335 ft. Date drilled 11/12/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	25	WHITE CLAY
25	200	RED CLAY
200	295	BLUE CLAY
295	335	SAND

(Use reverse side if necessary)

9) Casing:
Type: Old, New, Steel, Plastic, Other
Cemented from 260 ft. to 320 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	320	SCH 40

10) SCREEN:
Type Plastic
Perforated, Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2 1/2	325	335	12 ga.

7) COMPLETION (Check):
Straight wall, Gravel packed, Other, Under reamed, Open Hole

8) WATER LEVEL:
Static level 150 ft. below land surface Date 11/12/75
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 231 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom?
Yield: gpm with ft. drawdown after hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes No
Did any strata contain undesirable water? Yes No.
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith Jr. (Type or Print) Water Well Drillers Registration No. 1587

ADDRESS 2103 N. Main (Street or RFD) Highlands (City) Texas (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-WD-8

00210

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087**

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

1) **OWNER** (b) (6) [redacted]

2) **ADDRESS** (b) (9) [redacted]
County [redacted]

GRID # 64-09-7

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening
☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic
☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) **WELL LOG:**
Date Drilling:
Started 21 Sept 19 94
Completed 22 Sept 19 94

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6½	Surface	310
3⅞	310	330

7) **DRILLING METHOD (Check):** ☐ Driven
☐ Air Rotary ☑ Mud Rotary ☐ Bored
☐ Air Hammer ☐ Cable Tool ☐ Jetted
☐ Other _____

N

From (ft.)	To (ft.)	Description and color of formation material
0 –	80	Clay
80 –	110	sand
110 –	310	Clay
310 –	330	sand

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall
☐ Underreamed ☐ Gravel Packed ☐ Other Dual Stay
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	+2	310	40
2½	N	PVC	300	300	40
2½	N	PVC Slotted #10	320	330	40

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 310 ft. to 110 ft. No. of sacks used 20
_____ ft. to _____ ft. No. of sacks used _____
Method used Halibuster
Cemented by Self
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance No Sewer

13) **TYPE PUMP:**
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

10) **SURFACE COMPLETION**
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

14) **WELL TESTS:**
Type test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) **WATER LEVEL:**
Static level 103 ft. below land surface Date 22 Sept 94
Artesian flow _____ gpm. Date _____

15) **WATER QUALITY:**
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) **PACKERS:** Type Depth

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Johnsons Well Serc (Type or print) **WELL DRILLER'S LICENSE NO.** 1807 WPK

ADDRESS 8933 Talcott Ln (Street or RFD) Hou (City) Tx (State) 77040 (Zip)

(Signed) Randall Johnson (Licensed Well Driller) **(Signed)** _____ (Registered Driller Trainee)

00220

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 11-01-94)

TNRCC COPY

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map
Received:

1) OWNER:
Person having well drille[redacted] (b) (6)

Landowner Same (Name) Address (Street or RFD) (City) (State)

2) LOCATION OF [redacted] (b) (9)
County

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

7

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor League
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): New Well ✓ Deepening Reconditioning Plugging

4) PROPOSED USE (Check): Domestic ✓ Industrial Municipal Irrigation Test Well Other

5) TYPE OF WELL (Check): Rotary ✓ Driven Dug Cable Jetted Bored

6) WELL LOG:
Diameter of hole 6½ in. Depth drilled 335 ft. Depth of completed well 335 ft. Date drilled 5/8/7
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Black gumbo
5	285	Blue clay
285	335	Sand

(Use reverse side if necessary)

9) Casing:
Type: Old New ✓ Steel ✓ Plastic Other
Cemented from 275 ft. to 315 f

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4"	0	315	Sch 4

10) SCREEN:
Type ~~Plastic wrapped~~ Stainless Steel
Perforated ✓ Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size
2½	325	335	12 c

7) COMPLETION (Check):
Straight wall ✓ Gravel packed Other
Under reamed Open Hole

8) WATER LEVEL:
Static level 152 ft. below land surface Date 5/8/70
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 210 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes (No) If yes, by whom?
Yield: gpm with ft. drawdown after hrs
Bailer test gpm with ft. drawdown after hr
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? Yes (No)
Did any strata contain undesirable water? Yes No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith (Type or Print) Water Well Drillers Registration No. 467

ADDRESS 12401 Kayla Ln. (Street or RFD) Houston (City) Texas 77015 (State)

(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDBE-GW-53

00221

7U

64-09-7U GW 7

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

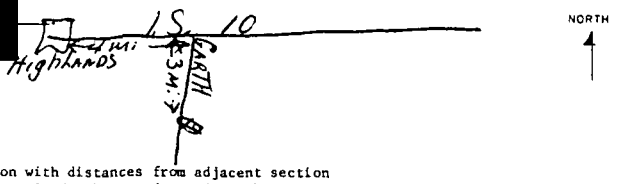
State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 64-09-7U
Located on map
Received: 9/
Form GW 8
Form GW 9

1) OWNER:
Person having well drilled (b) (6) [redacted]
Landowner San (Name) (Street or RFD) (City) (State)

2) LOCATION OF WELL:
County Harris Labor League Abstract No.
NW¼ NE¼ SW¼ SE¼ of Section Block No. Survey
(Circle as m
miles in (b) (9) [redacted]



Sketch map of well location with distances from adjacent section or survey lines, and to landmarks, roads, and creeks.

3) TYPE OF WORK (Check):
New Well ☑ Deepening ☐
Reconditioning ☐ Plugging ☐

4) PROPOSED USE (Check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

5) TYPE OF WELL (Check):
Rotary ☑ Driven ☐ Dug ☐
Cable ☐ Jetted ☐ Bored ☐

6) WELL LOG:
Diameter of hole 6 3/4 in. Depth drilled 330 ft. Depth of completed well 330 ft. Date drilled 9/30/75
All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	5	SURFACE
5	70	RED CLAY
70	92	SAND
92	295	BLUE CLAY
295	330	SAND

From (ft.)	To (ft.)	Description and color of formation material
		(Use reverse side if necessary)

7) COMPLETION (Check):
Straight wall ☐ Gravel packed ☐ Other ☑
Under reamed ☐ Open hole ☐

8) WATER LEVEL:
Static level 181' ft. below land surface Date 9/30/75
Artesian pressure ___ lbs. per square inch Date

9) CASING:
Type: old ☐ New ☑ Steel ☐ Plastic ☑ Other ☐
Cemented from 245 ft. to 320 ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage
4	0	320	SCH 40

10) SCREEN:
Type Plastic
Perforated ☐ Slotted ☑

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot size
2½	320	330	12 ga.

11) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes by whom?
Yield: ___ gpm with ___ ft. drawdown after ___ hrs
Bailer test ___ gpm with ___ ft. drawdown after ___ hrs
Artesian flow ___ gpm Date
Temperature of water
Was a chemical analysis made? ☐ Yes ☐ No
Did any strata contain undesirable water? ☐ Yes ☐ No
Type of water? depth of strata

12) PUMP DATA:
Manufacturer's Name Fairbanks-Morse
Type Sub H.P. 1
Designed pumping rate ___ gpm ☐ gph ☐
Type power unit elec.
Depth to bowls, cylinder, jet, etc., 240 ft.
below land surface.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Millard M. Smith, Jr. (Type or Print) Water Well Drillers Registration No. 1587
Address 2103 N. Main (Street or RFD) Highlands (City) Texas (State)
(Signed) Millard Smith (Water Well Driller) A&L Pump & Well Service (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Send original copy by certified mail to: **TNRCC, P.O. Box 13087, Austin, TX 78711-3087** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas
WELL REPORT

Texas Water Well Drillers Advisory Council
P.O. Box 13087
Austin, TX 78711-3087

1) OWNER (b) (6) [redacted] (Zip)

2) ADDRESS OF WELL: County HARRIS (Street or RFD) (City) (State) (Zip) STATE WELL # 64-09-7

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5)

6) WELL LOG:
Date Drilling: Started 4/13 19 95 Completed 4/14 1995

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
	Surface	
6 3/4		333

7) DRILLING METHOD (Check): ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

N

From (ft.)	To (ft.)	Description and color of formation material
0	5	Surface
5	55	Yellow c/Ay
55	140	Red c/Ay
140	300	Blue c/Ay
300	333	Sand

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 2 String
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	PVC	0	315	sch40
2	N	PVC Slotted	323	333	14ga

RECEIVED
JUN 14 1995
TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

(Use reverse side if necessary)

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 175 ft. to 315 ft. No. of sacks used 10
_____ ft. to _____ ft. No. of sacks used _____
Method used Pressure
Cemented by A+L
Distance to septic system field lines N/A ft.
Method of verification of above distance _____

13) TYPE PUMP:
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., 210 ft.

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 338.44(2)(A)]
☑ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

14) WELL TESTS:
Type test: ☑ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: 10 gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL:
Static level 90 ft. below land surface Date 4/14/95
Artesian flow _____ gpm. Date _____

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☑ No

12) PACKERS: Type Depth
N/A

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME A+L Well Service (Type or print) WELL DRILLER'S LICENSE NO. 1587

ADDRESS 2103 N Main (Street or RFD) Highlands (City) TX (State) 77562 (Zip)

(Signed) Millard M Seale Jr. (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

00033

Please attach electric log, chemical analysis, and other pertinent information, if available.

TNRCC-0199 (Rev. 09-01-93)

TNRCC COPY

TNRCC Public Water Supply
Region 12 Inspection Reports

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 28, 1997

CERTIFIED #P298 550 236

The Honorable Pete Alfaro, Mayor
City of Baytown
P.O. Box 424
Baytown, Texas 77520

Re: Public Water Supply
City of Baytown
ID #1010003
Sanitary Survey

Dear Mayor Alfaro:

On August 18, 1997, Region Office representative, Sri Goddanti, in company with Rodney Sellers, conducted a sanitary survey of the subject water system. As a result of this survey, remedial measures must be taken to correct the deficiencies listed in "Attachment A" so that the water system may be operated and maintained in accordance with the requirements for a "Superior" public water supply. During the inspection and exit interview, our representative noted and discussed with Rodney Sellers an outstanding alleged violation explained in the enclosed "Attachment A".

The staff of the Texas Natural Resource Conservation Commission is dedicated to working with the regulated community to achieve compliance with the state's environmental laws, regulations, permit, and registration provisions. Therefore, our regional office wishes to resolve this matter with you as soon as possible. Please advise this office in writing by September 28, 1997, as to the actions being taken to correct the violations listed on "Attachment A".

Should clarification of this letter be desired, or if the Houston Region Office can be of any further assistance concerning this survey, please feel free to contact Sri Goddanti at (713) 767-3650.

Sincerely,

Don Thompson, R.S.
Team Leader
Public Water Supply
Region 12

DT/sg
Enclosure
cc: Harris Co. Health Dept.
TNRCC-Water Utilities Div.

ATTACHMENT A

Name of System: City of Baytown ID #1010003

Survey Date: August 18, 1997
Surveyed By: Sri Goddanti

Summary of Outstanding Alleged Violations

30 TAC, §290.46(m); Operating Practices for Public Water Systems
A maintenance program must be initiated to improve the general appearance of all plant facilities and reduce costly repairs due to a lack of proper maintenance. This program should include the painting the West Main elevated storage tank.

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 1010003 Community ___ NTNC ___ Non-Comm ___

CCN No. ___ Superior X Approved ___ Status? ___ Region 12

Name of System Baytown City of County Harris

Physical location 7425 Thompson Rd. BAWA Treatment Plant

Responsible Official Pete Alfaro Title Mayor Phone 281-420-5306

Mailing Address P.O Box 424, TX 77520

Chief Cert Op Name Mark La Blanc Grade & Type 'C' water Dist. Phone ___

2nd Op Req'd? Y Other Cert Op Name Rodney sellers Grade & Type C Cground Total # Cert Ops ___

WS Manager/~~Superintendent~~ Mark La Blanc. Other Officials Contacted none

Surveyed With Rodney sellers Area Served City of Baytown.

Supplier and Source Surface water + 9 wells (Demand only)

Interconnection with another PWS? Y Name PWS I/C BAWA Type I/C open

Retail Service Connections 18,000 Retail Meters 18,000 Retail Population 70,000

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

Minimum Charge ? ___ Per ___ Thous. Dist. to and Name of Nearest PWS BAWA - I/C

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 3-30-94

Map Attached no Previous Map OK? yes Well Operational Status Changed? no

Description of Supply, Source, Treatment, and Chemicals Used 100% surface water from BAWA 9 wells for Demand only. Seven elevated tanks. Gas chlorination at well sites.

Total Well Cap. 6,883 gpm 9.911 mgd RW Cap — gpm — mgd

Treatment Cap. ___ gpm ___ mgd Total Svc. Pump Cap. 1200 gpm 1.728 mgd

Total Elevated Storage 4.65 MG Total Storage Cap. 4.65 MG Pressure Tank Capacity NA

Maximum Daily Usage 15 MG Date 08-06-96 Average Daily Usage 9.68 MG Time Period Aug 96 - Jul 97

Wholesale Contract BAWA Maximum Purchase Rate Contract Attached.

MICROBIOLOGICAL

	Y	N			
Samples Submitted in Accordance with DWS?	X	☐	Number of Samples Required 70	# Submitted 75	
Raw Samples Submitted, if Required?	—	☐	Number of Raw Samples —		
Well(s) Surface Water Influenced?	☐	X	Non-Comm. Dates of Operation —	Thru —	
Acceptable Sample Siting Plan on File?	X	☐			

CHEMICAL

Acceptable Quality? Y Date, Last Chemical Analysis IOC ___ RC ___ VOC ___ SOC ___

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? ___ Date ___

Date of Survey 8/18/97 By Sri Goddanti

Date of Approval 9-22-97 By Dan Thyer

Letter Date, if different from Approval Date ___ Reply Requested ~~10~~ 9/28/97 Def. Score of this Survey 0

00203

I.D. #: 1010003

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	X	
Daily Usage Shown?	[.46(d)]	X	
MOR's Properly Completed?	[.46(d)]	X	
Dead End Mains Flushed?	[.46(l)]	X	
New Lines and Repairs Disinfected?	[.46(g)]	X	
Supply of Disinfectant on Hand?	[.46(h)]	X	
Distribution Map Up-to-Date?	[.46(n)]	X	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	X	
Adequate Chemical Storage Provided?	[.42(d)(6)]	X	
ANSI/NSF Approved Chem/Media?	[.42]	X	
Facilities Properly Maintained?	[.46(m) & (p)]	X	
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]		NA
Sanitary facilities available, if needed?	[.42(g)]	X	

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]	X	
Tanks Tight Against Leakage?	[.43(c)(6)]	X	
Vents Properly Installed?	[.43(c)(1)]	X	
Proper Roof Hatch Provided?	[.43(c)(2)]	X	
Roof Hatch Kept Locked?	[.43(c)(2)]	X	
Proper Overflow Provided?	[.43(c)(3)]	X	
Proper Water Level Indicator Provided?	[.43(c)(4)]	X	
Drains Properly Connected?	[.43(c)(7)]	X	
Inlet and Outlet Properly Located?	[.43(c)(5)]	X	
Intruder Resistant Fence?	[.43(e)]	X	
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		X
Below Ground Storage Properly Located?	[.43(b)]		NA
Inspection Ladder Provided?	[.43(c)]	X	

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	NA	
Pressure Release Device Provided?	[.43(d)(2)]		
Proper Facilities for Air/Water Ratio?	[.43(d)(3)]		
Air-Water Volume Indicator Provided?	[.43(d)(3)]		
Tanks Tight Against Leakage?	[.43(d)(7)]	NA	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]		
Fenced or Housed?	[.43(e)]		
ASME, if Required?	[.43(d)(1)]		

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	X	
Customer Service Inspections Recorded?	[.46(j)]	X	
Backflow Assembly Report Recorded, if needed?	[.44(h)(4)(D)]	X	
Sewer Lines Properly Located?	[.44(c)]	X	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	X	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	X	
Properly Installed Distribution Piping?	[.44(a)]	X	
Adequate Flush/Gate Valves?	[.44(d)(6)]	X	
Air Release Valves Properly Installed?	[.44(d)(1)]	X	
In-Line Booster Pumps in System? Location		0	
In-Line Booster Pumps in System Approved?			NA
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]		

Tested psi/Locations 10026 Pinehurst ⇒ 60

910 E. Foyle ⇒ 64

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(e)]	X	
Type Disinfection Used: Gas chlorination			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	X	
Disinfection Room Properly Vented?	[.42(e)(7)]	X	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	X	
Scales Provided?	[.42(e)(4)(D)]	X	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	X	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	X	
Mg/L (T/F)/Locations 1.04 mg/L			
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	X	
IF AMMONIA FEED PROVIDED			
Properly Housed/Vented?	[.42(e)(10)]		NA
Scales or Gauges Provided?	[.42(e)(4)(D)]		

00207

I.D. # 1010003

VI. SYSTEM FACILITIES

Number of Connections _____

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	Oper. Status	Well Depth	Pump Type	Rated GPM	Tested GPM/Date
002	A	1A	Cedar Bayou	D	500'	VT	600	
003	B	5	James st.	D	500'	"	1100	
004	C	9	Park st.	D	500'	"	1500	
005	D	11	Baker st.	D	500'	"	1500	
006	E	12	Barnes st	D	500'	"	1000	
007	F	13	Red. Bud	D	260'	"	500	
009	G	15	Decker st	D	530'	"	1000	
010	H	PH-1	Pine hurst	D	520'	Sub	-	
010	I	PH-2	"	D	520'	"	-	

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
Eelevated	0.5 MG	welded steel	Bay way
"	0.4 MG	"	James st.
"	0.5 MG	"	Park st.
"	0.5 MG	"	Baker st.
"	0.15 MG	"	Barnes st.
"	2.0 MG	"	Massey Tompkins
"	0.5 MG	"	west Main

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location
1	750	Pine hurst						
2	450	"						

Emergency Power? N (Y/N) Describe: 100%. Surface water.

Required Well Production Capacity _____ GPM/Conn. X _____ Conn. = _____ GPM

	Y	N
Total Well Production Capacity Provided = 6,883 GPM Adequate?	X	
Required Elevated/~~Pressure~~ Storage: 100 Gal/Conn. X 18,000 Conn. = 1.8 MG		
Elevated/Pressure Storage Provided = 4.65 MG Adequate?	X	
Required Ground/Total Storage: 200 Gal/Conn. X 18,000 Conn. = 3.6 MG		
Ground/Total Storage Provided = 4.65 MG Adequate?	X	
Required Service Pumping Capacity: 2 GPM/Conn. X 18,000 Conn = 36,000 GPM		
Service Pump Peaking Factor: _____ MDD/1,440 X _____ = _____ GPM Peak Demand		
Total Service Pump Capacity = not required GPM Adequate?	—	

I.D. # 1010003

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	X	_	Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	X	_
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	X	_	Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	X	_
Sanitary sewer or septic tank ≥ 50 ft.?	[.41(c)(1)(A)]	X	_	Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	X	_
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	X	_	UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	X	_
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	X	_	Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	X	_

B. CONSTRUCTION

		Y	N			Y	N
Well cased 18" above ground level?	[.41(c)(3)(B)]	X	_	Well meter provided?	[.41(c)(3)(N)]	X	_
Proper pressure cement?	[.41(c)(3)(C)]	X	_	Well blow-off properly installed?	[.41(c)(3)(L)]	X	_
Proper concrete sealing block?	[.41(c)(3)(J)]	X	_	Well unit fenced or housed?	[.41(c)(3)(O)]	X	_
Well head sealed?	[.41(c)(3)(K)]	X	_	Well site properly drained?	[.41(c)(3)(I)]	X	_
Casing vent properly installed?	[.41(c)(3)(K)]	X	_	All weather road provided?	[.41(c)(3)(P)]	X	_
Air release devices properly installed?	[.41(c)(3)(Q)]	X	_	Sanitary easement(s) recorded?	[.41(c)(1)(F)]	X	_
Suitable sampling tap?	[.41(c)(3)(M)]	X	_				

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

west Main elevated needs painting

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	____
2. None Ground	4 Pt.s	____
3. Only One When Two Required	4 Pt.s	____
4. Improper Certificate	4 Pt.s	____

B. MCL Violations

1. Microbiological:		
Failure to Sample	4/Mon.	____
MCL Violation	10/Mon.	____
2. Primary standards	10/Vio.	____
3. Secondary Standards	2/Vio.	____
4. Turbidity:		
Failure to Report	4/Mon.	____
MCL Violation	10/Mon.	____

C. Distribution

Pressure < 20 psi	10 Pt.s	____
Pressure < 35 psi	4 Pt.s	____
Distribution Problems	2 Pt.s	____
Treated Water Protection	3 Pt.s	____
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	____

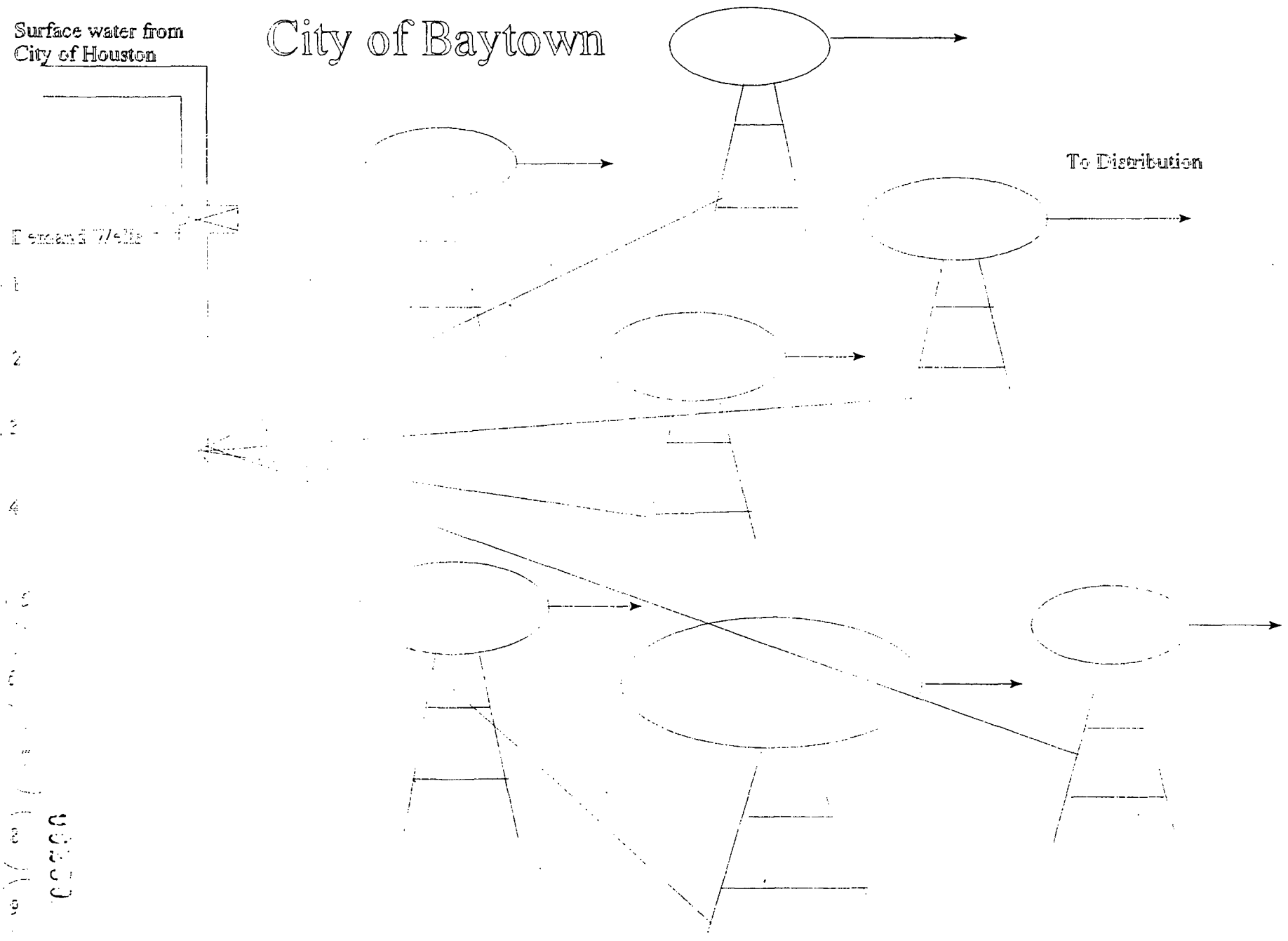
D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pt.s	____
Improper Well Location	4 Pt.s	____
No Easement	4 Pt.s	____
Well Construction Deficiencies	3/item	____
2. Surface Water:		
No Disinfection	20 Pt.s	____
No Filtration	20 Pt.s	____
Excess Filter Rate	4 Pt.s	____
Inadequate Chemical Feed	4 Pt.s	____
Inadequate Detention Time	4 Pt.s	____
3. General:		
Production Deficient	3 or 4 Pt.s	____
Storage Deficient:		
Elevated or Pressure	4 Pt.s	____
Total Storage < 70% of Required	4 Pt.s	____

TOTAL (A + B + C + D) = -0-

0000

City of Baytown



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 01/25/96
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1010003
I.D.

