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**HRS DOCUMENTATION RECORD**  
for  
**Hicks Field Sewer Corp.**

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**February 15, 2002**

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## CONTENTS

	Page
HRS Documentation Record - Review Cover Sheet .....	1
Pathways of Concern .....	1
Pathways, Components, or Threats Not Evaluated .....	2
Notes to Reader .....	3
HRS Documentation Record .....	4
Site Location .....	4
Site Scoring Summary .....	4
Site Summary .....	6
General Description of the Site .....	6
Worksheet for Computing HRS Site Score .....	16
Surface Water Overland/Flood Migration Component Scoresheet .....	17
References .....	13

## FIGURES

Figure 1	Site Location and Surrounding Land Use Map .....	5
Figure 2	Contaminated Area Site Sketch .....	8
Figure 3	Sample Location Map .....	11
Figure 4	National Wetland Inventory Map .....	12

## TABLES

Table 1	Source Hazardous Substances Detected .....	20
Table 2	Hazardous Substance Detected In Off-Site Sediment Samples .....	23

## ATTACHMENTS

Attachment A - Supplemental Maps .....	Pages A-1 thru A-5
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## HRS DOCUMENTATION RECORD - REVIEW COVER SHEET

**NAME OF SITE:** Hicks Field Sewer Corporation Site

**CONTACT PERSONS:**

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TNRCC Remediation Division  
Site Assessment and Management Section

Hicks Field Sewer Corporation Mr. William J. LaForge, Trustee (no current address/listing)  
Mr. Jan Littlejohn, Managing Partner 972/869-1634  
Mr. Larry Anderson, contract operator (no current address/listing)

**CURRENT SITE OWNER/OPERATOR:** The site (12.021 acres) is an abandoned privately owned wastewater treatment plant (Permit No.11297-001) that provided sanitary services for a small industrial park located at the Hicks Field Industrial Park, Saginaw, Tarrant County from the early 1970's to mid-1994 (Ref. 4, pp. 1-5; Ref. 6, p. 2). The property was purchased by William J. LaForge, Trustee by Warranty Deed with Vendor's Lien, Hicks Field Sewer Corporation; Mr. Jan Littlejohn, managing partner and Mr. Larry Anderson, contract operator on March 30, 1984 from Mr. Bennett J. and Karen Noble, local residents. The facility is currently closed and has not discharged to the receiving stream since 1987 (Ref. 5, pp. 1-5; Ref. 7, pp. 1-2, 4; Ref. 8, p. 1; Ref. 10, p. 1).

**Pathways of Concern:**

**Surface Water Pathway**

Releases of hazardous substances to the surface water pathway are of major concern for this site. Hazardous substances have been documented in off-site sediment samples with potential impact to human food chain and environmental targets.

## **Pathway, Components, or Threats Not Evaluated:**

### **Ground Water Pathway**

The Ground Water Pathway was not evaluated due to the lack of available targets and because the inclusion of this pathway would not significantly affect the site score. Since there were no wells located within a ½-mile radius of the site and the only well located within a 1-mile radius was identified as an industrial process well, the resulting ground water pathway score was low for lack of primary drinking water targets.

The nearest public supply drinking water well (State Well No. 2200330) was identified as the Rio Concho Aviation public supply well located 2.1 miles northwest of the site (Ref. 3, p. 38). The well services 85 connections with a reported depth of 400 feet and completed in the Paluxy Aquifer. The well was drilled on March 9, 1987, underlying a 300' layer of shale and fossil lime with a screened interval at 320' - 380' below the surface. The facility was last inspected by the TNRCC on February 17, 2000 and found compliant. The last sample results obtained on November 24, 1998 indicate no contaminants exceeding published drinking water standards (Ref. 16, pp. 1-11). As a result, there were no identified drinking water targets located within a 1-mile radius of the site and the resulting potential drinking water target threat value was low.

### **Soil Pathway**

The Soil Pathway was not evaluated due to the lack of available targets and because the inclusion of this pathway would not significantly affect the site score. Since there were no documented on-site targets, the resulting soil exposure pathway score was low for lack of primary soil exposure targets.

