The following is an Adobe Acrobat reproduction of the official

HRS Documentation Record

for

Proposed Superfund Site

at

Kingsland

This electronic version of the HRS documentation record is abbreviated. However more complete files are available as part of the Kingsland site repository records

at

Kingsland Branch Library
125 West Polk
Kingsland, Texas

and/or

TCEQ Records Management Center
Austin, Texas

December 2, 1996

Scroll Down to View

TNRCC

Hazard Ranking System
Documentation Record

Village of Kingsland
Kingsland, LLano County, Texas
TNRCC SWR# None
TXD# 988088688

Prepared by

Texas Natural Resource Conservation Commission
Emergency Response and Assessment Section
Site Discovery and Assessment Program Staff
Austin, Texas

August, 1996

CONTENTS

TABLES

FIGURES

ATTACHMENTS

HRS DOCUMENTATION RECORD - REVIEW COVER SHEET

NAME OF SITE: Village of Kingsland

AKA: City of Kingsland

CONTACT PERSON & PHONE NUMBER: Debra Hendricks, Project Manager
512/239-2518

CURRENT SITE OWNER/OPERATOR: Not Applicable

SITE ADDRESS:

STREET:	From the 900-block of Highway 1431 West to the intersection of Highway 1431 and Ranch Road 2545.
CITY:	Kingsland
COUNTY:	Llano
STATE:	Texas

LATITUDE & LONGITUDE: Latitude 30° 40' 00" N, Longitude 98° 26' 00 W"

TNRCC SWR#: None
EPA ID#: TXD988088688

TNRCC REGION: 11

The State predecessor agencies, Texas Water Quality Board, Texas Department of Water Resources, Texas Water Commission, and the Texas Air Control Board, referred to throughout this report are to be 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.

SITE SUMMARY

GENERAL DESCRIPTION OF THE SITE:

The area of known groundwater contamination is located from the 900-block of Highway 1431 West to the intersection of Highway 1431 and Ranch Road 2545 in the City of Kingsland, Texas, Llano County (Ref. 44, pg.1) at approximately Latitude 30^0 40' 0" N and Longitude 98^0 26' 0" W (Ref. 52).

Historical information on the area indicates groundwater contamination by several volatile organic contaminants in both public production and private water wells in Kingsland (Ref 18, 19, 20, 25, 28, 41). Analysis of a sample collected by Texas Department of Health on July 20, 1990 from Village of Kingsland Wells #1 and #2 indicated contamination by tetrachloroethylene at 18 ug/L (Ref. 19). The Village of Kingsland subsequently closed the wells and contracted to obtained their public water supply from Lake Buchanan Water Supply (Ref. 32).

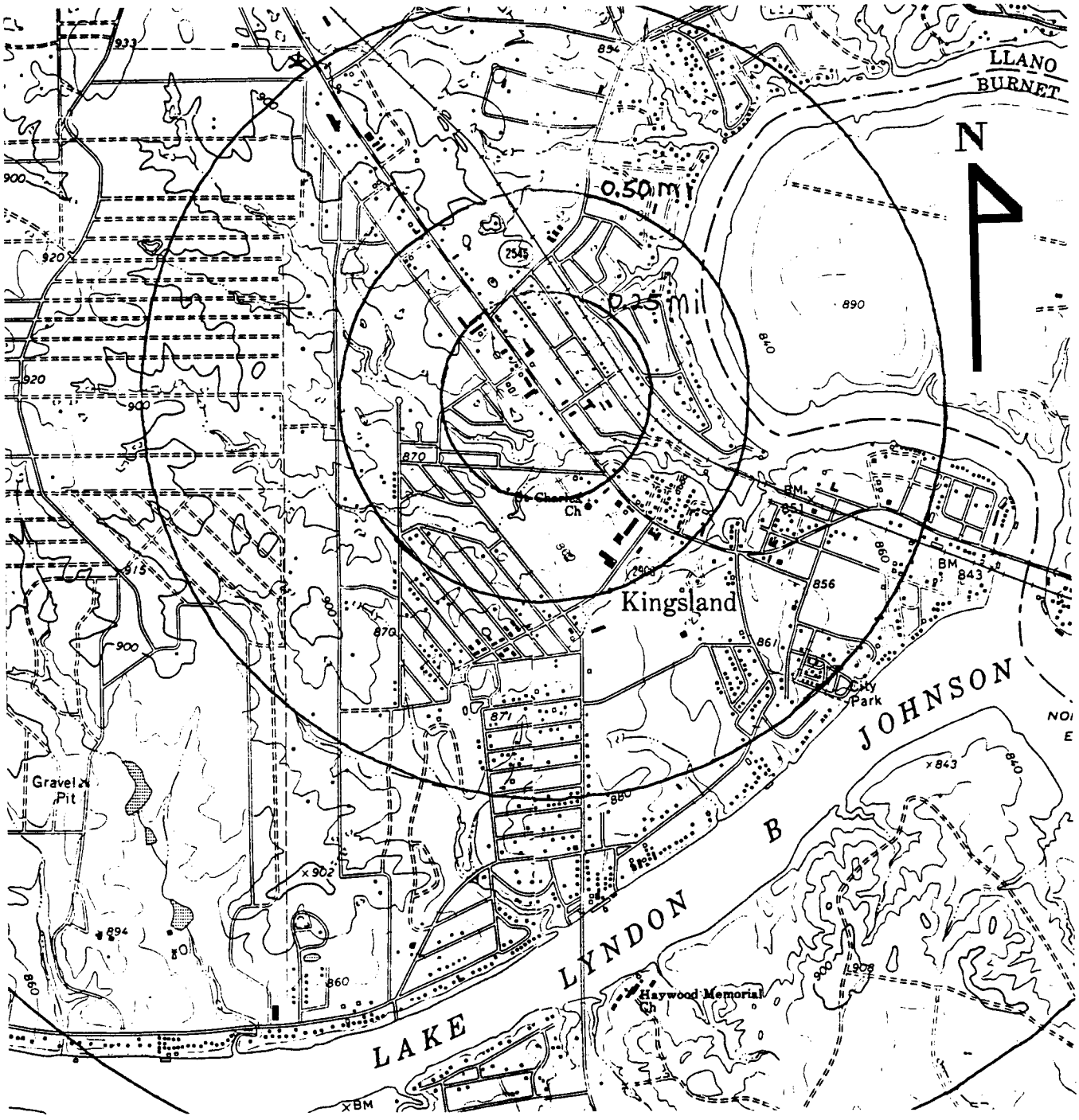
Sample analyses of six water wells, two of which were public water supply wells, indicated release concentrations of tetrachloroethylene, trichloroethylene, dichloroethylene and bromoform. One well also had excessive levels of petroleum-based constituents including BTEX, styrene and naphthalene (Ref. 18, 19, 20, 25, 28, 41).

A Preliminary Assessment site reconnaissance conducted on December 7, 1994 revealed no single source but a likelihood that two or more different sources were contributing to the contamination based on the constituents present (Ref. 50).

