M.2 - SITE MAINTENANCE FORM

~~ACTION:~~ _

EPA ID : GAD084914787

SITE NAME: ATLANTIC WOOD INDUSTRIES INC SOURCE: H

STREET : SUGAR MILL RD CONG DIST: 01

CITY : PORT WENTWORTH ZIP: 31407

~~CNTY NAME: CHATHAM~~ CNTY CODE : 051

LATITUDE : 32/08/45.0 LONGITUDE : 081/08/54.0

LL-SOURCE: R LL-ACCURACY:

SMSA : 7520 HYDRO UNIT: 03060109

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE:

SITE/SPILL IDS:

RPM NAME: RAY WILKERSON RPM PHONE: 404-347-2234

SITE CLASSIFICATION: SITE APPROACH:

DIOXIN TIER: REG FLD1: REG FLD2: 1

RESP TERM: PENDING ( ) NO FURTHER ACTION ( ) PENDING (_) NO FURTHER ACTION (_)

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( )
ENFORCED RESPONSE ( ) COST RECOVERY ( )

SITE DESCRIPTION:

10016875

M.2 - PROGRAM MAINTENANCE FORM

ACTION:

SITE: ATLANTIC WOOD INDUSTRIES INC

EPA ID: GAD084914787 PROGRAM CODE: H01 PROGRAM TYPE:

PROGRAM QUALIFIER: ALIAS LINK :

PROGRAM NAME: SITE EVALUATION

DESCRIPTION:

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ATLANTIC WOOD INDUSTRIES INC
PROGRAM: SITE EVALUATION

EPA ID: GAD084914787 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E * _ ___ _ *

EVENT NAME: DISCOVERY STATUS: * _____ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 07/01/80	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	_____	_____	__	___

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ATLANTIC WOOD INDUSTRIES INC
PROGRAM: SITE EVALUATION

EPA ID: GAD084914787 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ __ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START: 03/01/84	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 08/01/84	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	_____	_____	__	__

M.2 - COMMENT MAINTENANCE FORM

SITE: ATLANTIC WOOD INDUSTRIES INC

EPA ID: GAD084914787

COM NO	COMMENT	ACTION
001	PART A- ON FILE	* _ *

RECEIVED MAR 28 19

NONE

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD084914787

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Atlantic Wood Ind. Inc.	Sugar Mill Road				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Port Wentworth	GA	31498	Chatham	025	
09 COORDINATES LATITUDE	LONGITUDE				
32°08'45.0"	081°08'54.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)

South on Hwy 25 from Port Wentworth. Turn left onto Sugar Mill Road and proceed until crossing railroad tracks. Facility is on left.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Atlantic Wood Industries, Inc.	P.O. Box 1608		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Savannah	GA	31498	(912) 964-1234
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 7/21/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 9/8/83 (MONTH DAY YEAR)
☐ NO

by Mike Arnett

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1971 (BEGINNING YEAR) | Continuing (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Creosote
pentachlorophenol

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Surface impoundment has been in use since 1971 and is regulated by the Georgia Hazardous Waste Management Act.
6 monitoring wells installed by Atlantic Wood

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☒ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
C.N. Kerr- Chief Engineer	Atlantic Wood Ind., Inc.			(912) 964-1234
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Steve Walker	D.N.R.	GA. E.P.D.	(404) 656-2836	2/6/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