During the site reconnaissance for the HRS sampling event conducted on March 29-30, 2001, there were no observed on-site residents, workers, schools or day care centers identified as primary soil exposure targets (Ref. 3, pp. 3 and 5-6). Since the site is located in a remote area with the nearest residence and business located approximately 0.5 mile to the southwest and 0.75 miles to the northwest, public access is infrequent. The only access by vehicle is along a single unmarked, unimproved road and foot-access requires crossing several sections of privately-owned fenced pasture land (Ref. 3, p. 6). As a result, potential human exposure to the remaining hazardous substances would be low.

### **Air Migration Pathway**

The Air Migration Pathway was not evaluated due to the lack of available targets and because the inclusion of this pathway would not significantly affect the site score. There have been no documented releases to the Air Migration Pathway.

*(Although these pathways have not been evaluated, the TNRCC is concerned for all pathways surrounding the site. However, evaluation of these pathways would not have significantly increased the overall site score.)*

## NOTES TO READER

The following rules were used when citing references in the HRS Documentation Record:

1. All references attached to this report have been stamped with a designated page number (example: Ref. 1, p. 10 = 01 010).
2. The State predecessor agencies: Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), and Texas Air Control Board (TACB), referred to throughout this report are now known as the Texas Natural Resource Conservation Commission (TNRCC). The new agency, TNRCC, became effective September 1, 1993, as mandated under State Senate Bill 2 of the 73rd Regular Legislative Session.

**HRS DOCUMENTATION RECORD**

**Name of Site:** Hicks Field Sewer Corporation

**Date Prepared:** 10/29/01

**TNRCC ID#:** WWPT #112997

**SITE LOCATION:**

**Street Address of Site:** North of Big Fossil Creek approximately 1.8 miles west of the intersection of U. S. Highway 81-287 and Farm to Market 156 (see Figure 1, Site Location and Surrounding Land Use Map).

**City, County, State:** Saginaw, Tarrant County, Texas

**Topographic Map:** US Geological Survey 7.5 Minute Topographic Map, Avondale, Tex. Provisional Edition 1955, Photorevised 1982

**Latitude:** 32° 54' 19.70" North                      **Longitude:** 97° 23' 22.45" West  
(Approximate center of site, see Figure 1, Topographic Map)

**TNRCC Region 4**

**Pathway Scores:**

- Groundwater Migration Pathway - NE
- Surface Water Migration Pathway - 70.67
- Soil Exposure Pathway - NE
- Air Migration Pathway - NE

NE - Not Evaluated

**HRS SITE SCORE: 35.34**

## SITE SUMMARY

### GENERAL DESCRIPTION OF THE SITE:

The Hicks Field Sewer Corporation site is located southwest of Big Fossil Creek approximately 1.8 miles west of the intersection of U. S. Highway 81/287 and Farm to Market (FM) 156 in northwest Tarrant County as shown in Figure 1. The site is located approximately 2.5 miles northwest of Saginaw, Texas with a population of 8,551 according to 1990 Census data (Ref. 4, p. 1; Ref. 12, p. 1). The geographic coordinates of the approximate center of the site are Latitude  $32^{\circ} 54' 19.70''$  North, Longitude  $97^{\circ} 23' 22.45''$  West (Ref. 3, p. 10).

The property consists of 12.021 acres out of Tract No. 3-5 and a portion of Tract No. 6 of the Benjamin Thomas Survey, Abstract No. 638, Partition deeded to Robert C. Noble, as recorded in Volume 3364, page 2, of the Tarrant County Deed Records (Ref. 5, p. 2). The facility is currently inactive and abandoned and the reported owners bankrupt (Ref. 3, p. 6; Ref. 7, p. 6; Ref. 10, p. 1).