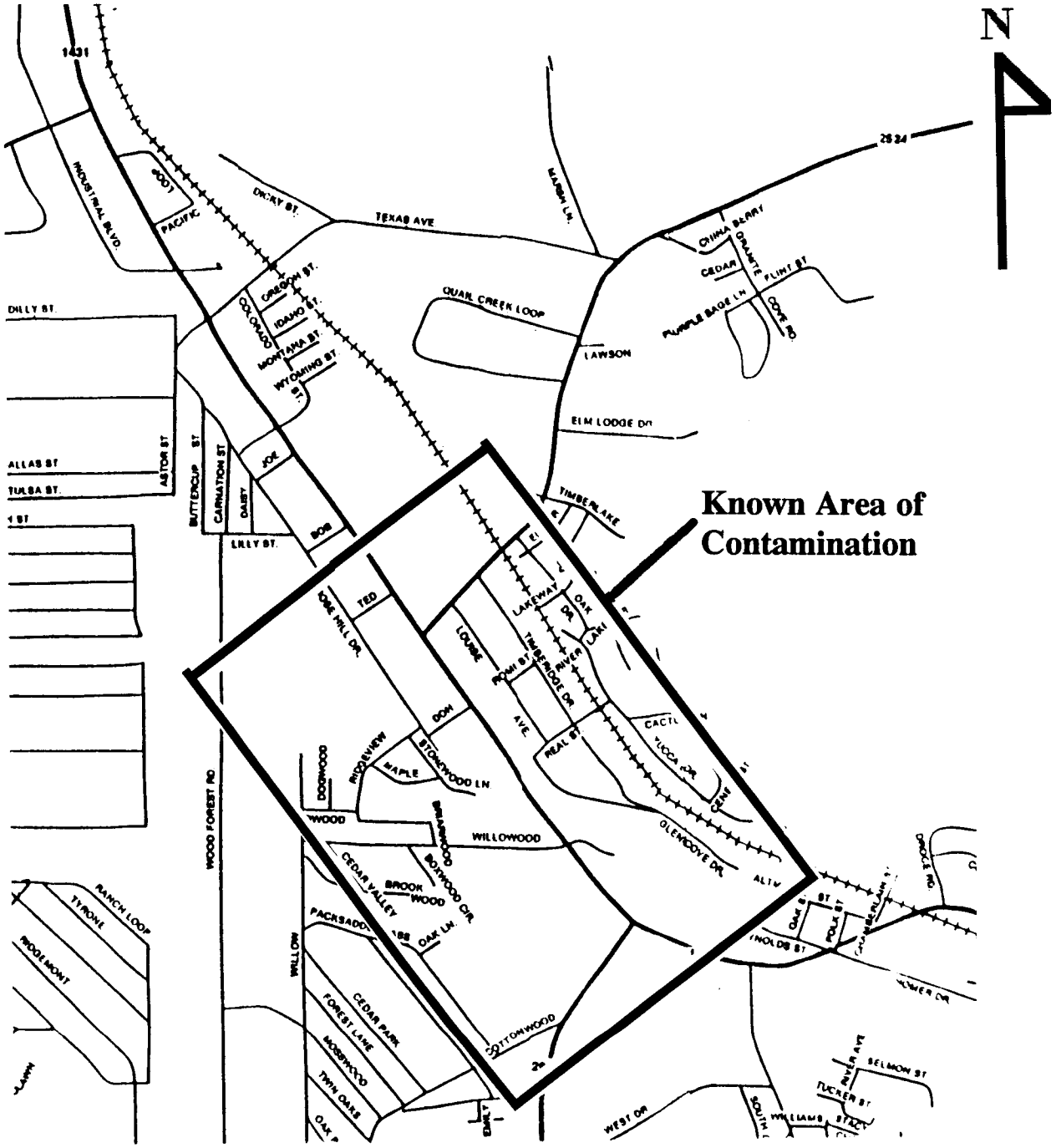
Suspected sources of contamination include several active businesses along Highway 1431 including KIMCOR, Ace Hardware, Cindy's Flowers, current and former underground storage tanks at gasoline stations, TacRite and Texas Bag Company (Ref. 5). These businesses occur along a portion of Highway 1431 that is approximately 0.25 miles in length (Ref. 5, 52).

Several possible waste sources were noted. The KIMCOR business provides a household garbage pick-up and reclamation service. A water well located behind the KIMCOR building has eroded beneath its concrete pad and has no well cap. Contaminants may enter the well through either the casing or annular space. Several gasoline stations occur along Highway 1431 and may possess leaking or formerly leaking underground storage tanks (Ref. 5).

Several manufacturing businesses which utilize or formerly utilized solvents in their processes are located along Highway 1431. At Cindy's Flowers, a former dry cleaning establishment, or its adjacent septic tanks, may have released solvents (Ref. 5).



TNRCC	**Figure 1** **Site Location Map** **Scale: 1" = 1/2mi.**	**Village of Kingsland** **Kingsland (Llano County), Texas** **TNRCC SWR# None** **CERCLIS No. TXD988088688**



TNRCC	**Figure 2** **Site Map**	**Village of Kingsland** **Kingsland (Llano County), Texas** **TNRCC SWR# None** **CERCLIS No. TXD988088688**

BACKGROUND/OPERATING HISTORY:

On July 3, 1989 in a letter to District 9, TWC, Ken Younger, Circle K Corporation, forwarded a copy of a contamination assessment report conducted by their consultant, Hall Southwest Water Consultants, Inc. addressing an underground storage tank removal (Ref. 18).

Between the dates July 20, 1990 and April 29, 1992 sampling events conducted by the Texas Department of Health detected bromoform, dibromochloromethane, tetrachloroethylene, trichloroethylene and dichloroethylene in Village of Kingsland Wells #1 and #2, system ID #1500100 in Kingsland, Texas (Ref. 19 and Table 1).

On February 17, 1992, District 9, TWC, performed a sampling inspection of the well located at the KIMCOR offices located on the southwest side of Highway 1431 and detected methyl t butyl ether, benzene, toluene, ethyl benzene and xylene (Ref 20 and Table 1).

On March 23, 1992, in a letter to Mr. McCasland, Owner, The Village at Kingsland, Larry Mitchell, Water Utilities Division, TWC, reported that volatile organics had been discovered in the public water supply system and recommended that Well #2 be abandoned and an alternate water source sought or treatment provided (Ref. 19, 21).

On April 10, 1992 a letter was sent to Mr. and Mrs. Kent Kelley, KIMCOR Products, by Kenneth Krueger, District 9, TWC, detailing the results of the sampling inspection conducted on their property on February 17, 1992 (Ref. 20, 22).

On April 14, 1992 an Interoffice Memorandum was sent to Tara Drissell, Petroleum Storage Tank Division, TWC, from Kenneth Krueger, District 9, TWC, detailing the results of the February 17, 1992 sampling inspection of KIMCOR Products, Kingsland, Texas (Ref. 20, 23).

On December 4, 1992 in a letter to Mr. McCasland, Owner, The Village of Kingsland, Larry Mitchell, Water Utilities Division, TWC, stated that well #2 was contaminated with two industrial solvents and advised that he take advantage of the opportunity to connect to Lake Buchanan Water Supply (Ref. 19, 24).

On December 7, 1992, Ricky Anderson, District 9, TWC, performed a sampling inspection of Well #2, System ID# 1500100 in Kingsland, Texas and detected tetrachloroethylene and trichloroethylene (Ref. 25 and Table 1).

On January 22, 1993 in a letter to Kingsland Water Utility Officials, Larry Mitchell, Water Utilities Division, TWC, requested that "raw" untreated water samples be submitted to determine the potential for contamination of raw water supplies from nearby surface water sources (Ref. 26).

On March 19, 1993, in a letter to Ken Younger, Circle K Corporation, Kenneth Krueger, District 9, TWC, stated that TWC had completed its review of the underground storage tank removal investigation and recommendation for remedial procedures submitted by consultant, Hall Southwest, and concluded that no further remedial actions were necessary at that time (Ref. 18, 27).

On April 8, 1993, District 9, TWC conducted a sampling inspection in the Kingsland area. During this inspection the well at Cindy's Flowers was sampled and found to be contaminated with higher levels of volatile organics than the Village of Kingsland's public supply wells. Substances detected were 1,2 dichloroethene, tetrachloroethylene and trichloroethene. This well was under consideration by Village of Kingsland for use as an additional water source for public drinking water production (Ref. 28 and Table 1).

On May 28, 1993, in a letter to Woody McCasland, owner, the Village at Kingsland public water supply, Wayne Wiley, Water Utilities Division, TWC, identified the need to enter into a Bilateral Compliance Agreement requiring wells with contaminated water be taken out of service or the water produced from the wells be treated to meet Drinking Water Standards (Ref. 29).