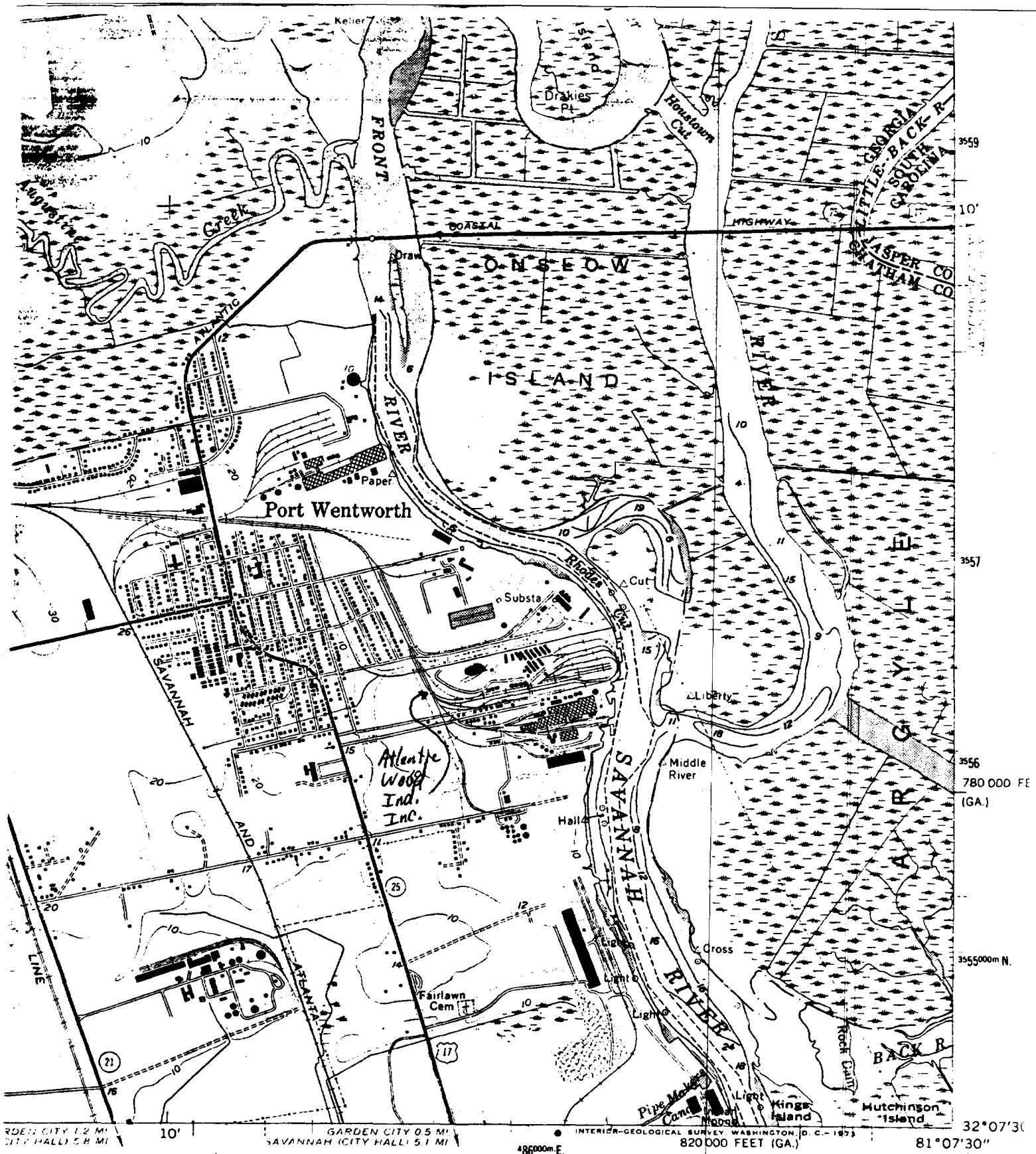
EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	GAD084914787

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: _____ (Acres)	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED



PORT WENTWORTH, GA.—S. C.

PRELIMINARY ASSESSMENT CHECKLIST (revised 2/6/84)

✓ EPA SITE IDENTIFICATION NUMBER GAD084914787

Site Name and Location

✓ Site Name

✓ Specific Location (include street number)

✓ City, State, Zip Code

✓ County, County Code

____ Congressional District

✓ Coordinates

✓ Directions to site from nearest public road

Responsible Parties

✓ Owner

✓ Owner address and telephone

✓ Operator (indicate if same as owner)

✓ Operator address and telephone

✓ Type of ownership

✓ Owner/Operator notification

Characterization of Potential Hazard

✓ Site Inspection

✓ Site Status

✓ Years of operation since 71

✓ Substances known or alleged on site creosote pentachlorophenol

✓ Potential Hazard Description (include relative population, water body in vicinity)

NONE Priority Assessment

find back
call SW
what's difference in B+M + this one?
groundwater
Action pending by state

Information

✓ Contact, phone number

✓ Person responsible for preliminary assessment, phone number

Waste Information

✓ Waste physical states

? Waste quantities

✓ Waste characteristics

✓ Waste type, comments (what kind of sludge?)

✓ Name of hazardous substances possibly/actually present

✓ CAS number of hazardous substance

? Storage/disposal method w/hazardous substances how is impoundment monitored?

? Concentration of hazardous substances

? Measure of concentration

____ Feedstock Name

Sources of information

OK Date of Report Cited

✓ Other Sources Recommended

Description of Hazardous Conditions, etc.

✓ Need More Information

✓ Need Narrative Description need priority justification

? Surface Water Name (Is there a river, lake, stream nearby?)

? Potential Population (name of town, number of residents)

? Pertinent Hydrogeologic Information (Is this an aquifer recharge area? What are the significant geologic structures in the vicinity?)

____ Other (see note)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET N.E.
ATLANTA, GEORGIA 30365

OCT 17 1989

4WD-SISB

26456

Mr. John Taylor, Chief
Land Protection Branch
Georgia Department of Natural Resources
205 Butler Street, SW
Atlanta, Georgia 30334

RE: NFRAP GEORGIA SITES

Dear Mr. Taylor:

This is to inform you that the Georgia CERCLIS sites listed below have been assigned No Further Remedial Action Planned (NFRAP) designations. The reason for the designations are the low Preliminary Hazardous Ranking System (HRS) scores calculated for each of the sites.