The area surrounding the site is primarily agricultural with the land used for grazing and farmland located in a rural area of northwest Tarrant County (Ref. 3, p. 3). Site access is along an unimproved unmarked dirt road entering from Business Route (BR) 287/Spur 496 located approximately 0.8 miles to the west (Ref. 3, pp. 5, 8). The nearest residence is located approximately 0.5 miles to the southwest along BR 287. The nearest businesses are located 0.75 miles to the northwest in the Hicks Field Industrial Park and are associated with trucking or construction activities (Ref. 3, pp. 3 and 39; Ref. 7, p. 3; Ref. 11, p. 2). Agricultural fields surround the site to the north, east and to the south. An unnamed intermittent tributary of Big Fossil Creek flows south of the site from southwest to northeast and intersects the southeast corner (at the east settling pond) at the permitted discharge outfall point. The site lies within Segment 0806 of the Trinity River Basin (Ref. 6, p. 6; Ref. 9, p. 2). The only fenced area at the site is a chain link fence surrounding the two remaining Imhoff tanks with a locked gate, otherwise public access is unobstructed. The site is not posted and there are no other structures remaining at the site. The two on-site settling ponds and sludge drying beds are bermed but not lined. A file review indicates that the ponds have overflowed in the past releasing wastewater to the adjacent creek bed (Ref. 3, pp. 5-6, 12; Ref. 6, pp. 4 and 6).

The site consists of three waste management areas: (1) two unlined sludge drying beds measuring approximately 60'x 75' filled with an unknown quantity of wastewater sludge; (2) two unlined surface impoundments measuring approximately 75'x150' located east of the sludge drying beds; and (3) two Imhoff tanks located in a fenced process area. There are no on-site residents, workers, day-care centers or schools located within 200 feet of the site. Since the wastewater treatment tanks are the only secured area, exposure to persons who may inadvertently enter the site and unknowingly come in contact with remaining contaminated soils/surface water is a concern (Ref. 3, pp. 5-6, photos #23-30 and #34; Ref. 7, p. 2; Ref. 8, p. 4; Ref. 9, pp. 9-11; Ref. 13, pp. 3-4). Identified waste management area locations are marked and shown in Figure 2.

The Hicks Field Sewer Corporation site operated from the early 1970's to mid-1994 providing sewage treatment services for the nearby industrial park. The facility was approved for wastewater discharge Permit No. WQ0011297-01 and corresponding NPDES Permit No. TX0076031 on January 26, 1981 that was renewed on June 3, 1986 for an authorized discharge not to exceed 53,000 gallons per day (gpd) (Ref. 4, pp. 1-7; Ref. 8, p. 1; Ref. 9, p. 2). The facility maintained two bar screens, two Imhoff tanks in sequence, two stabilization ponds and two sludge drying beds. Businesses that operated at the Hick Field Industrial Park included a metal finishing industry, a container manufacturer/fabricator, a storage tank fabrication facility and a small trucking firm (Ref. 6, p. 2; Ref. 7, p. 3). The majority of wastes treated at the plant were domestic; however, the metal finishing industry discharged pre-treated process rinse waters containing heavy metals from the early 1970's until operations ceased in early 1981 (Ref. 7, p. 8). Flow rates were low during the majority of plant operations and the last confirmed wastewater discharge from the facility was in August 1987. A file review indicates no sludge was ever removed from the drying beds because of low accumulation and the stabilization ponds were never dredged. The site is currently inactive (Ref. 7, pp. 2-7; Ref. 8, p. 1). A summary of regulatory involvement and site assessment is as follows:

- ž On January 6, 1976, a TWQB District 4 annual compliance evaluation inspection revealed elevated levels of **cadmium** (30.3 mg/L), **chromium** (57.0 mg/L) and **zinc** (24.3 mg/L) from effluent samples collected from the two Imhoff tanks and from sediment samples collected from the settling ponds (Cd at 3,786 mg/Kg, Cr at 3,592 mg/Kg and Zn at 2,257 mg/kg). The site was issued a discharge violation subsequently referred to Aeroprocess, Inc., a metal finishing industry located at the Hicks Field Industrial Park allegedly responsible for the discharges. The metal processor had installed an ion-exchange system for wastewater pre-treatment that upon investigation failed to operate during regeneration periods. A second parallel ion-exchange system was installed to operate during regeneration periods which significantly reduced discharges to the sewage treatment system. In 1981, Aeroprocess, Inc. reportedly went out of business and ceased operations (Ref. 6, pp. 2-25; Ref. 7, pp. 7-8).
- ž On November 6, 1990, a TWC Region 4 compliance evaluation sampling inspection revealed elevated levels of **cadmium** (16,700 mg/Kg), **chromium** (10,900 mg/Kg), **copper** (1,710 mg/Kg) and **lead** (290 mg/Kg) in 4-part composite sediment samples collected from the east and west stabilization ponds and 2-part composite samples collected from the north sludge drying bed. The facility was noted still operating but at a significantly reduced rate due to extended vacancies in the industrial park (Ref. 8, pp. 1-7).
- ž Based on the November 6, 1990 sample results, the site was referred to the TWC Central Office Enforcement Section for formal enforcement action on May 11, 1992 (Ref. 10, p. 1). Since the contamination appeared to be pre-RCRA and ownership was uncertain with two of the owners reportedly bankrupt and the third disclaiming responsibility and reluctance because of high clean-up costs, the site was referred to the State Superfund Program on June 6, 1992 by the TWC Industrial & Hazardous Waste Screening Committee for further action (Ref. 10, p. 2). A January 15, 1993 Superfund Site Eligibility Determination Evaluation and Preliminary Hazard Assessment revealed the site was eligible and recommended additional sampling to properly evaluate the site