On June 9, 1993 in a letter to Woody McCasland, owner, the Village of Kingsland public water supply, Wayne Wiley, Water Utilities Division, TWC, forwarded a modified bilateral compliance agreement (Ref. 30).

On June 14, 1993 in a letter to Wayne Wiley, Water Utilities Division, TWC, W.F. McCasland, owner, the Village at Kingsland public water supply, forwarded a signed copy of the Bilateral Compliance Agreement issued by the Texas Water Commission (Ref. 31).

On June 25, 1993 in a letter to Wayne Wiley, Water Utilities Division, TWC, W.F. McCasland, owner, the Village at Kingsland public water supply, stated that an agreement had been reached with Kingsland Water Supply Corporation which would enable him to shut down and abandon his water system and connect to the Kingsland Water Supply Corporation (Ref. 32).

On July 8, 1993 in an interoffice memorandum to the Files, Ricky Anderson, District 9, TWC, reported meeting Red Weddell, District 9, and Mr. Matlock, Owner, The Village Public Water Supply on December 7, 1992 to take water samples from Well #2 (Ref. 33).

On July 20, 1993 in an interoffice memorandum to Tom Napier, Monitoring and Enforcement, TWC, Red Weddell, District 9, TWC, reported taking water samples from the Village of Kingsland water supply well on July 19, 1993. On July 20, 1993, Mr. Napier met with Mr. McCasland, owner, the Village at Kingsland, and discussed connecting the Village of Kingsland system to the Kingsland Water Supply Corporation (Ref. 34).

On July 29, 1993 in an interoffice memorandum to Wayne Wiley, Enforcement, TWC, Red Weddell, District 9, TWC, forwarded a letter from James L. Dickie, resident, the Village at Kingsland, sent to the Texas Department of Health, in which Mr. Dickie expressed his concern about the possibility that the water he had been using at the Village contained 54.6 ppb tetrachloroethylene (Ref. 35).

On August 13, 1993 a letter was sent to James L. Dickie, resident, the Village at Kingsland, by Thomas S. Napier, Water Utilities Division, TWC, informing him of TWC actions regarding discovery of tetrachloroethylene in the water system (Ref. 19, 36).

On August 24, 1993 a Notice of Solid Waste Violations letter was sent to Bill Marsh, Cindy's Flowers, from Juan Rodriguez, Enforcement Section, TWC, advising him to make an appropriate response to the noncompliance involving unauthorized discharges (Ref. 37).

On September 2, 1993 in a letter to the TNRCC, W.F. McCasland, Owner/operator of The Village at Kingsland, stated that the water system formerly operated by The Village at Kingsland had been shut down and that residents of the Village were now served by Kingsland Water Supply Corporation (Ref. 38).

On September 16, 1993 in a letter to the TNRCC, Bill Marsh, Cindy's Flowers, stated that he did not believe that the "alleged violation emanates from my property" (Ref. 39).

On October 12, 1993 a letter was sent to Pete Wehner, Industrial & Hazardous Waste Division, TNRCC, from Patricia E. Carls, Brown McCarroll & Oaks Hartline, representing Cindy's Flower Shop, summarizing the results of a telephone conference between them on October 11, 1993. During that conference it was reported that TNRCC would conduct further investigations of the area in order to determine basic hydrogeologic facts or discover other sources of alleged contamination (Ref. 40).

On October 13, 1993, Region 11, TNRCC, conducted interviews with local business owners and a sampling inspection of privately-owned water wells in Kingsland. The sample results indicated groundwater contamination at several locations in the area and that volatile organic compounds differed between wells. Although odors were reported coming from the well by TNRCC Region 11 staff, no organic compounds were detected in the well located at the Texas Bag Corporation (Ref 41 and Table 1).

On November 2, 1993 in an interview with Charles Ingram, Kingsland Municipal Utility District, Region 11 staff, TNRCC obtained information indicating that Cindy's flower shop was connected to the region's sanitary sewer system around the year 1985 (Ref 42).

On November 3, 1993 an Interoffice Memorandum was sent to Pete Wehner, Industrial and Hazardous Waste Enforcement Section, TNRCC, from Chris Smith, Region 11, TNRCC detailing the results of the October 13, 1993 sampling inspection (Ref 41, 42).

On November 4, 1993 letters were sent to the owners of wells which were sampled on October 13, 1993, from Larry Smith, Region 11, TNRCC, notifying them of contamination documented in their respective wells (Ref 41, 43).

On November 23, 1993 a letter was sent to the Llano County judge from Susan Ferguson, Industrial and Hazardous Waste Division, TNRCC, as notification of contaminated groundwater (Ref 44).

On December 30, 1994 a letter was sent to Water Utility Officials at Village at Kingsland from Ronald Bearden, Water Utilities Division, TNRCC, providing analytical results of the April 8, 1993 sampling inspection and informing them that the water source could no longer be used for drinking water and/or human consumption unless it was treated or blended in such a way as to assure compliance with Drinking Water Standards (Ref. 28, 45).

On January 5, 1994 a letter was sent to Ronald Bearden, Water Utilities Division, TNRCC, from W.F. McCasland stating that the water system formerly operated by The Village at Kingsland has been shut down since September 1993 and that all water is now supplied by Kingsland Water Supply Corporation (Ref. 46).

On January 5, 1994 an Interoffice Memorandum was sent to Stennie Meadours, Emergency Response & Assessment Section, TNRCC, by Peter Wehner, Industrial & Hazardous Waste Division, TNRCC, requesting that the Village of Kingsland case be reviewed by the Pollution Cleanup Division for possible referral to that division. (Ref 47).

On January 31, 1994 an Interoffice Memorandum was sent to the Industrial & Hazardous Waste Enforcement Screening Committee, TNRCC, by Peter Wehner, Industrial & Hazardous Waste Division, TNRCC, requesting that the Village of Kingsland case be reviewed by the Enforcement Screening Committee to determine an appropriate course of action (Ref 48).

On February 17, 1994 the Industrial & Hazardous Waste Enforcement Screening Committee, TNRCC, recommended referral of the Village of Kingsland case to the Pollution Cleanup Division, TNRCC for appropriate action (Ref 49).

On March 3, 1994 an Interoffice Memorandum was sent to Stennie Meadours, Emergency Response & Assessment Section, TNRCC, by Peter Wehner, Industrial & Hazardous Waste Division, TNRCC, referring the Village of Kingsland case to the Pollution Cleanup Division, TNRCC, for appropriate action (Ref 49).

On December 7, 1994, the Superfund Site Discovery & Assessment Team, TNRCC, conducted a Preliminary Assessment site investigation in Kingsland. An Interoffice Memorandum to the File on the investigation reported topographic features, water well and business locations in the area of known groundwater contamination (Ref 50).

During May 8-10, 1995, a Superfund Site Discovery & Assessment Team, TNRCC, Screening Site Inspection was performed (Ref. 59).

SITE SCORING SUMMARY

PATHWAYS, COMPONENTS, OR THREATS NOT EVALUATED:

The Surface Water Pathway was not evaluated due to the lack of an observed release or samples.

The Soil Exposure Pathway was not evaluated due to lack of an observed release or samples.

The Air Migration Pathway was not evaluated due to the lack of an observed release or samples.

SCORES

GROUND WATER PATHWAY:	**100**
SURFACE WATER PATHWAY:	**NE**
SOIL EXPOSURE PATHWAY:	**NE**
AIR PATHWAY:	**NE**
HRS SITE SCORE:	**50.0**

NOTES TO READER

1. The State predecessor agencies, Texas Water Quality Board, Texas Department of Water Resources, Texas Water Commission, and the Texas Air Control Board, referred to throughout this report are to be 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.

2. Page numbering will be cited in the following manner: (1) original page numbers will be cited if available, (2) if no page numbers exist, or if only portions of the document are numbered, new page numbers will be assigned for the entire document, (3) double-sided copies will count as individual pages.