GAD003297504	KEM Manufacturing Corp./Cerfact Laboratories
GAD057297442	Cross Adhesives, Inc.
GAD980842256	Dean Stokes Site
GAD980842272	Salvo Property
GAD980559421	Sinclair and Valentine Company
GAD056235732	Anchor Warehouse Company, Inc.
GAD064536915	Fleet Transportation
GAD003264819	Guardian Chemical
GAD095815015	Atlantic Wood Industries

Please be advised that the NFRAP designations are based on information currently available and conditions and policies that currently exist.

It is possible that in the future our investigation of a site may be reactivated if new information or policies warrant such an action.

Should you have any questions, please contact me at (404) 347-5065.

Sincerely,

Mario E. Villamarzo
Georgia Project Officer
Site Assessment Section

cc: Murray Warner, NUS

YELLOW

NUS CORPORATION
1927 LAKESIDE PARKWAY
SUITE 614
TUCKER, GEORGIA 30084
404-938-7710

COMPLETE
ENG.

C-586-7-9-212

July 28, 1989

Mr. A.R. Hanke
Site Investigation and Support Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365

SISB/SAS
RECEIVED
AUG 01 1989
EPA - REGION IV
ATLANTA, GA

Subject: Screening Site Inspection, Phase I
Atlantic Wood Industries
Vidalia, Toombs County, Georgia
EPA No. GAD095815015
TDD No. F4-8907-15

NFRAP
10-4-89

Dear Mr. Hanke:

FIT 4 conducted a Screening Site Inspection, Phase I, of the Atlantic Wood Industries in Vidalia, Toombs County, Georgia. The inspection included a review of EPA and state file material, completion of a target survey; and a drive-by reconnaissance of the facility.

The Atlantic Wood Industries facility is located on Atlantic Avenue in Vidalia, Georgia. The facility is located in a forested area with a residential area approximately 0.25 mile east. The currently active facility preserves wood products and has been in operation since 1968 (Ref. 1).

The company treats wood products with preserving compounds, specifically chromated copper arsenate (CCA). Wastes are generated from the residue left in the pressure treatment vessels (Ref. 2). Prior to the enactment of RCRA regulations in November 1980, "all treated wood waste" was burned on site and the ashes were scattered all around the property. Some of the CCA sludge was spread around the property as well (Ref. 1). The waste was sent to Chemical Waste Management in Alabama in 1987 and to S.C.A. in Pinewood, South Carolina in 1983 (Refs. 1,5).

In July 1980, Atlantic Wood submitted a Part A application. In August 1982, the Environmental Protection Division requested Atlantic Wood Industries to submit a Part B application (Ref. 3). At the facility's request, the Part A application was withdrawn and the facility was reclassified as a generator in November 1982 (Ref. 4). The amount of waste generated at the facility is approximately 41 tons per year. Currently, the facility is listed as a generator and a transporter (Ref. 6).

The facility is in the southeast coastal plain hydrogeologic regime, which is typified by layers of sand and clay overlying semi-consolidated carbonate rock (Ref. 7). The Floridan aquifer is normally used in this area and, while water levels are variable, groundwater is usually located at a depth of 300-400 feet below land surface (Refs. 8,9). However, the surficial aquifer, consisting of sands is used by some private well owners in the area, and groundwater is encountered at approximately 50 feet bls. The clay of the Hawthorn Group represents the layer of lowest hydraulic conductivity with

values ranging from 1×10^{-5} to 1×10^{-7} cm/sec (Ref. 10, p. 277). The net annual rainfall for this area is 3 inches and the one-year, 24-hour rainfall is 3.4 inches (Refs. 11, pp. 43,63; 12, p. 93).

Surface water runoff from the facility appears to flow northeast to an intermittent stream that then enters Swift Creek after approximately 3500 feet. After 9.5 miles, Swift Creek merges with Pendleton Creek (Ref. 13). There are no surface water intakes along the surface water pathway (Ref. 14).

The Vidalia Water Department serves only residents within the city limits and obtains its water from three wells. The nearest municipal well is 1.65 miles from the facility. They service 5000 connections. There is no county water system and everyone outside the city limits is on well water (Ref. 15).

The nearest residence is adjacent to the facility's east side, and is on municipal water. A house count using topographic maps shows 58 homes within 3 miles that are not served by the municipal water system (Refs. 13,16). It is estimated that 10 percent of these homes obtain water from shallow wells, approximately 50-60 feet deep. The remaining 90 percent obtain water from deep wells that are approximately 300-400 feet deep (Ref. 8). The nearest private well is located 1 mile north of the facility (Ref. 16).

The facility is not entirely fenced and is fairly accessible to the public. There is a gate across the road, which is open during the day (Ref. 17).