(Ref. 11, pp. 1-6; Ref. 12, pp. 1-18).

ž On July 29, 1994, a TNRCC Region 4 follow-up sampling inspection revealed the site was operating at a minimum level and both stabilization ponds were full of water. The plant operator reported there had been no discharges to the receiving stream since 1987. Analysis of 4-part composite sediment samples collected from the two sludge drying beds and a grab surface water sample collected from the west stabilization pond revealed hazardous levels of **cadmium** (4,870 mg/Kg; TCLP 29.6 mg/L) and elevated **chromium** (6,000 mg/Kg) remaining at the site (Ref. 13, pp. 1-12).

ž On March 29-30, 2001, a TNRCC State Superfund Hazard Ranking System (HRS) sampling inspection was conducted to characterize remaining source wastes and to determine if nearby human food chain and environmental targets may have been impacted by the release of site attributable hazardous substances.

U A total of five (5) source characterization and three (3) background soil samples were collected from on-site waste management areas and from unaffected up-gradient locations, respectively, to determine naturally occurring contaminant levels (Ref. 3, pp. 5 and 8). Sample results from background soil and source characterization samples collected during the March 29-30, 2001 HRS sampling inspection are summarized in Table 1. Sample locations are shown in Figure 3. Sample results (SO-04, SO-05, SO-06/SO-07 and SO-08) indicate elevated levels (i.e., above the highest detected background level) of **aluminum, antimony, barium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, sodium, zinc** and **cyanide** remaining at the site identified as attributable source contaminants available to the surface water migratory pathway (Ref. 1, Sections 2.2.2 and 2.3; Ref. 3, pp. 12-13, 14-21).

U In addition, a total of nine (9) sediment and three (3) upstream background sediment samples were collected along Big Fossil Creek and an unnamed intermittent tributary flowing adjacent to the site to determine if there had been a release of hazardous substances along the surface water migratory pathway. The unnamed tributary intersects the main fork of Big Fossil Creek 1.1 miles east of the site flowing a total overland flow distance of approximately 9,500' (1.8 mi.) to Walnut Lake, the nearest perennial body of water, which was identified as the Probable Point of Entry (PPE) (Ref. 1, Section 4.1.1.1; Ref. 3, pp. 9 and 11-12). As shown in Figure A-1 in Attachment A, Big Fossil Creek flows from the PPE southeast for approximately 16.2 miles intersecting the West Fork Trinity River below Lake Worth (Trinity River Segment 0806). Sample results from applicable background and off-site sediment samples collected during the HRS sampling event are summarized in Table 2. A review of the sample results indicates releases (i.e., >3X the highest applicable background value) of **cadmium, chromium** and **copper** along the overland flow segment (SE-02, SE-04/SE-05 and SE-08), a release of **cadmium** at the PPE (SE-10 and SE-11/SE-12) and a release of **cadmium** to two downstream in-water segment wetland areas located along the shoreline of Walnut Lake, which is also used as a private fishery (SE-13 and SE-14) (Ref. 1, Sections 4.1.2.1.1, 4.1.3.3 and 4.1.4.1; Ref. 3, pp. 12-13, 22-35).