REFERENCES

Reference Number	Description of the Reference
1.	Texas Natural Resource Conservation Commission, 31 TAC 335.352 Adoption of Appendices by Reference, Appendix I: U.S. Environmental Protection Agency, 40 CFR Part 300, Hazardous Ranking System, Appendix A, 55 FR 51583 December 14, 1990.
2.	U.S. Environmental Protection Agency, Superfund Chemical Data Matrix (SCDM). June 1995.
3.	1992-93 Texas Almanac and State Industrial Guide, Copyright 1991, A. H. Belo Corporation, P.O. Box 655237, Communications Center, Dallas, Texas, 75265, Published by the Dallas Morning News.
4.	Texas Natural Resource Conservation Commission in Cooperation with the U.S. Environmental Protection Agency, Preliminary Assessment Report for City of Kingsland, Kingsland, Texas. May 1995. 19 pages with appendices.
5.	Field Notes and Photographs, Preliminary Assessment Site Investigation performed by Debra Hendricks and Moira McCarthy, Texas Natural Resource Conservation Commission, December 7, 1994. (Preliminary Assessment's Appendix B).
6.	Texas Natural Resources Information System, Census of Population and Housing, Llano and Burnet Counties, 1990. (Preliminary Assessment's Appendix C).
7.	Breslin, Shannon, Texas Natural Heritage Program Information System to Wesley G. Newberry, Texas Natural Resource Conservation Commission. Critical Habitat Letter. February 16, 1995. (Preliminary Assessment's Appendix D).
8.	Telephone Memo to the File, Debra Hendricks, TNRCC, to Lou Flemming, Kingsland Municipal Water Supply, March 22, 1995. (Preliminary Assessment's Appendix E).
9.	Telephone Memo to the File, Michelle Cresie, Lower Colorado River Authority to Debra Hendricks, TNRCC, March 29, 1995. (Preliminary Assessment's Appendix E).

10. Water Resources Data, Volume 3., Colorado River Basin, U.S. Geological Survey Water-data Report, TX 93-3, 1993. (Preliminary Assessment's Appendix E).

11. Located Wells Map. General Highway Map. Llano County, Texas. Prepared by Texas State Highway Department, 1963. Highways revised to March 1, 1968. (Preliminary Assessment's Appendix F).

12. Located Wells Map. General Highway Map. Burnet County, Texas. Prepared by Texas State Highway Department, 1971. Highways revised to March 1, 1975. (Preliminary Assessment's Appendix F).

13. Platted Wells Map. General Highway Map. Llano County, Texas. Prepared by Texas State Highway Department, 1958. Highways revised to January 1, 1962. (Preliminary Assessment's Appendix F).

14. Platted Wells Map. General Highway Map. Burnet County, Texas. Prepared by Texas State Highway Department, 1958. (Preliminary Assessment's Appendix F).

15. Located and Platted Well Logs from area of contamination to 0.25 miles, for Llano County, Texas. Texas Natural Resource Conservation Commission Central Records Office, Austin, Texas. (Preliminary Assessment's Appendix F).

16. Platted Well Logs from 0.25 miles to 0.50 miles from area of contamination, for Llano County, Texas. Texas Natural Resource conservation Commission Central Records Office, Austin, Texas. (Preliminary Assessment's Appendix F).

17. Platted Well Logs from 0.50 miles to 1.0 mile from area of contamination, for Llano County, Texas. Texas Natural Resource conservation Commission Central Records Office, Austin, Texas. (Preliminary Assessment's Appendix F).

18. Circle K Corporation, Letter and Analytical Results from April 29, 1989 to Texas Water Commission, July 3, 1989. (Preliminary Assessment's Appendix G, Document 1).

19. Texas Department of Health, Analytical Results to Village at Kingsland, Texas, from July 20, 1990 to April 29, 1992 (Preliminary Assessment's Appendix G, Document 2).

20. Texas Water Commission, Analytical Results, February 17, 1992. (Preliminary Assessment's Appendix G, Document 3).

21. Texas Water Commission, Letter to Owner, The Village at Kingsland, March 23, 1992. (Preliminary Assessment's Appendix G, Document 4).

22. Texas Water Commission, Letter to Kent Kelly, KIMCOR Products, April 10, 1992. (Preliminary Assessment's Appendix G, Document 5).

23. Texas Water Commission, District 9, Interoffice Memorandum to Petroleum Storage Tank Division, April 14, 1992. (Preliminary Assessment's Appendix G, Document 6).

24. Texas Water Commission, Letter to Owner, The Village at Kingsland, December 4, 1992. (Preliminary Assessment's Appendix G, Document 7).

25. Texas Water Commission, Analytical Results, December 7, 1992. (Preliminary Assessment's Appendix G, Document 8).

26. Texas Water Commission, Letter to Owner, The Village at Kingsland, January 22, 1993. (Preliminary Assessment's Appendix G, Document 9).

27. Texas Water Commission, Letter to Circle K Corporation, March 19, 1993. (Preliminary Assessment's Appendix G, Document 10).

28. Texas Water Commission, Analytical Results, April 8, 1993. (Preliminary Assessment's Appendix G, Document 11).

29. Texas Water Commission, Letter to Owner, The Village at Kingsland, May 28, 1993. (Preliminary Assessment's Appendix G, Document 12).

30. Texas Water Commission, Letter to Owner, The Village at Kingsland, June 9, 1993. (Preliminary Assessment's Appendix G, Document 13).

31. Highland Lakes Bank, Letter to Texas Water Commission, Water Utilities Division, June 14, 1993. (Preliminary Assessment's Appendix G, Document 14).

32. Highland Lakes Bank, Letter to Texas Water Commission, Water Utilities Division, June 25, 1993. (Preliminary Assessment's Appendix G, Document 15).

33. Texas Water Commission, Interoffice Memorandum to Field Operations Division, July 8, 1993. (Preliminary Assessment's Appendix G, Document 16).

34. Texas Water Commission, Interoffice Memorandum to Monitoring & Enforcement Division, July 20, 1993. (Preliminary Assessment's Appendix G, Document 17).

35. Texas Water Commission, Interoffice Memorandum to Monitoring & Enforcement Division, July 29, 1993. (Preliminary Assessment's Appendix G, Document 18).

36. Texas Water Commission, Letter to James L. Dickie, August 13, 1993. (Preliminary Assessment's Appendix G, Document 19).

37. Texas Water Commission, Letter to Owner, Cindy's Flowers, August 24, 1993. (Preliminary Assessment's Appendix G, Document 20).

38. Owner, Village at Kingsland, Letter to unknown recipient, September 2, 1993. (Preliminary Assessment's Appendix G, Document 21).

39. Owner, Cindy's Flowers, Letter to Texas Natural Resource Conservation Commission, September 16, 1993. (Preliminary Assessment's Appendix G, Document 22).

40. Brown, McCarroll & Oaks Hartline, Letter to Texas Natural Resource Conservation Commission, Industrial & Hazardous Waste Enforcement Section, October 12, 1993. (Preliminary Assessment's Appendix G, Document 23).

41. Texas Natural Resource Conservation Commission, Analytical Results, October 13, 1993. (Preliminary Assessment's Appendix G, Document 24).

42. Texas Natural Resource Conservation Commission, Interoffice Memorandum to Industrial & Hazardous Waste Division, November 3, 1993. (Preliminary Assessment's Appendix G, Document 25).

43. Texas Natural Resource Conservation Commission, Letters to Texas Bag Corporation, KIMCOR, Ace Hardware and Superior Auto Supply, November 4, 1993. (Preliminary Assessment's Appendix G, Document 26).

44. Texas Natural Resource Conservation Commission, Letter to Llano County Judge, November 23, 1993. (Preliminary Assessment's Appendix G, Document 27).

45. Texas Natural Resource Conservation Commission, Letter to Owner, Village at Kingsland, December 30, 1993. (Preliminary Assessment's Appendix G, Document 28).

46. Owner, Village at Kingsland, Letter to Texas Natural Resource Conservation Commission, Water Utilities Division, January 5, 1994. (Preliminary Assessment's Appendix G, Document 29).