BAYTOWN CITY OF
Name

C/O ~~JERRY JAMES~~ Mark LaBlanc
Mailing Name

P O BOX 424
Mailing Address

BAYTOWN
City

TX 77520
St Zip

PETE ALFARO
Responsible Official

MAYOR PRO-TEM
Title

~~(713)~~ 281 ~~422-8281~~ 420-5306
Phone

4
Owner Type

T9
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

N
Interstate Carrier

C-Community
N-Non-community
P-Non-transient

70000	~~17500~~ 18000	~~17500~~ 18000	1	77.1
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

10.074	~~8.768~~ 9.68	4.790	4.650	1.728	0.000	~~0.01000~~ 0.000
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

3
System Classification

Y
Certified Operator - 2 Number - A
Highest Grade

08-18-97
~~03/30/94~~
Survey

Goddanti
Surveyor (Last Name)

K20
Code

12
Region

HARRIS
County

0

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	001	TRINITY RIVER	BAWA	P	0	1011742
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	001	01	D	401	Gaseous Chlorination, Post
I.D.	Entry Point	Treatment	Obj.	Process	

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	002	GULF COAST	CEDAR BAYOU	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	002	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	002	G1010003A	1A-CEDAR BAYOU	D	500	600
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	003	GULF COAST	JAMES ST	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	003	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	003	G1010003B	5-JAMES ST.	D	500	1210
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	004	GULF COAST	PARK ST	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	004	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	004	G1010003C	9-PARK ST.	D	500	1500
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

0005

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	005	GULF COAST	BAKER ST	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	005	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	005	G1010003D	11-BAKER ST.	D	500	1500
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	006	GULF COAST	BARNES ST	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	006	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	006	G1010003E	12-BARNES ST.	D	500	1000
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	007	GULF COAST	RED BUD	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	007	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	007	G1010003F	13-RED BUD	D	260	500
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00003

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	009	GULF COAST	DECKER	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	009	G1010003H	15-DECKER	D	536	1000
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00000

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010003	010	GULF COAST	PINEHURST	G	2	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010003	010	01	D	403	Gaseous Chlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010003	010	G1010003K	PINEHURST 1	D	520	0
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

1010003	010	G1010003L	PINEHURST 2	D	520	0
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

****

(OFFLINE ENTRY POINTS/WATER SOURCES)

I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	Old EP
1010003	999	G1010003G	14-BAYWAY	P	400	009
1010003	999	G1010003I	16-TIMBER RIDGE	P	375	010
1010003	999	G1010003J	17-TIMBER RIDGE	P	0	010

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 20, 1997

Certified #P 166 741 154

Mr. Norman Barnett, Owner
J & L Terry Lane
P.O. Box 3104
Baytown, Texas 77522-3104

Re: J & L Terry Lane
TNRCC ID #1011684

Dear Mr. Barnett:

On November 3, 1997, Koecadee Melton, Jr. of our office conducted an inspection of the above-referenced facility to evaluate compliance with applicable public water supply requirements. During the inspection, certain outstanding alleged violations were identified. Enclosed is a summary which lists the inspection findings. For each outstanding alleged violation, we have identified either a specific date or time frame (e.g., 30 days) by which the alleged violation should be corrected or indicated that a compliance plan and schedule must be submitted. Any specific compliance time frame that is given should be measured from the date of this letter. If submittal of a compliance plan and schedule is required, we request that you provide that information to us by December 20, 1997.

The Texas Natural Resource Conservation Commission recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The agency looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Koecadee Melton, Jr., in our Houston Regional Office at (713)767-3650.

Sincerely,

Don Thompson, R.S.
Public Water Supply Team Leader
Houston Regional Office

DT/km

Enclosure

cc: Harris Co. Health Department
TNRCC - Water Utilities Division

SUMMARY OF INSPECTION FINDINGS

Entity: J & L Terry Lane	TNRCC ID: 1011684	Inspection Date: 11-3-97

OUTSTANDING ALLEGED VIOLATIONS

No.	TNRCC Category *	Requirement(s) Cited	Description of Alleged Violation and Corrective Action Recommendation	Compliance Due Date
1	B	30 TAC, §290.46(f)(1)(2)(B)	Disinfectant Residual and Monitoring At least once every seven days, chlorine residual tests must be performed on water collected from various locations within the distribution system. A record of these tests and the sample location should be kept in your files for a minimum of 3 years.	30 days
2	B	30 TAC, §290.41(c)(1)(F)	Ground Water Sources and Development A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document.	90 days
3	C	30 TAC, §290.44(d)(4)	Water Distribution Accurate metering devices must be provided at each service connection to reduce wastage and provide water usage data.	Submit Schedule Within 30 days
4	C	30 TAC, (§290.46(m))	Operating Practices for Public Water System A maintenance program should be initiated to improve the general appearance of all plant facilities and reduce costly repairs due to a lack of proper maintenance. This program should include cutting the grass at the water plant..	30 days
5	C	30 TAC, §290.46(y)	Operating Practices for Public Water Systems All water system electrical wiring must be installed in a securely mounted conduit in compliance with a local or national electrical code.	30 days
6	B	30 TAC, §290.46(I)	Operating Practices for Public Water Systems The water system must adopt an adequate plumbing regulations with provisions for enforcement. Potential cross-connections or other undesirable plumbing practices must be prohibited.	120 days

* Category A = violations which require automatic initiation of formal enforcement
* Category B and C = violations for which facility may be given an opportunity to comply

SUMMARY OF INSPECTION FINDINGS

Entity: J & L Terry Lane	TNRCC ID: 1011684	Inspection Date: 11-3-97

OUTSTANDING ALLEGED VIOLATIONS

No.	TNRCC Category *	Requirement(s) Cited	Description of Alleged Violation and Corrective Action Recommendation	Compliance Due Date
7	B	30 TAC, §290.46(j)	Operating Practices for Public Water Systems A customer service inspection certification must be completed prior to providing continuous water service to new construction, on any existing service when the water purveyor has reason to believe that cross-connections or other unacceptable plumbing practices exist, or after any material improvement, correction, or addition to the private plumbing facilities. Customer Service Inspections Copies of properly completed Customer Service Inspection certifications must be kept on file by the water purveyor and made available, upon request, for Commission review. These certifications must be retained for a minimum of ten years. We have enclosed a copy of Appendix D for reference.	Submit Schedule Within 30 days
8	C	30 TAC, §290.41(c)(3)(A)	Ground Water Sources and Development Accurate information pertaining to the well must be obtained and kept on file for future reference. This information should include a log of the ground formations encountered, casing records, material settings, water levels, etc. A copy of the well completion data must be submitted for our records.	60 days
9	C	30 TAC, §290.41(c)(3)(N)	Ground Water Sources and Development A flow meter must be installed on the well pump discharge line to provide water usage records and to assist in more efficient system operation. This meter, in conjunction with tests of water levels in the well, can provide valuable information on the condition of the well and well pump.	90 days

* Category A = violations which require automatic initiation of formal enforcement
* Category B and C = violations for which facility may be given an opportunity to comply

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 1011684 Community ✓ NTNC ___ Non-Comm ___

CCN No. none Superior Y(N) Approved (Y)N Probation Y(N) Region 12-Houston

Name of System J & L Terry Lane County Harris

Physical location I-10 → ① Sjolander Road → ② Terry Lane ③ End

Responsible Official Norman Barnett Title Owner Phone 713-383-3150

Mailing Address P.O. Box 3104 Baytown, Texas 77522

Chief Cert Op Name Dale A. Fields Grade & Type D-GW Phone Same As Above

2nd Op Req'd? NO Other Cert Op Name ~ Grade & Type ~ Total # Cert Ops 1

WS Manager/Superintendent Villa Utilities Other Officials Contacted NONE

Surveyed With Norman Barnett Area Served Terry Lane

Supplier and Source Owner-Groundwater-1 well

Interconnection with another PWS? NO Name PWS I/C ~ Type I/C ~

Retail Service Connections 16 (3) * Retail Meters none Retail Population ~ 48

Wholesale Master Meters none Wholesale Service Connections none Wholesale Population Ø

Charge Y/N Flat $18.00 Dist. to and Name of Nearest PWS

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 10-21-96

Map Attached NO Previous Map OK? Yes Well Operational Status Changed? none

Description of Supply, Source, Treatment, and Chemicals Used Groundwater-1 well-1 Pressure tank & Distribution; Treatment: Hypochlorination prior to storage.

Total Well Cap. 30 (Rated) gpm 0.0432 mgd RW Cap none gpm ~ mgd

Treatment Cap. none gpm ~ mgd Total Svc. Pump Cap. none gpm ~ mgd

Total Elevated Storage none Total Storage Cap. none Pressure Tank Capacity 0.00085MG

Maximum Daily Usage no-records Date ~ Average Daily Usage no-records Time Period 10-97-11-96

Wholesale Contract none Maximum Purchase Rate N/A

MICROBIOLOGICAL	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/mo.	# Submitted 1/mo.
Raw Samples Submitted, if Required?	⊟	⊟	Number of Raw Samples N/A	
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation N/A	Thru ~
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL Pulled VOC nothing in file or Austin

Acceptable Quality? ___ Date, Last Chemical Analysis IOC ___ NO3/NO2 ___ RC ___ VOC 5-15-96 SOC ___

List UNACCEPTABLE Values none

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? N/A Date ~

Date of Survey 11-3-97 By [signature]

Date of Approval 11-20-97 By [signature]

Letter Date, if different from Approval Date ___ Reply Requested 12/2/97 Def. Score of this Survey 16

00013

I.D. #: 1011684 Survey Date 11-3-97

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
MOR's Properly Completed?	[.46(d)]	N/A	
Dead End Mains Flushed? not recorded	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	

		Y	N
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media? Chlorox	[.42]	✓	
Facilities Properly Maintained? Cut grass (5) * Elec. Conduit	[.46(m) & (p)]	(4) ✓	
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

II. STORAGE TANKS none

Storage Tanks Properly Covered?	[.43(c)]		
Tanks Tight Against Leakage?	[.43(c)(6)]		
Vents Properly Installed?	[.43(c)(1)]		
Proper Roof Hatch Provided?	[.43(c)(2)]		
Roof Hatch Kept Locked?	[.43(c)(2)]		
Proper Overflow Provided?	[.43(c)(3)]		

Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]	N/A	

< 0.001 MG

Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented? OR *	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]	N/A	

IV. DISTRIBUTION

Plumbing Ordinance or Agreement?	[.46(i)]	(6) ✓ *	
Customer Service Inspection Program?	[.46(j)]	(7) ✓ *	
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	N/A	
Sewer Lines Properly Located? Residential	[.44(e)]	Septic	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	

Tested psi/Locations 42 psi @ 3100 Terry Lane

Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves? OK *	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location none		N/A	
In-Line Booster Pumps in System Approved?		N/A	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	N/A	

V. DISINFECTION

Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: Hypochlorination			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	N/A	
Scales Provided?	[.42(e)(4)(D)]	N/A	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	

Adequate Residual Maintained/Recorded? (1) OK *	[.46(f)(1)(2)]		✓
Mg/L (T/F)/Locations 0.75 mg/L @ 3100 Terry Lane			
Evacuation Plan Cl_2/NH_3?If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	N/A	

ID# 1011684 SURVEY DATE 11-3-97

VI. SYSTEM FACILITIES

Number of Connections 16

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
001	G	A	End of Terry Lane		O	unk.	Subm	no-meter

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
Pressure	0.00085 MG	Welded Steel	Well Site

SERVICE PUMPS NONE

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power/Alternate Source NO (Y/N) Describe ~

Required Well Production Capacity 1.5 GPM/Conn. X 16 Conn. = 24 GPM

Total Well Production Capacity Provided = Rated 30 GPM Adequate? ..... Y ✓ N

Required Elevated/Pressure Storage: 50 Gal/Conn. X 16 Conn. = 0.0008 MG

Elevated/Pressure Storage Provided = 0.00085 MG Adequate? ..... ✓

Required Total Storage: N/A Gal/Conn. X ~ Conn. = ~ MG

Total Storage Provided = ~ MG Adequate? ..... N/A

Required Service Pumping Capacity: N/A GPM/Conn. X ~ Conn. = ~ GPM

Service Pump Peaking Factor: ~ MDD/1,440 X ~ = ~ GPM Peak Demand

Total Service Pump Capacity = ~ GPM Adequate? ..... N/A

003

I.D. # 1011684 Survey Date 11-3-97

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y/N

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓	_	Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	_
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓	_	Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	_
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓	_	Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	_
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓	_	UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	_
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓	_	Abandoned wells ≤ 1/4 mi. plugged? reported	[.41(c)(1)(E)]	✓	_

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]	(2)	✓*	Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓	_	Well meter provided?	[.41(c)(3)(N)]	_	✓* (9)
Proper pressure cement?	[.41(c)(3)(C)]	unk ✓*		Well blow-off properly installed?	[.41(c)(3)(L)]	N/A	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓	_ (8)	Well unit fenced or housed?	[.41(c)(3)(O)]	✓	_
Well head sealed?	[.41(c)(3)(K)]	✓	_	Well site properly drained?	[.41(c)(3)(I)]	✓	_
Casing vent properly installed?	[.41(c)(3)(K)]	✓	_	All weather road provided?	[.41(c)(3)(P)]	✓	_
Air release devices properly installed?	[.41(c)(3)(Q)]	✓	_				

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

Agreed Order - Docket # 96-1776-PWS-E (Failed to Submit lead/copper Samp
Signed 5-9-97 by owner

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	
2. None Ground	4 Pt.s	
3. Only One When Two Required	4 Pt.s	
4. Improper Certificate	4 Pt.s	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pt.s	
Pressure < 35 psi	4 Pt.s	
Distribution Problems meters	2 Pt.s	
1notice → Treated Water Protection Service Agreement - CSI	3 Pt.s	3
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pt.s	
Improper Well Location	4 Pt.s	
No Easement 3rd notice	4 Pt.s	4
Well Construction Deficiencies	3/item	9
2. Surface Water: log - meter - All weather road		
No Disinfection	20 Pt.s	
No Filtration	20 Pt.s	
Excess Filter Rate	4 Pt.s	
Inadequate Chemical Feed	4 Pt.s	
Inadequate Detention Time	4 Pt.s	
3. General:		
Production Deficient	4 Pt.s	
Storage Deficient:		
Elevated or Pressure	4 Pt.s	
Total Storage Deficient	4 Pt.s	

TOTAL (A + B + C + D) = 16

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Certification and Registration Information

To be completed only when changes to the existing printout are desired. Fill in the I.D. number and only the information to be changed. Refer to the Certification and Employment printout for current information.

1011684
I D #

J & L Terry Lane
System Name

Harris
County

P.O. Box 3104
Mailing Address
(Owner or responsible official)

Baytown
City

Texas
State

77522
Zip Code

Date of Survey 11-3-97

Note: Check only one box in each of the categories listed below:

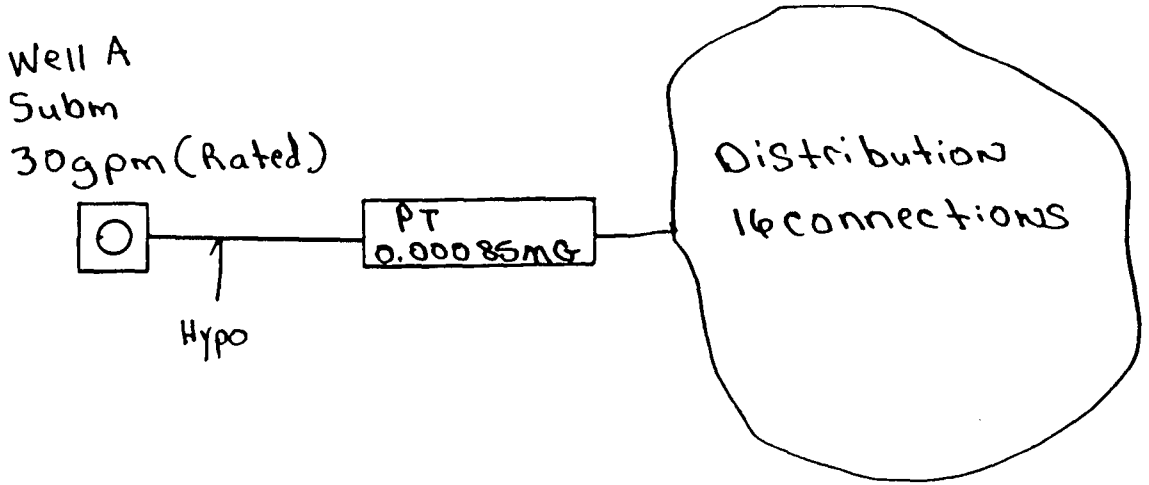
A Type System: Water Only [X] Wastewater Only [ ] Both [ ]

B Certified Operator: Required [X] Not Required [ ]

C Certified Operator(s) Currently employed by this system: Yes [X] No [ ]

List below Certified Operators to be added or deleted:

SS#	NAME	TRANSACTION (A = add or D = delete)
451-53-1775	Dale A. Fields	Add



J & L Terry Lane
#IO 1011684
Harris County
11-3-97
Koecadeemelton, Jr.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 01/02/97
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1011684
I.D.

J & L TERRY LANE
Name

C/O VILLA UTILITIES
Mailing Name

PO BOX 3104
Mailing Address

BAYTOWN
City

TX 775223104
St Zip

NORMAN BARNETT
Responsible Official

OWNER
Title

(713) 383-3150
Phone

2
Owner Type

R1
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

48 ~~45~~	16 ~~15~~	0	0	77.1
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.043	0.000	0.000	0.000	0.000	0.000	0.00085
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

D
Highest Grade

11-8-97
~~10/21/96~~
Survey

Melton
Surveyor (Last Name)

K45
Code

12
Region

HARRIS
County

16 ~~004~~
Def. Score

00352

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1011684	001	GULF COAST	J & L TERRY LANE	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1011684	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1011684	001	G1011684A	1 ~~EAST~~ END OF TERRY LN	O	0	30
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 15, 1997

Certified #P166 741 142

Ms. Tina & Mr. Bryan Barefoot, Owners
Barefoot Estates Mobile Home Park
2916 McKinney Street
Baytown, Texas 77520

Re: Public Water Supply
Barefoot Estates Mobile Home Park
I.D. #1010282
Sanitary Survey

Dear Mr. & Ms. Barefoot:

On September 29, 1997, Region Office representative, Maggie Wright, in company with Bryan Barefoot, conducted a sanitary survey of the subject water system. During the inspection and exit interview, our representative noted and discussed with Bryan Barefoot certain outstanding alleged violations as explained in the enclosed "Attachment A".

The staff of the Texas Natural Resource Conservation Commission is dedicated to working with the regulated community to achieve compliance with the state's environmental laws, regulations, permit, and registration provisions. Therefore, our regional office wishes to resolve this matter with you as soon as possible. Please advise this office in writing by November 15, 1997, as to the actions being taken to correct the violations listed on "Attachment A".

Should clarification of this letter be desired, or if the Houston Region Office can be of any further assistance concerning this survey, please feel free to contact Maggie Wright at (713) 767-3650.

Sincerely,

Don Thompson, R.S.
Team Leader
Public Water Supply
Region 12

DT/maw
Enclosure
cc: Harris Co. Health Dept.
TNRCC-Water Utilities Div.

ATTACHMENT A

Name of System: Barefoot Estates Mobile Home Park ID #1010282

Survey Date: September 29, 1997
Surveyed By: Maggie Wright

Summary of Outstanding Alleged Violations

1. 30 TAC, §290.106(a)(2); Bacteriological Monitoring
Our records indicate that bacteriological samples were collected for the months of November 1996. This resulted in a monitoring violation for that month.

2. 30 TAC, §290.46(f)(1)(A); Disinfectant Residual and Monitoring
The chlorination facilities must be operated to maintain a minimum free chlorine residual of 0.2 mg/l in the far reaches of the distribution system at all times.

3. 30 TAC, §290.45)(d)(3)(F)/§290.45(d)(2)(B)/§290.45(d)(2)(A) ;Capacity Requirement
Your water system fails to meet this Agency's "Minimum Water System Capacity Requirements." These requirements include:

a minimum pressure tank capacity of 220 gallons.

a service pump capacity of 2.0 gallons per minute per connection.

Your water system must be modified to meet these requirements to assure an adequate supply of water at all times.

4. 30 TAC, §290.41(c)(1)(F); Ground Water Sources and Development
A sanitary easement covering all property within 150 feet of each well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in each well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document.

5. 30 TAC, §290.46(m) and/or 290.46(t); Operating Practices for Public Water Systems
The water system facilities must be properly maintained by repairing the broken flow meter on the well discharge line.