The food chain and environmental threat targets evaluated for the surface water pathway include:

(1) the food chain individual that consumed edible fish obtained from the Walnut Lake fishery subject to a Level II release (Ref. 1, Section 4.1.3.3.1; Ref. 3, pp. 7, 11; Ref. 24, pp. 20, 21);

(2) the HRS qualifying wetlands identified on the National Wetlands Inventory (NWI) Map shown in Figure 4. The first area was located at a distance of approximately 0.6 miles downstream from the site along the overland flow segment prior to the PPE (designated *PUBHh* - Palustrine, shallow pond with unconsolidated bottoms, permanently flooded within a diked impoundment). Sediment sample SE-08 was collected from this area as shown in Figure 3. The second area included two wetland sections along the shoreline of Walnut Lake located at distances of 0.35 and 0.65 miles downstream from the PPE within the in-water segment (designated as *PFO1Ch* - Palustrine, forested, broad-leaved deciduous, seasonally flooded within a diked impoundment). Sediment samples SE-13 and SE-14 were collected from these area as shown in Figure 3. The total HRS qualifying wetland frontage was determined as 0.77 miles subject to Level II releases (Ref. 1, Section 4.1.4.3.1.2; Ref. 3, p. 11).

## REFERENCES

- | <u>Reference Number</u> | <u>Description of the Reference</u>   |
|-------------------------|---|
| 1.                      | U.S. Environmental Protection Agency, Federal Register - 40CFR Part 300, <i>Hazard Ranking System</i> , Appendix A, 55 FR 51583, December 14, 1990.   |
| 2.                      | U. S. Environmental Protection Agency, <i>Superfund Chemical Data Matrix (SCDM)</i> . June, 1996.   |
| 3.                      | Thompson, James D., Field Investigator, Texas Natural Resource Conservation Commission, Remediation Division, Site Assessment and Management Section. Field Log Book Notes and Site Photographs for State HRS Sampling Event for Hick Field Sewer Corporation Site, March 29-30, 2001. 52 pages.  |
| 4.                      | Permit to Dispose of Wastes, Renewal of Permit No. 11297-01, corresponding to NPDES Permit No. TX0076031, Texas Water Commission, Stephen F. Austin State Office Building, Austin, Texas. June 3, 1986. 7 pages.  |
| 5.                      | Warranty Deed with Vendor's Lien, to W. J. Laforge, Trustee from Bennett J. Noble and wife, Karen L Noble, Grantors. Vol. 7787, Pgs. 1639-43, Tarrant County Deed Records, Tarrant County, Texas. March 29, 1984. 5 pages.  |
| 6.                      | Barton, Gary D., District Representative, District 4, Texas Water Quality Board, to George E. Green, Chief, Field Support, Austin, Texas. Report: <i>Assessment of Hicks Field Sewer Corporation, Permit No. 11297 (File)</i> , June 7, 1976. 25 pages.   |
| 7.                      | Gill, Charles D., District Manager, Texas Water Commission, to Mr. Jan Littlejohn, Hicks Field Sewer Corporation. Letter: <i>Compliance Inspection, Permit No. 11297-001</i> , November 12, 1990. 1 page/w 1 atch, Domestic Discharge WWTP - Inspection Report, dated 11/14/90.   |
| 8.                      | Mummert, John, Environmental Quality Specialist, District 4, Texas Water Commission, to Jennifer Sidnell, Chief, Wastewater Enforcement Section, Water Quality Division, Austin, Texas. Interoffice Memorandum: <i>Sampling Inspection, Hicks Field Sewer Corporation, Permit No. 11297-001</i> , June 26, 1991. 3 pages/w 2 atchs, Site Diagram and Chain Of Custody (COC) Tags. |
| 9.                      | Permit Application Routing and Summary Sheet, Hicks Field Sewer Corporation, Control No. 10513, submitted September 12, 1991. 1 page/w 2 attachments, Technical Summary, dated 4/14/92 and Sludge Management Plan, dated 9/91.  |