47. Texas Natural Resource Conservation Commission, Interoffice Memorandum to Pollution Cleanup Division, January 5, 1994. (Preliminary Assessment's Appendix G, Document 30).

48. Texas Natural Resource Conservation Commission, Interoffice Memorandum to Screening Committee, January 31, 1994. (Preliminary Assessment's Appendix G, Document 31).

49. Texas Natural Resource Conservation Commission, Interoffice Memorandum to Pollution Cleanup Division, March 3, 1994. (Preliminary Assessment's Appendix G, Document 32).

50. Texas Natural Resource Conservation Commission, Interoffice Memorandum to the Files, December 7, 1994. (Preliminary Assessment's Appendix G, Document 33).

51. Street Map of Kingsland, Published by Kingsland Chamber of Commerce, 1994. (Preliminary Assessment's Appendix I).

52. Cap Mountain, Dunman Mountain, and Kingsland Quadrangles, United States Department of the Interior Geological Survey, Maps edited in 1967. (Preliminary Assessment's Appendix I).

53. Geologic Atlas of Texas, Llano Sheet, Bureau of Economic Geology, the University of Texas at Austin, Austin, Texas, 1981. (Preliminary Assessment's Appendix J).

54. Flood Insurance Rate Map, Llano County Texas, Community-Panel Number 210 of 300 and 225 of 300, Federal Emergency Management Agency, Date September 18, 1991. (Preliminary Assessment's Appendix K)

55. National Wetlands Inventory Maps, Cap Mountain, Dunman Mountain and Kingsland, Texas, United States Department of the Interior, 1967. (Preliminary Assessment's Appendix L).

56. Wind Rose, Waco, McClennan County, Texas, 1984 - 1992 Annual. (Preliminary Assessment's Appendix M).

57. Report 89-01, Groundwater Quality of Texas, Texas Water Commission, March 1989. (Preliminary Assessment's Appendix N).

58. Texas Natural Resource Conservation Commission, Telephone Memo to the File, January 26, 1995. (Preliminary Assessment's Appendix E).

59. Texas Natural Resource Conservation Commission in Cooperation with the U.S. Environmental Protection Agency, Site Screening Inspection Report for Village of Kingsland, Kingsland, Texas. August 1995. 28 pages with attachments.

60. Hazard Ranking System Guidance Manual, Interim Final, Publication 9345.1-07, U.S. Environmental Protection Agency. November 1992.

61. Geologic Quadrangle Map No. 41, Geology of the Kingsland Quadrangle, Llano and Burnet Counties, Texas, Bureau of Economic Geology, the University of Texas at Austin, Austin, Texas, December 1976.

62. Texas Department of Health - Division of Water Hygiene Water System Data. July 10, 1991.

63. Texas Natural Resource Conservation Commission, Telephone Memo to the File, August 30, 1996.

WORKSHEET FOR COMPUTING HRS SITE SCORE

		S	S^2
1.	Ground Water Migration Pathway Score (S_{gw}) (from Table 3-1, line 13)	100	10000
2a.	Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	NE	
2b.	Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	NE	
2c.	Surface Water Migration Pathway Score (S_{sw}) Enter the larger of lines 2a and 2b as the pathway score.	NE	
3.	Soil Exposure Pathway Score (S_s) (from Table 5-1, line 22)	NE	
4.	Air Migration Pathway Score (S_a) (from Table 6-1, line 12)	NE	
5.	Total of $S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$		10000
6.	**HRS Site Score** Divide the value on line 5 by 4 and take the square root	50	

TABLE 3-1
GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors			Maximum Value	Value Assigned	
Likelihood of Release to an Aquifer					
1.	Observed Release		550	550	
2.	Potential to Release				
	2a.	Containment	10	—	
	2b.	Net Precipitation	10	—	
	2c.	Depth to Aquifer	5	—	
	2d.	Travel Time	35	—	
	2e.	Potential to Release (Lines 2a(2b + 2c + 2d))	500		
3.	Likelihood of Release (Higher of Line 1 and 2e)		550		550
Waste Characteristics					
4.	Toxicity/Mobility		*	10,000	
5.	Hazardous Waste Quantity		*	100	
6.	Waste Characteristics		100		32
Targets					
7.	Nearest Well		50	50	
8.	Population:				
	8a.	Level I Concentrations	**	800	
	8b.	Level II Concentrations	**	0	
	8c.	Potential Contamination	**	0	
	8d.	Population (Lines 8a + 8b + 8c)	**	800	
9.	Resources		5	0	
10.	Wellhead Protection Area		20	0	
11.	Targets (Lines 7 + 8d + 9 + 10)		**		850
Ground Water Migration Score for an Aquifer					
12.	Aquifer Score ((Lines 3 x 6 x 11)/82,500)***		100		100
Ground Water Migration Pathway Score					
13.	Pathway Score (S_{gw}), (Highest value from Line 12 for all aquifers evaluated)***		100		100

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

2.2.1 Source Identification

Number of the source: 1

Name and description of the source: Groundwater Plume

Historical information on the area indicates groundwater contamination by several volatile organic contaminants in both public production and private water wells in Kingsland (Ref 18, 19, 20, 25, 28, 41). A sample collected by Texas Department of Health on July 20, 1990 from Village of Kingsland Wells # 1 and #2 indicated contamination by tetrachloroethylene at 18 ug/L (Ref. 19). The Village of Kingsland subsequently closed the well and contracted to obtained their public water supply from Lake Buchanan Water Supply (Ref. 32).

Sample analyses of six nearby water wells, one of which was a public water supply well, indicate excessive levels of tetrachloroethylene, trichloroethylene, dichloroethylene and bromoform (Ref 18, 19, 20, 25, 28, 41).

No single source determination can currently be made for the Kingsland site. Based on the locations, quantities and variability of type of analytes present it is likely that several different sources are contributing to the area groundwater contamination (Ref. 59).

Location of the source, with reference to a map of the site:

The known area of contamination is located from the 900-block of Highway 1431 West to the intersection of Highway 1431 and Ranch Road 2545 in the City of Kingsland, Texas, Llano County (Ref. 44, pg. 1) at approximately Latitude 30°40'0"N and Longitude 98°26'0"W (Ref 52).

Containment

Gas release to air: The air pathway was not evaluated; therefore, gas containment was not evaluated.

Particulate release to air: The air pathway was not evaluated; therefore, particulate release to air was not evaluated.

Release to ground water: The source(s) of the contaminants in the groundwater plume are unknown however, presence of contaminants in the groundwater indicates that containment is not present or not functioning at the source(s).

Release via overland migration and/or flood: The surface water pathway was not evaluated; therefore, release via overland migration and/or flood was not evaluated.

2.2.2 Hazardous Substances Associated With a Source

Table 1. Source Characterization

Source No. 1

Hazardous Substance	Evidence				
	Village of Kingsland Wells #1 & #2 COC # SW011992	Sample Loc. GW-11/17(dup) Cindy's Flowers Well COC# SW162089 CLP# FDS88	Sample Loc. GW-12 KIMCOR Well COC # SW01192 & SW180456 CLP# FDS89	Sample Loc. GW-14/16(dup) Ace Hardware Well COC #SW180457 CLP# FDS85	Sample Loc. GW-15 Superior Auto Well COC # SW180458
Organics (ug/L)					
1,1,2,2 Tetrachloroethane			1100.0 in 05/95	30.0 in 05/95	
1,2,4 trimethylbenzene			479.4 in 10/93		
1,2 dichloroethane			67.9 in 10/93		12.4 in 10/93
1,2 dichloroethene		8.5 in 04/93			
1,3,5 trimethylbenzene			290.3 in 10/93		
2-chlorotoluene			87.5 in 10/93		
2-methyl naphthalene			45.0 in 05/95		
benzene			1900.0 in 02/92 1800.0 in 05/95	61.6 in 10/93 48.0 in 05/95	
bromoform	4.6 in 01/91				
chloromethane			438.9 in 10/93		
dibromochlorom ethane	1.4 in 01/91				
dichloroethylene	2.0 in 04/92				
ethyl benzene			140.0 in 02/92 1079.6 in 10/93 350.0 in 05/95		
isopropyl benzene			58.6 in 10/93		
methyl t butyl ether			2900.0 in 02/92		

Table continued...