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

KM
502N

ID No. 1010282 Community ✓ NTNC ___ Non-Comm ___

CCN No. N/A Superior -0- Approved N/A Status? Active Region 12 | Houston

Name of System Barefoot Estates Mobile Home Park County Harris

Physical location 2916 McKinney

Responsible Official Bryan & Tina Barefoot Title Owners Phone 281-427-0458

Mailing Address 2916 McKinney Baytown, TX 77520

Chief Cert Op Name Bryan Barefoot Grade & Type D-Water Phone 281-427-0458

2nd Op Req'd? No Other Cert Op Name ——— Grade & Type ——— Total # Cert Ops 1

WS Manager/Superintendent Bryan Barefoot Other Officials Contacted ———

Surveyed With Bryan Barefoot Area Served Barefoot Estate Mobile Home Park

Supplier and Source Owners / Ground / 2 wells

Interconnection with another PWS? No Name PWS I/C ——— Type I/C ———

Retail Service Connections 150 Retail Meters ——— Retail Population 450

Wholesale Master Meters ——— Wholesale Service Connections ——— Wholesale Population ———

Minimum Charge ? ——— Per ——— Thous. Dist. to and Name of Nearest PWS 10 feet City of Baytown

Reason for this Survey (Routine, Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 7-2-96

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 2 wells, 1 pressure tank and distribution
The well facilities are located at 2916 McKinney - The well is located behind the office
Treatment: Hypochlorination
Chlorine injection point is prior to pressure tank

Total Well Cap. 120 gpm .1728 mgd RW Cap ——— gpm ——— mgd

Treatment Cap. ——— gpm ——— mgd Total Svc. Pump Cap. ——— gpm ——— mgd

Total Elevated Storage ——— Total Storage Cap. ——— Pressure Tank Capacity .005 MG

Maximum Daily Usage .02 MG Date 5-20-97 Average Daily Usage .01490 Time Period Jan '97 - Dec '96

Wholesale Contract ——— Maximum Purchase Rate ———

MICROBIOLOGICAL

	Y	N	
Samples Submitted in Accordance with DWS?	☐	☑	(1) missed November '96
Raw Samples Submitted, if Required?	⊟	⊟	Number of Samples Required 1/month # Submitted 1
Well(s) Surface Water Influenced?	⊟	⊟	Number of Raw Samples ———
Acceptable Sample Siting Plan on File?	☑	☐	Non-Comm. Dates of Operation ——— Thru ———

CHEMICAL

Acceptable Quality? Yes Date, Last Chemical Analysis IOC 6-21-96 RC 6-21-96 VOC 6-21-96 SOC 6-21-96

List UNACCEPTABLE Values ———

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? ——— Date ———

Date of Survey 9-29-97 By Maggie Wright

Date of Approval 10/15/97 By D. Thigpen

Letter Date, if different from Approval Date ——— Reply Requested 11/15/97 Def. Score of this Survey 19

I.D. #: 1010282

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
Daily Usage Shown?	[.46(d)]	"	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]		✓*
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	
Sanitary facilities available, if needed?	[.42(g)]	✓	

— Repair or replace broken flow meter

II. STORAGE TANKS

Storage Tanks Properly Covered?	[.43(c)]			Proper Water Level Indicator Provided?	[.43(c)(4)]		
Tanks Tight Against Leakage?	[.43(c)(6)]			Drains Properly Connected?	[.43(c)(7)]		
Vents Properly Installed?	[.43(c)(1)]			Inlet and Outlet Properly Located?	[.43(c)(5)]		
Proper Roof Hatch Provided?	[.43(c)(2)]			Intruder Resistant Fence?	[.43(e)]		
Roof Hatch Kept Locked?	[.43(c)(2)]			Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Proper Overflow Provided?	[.43(c)(3)]			Below Ground Storage Properly Located?	[.43(b)]		
				Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

Accurate Pressure Gauges?	[.43(d)(2)]	✓		Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓		Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Proper Facilities for Air/Water Ratio?	[.43(d)(3)]	✓		Fenced or Housed?	[.43(e)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]	✓		ASME, if Required?	[.43(d)(1)]		

IV. DISTRIBUTION

Plumbing Ordinance or Agreement?	[.46(i)]	N/A		Properly Installed Distribution Piping?	[.44(a)]	✓	
Customer Service Inspections Recorded?	[.46(j)]	"		Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Backflow Assembly Report Recorded, if needed?	[.44(h)(4)(D)]	"		Air Release Valves Properly Installed?	[.44(d)(1)]	"	
Sewer Lines Properly Located?	[.44(e)]	✓		In-Line Booster Pumps in System? Location None		"	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓		In-Line Booster Pumps in System Approved?		"	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓		If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

Tested psi/Locations 47psi -

V. DISINFECTION

Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓		Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]		✓*
Type Disinfection Used: Hypochlorination				Mg/L (T/F)/Locations 0.0 mg/l			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓		DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A		IF AMMONIA FEED PROVIDED:			
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"		Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales Provided?	[.42(e)(4)(D)]	"		Scales or Gauges Provided?	[.42(e)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓					

LD. # 1010282

VI. SYSTEM FACILITIES

Number of Connections 150

WELLS (Y) N) OR RAW WATER PUMPS (Y (N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	Oper. Status	Well Depth	Pump Type	Rated GPM	Tested GPM/Date
001	A	1	2916 McKinney	O	320'	sub	60	unknown
001	B	2	2916 McKinney	O	320'	sub	60	unknown

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity (gallons)	Material	Location
Pressure	5000	welded steel	well site

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power? NO (Y (N) Describe: ———

Required Well Production Capacity 6 GPM/Conn. X 150 Conn. = 90 GPM

Total Well Production Capacity Provided = 120 GPM Adequate? ..... Y ✓ N —

Required ~~Elevated~~/Pressure Storage: 20 Gal/Conn. X 150 Conn. = .003 MG

~~Elevated~~/Pressure Storage Provided = .005 MG Adequate? ..... ✓ —

Required Ground/Total Storage: 200 Gal/Conn. X 150 Conn. = .03 MG

Ground/Total Storage Provided = ——— MG Adequate? ..... ✓✗ (3)

Required Service Pumping Capacity: 2.0 GPM/Conn. X 150 Conn = 300 GPM

Service Pump Peaking Factor: ——— MDD/1,440 X ——— = ——— GPM Peak Demand

Total Service Pump Capacity = ——— GPM Adequate? ..... ✓✗ (3)

I.D. # 1010282

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer or septic tank ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	
						Reported	

B. CONSTRUCTION

		Y	N			Y	N
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided? (broken)	[.41(c)(3)(N)]	✓	* (5)
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓		Sanitary easement(s) recorded?	[.41(c)(1)(F)]		✓* (4)
Suitable sampling tap?	[.41(c)(3)(M)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological:		
Failure to Sample	4/Mon.	4
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio	
4. Turbidity:		
Failure to Report	4/Mon	
MCL Violation	10/Mon.	

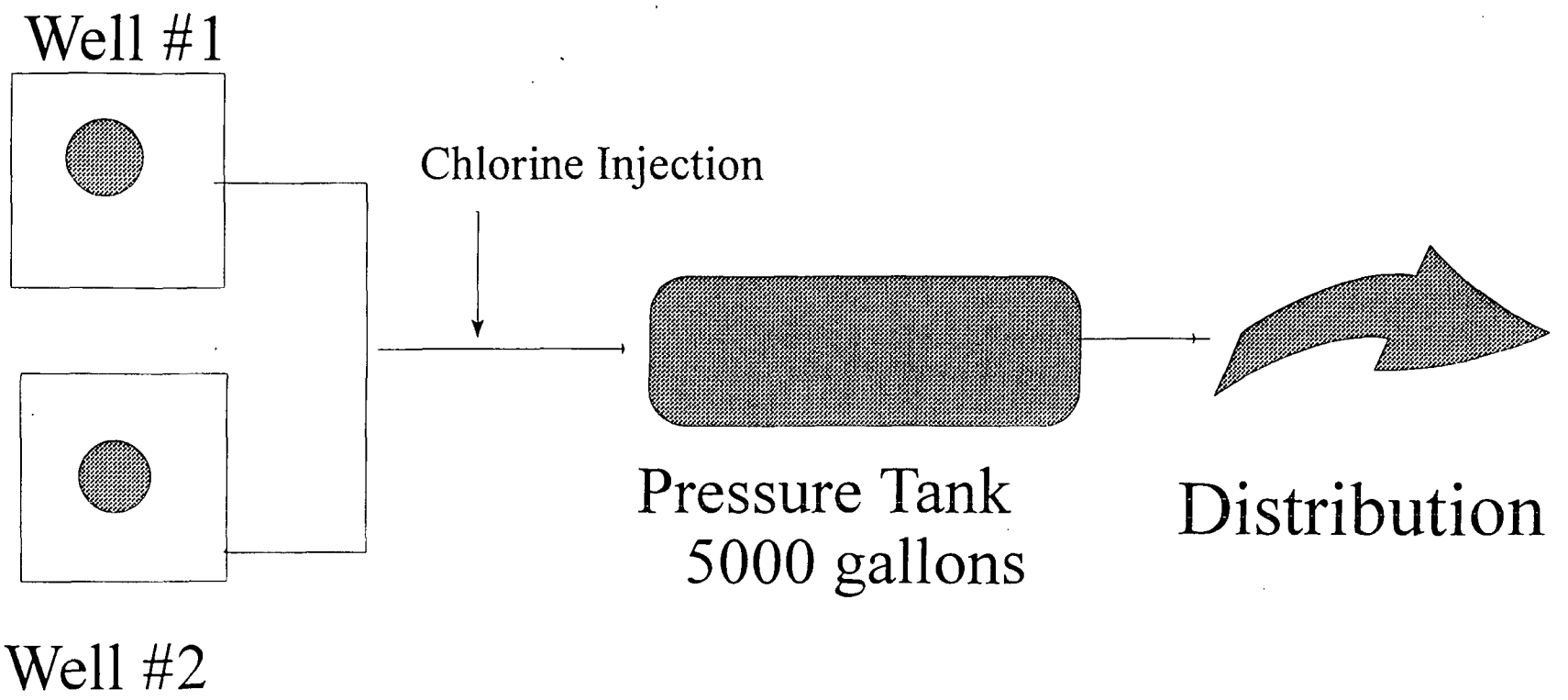
C. Distribution

Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	
Treated Water Protection	3 Pts	
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	4

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	
No Easement	4 Pts	4
Well Construction Deficiencies	3/item	3
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	3 or 4 Pts	
Storage Deficient:		
Elevated or Pressure	4 Pts	4
Total Storage < 70% of Required	4 Pts	

TOTAL (A + B + C + D) = 19



Barefoot Estates Mobile Home Park

ID #1010282

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 08/15/96
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1010282
I.D.

BAREFOOT ESTATES
Name

C/O TINA & BRYAN BAREFOOT - OWNER
Mailing Name

2916 MCKINNEY
Mailing Address

BAYTOWN
City

TX 77521
St Zip

TINA & BRYAN BAREFOOT
Responsible Official

OWNER
Title

281
~~(713)~~ 427-0458
Phone

2
Owner Type

R2
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transien

C
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

450	150	0	0	77.1
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.173	0.027	0.000	0.000	0.000	0.000	0.00500
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

D
Highest Grade

~~07/02/96~~ 9/30/97
Survey

Wright
Surveyor (Last Name)

K27
Code

12
Region

HARRIS
County

(19)

00001

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010282	001	GULF COAST	BARE FOOT ESTATES	G	2	~~~
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010282	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010282	001	G1010282A	1-2916 MCKINNEY	O	320	60
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

1010282	001	G1010282B	2-2916 MCKINNEY	O	320	60
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00332

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 21, 1999

CERTIFIED MAIL #Z 465 053 136
RETURN RECEIPT REQUESTED

Mr. J. R. Smith, Director of Safety and Industrial Health
Reliant Energy-HL&P-Cedar Bayou
P.O. Box 1700
Houston, Texas 77251-1700

Re: Notice of Violation for the Public Water Supply:
Reliant Energy - HL&P-Cedar Bayou, 7705 West Bay Road, Baytown, Chambers Co., Texas
TNRCC ID #0360044

Dear Mr. Smith:

On April 29, 1999, Ms. Maggie Wright of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit a written response to this office addressing each of the outstanding alleged violations and provide documentation by June 21, 1999 demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Ms. Maggie Wright in our Houston Region Office at 713/767-3650.

Sincerely,

Huyen Luu, P.E.
Team Leader
Houston Region Office

HDL/mw

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules

cc: Chambers County Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: Reliant Energy - H.L. & P - Cedar Bayou	ID #0360044	Inspection Date: 4/29/99

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.113	Chemical Analysis The most recent chemical analysis of the water from this system reveals that the iron and manganese concentrations are 0.747 mg/l and 0.107 mg/l. The maximum permissible levels for these constituents are 0.3 mg/l and 0.05 mg/l. Consequently, facilities must be provided to sequester the iron and manganese or to reduce the concentrations of the constituents to acceptable levels. Please be aware that if sequestering facilities prove to be ineffective, the agency will require the concentrations of the constituents to be reduced. Compliance Documentation: N/A	To Be Determined By Central Office
02	30 TAC, §290.46(m)	Operating Practices for Public Water Systems The water system facilities must be properly maintained by cleaning the inside of the hypochlorinator solution container. Compliance Documentation: Submit photo, receipt, invoice or work order to verify compliance.	30 Days

WATER SYSTEM DATA

ID No. 0360044 Community ___ NTNC ✓ Non-Comm ___

CCN No. — Superior Y(N) Approved Y(N) Probation Y(N) Region 12

Name of System Reliant Energy - HL&P-Cedar Bayou County Chambers

Physical location 7705 West Bay Road off FM 1405 on Bayers Road

Responsible Official J. R. Smith Title Director of Safety Industrial Health Phone 713-945-7711

Mailing Address P. O. Box 1700 Houston, TX 77251-1700

Chief Cert Op Name Gerald Portis Grade & Type D-Water Phone 281-383-4247

2nd Op Req'd? No Other Cert Op Name Cindy Gaskell Grade & Type D-Water Total # Cert Ops 2

WS Manager/Superintendent Matt Greek Other Officials Contacted —

Surveyed With Gerald Portis Area Served Cedar Bayou Plant

Supplier and Source Corporation / Ground / 2 wells

Interconnection with another PWS? No Name PWS I/C — Type I/C —

Retail Service Connections 4 Retail Meters — Retail Population 85-100 / Day

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

ChargeY(N) No Dist. to and Name of Nearest PWS 2 miles City of Baytown

Reason for this Survey (Routine, Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 3/19/98

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 2 wells 1 pressure tank (2 pumps inside well)

Treatment: Hypochlorination

Chlorine injection point is prior to pressure tank

Total Well Cap. 200 gpm .288 mgd RW Cap — gpm — mgd

Treatment Cap. — gpm — mgd Total Svc. Pump Cap. — gpm — mgd

Total Elevated Storage — Total Storage Cap. — Pressure Tank Capacity .0027 MG

Maximum Daily Usage — Date — Average Daily Usage — Time Period —

Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL

	Y	N	
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/month # Submitted 2
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples —
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation — Thru —
Acceptable Sample Siting Plan on File?	☑	☐	

CHEMICAL

Acceptable Quality? No Date, Last Chemical Analysis IOC 10/14/98 NO/NO2 4/2/95 RC 1/25/95 VOC 10/14/98 SOC —

List UNACCEPTABLE Values Iron 0.747 mg/l Manganese 0.107 mg/l

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 4/29/99 By Maggie Wright

Date of Approval 5/21/99 By Linda S. RW

Letter Date, if different from Approval Date — Reply Requested 6/21/99 Def. Score of this Survey 7

I.D. #: 0360044 Survey Date 4/ 199

OPERATION AND MAINTENANCE

Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	N/A	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]		✓*
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

- Clean inside hypochlorination solution container

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]		
Tanks Tight Against Leakage?	[.43(c)(6)]		
Vents Properly Installed?	[.43(c)(1)]		
Proper Roof Hatch Provided?	[.43(c)(2)]		
Roof Hatch Kept Locked?	[.43(c)(2)]		
Proper Overflow Provided?	[.43(c)(3)]		
Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]	✓	
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]	✓	

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	N/A	
Customer Service Inspection Program?	[.46(j)]	"	
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	"	
Sewer Lines Properly Located?	[.44(e)]	✓	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI? Surface	[.44(d) & .46(u)]	✓	
Tested psi/Locations 54 psi - Water Plant			
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location None		"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: Hypochlorination			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
Scales Provided?	[.42(e)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	
Adequate Residual Maintained/Recorded? Surface	[.46(f)(1)(2)]	✓	
Mg/L (T.E.) Locations 1.15 mg/l - Water Plant			
Evacuation Plan Cl_2/NH_3? If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

ID# 0360044 SURVEY DATE 4/29/99

. SYSTEM FACILITIES

Number of Connections 4

ELLS (Y/N) OR RAW WATER PUMPS (Y/N)

ntry t. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
01	A	1	7705 W. Bay Rd.		O	403'	Sub	100 1/22
01	B	2	7705 W. Bay Rd.		O	403'	Sub	100 1/22

ORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity (gallons)	Material	Location
Pressure	2700	Welded steel	well site

RVICE PUMPS

lo.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

ergency Power/Alternate Source No (Y/N) Describe —

quired Well Production Capacity 1.0 GPM/Conn. X 4 Conn. = 40 GPM

al Well Production Capacity Provided = 200 GPM Adequate? ..... Y ✓ N —

quired ~~Elevated~~/Pressure Storage: 10 Gal/Conn. X 4 Conn. = .00004 MG

~~vated~~/Pressure Storage Provided = .0027 MG Adequate? ..... ✓ —

quired Total Storage: — Gal/Conn. X — Conn. = — MG

tal Storage Provided = — MG Adequate? ..... — —

quired Service Pumping Capacity: — GPM/Conn. X — Conn. = — GPM

vice Pump Peaking Factor: — MDD/1,440 X — = — GPM Peak Demand

tal Service Pump Capacity = — GPM Adequate? ..... — —

U0208

I.D. # 0360044 Survey Date 4/29/99

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y(N)

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]	✓		Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]	✓	
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	4
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	
Treated Water Protection	3 Pts	3
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	
No Easement	4 Pts	
Well Construction Deficiencies	3/item	
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	4 Pts	
Storage Deficient:		
Elevated or Pressure	4 Pts	
Total Storage Deficient	4 Pts	

TOTAL (A + B + C + D) = 7

00000

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Certification and Registration Information

To be completed only when changes to the existing printout are desired. Fill in the I.D. number and only the information to be changed. Refer to the Certification and Employment printout for current information.

Reliant Energy

0360044 H.L.&P-Cedar Bayou Chambers

ID# System Name County

P.O. Box 1700 Houston TX 77251-1700

Mailing Address City State Zip Code
(Owner or responsible official)

Date of Survey 4/29/99

Note: Check only one box in each of the categories listed below

A. Type System: Water Only [X] Wastewater Only [ ] Both [ ]

B. Certified Operator: Required [X] Not Required [ ]

C. Certified Operator(s) Currently employed by this system: ~~Yes~~ No

List below Certified Operators to be added or deleted:

SS#	Name	TRANSACTION (A = Add or D = Deleted)
453-41-7545	Cindy Gaskell	A

00270

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 05/26/98
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

0360044
I.D.

H L & P - CEDAR BAYOU
Name

C/O J R SMITH - DIRECTOR
Mailing Name

PO BOX 1700
Mailing Address

HOUSTON
City

TX 772511700
St Zip

J.R SMITH
Responsible Official

DIR OF I H &
Title

(713) 945-7711
Phone

2
Owner Type

S4
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
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T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

P
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

RECEIVED
MAY 2 8 1998
REGION 12

100	4	0	0	76.4
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.288	0.000	0.000	0.000	0.000	0.000	0.00270
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /		A
Deactivation Date	- Reason	Activity Indicator

3	Y	~~1~~ 2	D
System Classification	Certified Operator	- Number	- Highest Grade

03/19/98		K27	12	CHAMBERS	7 ~~000~~
Survey	Surveyor (Last Name)	Code	Region	County	Def. Score

00071

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
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0360044	001	GULF COAST	CEDAR BAYOU PLANT	G	2	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

0360044	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

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(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

0360044	001	G0360044A	1-7705 W BAY RD	O	403	100
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

0360044	001	G0360044B	2-7705 W BAY RD	O	403	100
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

ltr date 5/21/99

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Reliant Energy - H.L. & P - Cedar Bayou.	TNRCC ID: 0360044	Inspection Date: 4/29/99

ALLEGED NONCOMPLIANCES NOTED

No.	TNRCC Category *	Compliance Due Date	Date of Response	Date Response Received	Completion Date Due	Completion Date Received	Enforcement
01	C	To Be Determined By Central Office					
02	C	30 Days					

PUBLIC WATER SUPPLY DATA ENTRY FORI

GENERAL INFORMATIOI MEDIA : PWS | INSPECTOR : MWRIGHT | REGION : 12

FACILITY INFORMATION ID NUMBER : 0360044 KEY MAP

ENTITY : RELIANT ENERGY-HL&P-CEDAR | TYPE FACILITY :G | STATUS : A | COUNTY : 036

SYSTEM PHONE # : 713-945-7711

OPERATOR : GERALD PORTIS | OPERATOR PHONE # : 281-383-4247

MAIL CONTACT : J.R. SMITH | ADDRESS : PO BOX 1700

CITY : HOUSTON | ZIP : 77251-1700

SURVEY INFORAMTION TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE :4/29/1999 | REPORT DATE : 4/29/1999 | NUMBER OF SAMPLES TAKEN :0

COMMENT :

CUSTOMER SURVEY : | DATE ENTERED BY REGION 5/20/1999

ENFORCEMENT INFORMATIOI COMPLIANCE : N | KIND OF LETTER :NOV

LETTER DATE :5/21/1999 | RESPONSE DUE 6/21/1999 | RESPONSE RECEIVED :

VIOLATIONS : Y | CAT A VIOLS : 0.00 | CAT B VIOLS : 0.00 | CAT C VIOLS : 2.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 7.00 | DATE OF EAR :

CENTRAL OFFICE ONL'

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 5, 1998

CERTIFIED MAIL Certified #Z 359 976 672
RETURN RECEIPT REQUESTED

Mr. Charles Hauser, Owner
Sjolander Mobile Home Park
P.O. Box 808
Channelview, Texas 77530-0808

Re: Notice of Violation for the Public Water Supply:
Sjolander Mobile Home Park, 4500 Sjolander Road #17, Baytown, Harris Co., Texas
TNRCC ID #1010788

Dear Mr. Hauser:

On October 19, 1998, Ms. Maggie Wright of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit to this office by December 5, 1998 a schedule outlining a compliance plan that addresses each of the outstanding alleged violations. Within 15 days of completion of the compliance plan, you must provide this office with documentation demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Ms. Maggie Wright in our Houston Region Office at 713/767-3650.