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- | <u>Reference Number</u> | <u>Description of the Reference</u>  |
|-------------------------|--|
| 10.                     | Navarrette, John, Enforcement Section, Texas Water Commission, to Industrial and Hazardous Waste Enforcement Screening Committee. Interoffice Memorandum: <i>Hicks Field, Referral of Enforcement Action, TWC Permit No. 11297-001</i> . May 11, 1992. 1 page/w 1 attachment, Violation Summary Sheet, dated 5/11/92.  |
| 11.                     | Thompson, James D., Region 4 Field Investigator, Field Operations Division, Texas Water Commission. Inspection Report: <i>State Superfund Candidate Site Eligibility Determination/Superfund Site Discovery and Eligibility Determination Checklist</i> . October 21, 1992. 6 pages.   |
| 12.                     | Cook, Kelly W., Project Manager, Pollution Cleanup Division, Texas Water Commission. <i>State Superfund Candidate Site Eligibility Determination and Preliminary Hazard Assessment</i> , Hicks Field Sewer Corporation, Saginaw, Tarrant County. January 22, 1993. 18 pages.   |
| 13.                     | Mummert, John, Water Quality Team Leader, Region 4, Texas Natural Resource Conservation Commission, to Darrell Williams, Manager, Enforcement Section, Watershed Management Division Interoffice Memorandum: <i>Inspection Report, Hicks Field Sewer Corporation, Permit No. WQ0011297-001</i> . February 16, 1995. 2 pages/w 2 atchs, Site Photographs and Chain Of Custody (COC) Tags w/Lab Results, dated 12/31/94. |
| 14.                     | Texas Natural Resource Conservation Commission, <i>The State of Texas Water Quality Inventory, Surface Water Quality Monitoring Program, 13<sup>th</sup> Edition, 1996, Volume 2, Basin Summaries, Basin Maps, Graphical Basin Summaries, Segment Fact Sheets and Water Quality Status Tables (Basins 1-10)</i> , SFR-50, December 1996. 758 pages.  |
| 15.                     | U. S. Department of Transportation, Federal Highway Administration, State Department of Highways and Public Transportation. <u>General Highway Map</u> , Tarrant County, Texas. 1976, Revised to June 1, 1986. (Site location, drainage pattern and notation added by TNRCC). 1 page. (Attachment A, Surface Water Pathway Map, page A-1).   |
| 16.                     | Slocum, Sid, Manager, Water Section, Texas Natural Resource Conservation Commission, to Barbie Brunson, Owner, Rio Concho Aviation Public Water Supply System. Letter: <i>Compliance Evaluation Inspection at Rio Concho Aviation, ID# 2200330</i> . February 28, 2000. 1 page/w 5 atchs, Inspection Report, System Schematic, Water System Data Sheet, Water Analysis Report and Well Log Report.                     |

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- | <u>Reference Number</u> | <u>Description of the Reference</u>   |
|-------------------------|---|
| 17.                     | Ressel, Dennis D., U. S. Department of Agriculture, Soil Conservation Service in cooperation with Texas Agricultural Experiment Station, <i>Soil Survey of Tarrant County, Texas</i> , June 1981. 218 pages.  |
| 18.                     | Federal Emergency Management Agency, National Flood Insurance Program, Tarrant County, Texas and Incorporated Areas, Map No. 48439C0045 G. Flood Insurance Rate Map (FIRM). January 6, 1993. (Site Location, 1-mile radius, legend and map notation added by TNRCC). 1 page. (Attachment A, Flood Hazard Boundary Map, page A-2). |
| 19.                     | U. S. Department of the Interior, Fish and Wildlife Service, Avondale Quadrangle, Tarrant County, 7.5 Minute Series (Topographic). <u>National Wetlands Inventory Map</u> . 1992. (Site location, 1-mile radius, legend and notation added by TNRCC). 1 page. (Attachment A, National Wetland Inventory Map, page A-3).           |
| 20.                     | U. S. Department of Agriculture, Soil Conservation Service, Texas Agricultural Experiment Station, <i>General Soil Map, Tarrant County, Texas</i> , June 1981. (Site location, 1-mile radius, soil legend and map notation added by TNRCC). 1 page. (Attachment A, Major Soil Groups Map, page A-4).                              |
| 21.                     | North Central Texas Council of Governments, Department of Environmental Resources, <i>Participants in North Central Texas Groundwater Protection Program</i> , Wellhead Protection Zone Map. December 17, 1992. (Site Location notation added by TNRCC). 1 page. (Attachment A, Wellhead Protection Area Map, page A-5).          |
| 22.                     | U. S. Department of Commerce, Weather Bureau, Washington D.C., <i>Rainfall Frequency Atlas of the United States</i> , Technical Paper No. 40. May 1961. 130 pages. (Attachment A, 2-Year 24-Hour Rainfall Map, page A-6).   |
| 23.                     | U. S. Geological Survey, Avondale Quadrangle, Texas, 7.5 Minute Series. <u>Topographic Map</u> . Provisional Edition 1955, Photorevised 1982. (Site Location, 1-mile radius, legend and map notation added by TNRCC). 1 page. (Figure 1).   |
| 24.                     | Lower Colorado River Authority, Environmental Laboratory Services. Lab Order No. 0104001, Ref: Superfund-Hicks Field Sewer Corporation Site, COC ID 15731. Final Analysis Report. From Roland Garcia, LCRA Project Manager to Stephanie Pogue, TNRCC/Remediation Division, April 20, 2001. 35 pages.                              |