Table 1 continued

Hazardous Substance	Village of Kingsland Wells #1 & #2	GW-11/17(dup)	GW-12	GW-14/16(dup)	GW-15
n, p or rt-butyl benzene			77.8 in 10/93		
naphthalene			540.5 in 10/93 140.0 in 05/95		
styrene			68.1 in 10/93		
tetrachloroethylene	20.0 in 02/91 37.0 in 06/91 51.0 in 04/92 60.5 in 12/92	390.0 in 04/93 180.0 in 05/95			
toluene			1100.0 in 02/92 1029.2 in 10/93		
trichloroethylene	1.0 in 06//91 3.0 in 04/92 3.3 in 12/92	48.0 in 04/93			
vinyl chloride			55.3 in 10/93		
xylene			550.0 in 02/92 2104.7 in 10/93 1400.0 in 05/95	87.0 in 05/95	
Reference	Ref. 19, 25	Ref. 28,59	Ref. 4, 20, 41, 59	Ref. 4, 41, 59	Ref. 41

2.2.3. Hazardous Substances Available to a Pathway

The area of known ground water contamination at the Village of Kingsland site was based on analytical evidence of hazardous substances present in concentrations three times greater than the designated background levels and in concentrations greater than the corresponding Sample Quantitation Limit (SQLs). Hazardous substances associated with Source 1 that have been found at levels that meet the criteria for observed contamination include 1,1,2,2-tetrachloroethane, 2, methyl naphthalene, benzene, ethyl benzene, naphthalene, tetrachloroethylene and xylene.

2.3 LIKELIHOOD OF RELEASE

Refer to Section 3.1.1 of this documentation record for specific information related to ground water samples that meet the criteria for observed contamination.

2.4 WASTE CHARACTERISTICS

2.4.1 Selection of Substance Potentially Posing Greatest Hazard

Tetrachloroethylene was selected as the hazardous substance potentially posing the greatest hazard for the ground water pathway because of its presence in Source 1 in a public supply well at a level (.06 mg/l) exceeding a benchmark concentration.

2.4.2. Hazardous Waste Quantity

2.4.2.1.1. Hazardous Constituent Quantity - Not Evaluated

The information available is not sufficient to evaluate Tier A; therefore it is not possible to adequately determine a hazardous constituent quantity (Tier A) for Source 1, Contaminated Groundwater Plume (Ref. 1, Sec 2.4.2.1.1). As a result the evaluation of Hazardous Waste Quantity proceeds to the evaluation of Tier B, hazardous wastestream quantity (Ref. 1, Sec. 2.4.2.1.2).

Hazardous Constituent Quantity Value (S): 0

2.4.2.1.2. Hazardous Wastestream Quantity - Not Evaluated

The information available is not sufficient to evaluate Tier B; therefore it is not possible to adequately determine a hazardous wastestream quantity (Tier B) for Source 1, Contaminated Groundwater Plume (Ref. 1, Sec 2.4.2.1.2). As a result the evaluation of Hazardous Waste Quantity proceeds to the evaluation of Tier C, Volume (Ref. 1, Sec. 2.4.2.1.3).

Hazardous Wastestream Quantity Value (W): 0

2.4.2.1.3. Volume - Not Evaluated

The information available is not sufficient to evaluate Tier C; therefore it is not possible to adequately determine a source volume (Tier C) for Source 1, Contaminated Groundwater Plume (Ref. 1, Sec 2.4.2.1.3). As a result the evaluation of Hazardous Waste Quantity proceeds to the evaluation of Tier D, area (Ref. 1, Sec. 2.4.2.1.4).

Volume Assigned Value: 0

2.4.2.1.4. Area

The information available is not sufficient to evaluate Tier D; therefore it is not possible to adequately determine a source area (Tier D) for Source 1, Contaminated Groundwater Plume (Ref. 1, Sec 2.4.2.1.4).

Area Assigned Value: 0

2.4.2.1.5. Source Hazardous Waste Quantity Value

Per Reference 61, page 111, Hazard Ranking System Guidance Manual, "If the hazardous constituent quantity (Tier A) is not adequately determined for all sources, then the hazardous waste quantity factor value is subject to a minimum value of 10. However, if any target for the migration pathway is also subject to Level I or II concentrations, this factor value is subject to minimum of 100." Approximately 80 targets are subject to Level I concentrations (Ref. 62).

No removal has taken place in the known area of contamination.

Source Hazardous Waste Quantity Value: 100

SITE SUMMARY OF SOURCE DESCRIPTIONS

Table 2. Site Summary of Source Descriptions					
Source No. 1					
		Containment			
Source No.	Source Hazardous Waste Quantity Value	Groundwater	Surface Water	Gas	Air Particulate
1	100	Non-zero	Not evaluated	Not Evaluated	Not Evaluated

3.0 GROUND WATER MIGRATION PATHWAY

3.0.1 GENERAL CONSIDERATIONS

The City of Kingsland is located in the Central Basin of the east central portion of the Edwards Plateau (Ref.3, pg. 69). There are no major or minor aquifers present in the county. Disintegrated granite, granite fractures and river alluvium supply groundwater in the area (Ref. 57). Domestic wells in the target area are typically completed between 40-200 feet deep and are utilized for irrigation and household purposes (Ref. 50). Groundwater flow direction follows area faulting in a north to south pattern (Ref. 61).

Precambrian, igneous rocks of Town Mountain Granite outcrop at the surface in the known area of contamination. The surface of the Town Mountain Granite throughout most of its outcrop is disintegrated up to depths of 20 feet or more . Innumerable surface tanks have been constructed along drainages in areas of Town Mountain Granite and to a lesser extent in areas of Packsaddle Schist. Ground water in the area of Precambrian rocks is in general scarce and for this reason reliance has been placed on surface tanks for stock water (Ref. 61, pg.11).

Directly east of the Colorado River from the known area of contamination, where Precambrian rocks meet Paleozoic rocks, the dip is north to northeastward 10 degrees or less (Ref. 61, pg 2).

The portions of Buchanan, Inks, and Lyndon B. Johnson Lakes situated within the Kingsland quadrangle amount to a total of about 3.5 square miles. Wells marginal to the lakes yield an average of 17 gallons per minute in granite, granite grus, and fractured granite owing to continuous recharge from the lakes. Median yield of wells in crystalline rocks of the Llano area is 14 gallons per minute (Ref. 61, pg. 11).

Aquifer/Stratum 1 (shallowest)

Aquifer/Stratum Name: Alluvium

Description: Floodplain deposits, includes low terrace deposits near level of floodplain and bedrock locally in stream channels; gravel, sand, silt, clay, and organic matter in thickness to 35 feet (Ref. 53).

Aquifer/Stratum 2 (deepest)

Aquifer/Stratum Name: Water-bearing granite fractures.

Description: Town Mountain Granite; consisting of coarse-grained, pink, quartz-plagioclase-microcline rock of Precambrian age. Portions of two large Town Mountain Granite plutons situated within the Kingsland quadrangle, the Granite Mountain granite mass and the Lone Grove granite mass, may be connected a short distance below the surface. A gravity survey of the Lone Grove mass indicated that it is essentially a cylindrical body reaching a depth of 10 miles or more (Ref. 61, pg. 2).

3.1 LIKELIHOOD OF RELEASE

3.1.1 OBSERVED RELEASE

Aquifer Being Evaluated: Water-bearing granite fractures.

Chemical Analysis:

- Background Concentration

The well selected for the background well was sampled during the 1995 EPA Screening Site Inspection. Drinking water well GW-01 is designated as the background well. The well is located on Quail Creek Loop in Kingsland and is greater than one mile from the known area of contamination (Ref. 59, App. B, Pgs. 31 & 33).