Recreational fishing occurs in Swift and Pendleton creeks (Ref. 17). Although the ranges of some endangered or threatened species include the state of Georgia, there are no critical habitats designated in Toombs County (Ref. 18).

Based on the results of this evaluation and the above referenced material, it is recommended that no further remedial action be planned for this facility.

Very truly yours,

Sheri Panabaker
Project Manager

Approved:

Philip G. Blackwell

SP/jec

cc: Mario Villamarzo

REFERENCES

1. Potential Hazardous Waste Site, Preliminary Assessment (EPA Form 2070-12) and attachments for Atlantic Wood Industries. Filed by Steve Walker, DNR-EPD-Haz. Was., February 23, 1984.

2. Robert Rose, Environmental Protection Division, Action Report, November 4, 1981. Subject: Inspection and compliance-Industrial.

3. J. Leonard Ledbetter, Environmental Protection Division, letter to A.G. Labrot, President, Atlantic Wood Industries, August 11, 1982. Subject: Part B application.

4. John Taylor, Department of Natural Resources, letter to Charles Kerr, Atlantic Wood Industries, January 31, 1983. Subject: Withdrawl of Part A application.

5. Jeffrey A. Smigel, Atlantic Wood Industries, letter to Environmental Protection Division, February 25, 1988. Subject: Georgia Biennial Hazardous Waste Report.

6. Steve Woodal, Environmental Protection Division, Permitting Unit, telephone conversation with Sheri Panabaker, NUS Corporation, July 21, 1989. Subject: RCRA Status of Atlantic Wood Industries.

7. Linda Aller, et al., "DRASTIC: A Standardized System for Evaluating Ground Water Pollution Using Hydrogeologic Settings", EPA-600/2-87-035(Ada, Oklahoma:USEPA, April 1987).

8. Kim Stuckey, Middle Georgia Drilling Company, telephone conversation with Sheri Panabaker, NUS Corporation, July 20, 1989. Subject: Well depths in the area.

9. National Water Summary, USGS, Water-Supply Paper 2275, 1984, pp. 180-182.

10. M. T. Thompson et al.,"The Availability and Use of Water in Georgia", Bulletin Number 65, Georgia Department of Mines, Mining and Geology, December 1956.

11. U.S. Department of Commerce, "Climatic Atlas of the United States", (Washington D.C.: GPO, June 1968) Reprint: 1983, National Oceanic-and Atmospheric Administration.

12. David M. Hershfield, "Rainfall Frequency Atlas of the United States", Technical Paper 40, (USDA, 1985), p. 93.

13. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Georgia: Vidalia 1970 (Photorevised 1985), Lyons 1970 (Photorevised 1985), Oak Park SW 1970, Oak Park 1970 (Photorevised 1985), scale 1:24,000.

14. Water Availability and Use Report, Altamaha River Basin, Georgia Environmental Protection Division, March 1986, pp. 30,32.

15. Betty Davis, City of Vidalia Water Department, telephone conversation with Sheri Panabaker, NUS Corporation, July 10, 1989. Subject: Service area of the Water Department.

16. NUS Field Logbook No. F4-1501 for Atlantic Wood Industries, TDD No. F4-8907-15. Documentation of facility reconnaissance, July 14, 1989.

17. Linda Sikes, Georgia Department of Natural Resources, Fisheries Section, telephone conversation with Sheri Panabaker, July 24, 1989. Subject: Fishing in Swift and Pendleton creeks.

18. U.S. Fish and Wildlife Service, "Endangered and Threatened Species of the Southeastern United States", (Atlanta, Georgia: 1988).

listed in ERRIS

Reference No. 1

LOW

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD095815015

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Atlantic Wood Ind. Inc.	Atlantic Avenue

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Vidalia	GA	31474	Toombs	138	

09 COORDINATES LATITUDE	LONGITUDE
32°14'26.0"	081°21'28.5"

10 DIRECTIONS TO SITE (Starting from nearest public road)

From I-16: take 297 south. One half mile inside Vidalia city limits, turn left on dirt road between Paul Anderson's Youth Ranch and rail road track. Facility is at end of road.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Atlantic Wood Ind. Inc.	P.O. Box 1608

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Savannah	GA	31498	(912) 964-1234

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 7/21/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 11/4/81 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1968 (BEGINNING YEAR) | Continuing (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Arsenic
hexavalent chromium

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Low - C.N. Keer of Atlantic Wood Ind., indicates that prior to RCRA regulations, all treated wood waste was burned on site and ashes scattered around the property to fill in holes, etc. A very small amount of waste CCA sludge was also scattered around.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
C.N. Keer, Chief Engineer	Atlantic Wood Industries, Inc.	(912) 964-1234

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Steve Walker	D.N.R.	E.P.D.-Haz. Was.	(404) 656-2836	2/23/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD095815015

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- B. POWDER, FINES
- C. SLUDGE
- D. OTHER _____ (Specify)
- E. SLURRY
- F. LIQUID
- G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS _____
- CUBIC YARDS _____
- NO OF DRUMS up to 40

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- B. CORROSIVE
- C. RADIOACTIVE
- D. PERSISTENT
- E. SOLUBLE
- F. INFECTIOUS
- G. FLAMMABLE
- H. IGNITABLE
- I. HIGHLY VOLATILE
- J. EXPLOSIVE
- K. REACTIVE
- L. INCOMPATIBLE
- M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	1800	lbs./month	Chromated copper arsenate in dust.