25. Pogue, Stephanie, PA/SI Program QA/QC Specialist, Texas Natural Resource Conservation Commission, Remediation Division to J. D. Thompson, Project Manager. Data Assessment Summary, Re: Data Assessment of Samples Collected at Hicks Field Sewer Corporation Site, Saginaw, Tarrant County, Texas, March 2001. May 23, 2001. 4 pages.

WORKSHEET FOR COMPUTING HRS SITE SCORE

	<u>S</u>	<u>S<sup>2</sup></u>
1. Ground Water Migration Pathway Score ( $S_{gw}$ ) (from Table 3-1, line 13)	NS	
2a. Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	<u>70.67</u>	<u>4,994.25</u>
2b. Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	NS	
2c. Surface Water Migration Pathway Score ( $S_{sw}$ ) Enter the larger of lines 2a and 2b as the pathway score.	NS	
3. Soil Exposure Pathway Score ( $S_s$ ) (from Table 5-1, line 22)	NS	
4. Air Migration Pathway Score ( $S_a$ ) (from Table 6-1, line 12)	NS	
5. Total of $S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$		<u>4,994.25</u>
6. <b>HRS Site Score</b> Divide the value on line 5 by 4 and take the square root		<u><b>35.34</b></u>

NS = Not Scored.

**TABLE 4-1**  
**SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET**

**Factor Categories and Factors**

**Maximum Value**

**Value Assigned**

DRINKING WATER THREAT - Not Evaluated for lack of surface water targets within the required target distance limit with an observed release (Ref. 3, pp. 7, 9; Ref. 12, pp. 8-9; Ref. 24).

**Surface Water Threat Score**

1.	Observed Release (Table 2 and Ref. 24, pp. 1, 10-18 and 20-21)	550	550
2.	Potential to Release by Overland Flow:		
	2a. Containment	10	NS
	2b. Runoff	25	NS
	2c. Distance to Surface Water	25	NS
	2d. Potential to Release by Overland Flow (Lines 2a x (2b + 2c))	500	NS
3.	Potential to Release by Flood:		
	3a. Containment (Flood)	10	NS
	3b. Flood Frequency	50	NS
	3c. Potential to Release by Flood (Lines 3a x 3b)	500	NS
4.	Potential to Release (Lines 2d + 3c, subject to a maximum of 500)	500	NS
5.	Likelihood to Release (Higher of Lines 1 and 4)	550	550

NS = Not Scored.