Table 3 - Background well

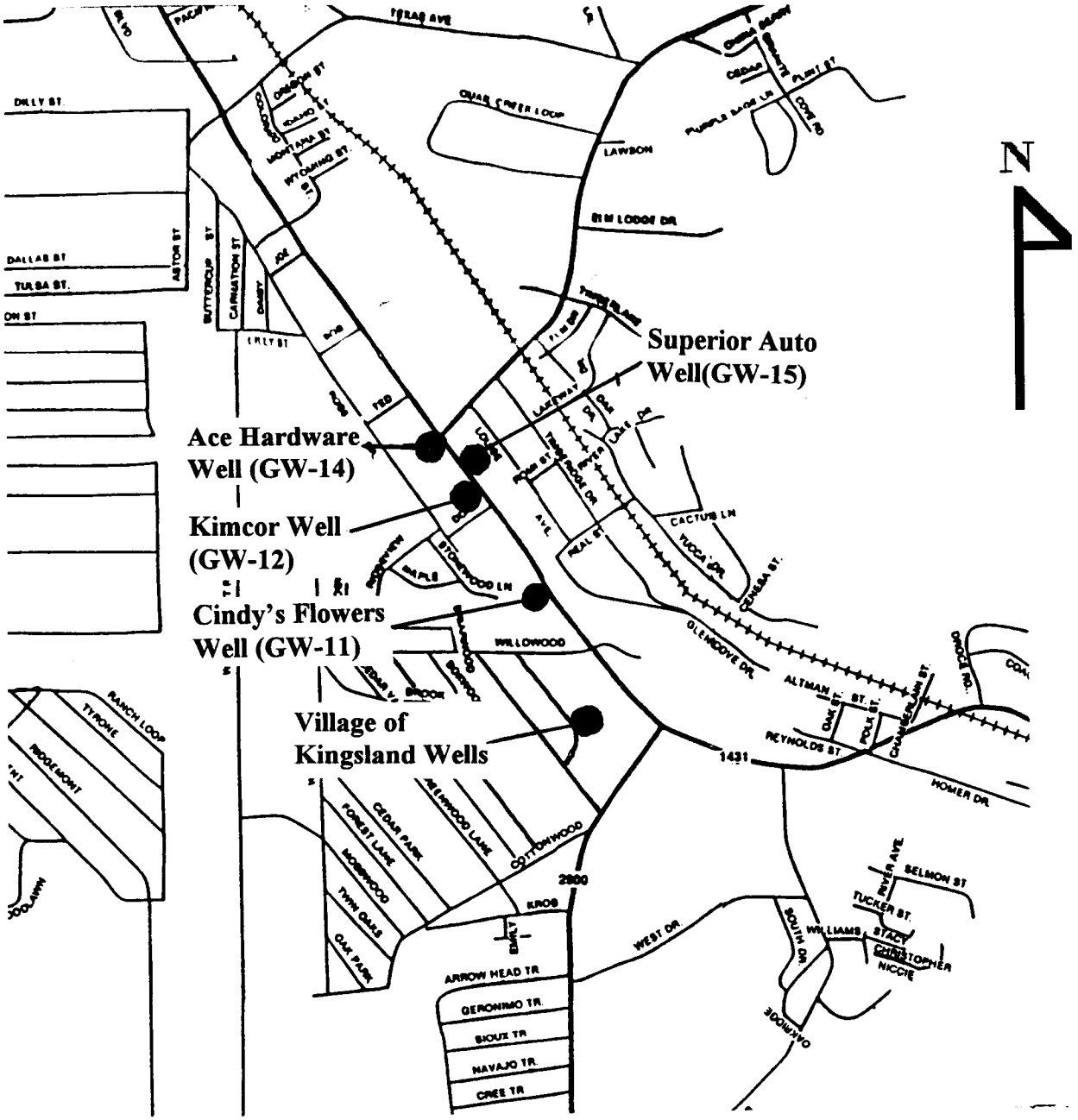
Sample ID	Depth (ft.)	Date	Reference
GW-01(Martineau) MFFA36/FDS73	145	05/08/95	59, App. B, Pgs. 31 & 33.

No hazardous substances were found in background sample GW-01 (Ref 59).

- Contaminated Samples

Previous sampling events documented contaminants in industrial wells GW 11 (1,2 dichloroethene - 8.5 ug/L, tetrachloroethylene - 390 ug/L, trichloroethene - 48 ug/L), GW-12 (ethylbenzene - 1100 ug/L, toluene - 1029 ug/L, xylene - 2104 ug/L), GW-14 (benzene - 61.6 ug/L) and GW-15 (1,2 dichloroethane - 12.4 ug/L) (Ref. 4, 20, 28, 41, 59 and Table 1).

The identical wells were selected to be sampled again during the 1995 EPA SSI. Additionally four (4) domestic wells located greater than one mile from the known area of contamination and five (5) located within one mile of the known area of contamination were selected for sampling to document the extent of contamination (Ref 59 and Figure 3).



TNRCC	**Figure 3** **Sampling Location Map**	**Village of Kingsland** **Kingsland (Llano County), Texas** **TNRCC SWR# None** **CERCLIS No. TXD988088688**

Table 4 - Observed Release to Groundwater				
Sample ID	Hazardous Substance	Concentration ug/L	Sample Quantitation Limit	Reference
GW-11 Cindy's Flowers	tetrachloroethylene	180.0	10	Ref. 59
GW-12 KIMCOR	benzene	1800.0	10	
	1,1,2,2,-tetra-chloroethane	1100.0	10	
	ethyl benzene	350.0	10	
	xylene	1400.0	10	
	naphthalene	140.0	10	
	2-methyl naphthalene	45.0	10	
GW-14 Ace Hardware	benzene	48.0	10	
	1,1,2,2-tetra-chloroethane	30.0	10	
	xylene	87.0	10	

- Level I Samples

Sample ID: Municipal wells #1 & #2
Reference for Benchmarks: (Reference 2)

Table 5 - Drinking Water Well - Level I Substance				
Hazardous Substance Village of Kingsland Wells #1 & #2 (Ref. 19, 25)	Conc. (ug/L)/ (mg/l)	Benchmark Hazardous Substance	BM Conc. (mg/L)	Benchmark
tetrachloroethylene	60.5/ .0605	tetrachloro-ethylene	.005	MCL

MCL- Maximum Contaminant Level

Table 6 - Drinking Water Well - Level II Substances				
Hazardous Substance Village of Kingsland Wells #1 & #2 (Ref. 19, 25)	Conc. (ug/L)	Benchmark Hazardous Substance	BM Conc. (mg/L)	Benchmark
bromoform (Ref. 63)	4.6	Total trihalomethanes	0.10	MCL
dibromochloromethane (Ref. 63)	1.4	Total trihalomethanes	0.10	MCL
dichloroethylene	2.0	1,1 dichloroethylene	.007	MCL
trichloroethylene	3.0	trichloroethylene	.005	MCL

MCL- Maximum Contaminant Level

Attribution:
Analytical evidence indicated that the Village of Kingsland municipal supply well had been exposed to hazardous substances from the area of contamination. The well was closed and drinking water obtained from an alternate surface water source (Ref. 4, 7, 15). Approximately 80 residents had been served by the well (Ref. 62).

The ground water organic analyses from the SSI sampling event in May, 1995 indicated the releases of benzene, tetrachloroethene, 1,1,2,2-tetrachloroethane, ethyl benzene, xylene, naphthalene and 2-methyl naphthalene in three industrial wells (GW-11, GW-12, GW-14) (Ref. 59).

Well GW-11 is a 368 foot deep well located at Cindy's Flowers business on Highway 1431. This is the deepest and most downgradient of the five industrial wells sampled. None of the organic analytes detected in upgradient wells occur in this well. Previous sampling indicated the presence of 1,2-dichloroethene and trichloroethene in this well; however, these substances were not detected during this site investigation. Tetrachloroethene has been detected previously in this well and is still present but at lower levels than previously analyzed (Ref. 28, 59).