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	CCA contaminated dirt and sawdust	999	55 gal. drums	up to 2	weight %

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

RCRA part A permit application, application for Hazardous Waste facility permit 7-29-81, RCRA operations manual for A.W. Ind.-Vidalia prepared by Dames and Moore 9-81, trip report by R. Rose 11-4-81, Hazardous Waste Questionnaire received 1-27-84, and phone conversation with C.N. Keer-Chief Engineer for Vidalia plant 3-12-84. See attachment A.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	GAD0915815015

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: unknown (Acres)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

C.N. Keer, chief engineer for Atlantic Wood Ind., indicates that before 11/19/80, ashes from CCA treated wood were scattered about the premises as were very small amounts of waste CCA sludge.

01 ☐ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	GAD0915815015

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

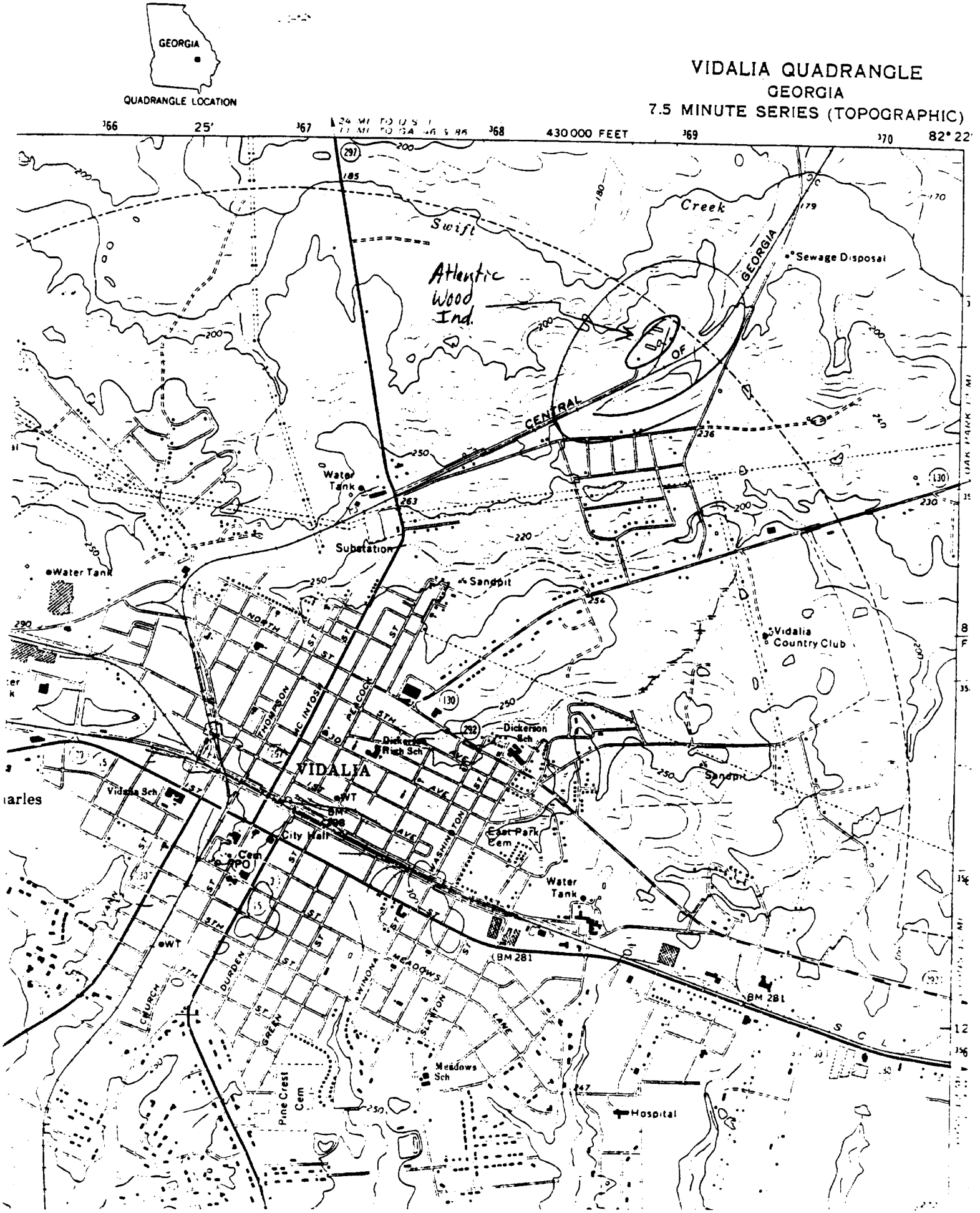
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Phone conversation with C.N. Keer, chief engineer for Atlantic Wood Industries, Inc. 3/12/84.