Sincerely,

Don Thompson

Don Thompson, R.S.
Team Leader
Houston Region Office

DT/mw

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules
Sanitary Easement Control Form

cc: Harris County Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: Sjolander Mobile Home Park	ID #1010788	Inspection Date: 10/19/98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirement(s) Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.106(a)(2)	Bacteriological Monitoring Our records indicate that no bacteriological samples were collected for the month of December 1997. This resulted in monitoring violations for that month.	Insure No Future Violations
02	30 TAC, §290.106(a)(1)	Bacteriological Monitoring Your water system must develop a sample siting plan. For your convenience we have enclosed an explanation sheet. Retain the completed plan and make it available for review by agency personnel at the time of the annual survey. Compliance Documentation: Submit a copy of the site plan.	30 Days
03	30 TAC, §290.45(b)(1)(A)	Capacity Requirement Your water system fails to meet this Agency's "Minimum Water System Capacity Requirements." These requirements include: a. a pressure tank capacity of 50 gallons per connection with a maximum of 2,500 gallons required b. a well capacity of 1.5 gallons per minute per connection. Your water system must be modified to meet this requirement to assure an adequate supply of water at all times. Compliance Documentation: Submit a copy of the invoice or receipt of installation	180 Days
04	30 TAC, §290.41(c)(1)(F)	Ground Water Sources and Development A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document. Compliance Documentation: Submit a copy of the sanitary easement	180 Days
05	30 TAC, §290.46(n)	Operating Practices for Public Water Systems A map of the distribution system must be prepared and kept up to date so that valves and mains may be easily located during emergencies. Compliance Documentation: Submit a copy of the distribution map.	90 Days

SUMMARY OF INSPECTION FINDINGS

Entity: Sjolander Mobile Home Park	ID #1010788	Inspection Date: 10/19/98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirement(s) Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
06	30 TAC, §290.46(I)	Operating Practices for Public Water Systems The water system must have an agreement with each water customer that would allow an inspection of the individual water facilities prior to providing service to ensure that no substandard material was used, and to prevent any possible cross-connections or other undesirable plumbing practices. The agreement must prohibit the use of pipe and pipe fittings that contain more than 8.0 percent lead or solders and flux that contain more than 0.2 percent lead. Compliance Documentation: Provide a copy of the service agreement form.	180 Days

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 1010788 Community ✓ NTNC ___ Non-Comm ___

CCN No. None Superior Y(N) Approved Y/(N) Probation Y(N) Region 12

Name of System Sylander Mobile Home Park County Harris

Physical location 4500 Sylander Road #17

Responsible Official Charles Hauser Title Owner Phone 281-421-1161

Mailing Address P.O. Box 808 Channelview TX 77530-0808

Chief Cert Op Name Fred Scott Grade & Type C-Ground Phone 281-421-1161

2nd Op Req'd? No Other Cert Op Name — Grade & Type — Total # Cert Ops 1

WS Manager/Superintendent Charles Hauser Other Officials Contacted —

Surveyed With Charles Hauser Area Served Mobile Home Park

Supplier and Source Owner / Ground / 1 well

Interconnection with another PWS? No Name PWS I/C — Type I/C —

Retail Service Connections 41 Retail Meters — Retail Population 123

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

Charge Y(N) No Dist. to and Name of Nearest PWS 2 miles City of Baytown

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 1/29/97

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 1 well, 1 pressure tank and distribution

Treatment: Hypochlorination

Chlorine injection point is prior to pressure tank

Total Well Cap. 60 gpm .0864 mgd RW Cap — gpm — mgd

Treatment Cap. — gpm — mgd Total Svc. Pump Cap. — gpm — mgd

Total Elevated Storage — Total Storage Cap. — Pressure Tank Capacity .0013 MG

Maximum Daily Usage — Date — Average Daily Usage — Time Period —

Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL Y N(1) missed December '97

Samples Submitted in Accordance with DWS? ☐ ☑* Number of Samples Required 1/month # Submitted 1

Raw Samples Submitted, if Required? ☐ ☐ Number of Raw Samples —

Well(s) Surface Water Influenced? ☐ ☐ Non-Comm. Dates of Operation — Thru —

Acceptable Sample Siting Plan on File? ☐ ☑*(2)

CHEMICAL

Acceptable Quality? Yes Date, Last Chemical Analysis IOC 2/28/89 NO/NO2 7/10/94 RC 2/28/89 VOC 9/11/91 SOC —

List UNACCEPTABLE Values —

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 10/19/98 By Maggie Wright

Date of Approval 11/5/98 By Dan Thompson

Letter Date, if different from Approval Date — Reply Requested 12/5/98 Def. Score of this Survey 18

.D. #: 1010768 Survey Date 10/19/98

OPERATIONAL AND MAINTENANCE

Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

OPERATIONAL

		Y	N
lonthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
IOR's Properly Completed?	[.46(d)]	"	
ead End Mains Flushed?	[.46(l)]	✓	
ew Lines and Repairs Disinfected?	[.46(g)]	✓	
upply of Disinfectant on Hand?	[.46(h)]	✓	

		Y	N
Distribution Map Up-to-Date?	[.46(n)]		✓ #5
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]		
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

I. STORAGE TANKS

torage Tanks Properly Covered?	[.43(c)]		
anks Tight Against Leakage?	[.43(c)(6)]		
ents Properly Installed?	[.43(c)(1)]		
roper Roof Hatch Provided?	[.43(c)(2)]		
oof Hatch Kept Locked?	[.43(c)(2)]		
roper Overflow Provided?	[.43(c)(3)]		

Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

I. PRESSURE TANKS

ccurate Pressure Gauges?	[.43(d)(2)]	✓	
ressure Release Device Provided?	[.43(d)(2)]	✓	
roper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
ir-Water Volume Indicator Provided?	[.43(d)(3)]	✓	

Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]		

/. DISTRIBUTION

lumbing Ordinance or Agreement?	[.46(i)]	✓ ⑥	
ustomer Service Inspection Program?	[.46(j)]	✓ ⑥	
ackflow Assembly Program, if needed?	[.44(h)(4)(D)]	"	
ewer Lines Properly Located?	[.44(e)]	✓	
inimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
ormal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
ested psi/Locations 54 psi - last Trailer in Park			

Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]		
Air Release Valves Properly Installed?	[.44(d)(1)]		
In-Line Booster Pumps in System? Location None			"
In-Line Booster Pumps in System Approved?			"
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]		"

. DISINFECTION

isinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
pe Disinfection Used: Hypochlorination			
isinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
isinfection Room Properly Vented?	[.42(e)(7)]	N/A	
eathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
ales Provided?	[.42(e)(4)(D)]	"	
sinfection Prior to Storage?	[.42(e)(2)(3)]	✓	

Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	✓	
Mg/L (T/F)/Locations .79 mg/L - last Trailer in Park			
Evacuation Plan Cl_2/NH3?If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]		
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

ID# 1010788 SURVEY DATE 10/19/98

I. SYSTEM FACILITIES

Number of Connections 41

ELLS (Y) N OR RAW WATER PUMPS (Y) N

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
01	A	1	4500 Sylander Rd #17		O	325'	sub	60 rated

ORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity (gallons)	Material	Location
Pressure	1300	welded steel	well site

RVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

ergency Power/Alternate Source (Y)(N) No Describe —

quired Well Production Capacity 1.5 GPM/Conn. X 41 Conn. = 61.5 GPM

tal Well Production Capacity Provided = 60 GPM Adequate? ..... Y N (3) ✓*

quired ~~Elevated~~/Pressure Storage: 50 Gal/Conn. X 41 Conn. = .00205 MG

~~vated~~/Pressure Storage Provided = .001300 MG Adequate? ..... ✓*(5)

quired Total Storage: — Gal/Conn. X — Conn. = — MG

tal Storage Provided = — MG Adequate? ..... — —

quired Service Pumping Capacity: — GPM/Conn. X — Conn. = — GPM

vice Pump Peaking Factor: — MDD/1,440 X — = — GPM Peak Demand

al Service Pump Capacity = — GPM Adequate? ..... — —

I.D. # 1010788 Survey Date 10/19/98

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y(N)

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

		Y	N			Y	N
Sanitary easement(s) recorded?	[.41(c)(1)(F)]		✓* (4)	Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]	✓	
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

X. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	
2. None Ground	4 Pt.s	
3. Only One When Two Required	4 Pt.s	
4. Improper Certificate	4 Pt.s	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	4
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pt.s	
Pressure < 35 psi	4 Pt.s	
Distribution Problems	2 Pt.s	2
Treated Water Protection	3 Pt.s	
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pt.s	
Improper Well Location	4 Pt.s	
No Easement	4 Pt.s	4
Well Construction Deficiencies	3/item	
2. Surface Water:		
No Disinfection	20 Pt.s	
No Filtration	20 Pt.s	
Excess Filter Rate	4 Pt.s	
Inadequate Chemical Feed	4 Pt.s	
Inadequate Detention Time	4 Pt.s	
3. General:		
Production Deficient	4 Pt.s	4
Storage Deficient:		
Elevated or Pressure	4 Pt.s	4
Total Storage Deficient	4 Pt.s	

TOTAL (A + B + C + D) = 18

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Certification and Registration Information

To be completed only when changes to the existing printout are desired. Fill in the I.D. number and only the information to be changed. Refer to the Certification and Employment printout for current information.

1010788	Sylander M HP	Harris
ID#	System Name	County

P.O. Box 808	Channelview	TX	77530-0808
Mailing Address (Owner or responsible official)	City	State	Zip Code

Date of Survey 10/19/98

Note: Check only one box in each of the categories listed below

A. Type System:	Water Only	Wastewater Only	Both
	[X]	[ ]	[ ]

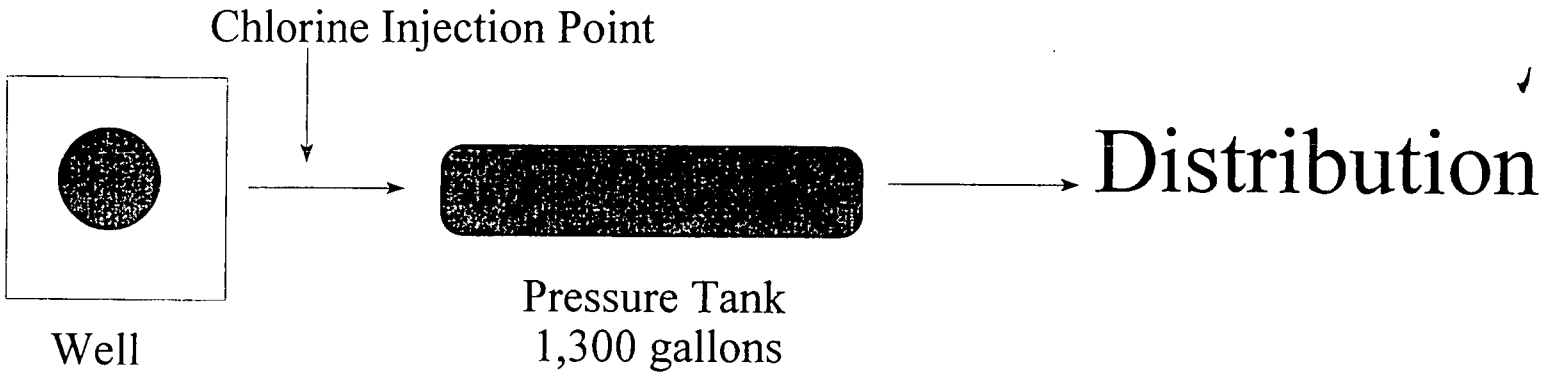
B. Certified Operator:	Required	Not Required
	[X]	[ ]

C. Certified Operator(s) Currently employed by this system: Yes No

List below Certified Operators to be added or deleted:

SS#	Name	TRANSACTION (A = Add or D = Deleted)
408-86-6530	Fred F Scott	A

00384



Sjolander Mobile Home Park
ID #1010788

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 03/07/97
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1010788
I.D.

SJOLANDER ~~ROAD~~ MOBILE HOME PARK
Name

C/O CHARLES HAUSER - OWNER
Mailing Name

PO BOX 808
Mailing Address

CHANNELVIEW
City

TX 775300808
St Zip

CHARLES HAUSER
Responsible Official

OWNER
Title

(~~713~~) 421-1161
Phone

2
Owner Type

R2
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

N
Interstate Carrier

C-Community
N-Non-community
P-Non-transient

~~120~~	40	0	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.086	0.000	0.000	0.000	0.000	0.000	0.00~~1~~00
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

~~B~~ C
Highest Grade

01/29/97
Survey

Surveyor (Last Name)

K45
Code

12
Region

HARRIS
County

~~18~~ 008
Def. Score

00085

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1010788	001	GULF COAST		G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1010788	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1010788	001	G1010788A	1 BEHIND WASHERIA	O	325	60
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Sjolander Mobile Home Park	TNRCC ID: 1010788	Inspection Date: 10/19/98

ALLEGED NONCOMPLIANCES NOTED							
No.	TNRCC Category *	Compliance Due Date	Date of Response	Date Response Received	Completion Date Due	Completion Date Received	Enforcement
01	C	Insure No Future Violations					
02	C	30 Days					
03	B	180 Days					
04	B	180 Days					
05	B	90 Days					

PUBLIC WATER SUPPLY DATA ENTRY FOR

GENERAL INFORMATIO MEDIA : PWS | INSPECTOR : MWRIGHT | REGION : 12 | KEY MAP :

FACILITY INFORMATION ID NUMBER : 1010788

ENTITY : SJOLANDER MHP | TYPE FACILITY : G | STATUS : A | COUNTY : 101

SYSTEM PHONE # : 281-421-1161

OPERATOR : RICHARD STEADMAN | OPERATOR PHONE # : 281-421-1161

MAIL CONTACT : CHARLES HAUSER | ADDRESS : PO BOX 808

CITY : CHANNELVIEW | ZIP : 77530-0808

SURVEY INFORAMTIO TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE : 10/19/1998 | REPORT DATE : 10/19/1998 | SAMPLES TAKEN : N

COMMENT :

CUSTOMER SURVEY : 10/29/1998

ENFORCEMENT INFORMATIO COMPLIANCE : N | KIND OF LETTER : NOV

LETTER DATE : 9/5/1998 | RESPONSE DUE 12/5/98 | RESPONSE RECEIVED :

VIOLATIONS : Y | CAT A VIOLS : 0.00 | CAT B VIOLS : 2.00 | CAT C VIOLS : 3.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 18.00 | DATE OF EAR :

CENTRAL OFFICE ONL

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 25, 1997

CERTIFIED #Z 091 356 337

Mr. Nick Khanji, Owner
Snappy Mart #4
9040 FM 1405 North Road
Baytown, Texas 77520

INFORMATION COPY

Re: Public Water Supply
Snappy Mart #4
ID #0360079
Sanitary Survey

Dear Mr. Khanji:

On August 11, 1997, Region Office representative, Maggie Wright, conducted a sanitary survey of the subject water system. During the inspection and exit interview, our representative noted certain outstanding alleged violations as explained in the enclosed "Attachment A".

The staff of the Texas Natural Resource Conservation Commission is dedicated to working with the regulated community to achieve compliance with the state's environmental laws, regulations, permit, and registration provisions. Therefore, our regional office wishes to resolve this matter with you as soon as possible. Please advise this office in writing by September 25, 1997, as to the actions being taken to correct the violations listed on "Attachment A".

Should clarification of this letter be desired, or if the Houston Region Office can be of any further assistance concerning this survey, please feel free to contact Maggie Wright at (713) 767-3650.

Sincerely,

Don Thompson, R.S.
Team Leader
Public Water Supply
Region 12

DT/mw
Enclosure
cc: Chambers County Health Dept.
TNRCC - Water Utilities Division

ATTACHMENT A

Name of System: Snappy Mart #4 ID #0360079

Survey Date: August 11, 1997
Surveyed By: Maggie Wright

Summary of Outstanding Alleged Violations

1. 30 TAC, §290.46(f)(1)(A); Disinfectant Residual and Monitoring
The chlorination facilities must be operated to maintain a minimum free chlorine residual of 0.2 mg/l in the far reaches of the distribution system at all times.

2. 30 TAC, §290.46(f)(2); Disinfectant Residual and Monitoring
A chlorine test kit which uses the DPD method must be obtained to determine the free chlorine residual at various locations to ensure the proper chlorine residual is being maintained throughout the distribution system. A record of these tests and the sample location must be kept in your files for future review for minimum of 3 years.

3. 30 TAC, §290.41(c)(1)(F); Ground Water Sources and Development
A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document.

4. 30 TAC, §290.41 (c)(3)(0); Ground Water Sources and Development
The house protecting the well facilities must be kept locked.

5. 30 TAC, §290.46(m) and/or 290.46(t); Operating Practices for Public Water Systems
The water system facilities must be properly maintained by cutting the grass surrounding the well house.

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 0360079 Community ___ NTNC ___ Non-Comm ✓

CCN No. ___ Superior ___ Approved ___ Status? ___ Region 12/Houston

Name of System Snappy Mart #4 County Chambers

Physical location 9040 FM 1405 North Road

Responsible Official Nick Khanji Title Owner Phone 281-573-9177

Mailing Address 9040 FM 1405 North Road Baytown, TX 77520

Chief Cert Op Name ___ Grade & Type ___ Phone ___

2nd Op Req'd? No Other Cert Op Name ___ Grade & Type ___ Total # Cert Ops ___

WS Manager/Superintendent Naushad Pitteeal Other Officials Contacted ___

Surveyed With Alone Area Served Store & Mobile Home

Supplier and Source Owner / Ground / 1 well

Interconnection with another PWS? No Name PWS I/C ___ Type I/C ___

Retail Service Connections 2 Retail Meters ___ Retail Population 3001 Day

Wholesale Master Meters ___ Wholesale Service Connections ___ Wholesale Population ___

Minimum Charge ? ___ Per ___ Thous. Dist. to and Name of Nearest PWS 1/2 mile City of Baytown

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 10-5-95

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 1 well, 1 pressure tank and distribution - The well facilities are located at 9040 FM 1405 North (The well house is located next to store)
Treatment: Hypochlonnation
Chlorine injection point is prior to pressure tank

Total Well Cap. 10 gpm .0144 mgd RW Cap ___ gpm ___ mgd

Treatment Cap. ___ gpm ___ mgd Total Svc. Pump Cap. ___ gpm ___ mgd

Total Elevated Storage ___ Total Storage Cap. ___ Pressure Tank Capacity .000220MG

Maximum Daily Usage ___ Date ___ Average Daily Usage ___ Time Period ___

Wholesale Contract ___ Maximum Purchase Rate ___

MICROBIOLOGICAL	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/month	# Submitted 1
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples ___	
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation ___	Thru ___
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL

Acceptable Quality? Yes Date, Last Chemical Analysis IOC 10-2891 RC ___ VOC ___ SOC ___

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? ___ Date ___

Date of Survey 8-11-97 By Maggie Wright

Date of Approval 8-25-97 By [illegible]

Letter Date, if different from Approval Date ___ Reply Requested 9-25-97 Def. Score of this Survey 10

I.D. #: 0360079

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
Daily Usage Shown?	[.46(d)]	"	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	N/A	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	(5)
Facilities Properly Maintained?	[.46(m) & (p)]		✓*
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	
Sanitary facilities available, if needed?	[.42(g)]	✓	

* Cut grass at the well house

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]		
Tanks Tight Against Leakage?	[.43(c)(6)]		
Vents Properly Installed?	[.43(c)(1)]		
Proper Roof Hatch Provided?	[.43(c)(2)]		
Roof Hatch Kept Locked?	[.43(c)(2)]		
Proper Overflow Provided?	[.43(c)(3)]		
Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]		✓
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]	—	

less than 1000 gallon tank

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	N/A	
Customer Service Inspections Recorded?	[.46(j)]	"	
Backflow Assembly Report Recorded, if needed?	[.44(h)(4)(D)]	"	
Sewer Lines Properly Located?	[.44(e)]	✓	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
Tested psi/Locations	52 psi - Faucet In Front of store		
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location	None	"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(c)]	✓	
Type Disinfection Used:	Hypochlorination		
Disinfection Equipment Properly Housed?	[42(c)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(c)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(c)(5)]	"	
Scales Provided?	[.42(c)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(c)(2)(3)]	✓	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]		✓* (1)
Mg/L (T/F)/Locations	0.0 mgl - Faucet In Front of Str		
DPD Chlorine Test Kit Provided?	[.46(f)(2)]		✓ (2)
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(c)(10)]	N/A	
Scales or Gauges Provided?	[.42(c)(4)(D)]	"	

I.D. # 0360079

L SYSTEM FACILITIES

Number of Connections 2

'ELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	Oper. Status	Well Depth	Pump Type	Rated GPM	Tested GPM/Date
X01	A	1	9040 FM 1405 North	O	unknown	sub	10	unknown

'ORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
Pressure	220	welded steel	well site

'RVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

ıergency Power? No (Y/N) Describe: _____

12 x 300 = 3600 ÷ 1440

quired Well Production Capacity _____ GPM/Conn. X _____ Conn. = 2.5 GPM

	Y	N
tal Well Production Capacity Provided = 10 GPM Adequate?	✓	
quired ~~Elevated~~/Pressure Storage: _____ Gal/Conn. X _____ Conn. = .000220 MG		
~~vated~~/Pressure Storage Provided = .000220 MG Adequate?	✓	
quired Ground/Total Storage: _____ Gal/Conn. X _____ Conn. = _____ MG		
ound/Total Storage Provided = _____ MG Adequate?		
quired Service Pumping Capacity: _____ GPM/Conn. X _____ Conn. = _____ GPM		
vice Pump Peaking Factor: _____ MDD/1,440 X _____ = _____ GPM Peak Demand		
al Service Pump Capacity = _____ GPM Adequate?		

I.D. # 0360079

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer or septic tank ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	
						Reported	

B. CONSTRUCTION

Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]		✓
Proper pressure cement?	[.41(c)(3)(C)]	unknown		Well blow-off properly installed?	[.41(c)(3)(L)]		(4)
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓		Sanitary easement(s) recorded?	[.41(c)(1)(F)]		✓ (3)
Suitable sampling tap?	[.41(c)(3)(M)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological:		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

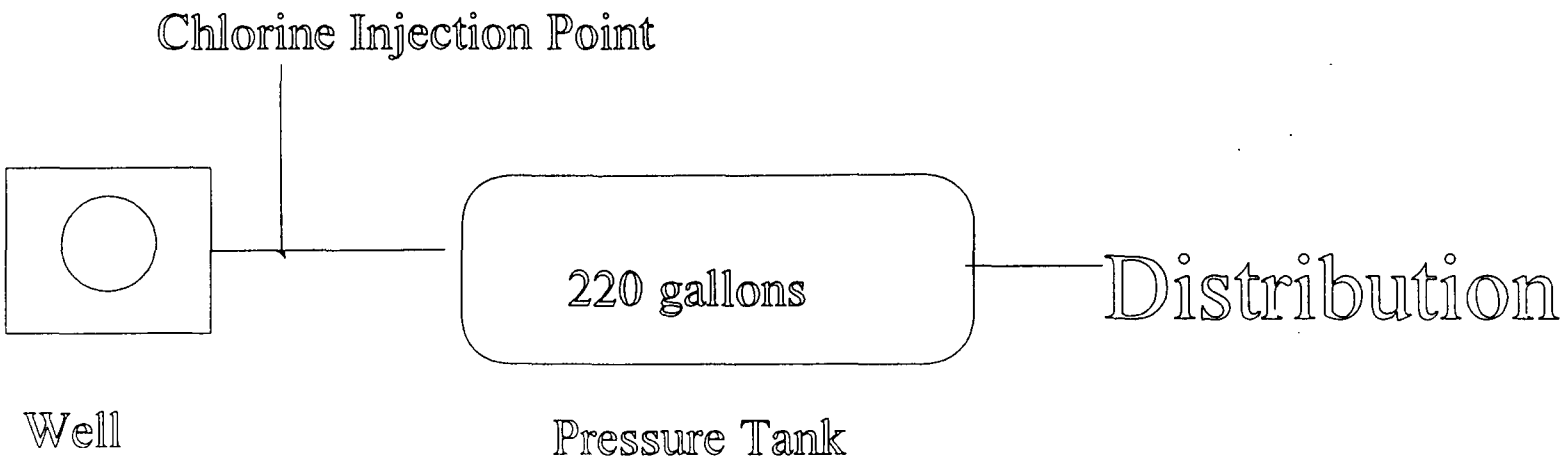
Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	
Treated Water Protection	3 Pts	3
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	4

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	
No Easement	4 Pts	
Well Construction Deficiencies	3/item	3
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	3 or 4 Pts	
Storage Deficient:		
Elevated or Pressure	4 Pts	
Total Storage < 70% of Required	4 Pts	

TOTAL (A + B + C + D) = 10

00004



Snappy Mart #4

ID #0360079

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 01/25/96
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

0360079
I.D.

SNAPPY MART
Name

C/O NICK KHANJI
Mailing Name

9040 FM 1405N ROAD
Mailing Address

BAYTOWN
City

TX 77520
St Zip

NICK KHANJI
Responsible Official

OWNER
Title

281
~~713~~ 573-9177
Phone

2
Owner Type

T4
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

N
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

300	2	0	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.014	0.000	0.000	0.000	0.000	0.000	0.00022
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

1
System Classification

N
Certified Operator

0
Number - Highest Grade

8/11/97

~~10/05/95~~
Survey

Wright
Surveyor (Last Name)

K27
Code

12
Region

CHAMBERS
County

(10)

09203

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

0360079	001	GULF COAST	SNAPPY MART	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

0360079	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

0360079	001	G0360079A	1	O	0	10
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00007

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

December 18, 1998

CERTIFIED MAIL Certified #Z 139 384 601
RETURN RECEIPT REQUESTED

Mr. Larry Long, President
Cedar Bayou Estates Homeowners
5602 Railroad Drive
Baytown, Texas 77521-8139

Re: Notice of Violation for the Public Water Supply:
Cedar Bayou Estates, 5602 Railroad Drive, Baytown, Harris Co., Texas
TNRCC ID # 1012174

Dear Mr. Long:

On November 4, 1998, Mr. David W. Livings of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit to this office by January 18, 1999, a schedule outlining a compliance plan that addresses each of the outstanding alleged violations. Within 15 days of completion of the compliance plan, you must provide this office with documentation demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Mr. David W. Livings in our Houston Region Office at 713/767-3526.