The business, Cindy's Flowers, is located at the site of a former dry cleaning operation. Since concentrations of these substances appear to be decreasing with time, and do not occur in the other wells sampled, it may be concluded that this former dry cleaning business is the source. These substances may be moving geographically southward along faults in a groundwater migration plume (Ref. 28, 59).

Well GW-12 is a 67 foot deep, uncapped well located at the KIMCOR business on Highway 1431. Previous analyses of samples taken from this well indicate the presence of a wide range of organic substances, most of which exceeded maximum contaminant levels. Five of the previously detected substances remain in the well in similar or higher levels than detected before (benzene, ethyl benzene, xylene, naphthalene and 2-methyl naphthalene). Three of these substances (benzene, ethyl benzene, xylene) occur in the nearby upgradient well at Ace Hardware, in smaller quantities, and may be the result of downgradient groundwater migration from that well (Ref. 4, 20, 41, 59).

It may be concluded that this uncapped well (GW-12) has been utilized as a disposal well and is a possible source of area groundwater contamination (Ref. 4, 20, 41, 59).

Well GW-14 is a 180 foot deep well located at the Ace Hardware business on Highway 1431 at the intersection of Highway 2545. This well is located at the top of a hill and is the most upgradient of the five industrial wells sampled. During the SSI sampling event it was observed that red paint wastes had been deposited on the ground at the wellhead. Since the hazardous substances detected in this well are common constituents of paint and gasoline by-products, it may be concluded that 1) the improper disposal practices at the Ace Hardware; and 2) the reported presence of abandoned underground storage tanks in the area are the primary sources of contamination attributable to this well (Ref. 4, 41, 59).

No single source determination can currently be made for the Kingsland site. Based on the locations, quantities and variability of type of analytes present it is likely that several different sources are contributing to the area groundwater contamination.

Hazardous Substances Released

The hazardous substances meeting the criteria for an observed release to drinking water wells are dibromochloromethane, dichloroethylene, tetrachloroethylene and trichloethylene (Ref. 19, 25).

Twenty-two additional hazardous substances are present in industrial wells in the known area of contamination and meet the criteria for an observed release to groundwater (Ref. 18, 19, 20, 25, 28, 41).

Of the twenty-two hazardous substances vinyl chloride is the substance with the highest toxicity/mobility factor value of 10,000. The next highest substance is naphthalene with a toxicity/mobility factor value of 1000. Both substances were present in ground water samples from the KIMCOR Well (GW-12) (Ref. 4, 20, 41, 59).

Ground Water Observed Release Factor Value: 550

3.1.2 POTENTIAL TO RELEASE

Potential to release will not be evaluated since an observed release has been established and evaluated (Ref. 18, 19, 20, 25, 28, 41).

3.2 WASTE CHARACTERISTICS

3.2.1 Toxicity/Mobility

According to the HRS, each hazardous substance, for which an observed release to ground water has been documented, is listed and assigned a toxicity factor value from the EPA Chemical Database (Ref. 1, Ref. 2).

Any hazardous substance that meets the criteria for an observed release to one or more aquifers underlying the sources at the site, regardless of the aquifer being evaluated, is assigned a mobility factor value of 1.

Table 7. Toxicity/Mobility Factors

Source No. 1			
Hazardous Substance	Toxicity Factor Value	Mobility Factor Value	Toxicity/Mobility (Table 3-9)
1,1,2,2 Tetrachloroethane	10	1	10
1,2 dichloroethane	100	1	100
1,2 dichloroethene	100	1	100
benzene	100	1	100
chloromethane	10	1	10
dibromochlorom ethane	100	1	100
dichloroethylene	100	1	100
ethyl benzene	10	1	10
n, p or rt-butyl benzene	10	1	10
naphthalene	1000	1	1000
styrene	10	1	10
tetrachloroethylene	100	1	100
toluene	10	1	10
trichloroethylene	10	1	10
vinyl chloride	10000	1	10000
xylene	10	1	10

The hazardous substance with the highest toxicity/mobility factor value is selected and the value for that substance is entered below.

Vinyl chloride is the substance with the highest toxicity/mobility factor value of 10,000. The next highest substance is naphthalene with a toxicity/mobility factor value of 1000. Both substances were present in ground water samples from the KIMCOR Well (GW-12) (Ref. 4, 20, 41, 59).

Toxicity/Mobility Factor Value: 10,000

3.2.2 Hazardous Waste Quantity

Based on a total Source Hazardous Waste Quantity of 100.00, the Hazardous Waste Quantity Factor Value from HRS Table 2-6 is 1.0. However, since targets from the groundwater migration pathway are subject to Level I concentrations a value of 100 is assigned as the greater of the two numbers.

Source Number	Source Hazardous Waste Quantity Value (Section 2.4.2.1.5)	Is source hazardous constituent quantity data complete? (yes/no)
1	100	No
	Sum of Values: 100	

3.2.3 Waste Characteristics Factor Category Value

Toxicity/Mobility Factor Value: 10,000

Waste Quantity Factor Value: 100

(Toxicity/Mobility Factor Value) x (Hazardous Waste Quantity Factor Value) =

10,000 x 100 = 1,000,000.0

A Waste Characteristics Product Value of 1,000,000 receives a Waste Characteristics Factor Value of 32 (Ref. 60, Table 2-7).

Toxicity/Mobility Factor Value X Hazardous Waste Quantity Factor Value: 1,000,000

Hazardous Waste Quantity Factor Value: 100
Waste Characteristics Factor Category Value: 32

3.3 TARGETS

A sample collected by Texas Department of Health on July 20, 1990 from Village of Kingsland Wells # 1 and #2 indicated contamination by tetrachloroethylene at 18 ug/L (Ref. 19). The Village of Kingsland subsequently closed the well and contracted to obtained their public water supply from Lake Buchanan Water Supply (Ref. 32).

Well	Distance from source	Aquifer	Level I Contam. (Y/N)	Level II Contam. (Y/N)	Potential Contam. (Y/N)	Ref.
Village of Kingsland Wells #1 & #2.	0.25-.5 mi.	Water-bearing granite fractures	Y	N	N	19, 32, 60

3.3.1 Nearest Well

Well: Village of Kingsland Wells #1 & #2

Level of Contamination (I, II, or potential): Level I

If potential contamination, distance from source in miles: Not Evaluated

Nearest Well Factor Value: 50

3.3.2 Population

3.3.2.1 Level of Contamination

3.3.2.2 Level I Concentrations

Level I Well	Population	Reference
Village of Kingsland Wells #1 & #2	80	62

Population Served by
Level I Wells: 80

Level I Concentrations Factor Value: 800

3.3.2.3 Level II Concentrations

Level II Well	Population	Reference

Wells already counted under Level I are not counted here.

Level II Concentrations Factor Value: 0

3.3.2.4 Potential Contamination

Persons already counted under Level I are not counted here.

Sum of Distance-Weighted Population Values: 0

Potential Contamination Factor Value: 0

3.3.3 RESOURCES

No watering of commercial livestock, irrigation of crops (greater than 5 acres), or agriculture uses were identified within the target distance limit (Ref. 5).

Resources Factor Value: 0

3.3.4 WELLHEAD PROTECTION AREA

There are no wellhead protection areas in the target distance limit. The nearest wellhead protection area is 16 miles from Kingsland (Ref. 58).

Wellhead Protection Area Factor Value: 0

4.0 SURFACE WATER MIGRATION PATHWAY

The Surface Water Pathway was not evaluated due to lack of an observed release or samples.

5.0 SOIL EXPOSURE PATHWAY

The Soil Exposure Pathway was not evaluated due to lack of an observed release or samples.

6.0 AIR MIGRATION PATHWAY

The Air Migration Pathway was not evaluated due to lack of an observed release or samples.