GEORGIA
QUADRANGLE LOCATION
VIDALIA QUADRANGLE
GEORGIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
430 000 FEET
82° 22'
Swift
Creek
Atlantic Wood Ind.
Sewage Disposal
GEORGIA
CENTRAL
Water Tank
Substation
Sandpit
Vidalia Country Club
VIDALIA
Dickerson Sch
Rich Sch
Vidalia Sch
City Hall
Cem
PO
East Park Cem
Water Tank
BM 281
Meadows Sch
Pine Crest Cem
Hospital
NORTH
THOMPSON
MC INTOSH
PEACOCK
WASHINGTON
CHURCH
DURDEN
GREEN
WINONA
MEADOWS
SLATON
LANE

ATTACHMENT A

Site assessed as low priority for inspection because before November 19, 1980, all waste wood trimmings (some CCA contaminated) were burned on site. Chief engineer for Atlantic Wood Industries indicated that the ashes were scattered around on the facility property.

Present hazardous waste handling practices involve storage in 55 gallon drums and eventual transport to S.C.A. in Pinewood, South Carolina.

ENVIRONMENTAL PROTECTION DIVISION
SOLID WASTE MANAGEMENT SECTION
ACTION REPORT

Reference No. 2

11-12-81

FACILITY ID	REGION	COUNTY	HOURS	REVIEWED BY	CODED
GAD085915015	Southeast	Toombs	9		

FACILITY NAME Atlantic Wood Industries, Inc.

ADDRESS P.O. Box 384 CITY Vidalia ZIP 31474

PERSON(S) CONTACTED Charles Kerr TITLE plant manager

TRIP BY Robert Rose RR ACCOMPANIED BY Verona Barnes

INVESTIGATION DATE 11-4-81 FOLLOW-UP DATE 11-82

REFERENCE

PROGRAM ACTIVITY inspection and compliance - industrial (03)

ACTIONS	FINDINGS/DECISIONS	NEXT ACTIONS
inspection, compl. sched. 32	facility not in violation of rules & regs 71	no further action required 48
office meeting 43		

COMMENTS, CONCLUSIONS, AND RECOMMENDATIONS:

This facility treats forest products with wood preserving compounds, specifically Chromated Copper Arsenate (CCA), and generates an estimated annual quantity of 5500 lbs. of D004 (arsenic) and D007 (chromium) wastes. These wastes are generated from the residual left from the pressure treatment vessels which are removed and stored in 55 gallon metal drums at a rate of 1375 lbs. every 91 days.

CONCLUSIONS: Although the quarterly generated quantity does not consistute a storage permit, the Company desires to show that the waste is all accumulated and stored within a ninety one day period. This writer advised Mr. Kerr that the EPD would issue a storage permit if requested provided of course that all criteria for storage is met. An ISS inspection revealed that the facility is in compliance with Part 265 of the existing rules and regulations for Hazardous Waste and has compiled a fine log and inspection system through design and use of

Reference No. 3

file

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

August 11, 1982

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. A. G. Labrot, President
Atlantic Wood Industries
P.O. Box 384
Vidalia, GA 31474

RE: Atlantic Wood Industries, P.O. Box 384, Vidalia, GA 31474, EPA ID #GAD095815015

Dear Mr. Labrot:

This letter constitutes a formal request for Part B of your application for a hazardous waste facility permit under the Georgia Hazardous Waste Management Act for the above referenced facility. This request is made under the authority of Georgia Rules for Hazardous Waste Management, Chapter 391-3-11-.11(2)(a) and is applicable to the following hazardous waste handling unit:

1. Drum Storage

The State of Georgia received interim authorization for Phase I of the Hazardous Waste Program under RCRA on February 3, 1981. On May 21, 1982 Georgia received Phase II interim authorization (the permitting portion) of the Hazardous Waste Program and is, at this time, proceeding with all applicable portions of Phase I and Phase II.

Enclosed are copies of the State rules which set forth the information required in the Part B application for your facility. Send four copies of the completed Part B application to the Georgia EPD no later than 180 days from the date of this request. The mailing address of EPD is as follows:

Georgia Environmental Protection Division
270 Washington Street, S.W., Room 824
Atlanta, GA 30334
ATTN: Moses N. McCall, III

Should you claim any information except your name and address to be confidential, you must assert such claim by stamping the words "confidential business information" on each page containing such information. If no claim is made and substantiated at the time of submission, the information may be made available to the public without further notice. If a claim is asserted and substantiated, the information will be treated in accordance with the procedures in Section 20 of the Georgia Hazardous Waste Management Act.