Sincerely,

Huyen D. Luu, P. E.
Team Leader
Houston Region Office

HDL/dwl

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules
Sample Service Agreement
Waterworks Operator: General Instructions,
Application, Application Instructions
Sample Sanitary Control Easement
Exception Procedure-Sanitary Control Easement
Chlorine Residual Log/Coliform Siting Plan
Tank Inspection Form

cc: Harris Co. Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: Cedar Bayou Estates	ID #1012174	Inspection Date: 11/ 4/ 1998

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirement(s) Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.46(e)	Operating Practices for Public Water Systems Your system must be under the direct supervision of a certified water works operator at all times. A valid certificate of competency issued under the direction of the Texas Natural Resource Conservation Commission is required. To assist you in complying with this statutory requirement, we are enclosing the following material: (a) application for water works operator's certificate and instructions, and (b) certification information. Please have your operator complete and return the application at the time of the examination. You must hire a certified waterworks operator, at least until you or an employee of choice can become certified. Compliance Documentation: Submit a copy of the operator's certificate.	30 Days
02	30 TAC, §290.46(f)(1)(2)	Disinfectant Residual and Monitoring At least once every seven days, chlorine residual tests must be performed on water collected from various locations within the distribution system. A record of these tests and the sample location should be kept in your files for a minimum of 3 years. Compliance Documentation: Submit a copy of a chlorine residual log to verify compliance.	7 Days
03	30 TAC, §290.41(c)(1)	Ground Water Sources and Development Ground water sources must be located so there will be no danger of pollution from insanitary surroundings. Specifically, the well must not be located within 150 feet of a septic tank drainfield. This Agency will allow the continued use of this well so long as the following criteria are met and confirmed by subsequent sanitary surveys: a. A raw water (untreated) sample from the well must be submitted each month for bacteriological analysis. These samples are required in addition to the routine monthly distribution samples and must be collected directly from the wellhead prior to the point of chlorination. The results of these analyses must be maintained with the system's other records and they will be reviewed at the time of the next survey. b. The chlorination facilities must be operated to maintain a minimum free chlorine residual of 0.5 mg/L throughout the distribution system. Compliance Documentation: Submit a copy of the bacteriological sampling test results for both raw and treated/distribution water, and a chlorine residual log to verify compliance.	60 Days

SUMMARY OF INSPECTION FINDINGS

Entity: Cedar Bayou Estates	ID #1012174	Inspection Date: 11/ 4/ 1998

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
04	30 TAC, §290.41(c)(1)(F)	Ground Water Sources and Development A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document. Compliance Documentation: Submit copy of recorded sanitary control easement or a copy of exception to rules to verify compliance	180 Days
05	30 TAC, §290.46(p)(2)	Design and Construction of Pressure Tanks The pressure tank must be inspected annually to determine that the pressure release device and pressure gauge are working properly, the air-water ratio is being maintained at the proper level, the exterior coating systems are continuing to provide adequate protection to all metal surfaces, and that the tank remains in a watertight condition. Pressure tanks provided with an inspection port must have the interior surface inspected every five years. The results of these inspections must be recorded and maintained for at least five years. The records must be available for review by Commission staff during annual sanitary surveys of the system. Compliance Documentation: Submit a copy of tank inspection form to verify compliance.	180 Days
06	30 TAC, §290.46(y)	Operating Practices for Public Water Systems All water system electrical wiring must be installed in a securely mounted conduit in compliance with a local or national electrical code. Compliance Documentation: Submit a photo and/or receipts to verify compliance.	30 Days
07	30 TAC, §290.46(i)	Operating Practices for Public Water Systems The water system must have an agreement with each water customer that would allow an inspection of the individual water facilities prior to providing service to ensure that no substandard material was used, and to prevent any possible cross-connections or other undesirable plumbing practices. The agreement must prohibit the use of pipe and pipe fittings that contain more than 8.0 percent lead or solders and flux that contain more than 0.2 percent lead. Obtain agreements with all new customers. Mail or hand out agreements to all exsiting customers. Compliance Documentation: Submit copies of signed agreements to verify compliance.	120 Days

SUMMARY OF INSPECTION FINDINGS

Entity: Cedar Bayou Estates	ID #1012174	Inspection Date: 11/ 4/ 1998

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
08	30 TAC, §290.41(c)(3)(N)	Ground Water Sources and Development A flow meter must be installed on the well pump discharge line to provide water usage records and to assist in more efficient system operation. This meter, in conjunction with tests of water levels in the well, can provide valuable information on the condition of the well and well pump. Compliance Documentation: Submit photo, invoices or receipts to verify compliance.	90 Days
09	30 TAC, §290.41(c)(3)(K)	Ground Water Sources and Development The well casing vent must be properly screened with a 16-mesh or finer corrosion-resistant screening material. Compliance Documentation: Submit photo and/or receipts to verify compliance.	30 Days
10	30 TAC, §290.46(w)	Operating Practices for Public Water Systems All community water systems must post a legible sign at each of its production, treatment, and storage facilities. The sign must be located in plain view of the public and must provide the name of the water supply and an emergency telephone number where a responsible official can be contacted. Compliance Documentation: Submit photo to verify compliance.	30 Days

PUBLIC WATER SUPPLY REGULATORY PROGRAM

km 502 B

WATER SYSTEM DATA

ID No. 1012174 Community ✓ NTNC ___ Non-Comm ___

CCN No. ___ Superior Y/N Approved Y/N Probation Y/N Region 12

Name of System CEDAR BAYOU ESTATES County HARRIS

Physical location Behind 5602 RAILROAD DR

Responsible Official LARRY LONG Title President Phone 281-421-2280

Mailing Address 5602 RAILROAD DR BAYTOWN TEXAS 77521-8139

(1) Chief Cert Op Name NONE Grade & Type — Phone —

2nd Op Req'd? NO Other Cert Op Name — Grade & Type — Total # Cert Ops (1)

WS Manager/Superintendent LARRY LONG Other Officials Contacted NONE

Surveyed With LARRY LONG Area Served MH P And A few Homes

Supplier and Source GROUND WATER 1 WELL

Interconnection with another PWS? NO Name PWS I/C — Type I/C —

Retail Service Connections 26 Retail Meters — Retail Population 60

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

ChargeY/N YES Dist. to and Name of Nearest PWS ___

Reason for this Survey (Routine, Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 11-3-97

Map Attached NO Previous Map OK? YES Well Operational Status Changed? NO

Description of Supply, Source, Treatment, and Chemicals Used CONSIST OF 1 WELL 1 PRESSURE TANK AND distribution

TREATMENT: HYPOCHLORINATION PRIOR TO STORAGE

RATE

Total Well Cap. 50 gpm 0.072 mgd RW Cap — gpm — mgd

Treatment Cap. — gpm — mgd Total Svc. Pump Cap. — gpm — mgd

Total Elevated Storage — Total Storage Cap. — Pressure Tank Capacity 0.001 mg

Maximum Daily Usage — Date — Average Daily Usage — Time Period —

Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL	Y	N	
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1 # Submitted 1
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples —
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation — Thru —
Acceptable Sample Siting Plan on File?	☑	☐	

CHEMICAL

Acceptable Quality? YES Date, Last Chemical Analysis IOC 5-15-96 NO3/NO2 8-30-94 RC — VOC 12-29-97 SOC —

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 11-04-98 By DAVID W. LIVINGS

Date of Approval 12/18/98 By [signature]

Letter Date, if different from Approval Date ___ Reply Requested ___ Def. Score of this Survey 14

00333

I.D. #: 1012174 Survey Date 11-04-98

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	✓	
MOR's Properly Completed?	[.46(d)]	✓	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	

		Y
Distribution Map Up-to-Date?	[.46(n)]	✓
Ownership Signs Properly Displayed and Maintained? (10)*	[.46(w)]	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓
ANSI/NSF Approved Chem/Media?	[.42]	✓
Facilities Properly Maintained? (6)*	[.46(m) & (p)]	X
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	

→ Electrical wiring Exposed

II. STORAGE TANKS

Storage Tanks Properly Covered?	[.43(c)]			Proper Water Level Indicator Provided?	[.43(c)(4)]	
Tanks Tight Against Leakage?	[.43(c)(6)]			Drains Properly Connected?	[.43(c)(7)]	
Vents Properly Installed?	[.43(c)(1)]			Inlet and Outlet Properly Located?	[.43(c)(5)]	
Proper Roof Hatch Provided?	[.43(c)(2)]			Intruder Resistant Fence?	[.43(e)]	
Roof Hatch Kept Locked?	[.43(c)(2)]			Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]	
Proper Overflow Provided?	[.43(c)(3)]			Below Ground Storage Properly Located?	[.43(b)]	
				Inspection Ladder Provided?	[.43(c)]	

III. PRESSURE TANKS

Accurate Pressure Gauges?	[.43(d)(2)]	✓		Tanks Tight Against Leakage?	[.43(d)(7)]	✓
Pressure Release Device Provided?	[.43(d)(2)]	✓		Routinely Inspected, Maintained, Documented? (5)*	[.46(p)(2)]	
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓		Fenced or Housed?	[.43(e)]	✓
Air-Water Volume Indicator Provided?	[.43(d)(3)]			ASME, if Required?	[.43(d)(1)]	

IV. DISTRIBUTION

Plumbing Ordinance or Agreement? *(9)	[.46(i)]		X	Properly Installed Distribution Piping?	[.44(a)]	✓
Customer Service Inspection Program?	[.46(j)]	✓		Adequate Flush/Gate Valves?	[.44(d)(6)]	✓
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	✓		Air Release Valves Properly Installed?	[.44(d)(1)]	
Sewer Lines Properly Located?	[.44(e)]	✓		In-Line Booster Pumps in System? Location None		
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓		In-Line Booster Pumps in System Approved?		
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓		If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	

Tested psi/Locations 40psi 5602 Rail Road Dr

V. DISINFECTION

Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓		Adequate Residual Maintained/Recorded? (2)*	[.46(f)(1)(2)]	
Type Disinfection Used: Hypochlorination				Mg/L (T/F)/Locations 0.5 mg/L 5602 Rail Road		
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓		Evacuation Plan Cl_2/NH3? If needed	[.42(e)(11)]	
Disinfection Room Properly Vented?	[.42(e)(7)]			DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]			IF AMMONIA FEED PROVIDED:		
Scales Provided?	[.42(e)(4)(D)]			Properly Housed/Vented?	[.42(e)(10)]	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓		Scales or Gauges Provided?	[.42(e)(4)(D)]	

U0004

ID# 1012174 SURVEY DATE 11-4

VI. SYSTEM FACILITIES

Number of Connections 26

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
01	G	A	Behind 5602 RAILRd	—	O	365	Subm	Rated 50 no meter

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
Pressure Tank	0.001	Welded Steel	Well Site

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power/Alternate Source (Y/N) No Describe —

Required Well Production Capacity 1.5 GPM/Conn. X 20 Conn. = 30 GPM

Total Well Production Capacity Provided = Rated 50 GPM Adequate? ..... Y ✓ N –

Required Elevated/Pressure Storage: 50 Gal/Conn. X 20 Conn. = 0.001 MG

Elevated/Pressure Storage Provided = .001 MG Adequate? ..... ✓ –

Required Total Storage: — Gal/Conn. X — Conn. = — MG

Total Storage Provided = — MG Adequate? ..... — –

Required Service Pumping Capacity: — GPM/Conn. X — Conn. = — GPM

Service Pump Peaking Factor: — MDD/1,440 X — = — GPM Peak Demand

Total Service Pump Capacity = — GPM Adequate? ..... — –

00005

I.D. # 1012174 Survey Date 11-04-98

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y/N

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.? * (5)	[.41(c)(1)(A)]		X	UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

Sanitary easement(s) recorded? * (4)	[.41(c)(1)(F)]		X	Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided? * (9)	[.41(c)(3)(N)]		X
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]		—
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed? (9) *	[.41(c)(3)(K)]		X	All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	4
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	
Treated Water Protection	3 Pts	
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	

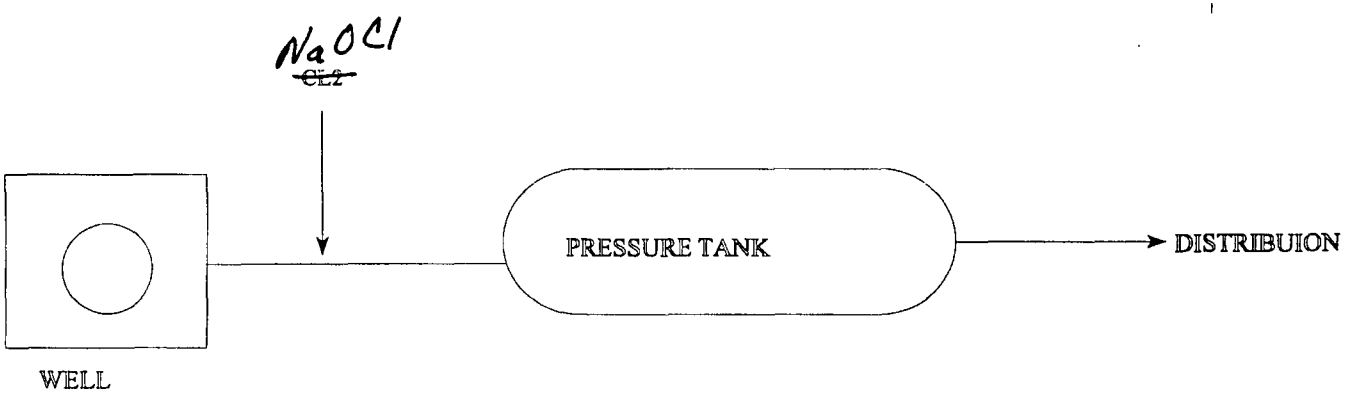
D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	4
No Easement	4 Pts	4
Well Construction Deficiencies	3/item	6
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	4 Pts	
Storage Deficient:		
Elevated or Pressure	4 Pts	
Total Storage Deficient	4 Pts	

TOTAL (A + B + C + D) = 18

00005

CEDAR BAYOU ESTATES
ID # 1012174
BAYTOWN, TEXAS
11/04/98
DAVID W. LIVINGS RS



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 12/04/97
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1012174
I.D.

CEDAR BAYOU ESTATES
Name

C/O CEDAR BAYOU ESTATES HOMEOWNERS
Mailing Name

5602 RAILROAD DR
Mailing Address

BAYTOWN
City

TX 775218139
St Zip

LARRY LONG
Responsible Official

PRESIDENT
Title

(~~713~~ 281) 421-2286
Phone

2
Owner Type

R9
Service Area

1-Federal	01-Interstate Carrier	S1-School	T1-Recreation
2-Private	02-Wholesaler	S2-Institution	T2-Service Station
3-State	09-Other Area	S3-Medical Facility	T3-Summer Camp
4-Local	R1-Residential	S4-Indust/Agr.	T4-Restaurant
5-Mixed Priv/Pub	R2-Mobile Home Park	S5-Day Care Center	T5-Highway Rest
6-Native American	R9-Other Residential	S9-Other Semi-resid	T6-Hotel/Motel
			T9-Other Transient

C
Plant Type

N
Interstate Carrier

C-Community
N-Non-community
P-Non-transient

RECEIVED
DEC 09 1997
REGION 12

60	26 ~~20~~	0	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.072	0.000	0.000	0.000	0.000	0.000	0.00100
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date - Reason

A
Activity Indicator

1
System Classification

N
Certified Operator

0
Number - Highest Grade

11-4-98
11/08/97
Survey

LIVINGS
Surveyor (Last Name)

K36
Code

12
Region

HARRIS
County

~~027~~ 18
Def. Score

00000

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1012174	001	GULF COAST	RAILWAY	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1012174	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1012174	001	G1012174A	1-END OF RAILWAY DR	O	365	50
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00000

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Cedar Bayou Estates	TNRCC ID: 1012174	Inspection Date: 11/04/98

ALLEGED NONCOMPLIANCES NOTED							
No.	TNRCC Category*	Compliance Due Date	Date of Response	Date Response Received	Completion Date Due	Completion Date Received	Enforcement
01	B7	30 Days					
02	C4	7 Days					
03	B20c(4)	60 Days					
04	B20c(8)	180 Days					
05	C1	180 Days					
06	C4	30 Days					
07	B3	60 Days					
08	C5	90 Days					
09	C5	30 Days					
10	C5	30 Days					

* Category A = violations which require automatic initiation of formal enforcement
* Category B and C = violations for which facility may be given an opportunity to comply

PUBLIC WATER SUPPLY DATA ENTRY FORI

GENERAL INFORMATIOI | MEDIA : PWS | INSPECTOR : DLIVINGS | REGION : 12 | KEY MAP : 502b

FACILITY INFORMATIOI | ID NUMBER : 1012174

ENTITY : CEDAR BAYOU ESTATES | TYPE FACILITY :G | STATUS : A | COUNTY : 101

SYSTEM PHONE # : (281)421-2286

OPERATOR : | OPERATOR PHONE # :

MAIL CONTACT : LARRY LONG | ADDRESS : 5602 RAILROAD DRIVE

CITY : BAYTOWN | ZIP : 77521-8139

SURVEY INFORAMTIOI | TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE :11/4/1998 | REPORT DATE : 11/14/1998 | SAMPLES TAKEN : N

COMMENT :

CUSTOMER SURVEY : 12/16/1998

ENFORCEMENT INFORMATIOI | COMPLIANCE : N | KIND OF LETTER :NOV

LETTER DATE :12/18/1998 | RESPONSE DUE 1/18/1999 | RESPONSE RECEIVED :

VIOLATIONS : y | CAT A VIOLS : 0.00 | CAT B VIOLS : 5.00 | CAT C VIOLS : 6.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 18.00 | DATE OF EAR :

CENTRAL OFFICE ONL'

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 5, 1999

CERTIFIED MAIL #Z 139 384 718
RETURN RECEIPT REQUESTED

Ms. Pearl Hebert, Owner
Tall Pines Mobile Home Park
121 Paradise Acres
Onalaska, Texas 77360-5801

Re: Notice of Violation for the Public Water Supply:
Tall Pines Mobile Home Park, 3510 Fox, Baytown, Harris County, Texas
TNRCC ID #1011638

Dear Ms. Hebert:

On November 18 and December 29, 1998, Ms. Maggie Wright of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit to this office by February 5, 1999 a schedule outlining a compliance plan that addresses each of the outstanding alleged violations. Within 15 days of completion of the compliance plan, you must provide this office with documentation demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Ms. Maggie Wright in our Houston Region Office at 713/767-3650.

Sincerely,

Don Thompson, R.S.
Team Leader
Houston Region Office

DT/mw

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules
Sample Service Agreement
Sanitary Control Easement
Potable Water Storage Tank Form
Well Plugging and Capping Form

cc: Harris County Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: Tall Pines Mobile Home Park	ID #1011638	Inspection Date: 11/18/98 - 12/30/98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.46(x)	Abandoned Wells Wells that are not in use and are non-deteriorated (as defined in 30 TAC, §238.2) must be tested every five years or as required by the executive director to prove that they are in a non-deteriorated condition. The test results shall be sent to the Commission's Water Utilities Division for review and approval. Deteriorated wells must be either plugged with cement or repaired to a non-deteriorated condition. We have enclosed copy of the plugging report which must be submitted when the operation has been completed. Compliance Documentation: Submit a copy of the plugging report to verify compliance.	180 Days
02	30 TAC, §290.41(c)(1)(F)	Ground Water Sources and Development A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document. Compliance Documentation: Submit a copy of recorded sanitary control easement or a copy of exception to rules to verify compliance.	180 Days
03	30 TAC, §290.41(c)(3)(B)	Ground Water Sources and Development The well casing must be extended to a point 18 inches above the elevation of the finished floor of the pump house or natural ground surface and a minimum of one inch above the sealing block or pump motor foundation block. Compliance Documentation: Submit photo, receipt, invoice or work order to verify compliance.	180 Days
04	30 TAC, §290.46(i)	Operating Practices for Public Water Systems The water system must have an agreement with each water customer that would allow an inspection of the individual water facilities prior to providing service to ensure that no substandard material was used, and to prevent any possible cross-connections or other undesirable plumbing practices. The agreement must prohibit the use of pipe and pipe fittings that contain more than 8.0 percent lead or solders and flux that contain more than 0.2 percent lead. Compliance Documentation: Submit an adopted service agreement to verify compliance.	120 Days

SUMMARY OF INSPECTION FINDINGS

Entity: Tall Pines Mobile Home Park	ID #1011638	Inspection Date: 11/18/98 - 12/29/98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
05	30 TAC, §290.43(d)(2)	Design and Construction of Pressure Tanks All pressure tanks must be provided with a pressure release device. Compliance Documentation: Submit a photo, receipt, invoice or work order to verify compliance.	30 Days
06	30 TAC, §290.43(d)(3)	Design and Construction of Pressure Tanks The pressure tank with a capacity greater than 1000 gallons must be equipped with some sanitary means of determining the air-to-water ratio. Compliance Documentation: Submit a photo, receipt, invoice or work order to verify compliance.	60 Days

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 1011638 Community ✓ NTNC ___ Non-Comm ___

CCN No. ___ Superior Y (N) Approved Y (N) Probation Y (N) Region 12

Name of System Tall Pines Mobile Home Park County Harris

Physical location 3510 Fox Baytown

Responsible Official Pearl Hebert Title Owner Phone 409-646-4225

Mailing Address 121 Paradise Acres Onalaska, TX 77360-5801

Chief Cert Op Name Larry Gray Grade & Type D-Water Phone 281-452-7315

2nd Op Req'd? No Other Cert Op Name ___ Grade & Type ___ Total # Cert Ops 1

WS Manager/Superintendent Gulf Utility Services, Inc Other Officials Contacted ___

Surveyed With Larry Gray Area Served Mobile Home Park

Supplier and Source Owner / Ground /

Interconnection with another PWS? No Name PWS I/C ___ Type I/C ___

Retail Service Connections 15 Retail Meters ___ Retail Population 45

Wholesale Master Meters ___ Wholesale Service Connections ___ Wholesale Population ___

Charge Y (N) NO Dist. to and Name of Nearest PWS 1/2 mile Cedar Bayou Estates

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 1/23/97

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 3 wells, 1 pressure tank and distribution

Treatment: Hypochlorination

Chlorine injection point is prior to pressure tank

Total Well Cap. 32 gpm .04608 mgd RW Cap ___ gpm ___ mgd

Treatment Cap. ___ gpm ___ mgd Total Svc. Pump Cap. ___ gpm ___ mgd

Total Elevated Storage ___ Total Storage Cap. ___ Pressure Tank Capacity .00125MG

Maximum Daily Usage ___ Date ___ Average Daily Usage ___ Time Period ___

Wholesale Contract ___ Maximum Purchase Rate ___

MICROBIOLOGICAL	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/month	# Submitted 1
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples ___	
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation ___	Thru ___
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL

Acceptable Quality? Yes Date, Last Chemical Analysis IOC 6/20/95 NO/NO, 8/3/94 RC 6/20/95 VOC 1/23/97 SOC ___

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? ___ Date ___

Date of Survey 11/18/98 - 12/29/98 By Maggie Wright

Date of Approval 1/5/99 By Dan Thedford

Letter Date, if different from Approval Date ___ Reply Requested 2/5/99 Def. Score of this Survey 13

00013

.D. #: 1011638 Survey Date 11/18/98

OPERATION AND MAINTENANCE

Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

OPERATIONAL

		Y	N
lonthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
lOR's Properly Completed?	[.46(d)]		"
ead End Mains Flushed?	[.46(l)]	✓	
ew Lines and Repairs Disinfected?	[.46(g)]	✓	
upply of Disinfectant on Hand?	[.46(h)]	✓	

		Y	N
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]	✓	
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

I. STORAGE TANKS

		Y	N
torage Tanks Properly Covered?	[.43(c)]		
anks Tight Against Leakage?	[.43(c)(6)]		
ents Properly Installed?	[.43(c)(1)]		
roper Roof Hatch Provided?	[.43(c)(2)]		
oof Hatch Kept Locked?	[.43(c)(2)]		
roper Overflow Provided?	[.43(c)(3)]		

		Y	N
Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

II. PRESSURE TANKS

		Y	N
ccurate Pressure Gauges?	[.43(d)(2)]	✓	
ressure Release Device Provided?	[.43(d)(2)]		✓*
roper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
ir-Water Volume Indicator Provided?	[.43(d)(3)]		✓*

		Y	N
(5) Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
(6) Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]		

V. DISTRIBUTION

		Y	N
lumbing Ordinance or Agreement?	[.46(i)]		(4) ✓*
ustomer Service Inspection Program?	[.46(j)]	N/A	
ackflow Assembly Program, if needed?	[.44(h)(4)(D)]	N/A	
ewer Lines Properly Located?	[.44(e)]	✓	
inimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
ormal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	

ested psi/Locations 38 psi - Trailer #14

		Y	N
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location None		"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

. DISINFECTION

		Y	N
isinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
ype Disinfection Used: Hypochlorination			
isinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
isinfection Room Properly Vented?	[.42(e)(7)]	N/A	
reathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
cales Provided?	[.42(e)(4)(D)]	"	
isinfection Prior to Storage?	[.42(e)(2)(3)]	✓	