**TABLE 4-1  
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET**

<u>Factor Categories and Factors</u>	<u>Maximum Value</u>	<u>Value Assigned</u>
HUMAN FOOD CHAIN THREAT		
<b><u>Likelihood of Release</u></b>		
14. Likelihood of Release (Same Value as Line 5)	550	550
<b><u>Waste Characteristics</u></b>		
15. Toxicity/Persistence/ Bioaccumulation (based on cadmium) (Ref. 1, Section 4.1.3.2; Ref. 2, SCDM table values for a freshwater lake; Ref. 1, Table 4-16; Ref. 24, pp. 20-21)	*	5x10 <sup>7</sup>
16. Hazardous Waste Quantity (based on the waste quantity sum of four surface impoundment sources) North Sludge Bed S1 = 60'x75' = 4,500/13 = 346.15 South Sludge Bed S2 = 60'x75' = 4,500/13 = 346.15 West Stabilization Pond S3 = 75'x150' = 11,250/13 = 865.38 East Stabilization Pond S4 = 75'x150' = 11,250/13 = 865.38 Total HWQ = S1 + S2 + S3 + S4 = 2,423 (nearest integer) (Ref. 1, Section 2.4.2, Table 2-5 and Table 2-6; Ref. 3, p. 5)	*	100
17. Waste Characteristics (based on cadmium) (Ref. 1, Section 2.4.3.1 and Table 2-7; Ref. 24, pp. 20-21)	1,000	180
<b><u>Targets</u></b>		
18. Food Chain Individual (Ref. 1, Section 4.1.3.3.1; Ref. 24, pp. 20-21; Ref. 3, pp. 7, 11)	50	45
19. Population		
19a. Level I Concentrations	**	NS
19b. Level II Concentrations	**	NS
19c. Potential Human Food Chain Contamination	**	NS
19d. Population (Lines 19a + 19b + 19c)	**	NS
20. Targets (Value from Line 18 + 19d)	**	45
<b><u>Human Food Chain Threat Score</u></b>		
21. Human Food Chain Threat Score ((Lines 14 x 17 x 20) / 82,500, subject to a maximum of 100)	100	54

\* Maximum value applies to waste characteristics category  
 \*\* Maximum value not applicable  
 \*\*\* Do not round to the nearest integer  
 NS = Not Scored.

**TABLE 4-1  
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET**

<u>Factor Categories and Factors</u>	<u>Maximum Value</u>	<u>Value Assigned</u>
ENVIRONMENTAL THREAT		
<u>Likelihood of Release</u>		
22. Likelihood of Release (Same Value as Line 5)	550	550
<u>Waste Characteristics</u>		
23. Ecosystem Toxicity/Persistence/ Bioaccumulation (persistence value based on lake values) (Ref. 1, Section 4.1.4; Ref. 2, SCDM table values for a fresh water lake; Ref. 1, Tables 4-20 and 4-21).	*	5x10 <sup>6</sup>
24. Hazardous Waste Quantity (based on the waste quantity sum of four surface impoundment sources) North Sludge Bed S1 = 60'x75' = 4,500/13 = 346.15 South Sludge Bed S2 = 60'x75' = 4,500/13 = 346.15 West Stabilization Pond S3 = 75'x150' = 11,250/13 = 865.38 East Stabilization Pond S4 = 75'x150' = 11,250/13 = 865.38 Total HWQ = S1 + S2 + S3 + S4 = 2,423 (nearest integer) (Ref. 1, Section 2.4.2, Table 2-5 and Table 2-6; Ref. 3, p. 5)	*	100
25. Waste Characteristics (based on cadmium) (Ref. 1, Section 2.4.3.1 and Table 2-7; Ref. 24, pp. 20-21)	1,000	100
<u>Targets</u>		
26. Sensitive Environment:		
26a. Level I Concentrations	**	NS
26b. Level II Concentrations (2 wetland areas - Level II Releases) - Ref. 1, Section 4.1.4.3.1, Using Table 4-24; Ref. 3, pp. 7, 11-13; Ref. 24, pp. 16, 20-21) HRS Qualifying Wetland Frontage = 0.30 mi <i>PUBHh</i> + 0.47 mi <i>PFOIch</i> = 0.77 mile)	**	25
26c. Potential Contamination	**	NS
26d. Sensitive Environments (Lines 26a + 26b + 26c)	**	25
27. Targets (Value from Line 26d)	**	25
<u>Environmental Threat Score</u>		
28. Environmental Threat Score (Lines 22 x 25 x 27) / 82,500, subject to a maximum of 60)	60	16.67
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED		
29. WATERSHED SCORE*** (Lines 21 + 28, subject to a maximum of 100)	100	70.67
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE		
30. Component Score (S <sub>op</sub> )*** (Highest score from Line 29 for all watersheds evaluated, subject to a maximum of 100)	100	70.67

\* Maximum value applies to waste characteristics category

\*\* Maximum value not applicable

\*\*\* Do not round to the nearest integer

NS = Not Scored