Should you have any questions concerning these requirements, please contact John Taylor of the Georgia EPD 404/656-2833 to discuss the application requirements in more detail.

Sincerely,

J. Leonard Ledbetter
Director

JLL:hbk

Enclosures

cc: James Scarbrough, USEPA
Moses N. McCall, III
File: Atlantic Wood Industries (Y)

Reference No. 4

7

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET, S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

January 31, 1983

Mr. Charles Kerr
Director of Engineering
Atlantic Wood Industries
P.O. Box 1608
Savannah, GA 30301

RE: Part A Application Withdrawal, Vidalia Plant, GAD095815015

Dear Mr. Kerr:

This will confirm receipt of your November 19, 1982 letter requesting withdrawal of your Part A application for a hazardous waste storage permit at the Vidalia facility. You will not be required to submit Part B of the application since you no longer treat, store, or dispose of hazardous waste.

The withdrawal of the application has been approved by this Division, and your preferred status as a generator of hazardous waste acknowledged. As a generator you are responsible for complying with the Georgia Rules for Hazardous Waste Management, 391-3-11-.08, Part 262, Standards Applicable to Generators of Hazardous Waste.

If you have any questions or comments relative to Hazardous Waste Management, please feel free to contact this Division at 404/656-7802.

Sincerely,

John D. Taylor
Program Manager
Industrial & Hazardous Waste
Management Program

JDT:rrk:2052C

cc: James H. Scarbrough, USEPA
John Taylor
File: Atlantic Wood Industries, Vidalia (Y)

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Reference No. 5

Will

Atlantic wood industries
INCORPORATED

PRESSURE TREATED FOREST PRODUCTS P.O. BOX 1606, SAVANNAH, GEORGIA 31498
PHONE (912) 964-1234
FAX (912) 964-2833

RECEIVED

FEB 29 1988

Environmental Protection Division
Land Protection Branch

February 25, 1988

Hazardous Waste Management Program
Environmental Protection Division
205 Butler Street, S.E.
Suite 1154
Atlanta, GA 30334

RE: Biennal Report, Atlanta Wood Industries, Inc.
Vidalia, Georgia EPA ID No: GAD095815015

Gentlemen:

Enclosed is our Biennial Report for the above referenced facility.

Sincerely,

ATLANTIC WOOD INDUSTRIES, INC.

Jeffrey A. Smigel, P.E.
Director of Environmental Affairs

JAS/th

Enclosure

Georgia Environmental Protection Division
GEORGIA BIENNIAL HAZARDOUS WASTE REPORT
Reporting Period January 1 thru December 31, 1987
FORM A
IDENTIFICATION AND CERTIFICATION

SEC. I.	A. Name of Installation	B. EPA I.D. Number
	Atlantic Wood Industries, Inc.	G A D 0 9 5 8 1 5 0 1 5

C. Mailing Street Address		
P. O. Box 384		
D. City or Town	E. State	F. Zip Code
Vidalia	Georgia	3 0 4 7 4 - 0 3 8 4

SEC. II.	A. Location Street Address (if different than Section I. above)	
	Atlantic Avenue	
B. City or Town	C. State	D. Zip Code
Vidalia	Georgia	3 0 4 7 4 - _ _ _ _
E. County		
Toombs		

SEC. III.	A. Installation Contact Name (last and first)	B. Title	C. Phone Number
	Joe E. Cole	Plant Manager	9 1 2 - 5 3 7 - 4 1 8 8

SEC. IV.	SIC Codes
	A. 2 4 9 1 B. _ _ _ _ C. _ _ _ _ D. _ _ _ _

SEC. V.	I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted 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. Please print: Last name	First Name	Date of Signature
Cole	Joe	2/25/88

B. Signature	Title
Joe Cole by Jeffrey H. Stringer	Plant Manager

FORM B - SELF-GENERATED HAZARDOUS WASTE AND ITS DISPOSITION

Installation Name: Atlantic Wood Industries, Inc. EPA I.D. Number: GAD095815015

	Column 1		Column 2		Column 3		Column 4		
1. EPA Hazardous Waste Code	D004 D007	FDC		FDC		FDC		FDC	
2. Description of Waste	Arsenic and Chromium Contaminated Solids								TOTAL IN TONS
3. On Hand, On-Site on Jan. 1, 1987	1.960								1.960
4. Generated During 1987	40.854								40.854
5. TOTAL Amount for Which to Account	42.814								42.814
* 6. Shipped to:ID# ALD000622464 Name:Chemical Waste Management Inc.	37.134	07							37.134
* 7. Shipped to:ID# Name:									
* 8. Shipped to:ID# Name:									
* 9. Shipped to:ID# Name:									
10. Treated On-Site									
11. Treatment Code									
12. Disposed of On-Site									
13. Disposal Code									
14. On Hand, On-Site on Dec. 31, 1987	5.680								5.680
15. Storage Code	S01								
16. Other (EXPLAIN on Line 17)									
17. Explanation of Line 16									
18. TOTAL Account of Disposition	42.814								42.814

COMMENTS and EXPLANATIONS:

* ENTER information regarding transportation services used on the reverse side of this form.