		Y	N
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	✓	
Mg/L (T/F)/Locations 2.01 mg/l - Trailer #14			
Evacuation Plan Cl_2/NH3? If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

ID# 1011638 SURVEY DATE 11/18/98

VI. SYSTEM FACILITIES

Number of Connections 15

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
—	B	1	3510 Fox		C	365'	sub	—
001	C	2	3510 Fox		O	365'	sub	32 11/18

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
Pressure	1250	welded steel	well site

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power/Alternate Source NO (Y/N) Describe —

Required Well Production Capacity 1.0 GPM/Conn. X 14 Conn. = 14 GPM

Total Well Production Capacity Provided = 32 GPM Adequate? ..... Y ✓ N —

Required ~~Elevated~~/Pressure Storage: 50 Gal/Conn. X 14 Conn. = .000700 MG

~~Elevated~~/Pressure Storage Provided = .0012500 MG Adequate? ..... ✓ —

Required Total Storage: — Gal/Conn. X — Conn. = — MG

Total Storage Provided = — MG Adequate? ..... — —

Required Service Pumping Capacity: — GPM/Conn. X — Conn. = — GPM

Service Pump Peaking Factor: — MDD/1,440 X — = — GPM Peak Demand

Total Service Pump Capacity = — GPM Adequate? ..... — —

I.D. # [illegible] Survey Date [illegible]

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y N

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓	_	Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	_
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓	_	Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓	_	Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓	_	UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	_
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓	_	Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	_	✓

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]	_	✓ * 2	Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	_	✓ * 3	Well meter provided?	[.41(c)(3)(N)]	✓	_
Proper pressure cement?	[.41(c)(3)(C)]	✓	_	Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓	_	Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓	_	Well site properly drained?	[.41(c)(3)(I)]	✓	_
Casing vent properly installed?	[.41(c)(3)(K)]	✓	_	All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓	_				

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

_____

_____

_____

_____

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	____
2. None Ground	4 Pt.s	____
3. Only One When Two Required	4 Pt.s	____
4. Improper Certificate	4 Pt.s	____

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	____
MCL Violation	10/Mon.	____
2. Primary standards	10/Vio.	____
3. Secondary Standards	2/Vio.	____
4. Turbidity:		
Failure to Report	4/Mon.	____
MCL Violation	10/Mon.	____

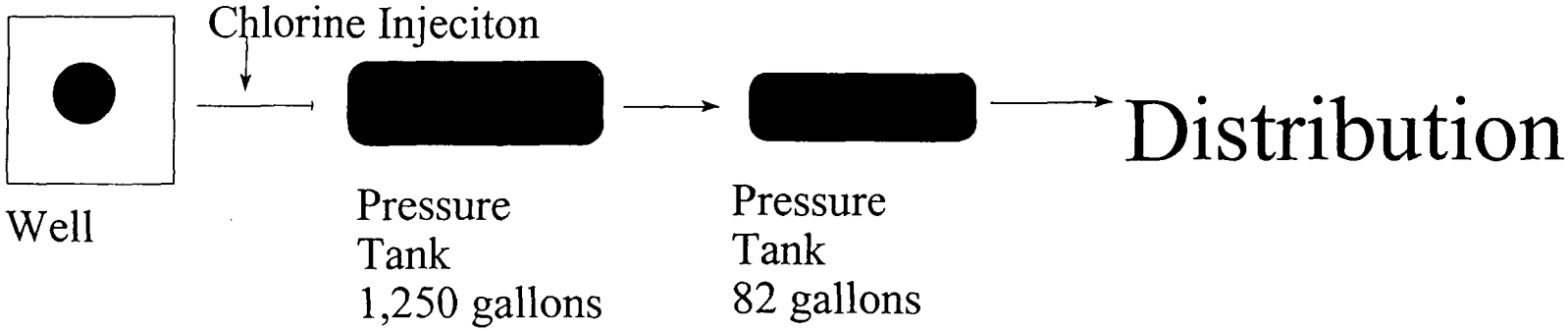
C. Distribution

Pressure < 20 psi	10 Pt.s	____
Pressure < 35 psi	4 Pt.s	____
Distribution Problems	2 Pt.s	2
Treated Water Protection	3 Pt.s	____
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	____

D. Design Deficiencies

1. Ground Water:	
No Disinfection	10 Pt.s
Improper Well Location	4 Pt.s
No Easement	4 Pt.s
Well Construction Deficiencies	3/item
2. Surface Water:	
No Disinfection	20 Pt.s
No Filtration	20 Pt.s
Excess Filter Rate	4 Pt.s
Inadequate Chemical Feed	4 Pt.s
Inadequate Detention Time	4 Pt.s
3. General:	
Production Deficient	4 Pt.s
Storage Deficient:	
Elevated or Pressure	4 Pt.s
Total Storage Deficient	4 Pt.s

TOTAL (A + B + C + D) = 13



Tall Pines Mobile Home Park
ID #1011638

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 03/07/97
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1011638
I.D.

TALL PINE MOBILE HOME PARK
Name

C/O ~~ROBERT J~~ Pearl HEBERT
Mailing Name

121 PARADISE ACRES
Mailing Address

ONALASKA
City

TX 773605801
St Zip

~~ROBERT J~~ Pearl HEBERT
Responsible Official

OWNER
Title

(409) 646-4225
Phone

2
Owner Type

R2
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Statio
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transien

C
Plant Type

N
Interstate Carrier

C-Community
N-Non-community
P-Non-transient

~~42~~ 45	~~14~~ 15	0	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0 ~~051~~ 04608	0.000	0.000	0.000	0.000	0.000	0.00125
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date

Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

D
Highest Grade

11-18-98
12-29-98
~~01/23/97~~ Wright K44 12 HARRIS 13 007
Survey Surveyor (Last Name) Code Region County Def. Score

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1011638	001	GULF COAST	Tall Pines MHP	G	1	—
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1011638	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1011638	001	G1011638A	1-3510 FOX (MID OF MHP)	O	365	~~80~~ 32
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

(OFFLINE ENTRY POINTS/WATER SOURCES)

I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	Old E
1011638	999	G1011638B	2	C	0	001

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Tall Pines Mobile Home Park	TNRCC ID: 1011638	Inspection Date: 11/18/98 - 12/29/98

ALLEGED NONCOMPLIANCES NOTED							
No.	TNRCC Category *	Compliance Due Date	Date of Response	Date Response Received	Completion Date Due	Completion Date Received	Enforcement
01	B	180 Days					
02	B	180 Days					
03	C	180 Days					
04	B	120 Days					
05	C	30 Days					
06	C	60 Days					

PUBLIC WATER SUPPLY DATA ENTRY FORI

GENERAL INFORMATIOI | MEDIA : PWS | INSPECTOR : MWRIGHT | REGION : 12 | KEY MAP :

FACILITY INFORMATIOI | ID NUMBER : 1011638

ENTITY : TALL PINES MHP | TYPE FACILITY :G | STATUS : A | COUNTY : 101

SYSTEM PHONE # : (409)646-4225

OPERATOR : LARRY GRAY | OPERATOR PHONE # : (281)452-7315

MAIL CONTACT : PEARL HEBERT | ADDRESS : 121 PARADISE ACRES

CITY : ONALASKA | ZIP : 77360-5801

SURVEY INFORAMTIOI | TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE : 12/29/1998 | REPORT DATE : 12/29/1998 | SAMPLES TAKEN : N

COMMENT :

CUSTOMER SURVEY : 12/1/1998

ENFORCEMENT INFORMATIOI | COMPLIANCE : N | KIND OF LETTER : NOV

LETTER DATE : 1/5/1999 | RESPONSE DUE 2/5/1999 | RESPONSE RECEIVED :

VIOLATIONS : Y | CAT A VIOLS : 0.00 | CAT B VIOLS : 3.00 | CAT C VIOLS : 3.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 13.00 | DATE OF EAR :

CENTRAL OFFICE ONL'

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 9, 1997

CERTIFIED #P 298 549 837

Mr. Leroy Everett, Owner
Cedar Bayou Mobile Home Park
6310 Highway 146
Baytown, Texas 77520

Re: Public Water Supply
Cedar Bayou Mobile Home Park
ID #0360024
Sanitary Survey

Dear Mr. Leroy Everett:

On September 30, 1997, Region Office representative, Maggie Wright, in company with Melvin Bliss and Fred Scott, conducted a sanitary survey of the subject water system. During the inspection and exit interview, our representative noted and discussed with Melvin Bliss and Fred Scott certain outstanding alleged violations as explained in the enclosed "Attachment A".

The staff of the Texas Natural Resource Conservation Commission is dedicated to working with the regulated community to achieve compliance with the state's environmental laws, regulations, permit, and registration provisions. Therefore, our regional office wishes to resolve this matter with you as soon as possible. Please advise this office in writing by November 9, 1997, as to the actions being taken to correct the violations listed on "Attachment A".

Should clarification of this letter be desired, or if the Houston Region Office can be of any further assistance concerning this survey, please feel free to contact Maggie Wright at (713) 767-3650.

Sincerely,

D. Thompson

Don Thompson, R.S.
Team Leader
Public Water Supply
Region 12

DT/mw
Enclosure
cc: Chambers County Health Dept.
TNRCC - Water Utilities Div.

ATTACHMENT A

Name of System: Cedar Bayou Mobile Home Park ID #0360024

Survey Date: September 30, 1997
Surveyed By: Maggie Wright

Summary of Outstanding Alleged Violations

1. 30 TAC, §290.106(a)(2); Bacteriological Monitoring
Our records indicate that no bacteriological samples were collected for the month of June 1997. This resulted in monitoring violation for that month.

2. 30 TAC, §§290.45(c)(1)(B); Capacity Requirement
Your water system fails to meet this Agency's "Minimum Water System Capacity Requirements." These requirements include:

a well capacity of 0.6 gallons per minute per connection

Your water system must be modified to meet this requirement to assure an adequate supply of water at all times.

3. 30 TAC, §290.41(c)(1)(F); Ground Water Sources and Development
A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document.

4. 30 TAC, §290.43(d)(3); Design and Construction of Pressure Tanks
The pressure tank with a capacity greater than 1000 gallons must be equipped with some sanitary means of determining the air-to-water ratio.

5. 30 TAC, §290.46(p)(1); Design and Construction of Storage Tanks
The ground storage tank must be inspected at least annually to determine that the vents are in place and properly screened, the roof hatches closed and locked, flap valves provide adequate protection against insects, rodents, and other vermin, and that the interior and exterior coating systems are continuing to provide adequate protection to all metal surfaces and that the tank remains in a watertight condition.

The results of these inspections must be recorded and maintained for at least five years. The records must be available for review by Commission staff during annual sanitary surveys of the system.

6. 30 TAC, §290.46(p)(2); Design and Construction of Pressure Tanks
The pressure tank must be inspected annually to determine that the pressure release device and pressure gauge are working properly, the air-water ratio is being maintained at the proper level, the exterior coating systems are continuing to provide adequate protection to all metal surfaces, and that the tank remains in a watertight condition. Pressure tanks provided with an inspection port must have the interior surface inspected every five years.

The results of these inspections must be recorded and maintained for at least five years. The records must be available for review by Commission staff during annual sanitary surveys of the system.

7. 30 TAC, §290.46(m) and/or 290.46(t); Operating Practices for Public Water Systems
The water system facilities must be properly maintained by repairing the broken flow meter on the well discharge line.

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 0360024 Community ✓ NTNC ___ Non-Comm ___

CCN No. ___ Superior ___ Approved ___ Status? ___ Region 12 Houston

Name of System Cedar Bayou Mobile Home Park County Harris

Physical location 6310 Highway 146

Responsible Official Leroy Everett Title Owner Phone 281-383-2022

Mailing Address 6310 Highway 146 Baytown, TX 77520

Chief Cert Op Name Fred Scott Grade & Type C-Ground Phone 281-476-5930

2nd Op Req'd? No Other Cert Op Name ___ Grade & Type ___ Total # Cert Ops 1

WS Manager/Superintendent Melvin Bliss Other Officials Contacted ___

Surveyed With Melvin Bliss & Fred Scott Area Served Mobile Home Park

Supplier and Source Owner / Ground / 1 well

Interconnection with another PWS? No Name PWS I/C ___ Type I/C ___

Retail Service Connections 97 Retail Meters ___ Retail Population 291

Wholesale Master Meters ___ Wholesale Service Connections ___ Wholesale Population ___

Minimum Charge ? Included In Rent Per Thous. Dist. to and Name of Nearest PWS 1 mile City of Baytown

Reason for this Survey (Routine, Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 7-9-96

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 1 well, 1 pressure tank, 1 ground storage tank, 2 service pumps and distribution - The well facilities are located at 6310 Highway (middle section of park)

Treatment: Hypochlorination

Chlorine injection point is prior to ground storage tank

Total Well Cap. 40 gpm .0576 mgd RW Cap ___ gpm ___ mgd

Treatment Cap. ___ gpm ___ mgd Total Svc. Pump Cap. 200 gpm .288 mgd

Total Elevated Storage ___ Total Storage Cap. .020 MG Pressure Tank Capacity .0025 MG

Maximum Daily Usage ___ Date ___ Average Daily Usage ___ Time Period ___

Wholesale Contract ___ Maximum Purchase Rate ___

MICROBIOLOGICAL

	Y	N	
Samples Submitted in Accordance with DWS?	☐	☑ (1)	* missed June '97 — Number of Samples Required 1/month # Submitted 1
Raw Samples Submitted, if Required?	⊟	⊟	Number of Raw Samples ___
Well(s) Surface Water Influenced?	☐	⊟	Non-Comm. Dates of Operation ___ Thru ___
Acceptable Sample Siting Plan on File?	☑	☐	

CHEMICAL

Acceptable Quality? Yes Date, Last Chemical Analysis IOC 1-25-95 RC 6-11-92 VOC 8-20-91 SOC ___

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? ___ Date ___

Date of Survey 9-30-97 By Maggie Wright

Date of Approval 10-9-97 By ___

Letter Date, if different from Approval Date ___ Reply Requested 11/9/97 Def. Score of this Survey 17

00339

I.D. #: 0360024

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
Daily Usage Shown?	[.46(d)]	"	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]		✓* (7)
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	
Sanitary facilities available, if needed?	[.42(g)]	✓	

- Repair broken flow meter

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]	✓	
Tanks Tight Against Leakage?	[.43(c)(6)]	✓	
Vents Properly Installed?	[.43(c)(1)]	✓	
Proper Roof Hatch Provided?	[.43(c)(2)]	✓	
Roof Hatch Kept Locked?	[.43(c)(2)]	✓	
Proper Overflow Provided?	[.43(c)(3)]	✓	
Proper Water Level Indicator Provided?	[.43(c)(4)]	✓	
Drains Properly Connected?	[.43(c)(7)]	✓	
Inlet and Outlet Properly Located?	[.43(c)(5)]	✓	
Intruder Resistant Fence?	[.43(e)]	✓	
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		✓* (6)
Below Ground Storage Properly Located?	[.43(b)]	N/A	
Inspection Ladder Provided?	[.43(c)]	✓	

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]		✓* (4)
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]		✓* (5)
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]		

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	✓	
Customer Service Inspections Recorded?	[.46(j)]	N/A	
Backflow Assembly Report Recorded, if needed?	[.44(h)(4)(D)]	"	
Sewer Lines Properly Located?	[.44(e)]	✓	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
Tested psi/Locations		40psi - Behind Office	
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location			4
In-Line Booster Pumps in System Approved?			"
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]		"

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: Hypochlorination			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
Scales Provided?	[.42(e)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	✓	
Mg/L (T/F)/Locations		0.61 mg/l - Behind office	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

00000

I.D. # 0360024

L SYSTEM FACILITIES

Number of Connections 97

ELLS (Y) N OR RAW WATER PUMPS (Y) (N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	Oper. Status	Well Depth	Pump Type	Rated GPM	Tested GPM/Date
01	A	1	6310 Highway 146	O	372'	sub	40	40 7/96

ORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
round	20,000	Bolted steel	well site
ressure	2,500	Welded steel	" "

RVICE PUMPS

lo.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location
	100	well site						
2	100	" "						

rgency Power? NO (Y/(N)) Describe: ———

uired Well Production Capacity 0.6 GPM/Conn. X 97 Conn. = 58.2 GPM

l Well Production Capacity Provided = 40 GPM Adequate? ..... Y N ② ✓*

uired ~~Elevated~~/Pressure Storage: 20 Gal/Conn. X 97 Conn. = .00194 MG

~~ated~~/Pressure Storage Provided = .0025 MG Adequate? ..... ✓ —

uired Ground/Total Storage: 200 Gal/Conn. X 97 Conn. = .0194 MG

und/Total Storage Provided = .020 MG Adequate? ..... ✓ —

uired Service Pumping Capacity: 2.0 GPM/Conn. X 97 Conn. = 194 GPM

/ice Pump Peaking Factor: — MDD/1,440 X — = — GPM Peak Demand

l Service Pump Capacity = 200 GPM Adequate? ..... ✓ —

03331

I.D. # 0360024

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer or septic tank ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	

Reported

B. CONSTRUCTION

Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]	✓	
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(D)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓		Sanitary easement(s) recorded?	[.41(c)(1)(F)]		✓* (3)
Suitable sampling tap?	[.41(c)(3)(M)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological:		
Failure to Sample	4/Mon.	4
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	
Treated Water Protection	3 Pts	3
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	
No Easement	4 Pts	4
Well Construction Deficiencies	3/item	3
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	3 or 4 Pts	3
Storage Deficient:		
Elevated or Pressure	4 Pts	
Total Storage < 70% of Required	4 Pts	

TOTAL (A + B + C + D) = 17

00332

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Certification and Registration Information

To be completed only when changes to the existing printout are desired. Fill in the I.D. number and only the information to be changed. Refer to the Certification and Employment printout for current information.

0360024	Cedar Bayou MHP	Chambers
I D #	System Name	County

6310 Highway 146	Baytown	TX	77520
Mailing Address (Owner or responsible official)	City	State	Zip Code

Date of Survey 9-30-97

Note: Check only one box in each of the categories listed below:

A Type System: Water Only [X] Wastewater Only [ ] Both [ ]

B Certified Operator: Required [X] Not Required [ ]

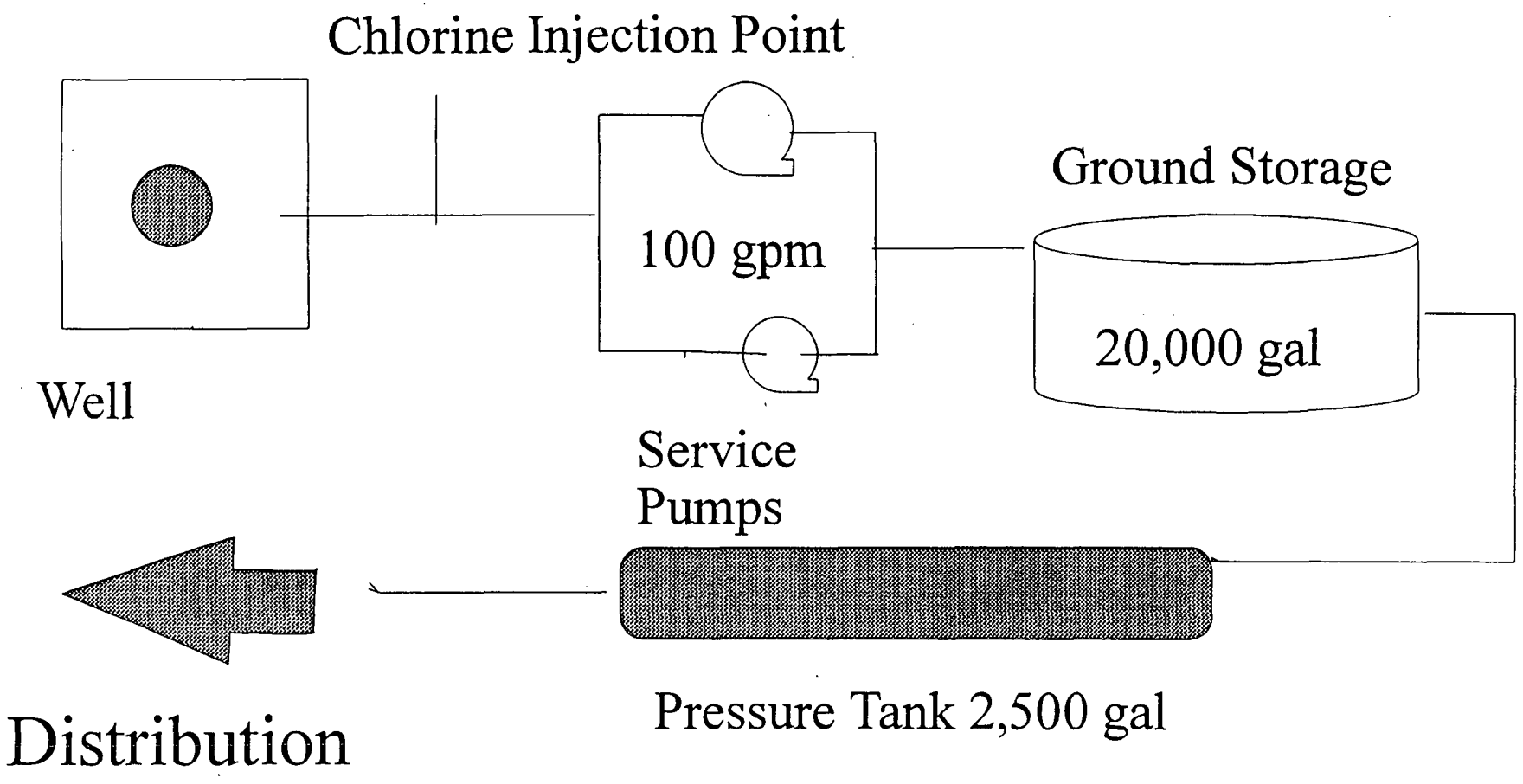
C Certified Operator(s) Currently employed by this system: Yes [X] No [ ]

List below Certified Operators to be added or deleted:

S#	NAME	TRANSACTION (A = add or D = delete)
408-86-6530	Fred Scott	A

09333

00334



Cedar Bayou Mobile Home Park

ID #0360024

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 08/14/96
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

0360024
I.D.

CEDAR BAYOU MOBILE HOME PARK
Name

C/O LEROY EVERETT
Mailing Name

6310 HIGHWAY 146
Mailing Address

BAYTOWN
City

TX 77520
St Zip

LEROY EVERETT
Responsible Official

OWNER
Title

281
(713) 383-2022
Phone

2
Owner Type

R2
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

RECEIVED
AUG 22 1996
REGION 12

291 (~~285~~) Pop. Served
97 (~~95~~) # of Connect
0 # of Meters
0 #I/C w/other PWS
76.4 Air Temp.

0.057 Total Product (MGD)
0.011 Average Daily Consump.
0.020 Total Storage (MG)
0.000 Elev. Storage (MG)
0.288 Booster Pump Cap. (MGD)
0.000 Aux. Prod. Cap. (MGD)
0.00250 Pressure Tank Cap. (MG)

/ / Deactivation Date
Reason
A Activity Indicator

3 System Classification
N Certified Operator
01 Number
C Highest Grade

9-30-97
~~07/09/96~~ Survey
Wright Surveyor (Last Name)
K27 Code
12 Region
CHAMBERS County

17

00335

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

0360024	001	GULF COAST	[illegible]	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

0360024	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

0360024	001	G0360024A	1	O	372	40
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

INSPECTION COPY

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 30, 1998

Certified #Z 091 357 356

Mr. William N. Kelley, Jr., Owner
Carriage Trail Subdivision
114 Lillard Lane
Dayton, Texas 77535-8727

Re: Carriage Trail Subdivision
TNRCC ID # 0360093

Dear Mr. Kelley:

On June 8, 1998, a representative of our office conducted an inspection of the above-referenced facility to evaluate compliance with applicable public water supply requirements. During the inspection, certain outstanding alleged violations were identified. Enclosed is a summary which lists the inspection findings. For each outstanding alleged violation, we have identified either a specific date or time frame (e.g., 30 days) by which the alleged violation should be corrected or indicated that a compliance plan and schedule must be submitted. Any specific compliance time frame that is given should be measured from the date of this letter.

The Texas Natural Resource Conservation Commission recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The agency looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violation in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Maggie Wright in our Houston Regional Office at (713)767-3650.

Sincerely,

Don Thompson

Don Thompson, R.S.
Public Water Supply Team Leader
Houston Regional Office

DT/mw

Enclosures

cc: Chambers County Health Department
TNRCC - Water Utilities Division

SUMMARY OF INSPECTION FINDINGS

Entity: Carriage Trail Subdivision	TNRCC ID: 0360093	Inspection Date: 6/08/98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirement(s) Cited	Description of Alleged Violation and Corrective Action Recommendation	Compliance Due Date
1	30 TAC, §290.103 and/or §290.113	Secondary Constituent Level The most recent chemical analysis conducted by the Texas Department of Health laboratory indicates that the quality of the water produced by the system does not meet the commission's minimum secondary standards. Specifically, the fluoride concentration of 2.8 mg/l exceeds the permissible secondary level for this constituent which is 2.0 mg/l. Elevated fluoride levels may cause mottling of the teeth in children fourteen years of age and younger who use this water regularly Your customers must be notified on an annual basis in writing that the fluoride concentration of your water is 2.8 mg/l. One copy of each of the annual notices must be submitted for our records. Until the deficiency is eliminated, these notices must continue.	Continue To Notify Customers On An Annual Basis
2	30 TAC, §290.46(m)	Operating Practices for Public Water Systems The water system facilities must be properly maintained by cleaning the inside of the hypochlorinator solution container.	15 Days

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Carriage Trails Subdivision	TNRCC ID: 0360093	Inspection Date: 6/08/98

ALLEGED NONCOMPLIANCE NOTED					
No.	**TNRCC Category***	**Compliance Due Date**	**Date of Response**	**Date Response Received**	**Enforcement**
01	C	Continue To Notify Customers On An Annual Basis			
02	C	15 Days			

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

ID No. 0360093 Community ✓ NTNC ___ Non-Comm ___
CCN No. 12143 Superior Y(N) Approved Y(N) Probation Y(N) Region 12
Name of System Carriage Trail Subdivision County Chambers
Physical location on FM 565 West - Southeast of FM 1409
Responsible Official William N. Kelley, Jr. Title Owner Phone 281-385-2880
Mailing Address 114 Lillard Lane Dayton, TX 77535-8727 713-769-9348 (Beeper)
Chief Cert Op Name William N. Kelley Jr. Grade & Type C-Ground Phone 281-385-2880
2nd Op Req'd? No Other Cert Op Name — Grade & Type — Total # Cert Ops 1
WS Manager/Superintendent William N. Kelley, Jr. Other Officials Contacted —
Surveyed With William N. Kelley Area Served Carriage Trail Subdivision
Supplier and Source Owner / Ground / 1well
Interconnection with another PWS? No Name PWS I/C — Type I/C —
Retail Service Connections 27 Retail Meters 27 Retail Population 81
Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —
Charge Y(N) Yes Dist. to and Name of Nearest PWS 2½ miles River Oaks
Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 5-19-97
Map Attached No Previous Map OK? Yes Well Operational Status Changed? No
Description of Supply, Source, Treatment, and Chemicals Used Ground / 1well, 1 pressure tank and distribution
Treatment: Hypochlorination
Chlorine injection point is prior to pressure tank

Total Well Cap. 51 gpm .073344 mgd RW Cap — gpm — mgd
Treatment Cap. — gpm — mgd Total Svc. Pump Cap. — gpm — mgd
Total Elevated Storage — Total Storage Cap. — Pressure Tank Capacity .092000 HG
Maximum Daily Usage — Date — Average Daily Usage — Time Period —
Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL

	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/month	# Submitted 1
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples —	
Well(s) Surface Water Influenced?	☐	☐	Non-Comm. Dates of Operation —	Thru —
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL
Acceptable Quality? No Date, Last Chemical Analysis IOC 12/4/95 NO/NO2 6/7/95 RC 12/4/95 VOC 12/4/95 SOC —
List UNACCEPTABLE Values Fluoride 2.8 mg/l

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 6/08/98 By Maggie Wright
Date of Approval 6/30/98 By [illegible]
Letter Date, if different from Approval Date — Reply Requested — Def. Score of this Survey 5

00322

I.D. #: 0360093 Survey Date 6/08/98

OPERATIONAL AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	N/A	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]	✓*	
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

*Clean inside of hypochlorinator solution container

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]		
Tanks Tight Against Leakage?	[.43(c)(6)]		
Vents Properly Installed?	[.43(c)(1)]		
Proper Roof Hatch Provided?	[.43(c)(2)]		
Roof Hatch Kept Locked?	[.43(c)(2)]		
Proper Overflow Provided?	[.43(c)(3)]		
Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided?	[.43(d)(3)]	✓	
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]	✓	

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	✓	
Customer Service Inspection Program?	[.46(j)]	N/A	
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	"	
Sewer Lines Properly Located? (septic)	[.44(e)]	✓	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
Tested psi/Locations 47 psi - 5506 Carriage Trails			
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location None		"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: Hypochlorination			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
Scales Provided?	[.42(e)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	✓	
Mg/L (T/F)/Locations .23 mg/l - 5506 Carriage Trails			
Evacuation Plan Cl2/NH3?If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

ID# 0360093 SURVEY DATE 6/08/98

VI. SYSTEM FACILITIES

Number of Connections 27

WELLS (Y)/N) OR RAW WATER PUMPS (Y/(N))

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
001	A	1	on FM 565 West		O	565	sub	51 6/8/98

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity (gallons)	Material	Location
Pressure	2000	welded steel	well site
1			

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power/Alternate Source No (Y)(N) Describe ———

Required Well Production Capacity 1.5 GPM/Conn. X 27 Conn. = 40.5 GPM

Total Well Production Capacity Provided = 51 GPM Adequate? ..... Y ✓ N —

Required ~~Elevated~~/Pressure Storage: 50 Gal/Conn. X 27 Conn. = .001350 MG

~~Elevated~~/Pressure Storage Provided = .002000 MG Adequate? ..... ✓ —

Required Total Storage: ——— Gal/Conn. X ——— Conn. = ——— MG

Total Storage Provided = ——— MG Adequate? ..... — —

Required Service Pumping Capacity: ——— GPM/Conn. X ——— Conn. = ——— GPM

Service Pump Peaking Factor: ——— MDD/1,440 X ——— = — GPM Peak Demand

Total Service Pump Capacity = ——— GPM Adequate? ..... — —

I.D. # 0360093 Survey Date 6/08/98

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y/N

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged? Reported	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]	✓		Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]	✓	
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

X. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	
2. None Ground	4 Pt.s	
3. Only One When Two Required	4 Pt.s	
4. Improper Certificate	4 Pt.s	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	2
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

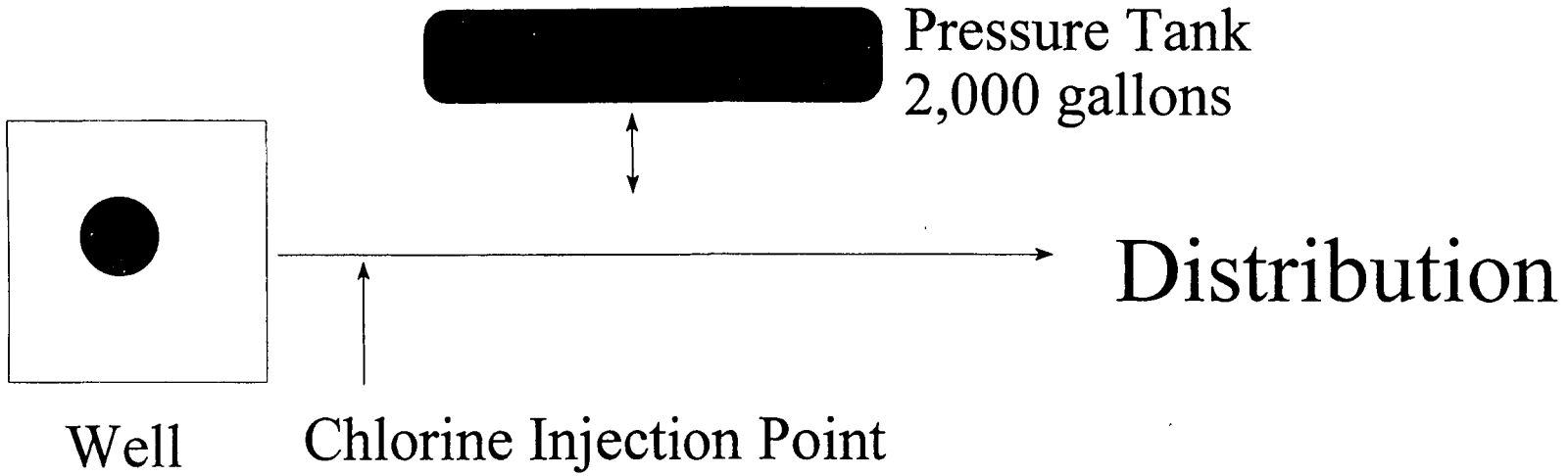
Pressure < 20 psi	10 Pt.s	
Pressure < 35 psi	4 Pt.s	
Distribution Problems	2 Pt.s	
Treated Water Protection	3 Pt.s	3
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pt.s	
Improper Well Location	4 Pt.s	
No Easement	4 Pt.s	
Well Construction Deficiencies	3/item	
2. Surface Water:		
No Disinfection	20 Pt.s	
No Filtration	20 Pt.s	
Excess Filter Rate	4 Pt.s	
Inadequate Chemical Feed	4 Pt.s	
Inadequate Detention Time	4 Pt.s	
3. General:		
Production Deficient	4 Pt.s	
Storage Deficient:		
Elevated or Pressure	4 Pt.s	
Total Storage Deficient	4 Pt.s	

OTAL (A + B + C + D) = 5

00344



Carriage Trail Subdivision
ID #0360093

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 07/18/97
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

RECEIVED
JUL 23 1997
REGION 12

0360093
I.D.

CARRIAGE TRAIL SUBDIVISION
Name

C/O WILLIAM N KELLEY JR
Mailing Name

114 ~~LIL ARD LN~~ Lillard Lane
Mailing Address

DAYTON
City

TX 775358727
St Zip

WILLIAM N KELLEY JR
Responsible Official

OWNER
Title

(281) 385-2880
Phone

2
Owner Type

R1
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
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R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
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T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

N
Interstate Carrier

C-Community
N-Non-community
P-Non-transient

81 ~~78~~
Pop. Served

27 ~~26~~
# of Connect

27 ~~26~~
# of Meters

0
#I/C w/other PWS

0.0
Air Temp.

.07344
0.~~072~~
Total Product (MGD)

0.000
Average Daily Consump.

0.000
Total Storage (MG)

0.000
Elev. Storage (MG)

0.000
Booster Pump Cap. (MGD)

0.000
Aux. Prod. Cap. (MGD)

0.00200
Pressure Tank Cap. (MG)

/ /
Deactivation Date

Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

C
Highest Grade

6/08/98
~~05/15/97~~
Survey

Wright
Surveyor (Last Name)

K27
Code

12
Region

CHAMBERS
County

5
~~002~~
Def. Score

00313

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

0360093	001	GULF COAST	CARRIAGE TRAIL SUB	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

0360093	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

0360093	001	G0360093A	1-FM 565 W	O	565	51 ~~52~~
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 7, 1999

CERTIFIED MAIL #Z 465 053 150
RETURN RECEIPT REQUESTED

Mr. Jim E. Laubach, Owner
G & S Utility Company
P. O. Box 939
Baytown, Texas 77522-0939

Re: Notice of Violation for the Public Water Supply:
G & S Utility Company, 17222 Cheynne, Chambers County, Texas
TNRCC ID #0360069

Dear Mr. Laubach:

On April 16, 1999, Ms. Maggie Wright of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit to this office by June 7, 1999 a schedule outlining a compliance plan that addresses each of the outstanding alleged violations. Within 15 days of completion of the compliance plan, you must provide this office with documentation demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Ms. Maggie Wright in our Houston Region Office at 713/767-3650.

Sincerely,

Huyen D. Luu, P.E.
Team Leader
Houston Region Office

HDL/mw

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules

cc: Chambers County Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: G & S Utility Company	ID #0360069	Inspection Date: 4/16/99

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.42(e)(8)	Disinfection Hypochlorinator solution containers and pumps must be housed and locked to protect them from vandalism and adverse weather conditions. The solution container must be properly covered and sealed to prevent the entry of dust, insects, and other contaminants. Compliance Documentation: Submit photo, receipt, invoice or work order to verify compliance.	90 Days
02	30 TAC, §290.43(d)(3)	Design and Construction of Pressure Tanks All air compressor injection lines for pressure tanks must be equipped with a filter or other device to prevent compressor lubricants and other contaminants from entering the pressure tank. Compliance Documentation: Submit photo, receipt, invoice or work order to verify compliance.	30 Days
03	30 TAC, §290.46(t)	Operating Practices for Public Water Systems The water system facilities must be properly maintained by repairing the leaking drain valve on the bottom of the pressure tank.. Compliance Documentation: Submit receipt, invoice or work order to verify compliance.	14 Days

WATER SYSTEM DATA

ID No. 0360069 Community ✓ NTNC ___ Non-Comm ___

CCN No. ___ Superior Y(N) Approved Y(N) Probation Y(N) Region 12

Name of System G. S Utility Company County Chambers

Physical location 17222 Cheynne - office

Responsible Official Jim E. Loubach Title Owner Phone 281-383-3232

Mailing Address P. O. Box 939 Baytown, TX 77522-0939

Chief Cert Op Name Richard Steadman Grade & Type A-Water Phone 281-839-1003

2nd Op Req'd? NO Other Cert Op Name — Grade & Type — Total # Cert Ops 1

WS Manager/Superintendent Jim Laubach Other Officials Contacted —

Surveyed With Jim Loubach Area Served Race Track, Tower Terrace + West Chambers Co. Estates

Supplier and Source Owner / Ground / 1 well

Interconnection with another PWS? No Name PWS I/C — Type I/C —

Retail Service Connections 260 Retail Meters 270 Retail Population 810

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

Charge(Y)N Yes Dist. to and Name of Nearest PWS 2 miles Snappy Mart

Reason for this Survey (Routine, Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date 3/19/98

Map Attached No Previous Map OK? Yes Well Operational Status Changed? No

Description of Supply, Source, Treatment, and Chemicals Used Ground / 1 well, 1 ground storage tank, 1 pressure tank, 2 service pumps, air compressor and distribution

Treatment: Hypochlorination

Chlorine injection point is prior to ground storage tank.

Total Well Cap. 195 gpm .2808 mgd RW Cap — gpm — mgd

Treatment Cap. — gpm — mgd Total Svc. Pump Cap. 500 gpm .72 mgd

Total Elevated Storage — Total Storage Cap. .06 MG Pressure Tank Capacity .005 MG

Maximum Daily Usage .229 MG Date 4/6/98 Average Daily Usage: 09641 MG Time Period Mar'99 - Apr'98

Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL

	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/month	# Submitted 1
Raw Samples Submitted, if Required?	☐	☐	Number of Raw Samples —	
Well(s) Surface Water Influenced?	☐	☑	Non-Comm. Dates of Operation —	Thru —
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL

Acceptable Quality? YES Date, Last Chemical Analysis IOC 5/12/97 NO,NO, 5/31/95 RC 5/12/92 VOC 11/22/97 SOC —

List UNACCEPTABLE Values ___

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 4/16/99 By Maggie Wright

Date of Approval 5/7/99 By [signature]

Letter Date, if different from Approval Date ___ Reply Requested 6/7/99 Def. Score of this Survey 2

00351

I.D. #: 0360069 Survey Date 4/16/99

OPERATION AND MAINTENANCE

Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	✓	
MOR's Properly Completed?	[.46(d)]	✓	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]		✓* (3)
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]	N/A	

— Pressure tank blow off leak

II. STORAGE TANKS

		Y	N
Storage Tanks Properly Covered?	[.43(c)]	✓	
Tanks Tight Against Leakage?	[.43(c)(6)]	✓	
Vents Properly Installed?	[.43(c)(1)]	✓	
Proper Roof Hatch Provided?	[.43(c)(2)]	✓	
Roof Hatch Kept Locked?	[.43(c)(2)]	✓	
Proper Overflow Provided?	[.43(c)(3)]	✓	
Proper Water Level Indicator Provided?	[.43(c)(4)]	✓	
Drains Properly Connected?	[.43(c)(7)]	✓	
Inlet and Outlet Properly Located?	[.43(c)(5)]	✓	
Intruder Resistant Fence?	[.43(e)]	✓	
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]	✓	
Below Ground Storage Properly Located?	[.43(b)]	—	
Inspection Ladder Provided?	[.43(c)]	✓	

III. PRESSURE TANKS

		Y	N
Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	(2)
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]		✓*
Air-Water Volume Indicator Provided?	[.43(d)(3)]	✓	
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]	—	

IV. DISTRIBUTION

		Y	N
Plumbing Ordinance or Agreement?	[.46(i)]	✓	
Customer Service Inspection Program?	[.46(j)]	✓	
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	—	
Sewer Lines Properly Located?	[.44(e)]	✓	
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
Tested psi/Locations 50 psi - Office Front Faucet			
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	N/A	
In-Line Booster Pumps in System? Location None		"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

V. DISINFECTION

		Y	N
Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: Hypochlorination (1)			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]		✓*
Disinfection Room Properly Vented?	[.42(e)(7)]	N/A	
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]	"	
Scales Provided?	[.42(e)(4)(D)]	"	
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]	✓	
Mg/L (T&F) Locations .97 mg/l - Office - Front faucet (1)			
Evacuation Plan Cl_2/NH3? If needed	[.42(e)(11)]	N/A	
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]	N/A	
Scales or Gauges Provided?	[.42(e)(4)(D)]	"	

00552

I. SYSTEM FACILITIES

Number of Connections 260

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
001	A	1	2311 Sweet Bay		O	390'	sub	195 4/16

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity (gallons)	Material	Location
Ground	60,000	Bolted steel	well site
Pressure	5,000	Welded steel	" "

SERVICE PUMPS

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location
1	250	well site						
2	250	" "						

Emergency Power/Alternate Source (Y/N) No Describe ———

Required Well Production Capacity 0.6 GPM/Conn. X 260 Conn. = 156 GPM

Total Well Production Capacity Provided = 195 GPM Adequate? ..... Y ✓ N

Required ~~Elevated~~/Pressure Storage: 20 Gal/Conn. X 260 Conn. = .0052 MG

~~Elevated~~/Pressure Storage Provided = .005 MG Adequate? ..... ✓

Required Total Storage: 200 Gal/Conn. X 260 Conn. = .052 MG

Total Storage Provided = .060 MG Adequate? ..... ✓

Required Service Pumping Capacity: 2.0 GPM/Conn. X 260 Conn. = 520 GPM

Service Pump Peaking Factor: 229,000 MDD/1,440 X 1.85 = 294 GPM Peak Demand

Total Service Pump Capacity = 500 GPM Adequate? ..... ✓

00353

I.D. # 0360069 Survey Date 4/16/99

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y (N)

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓		Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]	✓		UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged?	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]	✓		Suitable sampling tap?	[.41(c)(3)(M)]	✓	
Well cased 18" above ground level?	[.41(c)(3)(B)]	✓		Well meter provided?	[.41(c)(3)(N)]	✓	
Proper pressure cement?	[.41(c)(3)(C)]	✓		Well blow-off properly installed?	[.41(c)(3)(L)]	✓	
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

IX. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pts	
2. None Ground	4 Pts	
3. Only One When Two Required	4 Pts	
4. Improper Certificate	4 Pts	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pts	
Pressure < 35 psi	4 Pts	
Distribution Problems	2 Pts	2
Treated Water Protection	3 Pts	
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pts	

D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pts	
Improper Well Location	4 Pts	
No Easement	4 Pts	
Well Construction Deficiencies	3/item	
2. Surface Water:		
No Disinfection	20 Pts	
No Filtration	20 Pts	
Excess Filter Rate	4 Pts	
Inadequate Chemical Feed	4 Pts	
Inadequate Detention Time	4 Pts	
3. General:		
Production Deficient	4 Pts	
Storage Deficient:		
Elevated or Pressure	4 Pts	
Total Storage Deficient	4 Pts	

TOTAL (A + B + C + D) = 2

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 06/01/98
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

0360069
I.D.

G & S UTILITY COMPANY
Name

C/O J E LAUBACH-OWNER
Mailing Name

PO BOX 939
Mailing Address

BAYTOWN
City

TX 775220939
St Zip

J E LAUBACH
Responsible Official

OWNER
Title

(281) 383-3232
Phone

2
Owner Type

R2
Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Station
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C
Plant Type

C-Community
N-Non-community
P-Non-transient

N
Interstate Carrier

RECEIVED
JUN 0 8 1998
REGION 12

738	246	270	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.288	0.052	0.060	0.000	0.720	0.000	0.00500
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ /
Deactivation Date

Reason

A
Activity Indicator

1
System Classification

Y
Certified Operator

1
Number

A
Highest Grade

4/16/98

03/19/98
Survey

Wright
Surveyor (Last Name)

K27
Code

12
Region

CHAMBERS
County

2000
Def. Score

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - CUI, Purchased

0360069	001	GULF COAST	G & S UTILITY CO	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

0360069	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

0360069	001	G0360069A	1-2311 SWEET BAY	O	390	200
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00356

PUBLIC WATER SUPPLY DATA ENTRY FORI

GENERAL INFORMATIOI | MEDIA : PWS | INSPECTOR : MWRIGHT | REGION : 12

FACILITY INFORMATIOI | ID NUMBER : 0360069 | KEY MAP

ENTITY : G&S UTILITY CO | TYPE FACILITY :G | STATUS : A | COUNTY : 036

SYSTEM PHONE # : 281-383-3232

OPERATOR : RICHARD STEADMAN | OPERATOR PHONE # : 281-839-1003

MAIL CONTACT : JIM LAUBACH | ADDRESS : PO BOX 939

CITY : BAYTOWN | ZIP : 77522-0939

SURVEY INFORAMTIOI | TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE :4/16/1999 | REPORT DATE : 4/16/1999 | NUMBER OF SAMPLES TAKEN :0

COMMENT :

CUSTOMER SURVEY : | DATE ENTERED BY REGION 5/7/1999

ENFORCEMENT INFORMATIOI | COMPLIANCE : N | KIND OF LETTER :NOV

LETTER DATE :5/7/1999 | RESPONSE DUE 6/7/1999 | RESPONSE RECEIVED :

VIOLATIONS : Y | CAT A VIOLS : 0.00 | CAT B VIOLS : 0.00 | CAT C VIOLS : 3.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 2.00 | DATE OF EAR :

CENTRAL OFFICE ONL

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

00357

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 13, 1998

CERTIFIED MAIL Certified # 1012240
RETURN RECEIPT REQUESTED

Mr. Ken L. West, President/Owner
Barkaloo Homeowners Association
P.O. Box 1569
Baytown, Texas 77522-1569

Re: Notice of Violation for the Public Water Supply at:
Barkaloo Homeowners Association, 5927 Barkaloo Road, Baytown, Harris Co., Texas
TNRCC ID # 1012240

Dear Mr. West:

On September 30, 1998, Mr. Tom Lamb of the Texas Natural Resource Conservation Commission (TNRCC) Houston Region Office conducted an inspection of the above-referenced facility to evaluate compliance with applicable Public Water Supply requirements. During the inspection, certain outstanding alleged violations were identified for which a written reply is needed. Enclosed is a summary which lists the inspection findings. Please submit to this office by November 13, 1998 a schedule outlining a compliance plan that addresses each of the outstanding alleged violations. Within 15 days of completion of the compliance plan, you must provide this office with documentation demonstrating that compliance has been achieved.

In the listing of alleged violations, we have cited applicable requirements, including TNRCC rules. If you would like to obtain a copy of the applicable TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled "Obtaining TNRCC Rules." Copies of applicable federal regulations may be obtained from either of the following office:

U.S. Government Printing Office
Texas Crude Building
801 Travis Street
Houston, Texas 77002
713/228-1187 (phone)

U.S. Government Printing Office
Room 1C-50
Federal Building
1100 Commerce Street
Dallas, Texas 75242
214/767-0076 (phone)

The TNRCC recognizes that the great majority of the regulated community wants to prevent pollution and to comply with environmental laws. The TNRCC looks forward to working with you to resolve these matters. If you complete the necessary corrective actions and resolve the outstanding alleged violations in a timely manner, we will not pursue further action for the alleged violations at this time. However, please note that if you fail to adequately respond, the TNRCC will consider exercising the enforcement powers granted by the Legislature to carry out its mission to protect human health and the environment.

If you or members of your staff have any questions regarding these matters, please feel free to contact Mr. Tom Lamb in our Houston Region Office at 713/767-3650.

Sincerely,

Huyen D. Luu, P. E.
Team Leader
Houston Region Office

HDL/tdl

Enclosures: Summary of Inspection Findings
Obtaining TNRCC Rules
Sanitary Easement

cc: Harris Co. Health Department

SUMMARY OF INSPECTION FINDINGS

Entity: Barkaloo Homeowner's Association	ID # 1012240	Inspection Date: 9-23-98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirements Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
01	30 TAC, §290.46(f)(1)(A)	Disinfectant Residual and Monitoring The chlorination facilities must be operated to maintain a minimum free chlorine residual of 0.5 mg/L in the far reaches of the distribution system at all times.	24 Hours
02	30 TAC, §290.41(c)(1)	Ground Water Sources and Development Ground water sources must be located so there will be no danger of pollution from insanitary surroundings. Specifically, the well must not be located within 150 feet of a septic drainfield. This Agency will allow the continued use of this well so long as the following criteria are met and confirmed by subsequent sanitary surveys: a. **A raw water (untreated) sample** from the well must be submitted each month for bacteriological analysis. These samples are required in addition to the routine monthly distribution samples and must be collected directly from the wellhead prior to the point of chlorination. The results of these analyses must be maintained with the system's other records and they will be reviewed at the time of the next survey. b. The chlorination facilities must be operated to maintain a minimum free chlorine residual of 0.5 mg/L throughout the distribution system.	180 Days for Raw Sampling to Begin Raise chlorine residual within 24 Hours
03	30 TAC, §290.41(c)(3)(M)	Ground Water Sources and Development A suitable sampling tap must be provided on the well discharge to facilitate the collection of samples for chemical and bacteriological analysis directly from the well. This tap must be installed prior to disinfection, any treatment and a check valve.	180 Days
04	30 TAC, §290.41(c)(3)(N)	Ground Water Sources and Development A flow meter must be installed on the well pump discharge line to provide water usage records and to assist in more efficient system operation. This meter, in conjunction with tests of water levels in the well, can provide valuable information on the condition of the well and well pump.	180 Days

SUMMARY OF INSPECTION FINDINGS

Entity: Barkaloo Homeowner's Association	ID # 1012240	Inspection Date: 9-23-98

OUTSTANDING ALLEGED VIOLATIONS

No.	Requirement(s) Cited	Description of Alleged Violation, Corrective Action Recommendation, and Compliance Documentation	Compliance Due Date
05	30 TAC 30 TAC, §290.41(c)(1)(F)(c)(3)(B)	Ground Water Sources and Development The well casing must be extended to a point 18 inches above the elevation of the finished floor of the pump house or natural ground surface and a minimum of one inch above the sealing block or pump motor foundation block.	180 Days
06	30 TAC, §290.41(c)(1)(F)	Ground Water Sources and Development A sanitary easement covering all property within 150 feet of the well location must be secured from adjacent landowners and recorded at the county courthouse to ensure that hazards will not develop in the well area. A copy of the recorded document must be submitted for our records. For your convenience, we have enclosed a sample easement document.	180 Days
07	30 TAC, §290.45(b)(1)(E)(ii)	Capacity Requirement Your water system fails to meet this Agency's "Minimum Water System Capacity Requirements." These requirements include: a pressure tank capacity of 50 gallons per connection with a maximum of 2,500 gallons required. Your water system must be modified to meet this requirement to assure an adequate supply of water at all times.	180 Days

PUBLIC WATER SUPPLY REGULATORY PROGRAM

WATER SYSTEM DATA

KM 501H

ID No. 1012240 Community ✓ NTNC ___ Non-Comm ___

CCN No. ___ Superior Y/N Approved Y/N Probation Y/N Region 12

Name of System BARKALOO HOMEOWNERS ASSOCIATION County HARRIS

Physical location 5927 BARKALOO RD.

Responsible Official KEN L. WEST - ARCHER INVEST. Title OWNER-PRESIDENT Phone (713) 424-1392

Mailing Address P.O. BOX 1569, BAYTOWN, TX. 77522-1569 (SAM HUGHES (281)749-3910

Chief Cert Op Name RICHARD STEADMAN Grade & Type A-SW Phone —

2nd Op Req'd? NO Other Cert Op Name — Grade & Type — Total # Cert Ops 1

WS Manager/Superintendent RICHARD STEADMAN Other Officials Contacted SAM HUGHES, FRED HALBACH

Surveyed With SAM HUGHES & FRED HALBACH Area Served MOBILE HOME PARK

Supplier and Source ASSOCIATIONER(OWNER), GROUND, 1 WELL

Interconnection with another PWS? NO Name PWS I/C — Type I/C —

Retail Service Connections 20 Retail Meters 0 Retail Population 60

Wholesale Master Meters — Wholesale Service Connections — Wholesale Population —

ChargeY/N YES Dist. to and Name of Nearest PWS 1 MI. - CITY OF BAYTOWN

Reason for this Survey (Routine) Follow Up, Initial, Enforcement, Complaint, Other) Previous Survey Date ___

Map Attached NO Previous Map OK? YES Well Operational Status Changed? NO

Description of Supply, Source, Treatment, and Chemicals Used GROUNDWATER - 1 SUBMERSIBLE WELL, 1 PT, DISTRIBUTION. HYPOCHLORINATION PRIOR TO PT.

Total Well Cap. 25 gpm .036 mgd RW Cap — gpm — mgd

Treatment Cap. — gpm — mgd Total Svc. Pump Cap. — gpm — mgd

Total Elevated Storage 0 Total Storage Cap. 0 Pressure Tank Capacity .000525 MG

Maximum Daily Usage UNK Date — Average Daily Usage UNK Time Period —

Wholesale Contract — Maximum Purchase Rate —

MICROBIOLOGICAL

	Y	N		
Samples Submitted in Accordance with DWS?	☑	☐	Number of Samples Required 1/MO	# Submitted 1/MO
Raw Samples Submitted, if Required?	☐	☒	Number of Raw Samples 0 (1 REQ'D.)	
Well(s) Surface Water Influenced?	☐	☑	Non-Comm. Dates of Operation —	Thru —
Acceptable Sample Siting Plan on File?	☑	☐		

CHEMICAL

Acceptable Quality? Y Date, Last Chemical Analysis IOC 11-13-95 NO/NO, 11-13-95 RC 11-13-95 VOC 11-13-95 SOC —

List UNACCEPTABLE Values —

HAS PROPER PUBLIC NOTIFICATION BEEN GIVEN? — Date —

Date of Survey 9-23-98 By Tom Lamb, R.S.

Date of Approval 10/13/98 By [signature]

Letter Date, if different from Approval Date ___ Reply Requested ___ Def. Score of this Survey 25

00332

I.D. #: 1012240 Survey Date 9-23-98

OPERATION AND MAINTENANCE

(Please note: all violations listed below include paragraph numbers from §290 of the Rules and Regulations for PWSs.)

I. OPERATIONAL

		Y	N
Monthly Reports Submitted to TNRCC (if Required)?	[.46(d)]	NA	
MOR's Properly Completed?	[.46(d)]	"	
Dead End Mains Flushed?	[.46(l)]	✓	
New Lines and Repairs Disinfected?	[.46(g)]	✓	
Supply of Disinfectant on Hand?	[.46(h)]	✓	
Distribution Map Up-to-Date?	[.46(n)]	✓	
Ownership Signs Properly Displayed and Maintained?	[.46(w)]	✓	
Adequate Chemical Storage Provided?	[.42(d)(6)]	✓	
ANSI/NSF Approved Chem/Media?	[.42]	✓	
Facilities Properly Maintained?	[.46(m) & (p)]	✓	
If Superior/Approved, Signs Properly Disp. & Maint.?	[.47(b)]		

II. STORAGE TANKS NA

Storage Tanks Properly Covered?	[.43(c)]		
Tanks Tight Against Leakage?	[.43(c)(6)]		
Vents Properly Installed?	[.43(c)(1)]		
Proper Roof Hatch Provided?	[.43(c)(2)]		
Roof Hatch Kept Locked?	[.43(c)(2)]		
Proper Overflow Provided?	[.43(c)(3)]		
Proper Water Level Indicator Provided?	[.43(c)(4)]		
Drains Properly Connected?	[.43(c)(7)]		
Inlet and Outlet Properly Located?	[.43(c)(5)]		
Intruder Resistant Fence?	[.43(e)]		
Tanks Properly Inspected, Maintained, Documented?	[.46(p)(1)]		
Below Ground Storage Properly Located?	[.43(b)]		
Inspection Ladder Provided?	[.43(c)]		

III. PRESSURE TANKS

Accurate Pressure Gauges?	[.43(d)(2)]	✓	
Pressure Release Device Provided?	[.43(d)(2)]	✓	
Proper Facilities for Air/Water Ratio/ Airfilter?	[.43(d)(3)]	✓	
Air-Water Volume Indicator Provided? < 1000 gls.	[.43(d)(3)]		
Tanks Tight Against Leakage?	[.43(d)(7)]	✓	
Routinely Inspected, Maintained, Documented?	[.46(p)(2)]	✓	
Fenced or Housed?	[.43(e)]	✓	
ASME, if Required?	[.43(d)(1)]		

IV. DISTRIBUTION

Plumbing Ordinance or Agreement?	[.46(i)]	NA	
Customer Service Inspection Program?	[.46(j)]	NA	
Backflow Assembly Program, if needed?	[.44(h)(4)(D)]	NA	
Sewer Lines Properly Located? Septic	[.44(e)]		✓
Minimum Residual Pressure ≥ 20 PSI?	[.44(d) & .46(u)]	✓	
Normal Working Pressure ≥ 35 PSI?	[.44(d) & .46(u)]	✓	
Tested psi/Locations 42 psi LOT 7			
Properly Installed Distribution Piping?	[.44(a)]	✓	
Adequate Flush/Gate Valves?	[.44(d)(6)]	✓	
Air Release Valves Properly Installed?	[.44(d)(1)]	NA	
In-Line Booster Pumps in System? Location NO		"	
In-Line Booster Pumps in System Approved?		"	
If Yes, Pressure Cut-off ≥ 20 psi Provided?	[.44(d)(2)&(3)]	"	

V. DISINFECTION

Disinfection Equipment Adequate in Capacity?	[.42(e)]	✓	
Type Disinfection Used: HYPOCHLORINATION			
Disinfection Equipment Properly Housed?	[42(e)(6)(8)]	✓	
Disinfection Room Properly Vented?	[.42(e)(7)]		
Breathing Apparatus and Ammonia Bottle Provided?	[.42(e)(5)]		
Scales Provided?	[.42(e)(4)(D)]		
Disinfection Prior to Storage?	[.42(e)(2)(3)]	✓	
Adequate Residual Maintained/Recorded?	[.46(f)(1)(2)]		✓
Mg/L (TF)/Locations 0.13 LOT 7			
Evacuation Plan Cl_2/NH3? If needed	[.42(e)(11)]		
DPD Chlorine Test Kit Provided?	[.46(f)(2)]	✓	
IF AMMONIA FEED PROVIDED:			
Properly Housed/Vented?	[.42(e)(10)]		
Scales or Gauges Provided?	[.42(e)(4)(D)]		

ID# 1012240 SURVEY DATE 9-23-98

I. SYSTEM FACILITIES

Number of Connections 20

WELLS (Y/N) OR RAW WATER PUMPS (Y/N)

Entry Pt. #	Water Source Code	Owner's Desig.	Location	GPS Lat/Long	Oper. Status	Well Depth	Pump Type	Tested/Est GPM/Date
001	A	#1	5927 BARKALOO		O	345'	SUBM	25 11-13-95

STORAGE RESERVOIRS AND PRESSURE TANKS

Type	Capacity	Material	Location
PRESSURE	525 g/s.	WELDED (GAL) STEEL	WELL SITE

SERVICE PUMPS NA

No.	Output (GPM)	Location	No.	Output (GPM)	Location	No.	Output (GPM)	Location

Emergency Power/Alternate Source NO (Y/N) Describe —

Required Well Production Capacity 1.0 GPM/Conn. X 20 Conn. = 20 GPM

Total Well Production Capacity Provided = 25 GPM Adequate? ..... Y ✓ N —

Required Elevated/Pressure Storage: 50 Gal/Conn. X 20 Conn. = .001 MG

Elevated/Pressure Storage Provided = .000525 MG Adequate? ..... — ✗ 1

Required Total Storage: ____ Gal/Conn. X ____ Conn. = ____ MG

Total Storage Provided = ____ MG Adequate? ..... — —

Required Service Pumping Capacity: ____ GPM/Conn. X ____ Conn. = ____ GPM

Service Pump Peaking Factor: ____ MDD/1,440 X ____ = ____ GPM Peak Demand

Total Service Pump Capacity = ____ GPM Adequate? ..... — —

00334

I.D. # 1012240 Survey Date 9-23-98

GROUND WATER SOURCE AND WATER SYSTEM DEFICIENCIES

VII. GROUND WATER SOURCE

GUI? Y (N)

A. SANITARY

		Y	N			Y	N
Well or pump room protected from flooding?	[.41(c)(3)(H)]	✓		Sewage treatment plant ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Livestock Prohibited within 50 ft. of well?	[.41(c)(1)(D)]	✓		Animal pens or landfill ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Sanitary sewer, septic tank, cemetery ≥ 50 ft.?	[.41(c)(1)(A)]	✓	✓	Sewage irrigated land ≥ 500 ft.?	[.41(c)(1)(C)]	✓	
Septic Tank drainfields ≥ 150 ft.?	[.41(c)(1)(A)]		★	UST or liquid transmission pipeline ≥ 150'?	[.41(c)(1)(A)]	✓	
Drainage ditch or liftstation ≥ 300 ft.?	[.41(c)(1)(B)]	✓		Abandoned wells ≤ 1/4 mi. plugged? rep.	[.41(c)(1)(E)]	✓	

B. CONSTRUCTION

Sanitary easement(s) recorded?	[.41(c)(1)(F)]		★6	Suitable sampling tap? NO RAW TAP	[.41(c)(3)(M)]		★3
Well cased 18" above ground level?	[.41(c)(3)(B)]		★5	Well meter provided?	[.41(c)(3)(N)]		★4
Proper pressure cement?	[.41(c)(3)(C)]	UNK		Well blow-off properly installed?	[.41(c)(3)(L)]		
Proper concrete sealing block?	[.41(c)(3)(J)]	✓		Well unit fenced or housed?	[.41(c)(3)(O)]	✓	
Well head sealed?	[.41(c)(3)(K)]	✓		Well site properly drained?	[.41(c)(3)(I)]	✓	
Casing vent properly installed?	[.41(c)(3)(K)]	✓		All weather road provided?	[.41(c)(3)(P)]	✓	
Air release devices properly installed?	[.41(c)(3)(Q)]	✓					

VIII. ADDITIONAL WATER SYSTEM DEFICIENCIES AND TAC REFERENCE NUMBERS:

X. RATING DEFICIENCY SCORE

A. Certified Operator(s) (If Required)

1. None Surface	10 Pt.s	
2. None Ground	4 Pt.s	
3. Only One When Two Required	4 Pt.s	
4. Improper Certificate	4 Pt.s	

B. MCL Violations

1. Microbiological: –		
Failure to Sample	4/Mon.	
MCL Violation	10/Mon.	
2. Primary standards	10/Vio.	
3. Secondary Standards	2/Vio.	
4. Turbidity:		
Failure to Report	4/Mon.	
MCL Violation	10/Mon.	

C. Distribution

Pressure < 20 psi	10 Pt.s	
Pressure < 35 psi	4 Pt.s	
Distribution Problems	2 Pt.s	
Treated Water Protection	3 Pt.s	
Disinfection Provided But Residual < 0.2 mg/l Free Chlorine or 0.5 mg/l Chloramine	4 Pt.s	4

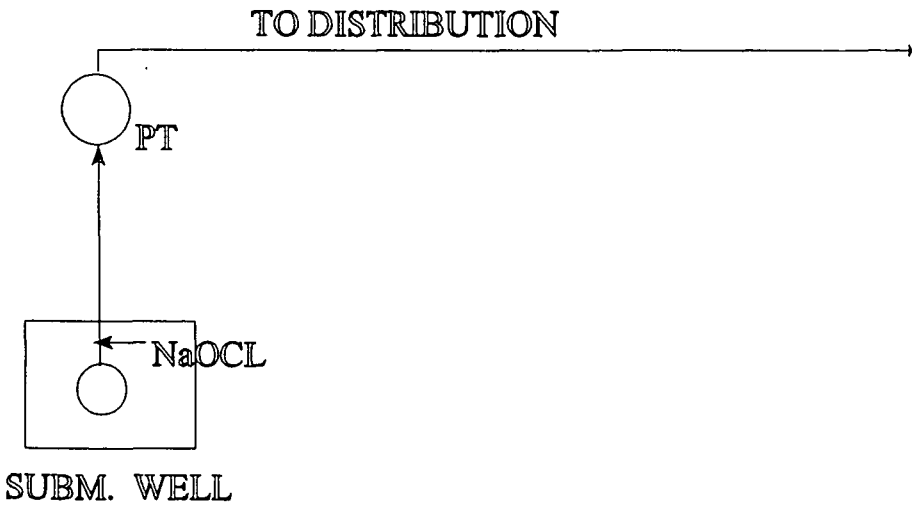
D. Design Deficiencies

1. Ground Water:		
No Disinfection	10 Pt.s	
Improper Well Location	4 Pt.s	4
No Easement	4 Pt.s	4
Well Construction Deficiencies	3/item	9
2. Surface Water:		
No Disinfection	20 Pt.s	
No Filtration	20 Pt.s	
Excess Filter Rate	4 Pt.s	
Inadequate Chemical Feed	4 Pt.s	
Inadequate Detention Time	4 Pt.s	
3. General:		
Production Deficient	4 Pt.s	
Storage Deficient:		
Elevated or Pressure	4 Pt.s	4
Total Storage Deficient	4 Pt.s	

TOTAL (A + B + C + D) = 29

00835

BARKALOO HOMEOWNERS ASSOCIATION
I.D.# 1012240
HARRIS COUNTY, TEXAS



55555

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION 09/18/96
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET

1012240
I.D.

BARKALOO HOMEOWNERS ASSOCIATION — Name
C/O KEN WEST - PRESIDENT — Mailing Name

P O BOX 1569 - 6003 BARKALOO ST — Mailing Address
BAYTOWN — City
TX — St
775221569 — Zip

KEN L WEST — Responsible Official
OWNER-PRESIDENT — Title
(713) 424-1392 — Phone

5 — Owner Type
R2 — Service Area

1-Federal
2-Private
3-State
4-Local
5-Mixed Priv/Pub
6-Native American

01-Interstate Carrier
02-Wholesaler
09-Other Area
R1-Residential
R2-Mobile Home Park
R9-Other Residential

S1-School
S2-Institution
S3-Medical Facility
S4-Indust/Agr.
S5-Day Care Center
S9-Other Semi-resid

T1-Recreation
T2-Service Statio
T3-Summer Camp
T4-Restaurant
T5-Highway Rest
T6-Hotel/Motel
T9-Other Transient

C — Plant Type
N — Interstate Carrier

C-Community
N-Non-community
P-Non-transient

60 ~~48~~	20 ~~16~~	0	0	0.0
Pop. Served	# of Connect	# of Meters	#I/C w/other PWS	Air Temp.

0.036 ✓	0.000	0.000	0.000	0.000	0.000	0.00053 ✓
Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux. Prod. Cap. (MGD)	Pressure Tank Cap. (MG)

/ / — Deactivation Date
Reason
A — Activity Indicator

1 — System Classification
Y — Certified Operator
1 — Number
A — Highest Grade ✓

9-23-98
~~07/10/96~~ — Survey
LAMB — Surveyor (Last Name)
K27 — Code
12 — Region
HARRIS — County

(25)

00037

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER UTILITIES DIVISION
WATER SYSTEM DATA SHEET
(ENTRY POINT)

Entry Point Codes: G - Ground Water
P - Surface, Purchased
S - Surface
W - Ground, Purchased
Y - GUI
Z - GUI, Purchased

1012240	001	GULF COAST	BARKALOO HOA	G	1	
I.D.	Entry Point	Name	Plant Name	Code	Wells	Seller

****

(TREATMENTS)

1012240	001	01	D	423	Hypochlorination, Pre
I.D.	Entry Point	Treatment	Obj.	Process	

****

(SOURCES)

Status Codes: (A) Abandoned (E) Emergency (O) Operational
(C) Capped (F) Former PWS Well (P) Plugged
(D) Demand (N) Non-drinking Water (T) Test

1012240	001	G1012240A	1-5927 BARKALOO	O	345	25
I.D.	Entry Point	Water Source	Owner Designation	Status	Depth	GPM

00333

SUMMARY OF INSPECTION FINDINGS CATEGORY LISTING

Entity: Barkaloo Homeowner's Association	TNRCC ID: 1012240	Inspection Date: 9-30-98

ALLEGED NONCOMPLIANCES NOTED

No.	TNRCC Category *	Compliance Due Date	Date of Response	Date Response Received	Completion Date Due	Completion Date Received	Enforcement
01	B20c(6)	24 Hours					
02	B20c(4)	180 Days/24 Hours					
03	C4	180 Days					
04	C5	180 Days					
05	C5	180 Days					
06	B20c(8)	180 Days					
07	B20c(10)	180 Days					

* Category A = violations which require automatic initiation of formal enforcement
* Category B and C = violations for which facility may be given an opportunity to comply

PUBLIC WATER SUPPLY DATA ENTRY FOR

GENERAL INFORMATIO | MEDIA : PWS | INSPECTOR : TLAMB | REGION : 12 | KEY MAP : 501H

FACILITY INFORMATION | ID NUMBER : 1012240

ENTITY : BARKALOO HOMEOWNERS ASSO | TYPE FACILITY : G | STATUS : A | COUNTY : 101

SYSTEM PHONE # : 713-424-1392

OPERATOR : RICHARD STEADMAN | OPERATOR PHONE # :

MAIL CONTACT : KEN L. WEST | ADDRESS : P O BOX 1569

CITY : BAYTOWN | ZIP : 77522-1569

SURVEY INFORAMTIO | TYPE : ROUTINE | DATE DEACTIVATION :

INSPECTION DATE : 9/23/1998 | REPORT DATE : 9/23/1998 | SAMPLES TAKEN : N

COMMENT :

CUSTOMER SURVEY : 9/23/1998

ENFORCEMENT INFORMATIO | COMPLIANCE : N | KIND OF LETTER : NOV

LETTER DATE : 10/13/1998 | RESPONSE DUE 11/13/1998 | RESPONSE RECEIVED :

VIOLATIONS : Y | CAT A VIOLS : 0.00 | CAT B VIOLS : 4.00 | CAT C VIOLS : 3.00

DEFICIENCIES : Y | DEFICIENCIES SCORE : 25.00 | DATE OF EAR :

CENTRAL OFFICE ONL

RECEIVED CO : | ENTERED BY : | DATE OF QA : | SENT TO PROGRAM :

00370

BOOKMARK

Appendix F
Topographic, Wetlands, and General Maps