1987 GEORGIA BIENNIAL HAZARDOUS WASTE REPORT
FORM D - PART I
WASTE MINIMIZATION

Installation Name Atlantic Wood Industries, Inc. EPA I.D. Number GAD095815015

1. Did this installation create or expand a source reduction and recycling program?

	Prior Years	1986	1987
Create	[ ] Yes [X] No	[X] Yes [ ] No	[ ] Yes [✓] No
Expand	[ ] Yes [X] No	[ ] Yes [✓] No	[X] Yes [ ] No

35

2. Did this installation have a written policy or statement that outlined goals, objectives and methods for source reduction and recycling of hazardous waste?

	Prior Years	1986	1987
Yes	[ ]	[X]	[X]
No	[✓]	[ ]	[ ]

3. What was the dollar amount of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste? Enter zero (0) if none.

	Prior Years	1986	1987
Capital Expenditures	$ DK	$ DK	$ DK
Operating Costs	$ DK	$ DK	$ DK

4. Did this installation have an employee training program or provide incentives (bonuses, awards, personal recognition, etc.) to identify and implement source reduction and recycling opportunities and activities?

	Prior Years		1986		1987	
	Yes	No	Yes	No	Yes	No
Training	[X]	[ ]	[X]	[ ]	[X]	[ ]
Incentives	[ ]	[X]	[ ]	[X]	[ ]	[X]

5. Did this installation conduct a source reduction and/or recycling opportunity assessment or audit? NOTE: an opportunity assessment or audit is a procedure that identifies practices that can be implemented to reduce the generation of hazardous waste or the quantity which must subsequently be treated, stored or disposed.

	Prior Years		1986		1987	
	Yes	No	Yes	No	Yes	No
Installation-Wide	[X]	[ ]	[X]	[ ]	[X]	[ ]
Process-Specific	[X]	[ ]	[X]	[ ]	[X]	[ ]

6. Did this installation identify or implement new SOURCE REDUCTION opportunities to reduce the volume and/or toxicity of hazardous waste generated at this installation?

	Prior Years		1986		1987	
	Yes	No	Yes	No	Yes	No
Identify	[X]	[ ]	[X]	[ ]	[X]	[ ]
Implement	[X]	[ ]	[X]	[ ]	[ ]	[X]

Georgia Environmental Protection Division
GEORGIA ANNUAL HAZARDOUS WASTE REPORT
Reporting Period January 1 thru December 31, 1983
FORM A
IDENTIFICATION

Please print/type with Elite type (12 characters per inch)

I. EPA I.D. NUMBER GAD095815015 16

II. NAME OF INSTALLATION
ATLANTIC WOOD INDUSTRIES INC.

III. INSTALLATION MAILING ADDRESS

PO BOX 384
Street or P.O.Box
* VIDALIA GA 30474
City or Town State Zip Code

IV. LOCATION OF INSTALLATION (if different than Section III. above)

ATLANTIC AVENUE
Street or Route Number
VIDALIA GA 30474
City or Town State Zip Code
TOOMBS
County

V. INSTALLATION CONTACT

COLE JOE
Name (last and first)
912 537-4188
Phone No. (Area code & number)

VI. PROCESS IN USE (Check as appropriate) SIC 2491 (Cash)

SQG	GEN	TRN	T01	T02	T03	T04	S01	S02	S03	S04	D80	D81	D83
	X												

XX PRIVATE (Handle only self generated waste) __ COMMERCIAL (Handle waste generated from other sources)

VII. CERTIFICATION - I certify under penalty of Law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information. I believe that the submitted 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.

Joe E. Cole, Plant Manager — Joe E. Cole — 1-6-84
Print/Type Name & Title — Signature of Authorized Representative — Date Signed

Name of Installation: ATLANTIC WOOD INDUSTRIES INC

EPA I.D. Number: GAD095815015

Form B

SELF-GENERATED HAZARDOUS WASTE AND ITS DISPOSITION

1. EPA HAZARDOUS WASTE NUMBER					D004 D007	TOTAL
2. On Hand, On-site on January 1, 1983					4.480	4.480
3. Generated during 1983					17.880	17.880
4. TOTAL AMOUNT FOR WHICH TO ACCOUNT					22.360	22.360
5. Shipped to State of Alabama					21.560	21.560
6. Shipped to State of						
7. Shipped to State of						
8. Shipped to State of						
9. Shipped to Georgia Facility for Use, Reuse, Recycle or Reclaim						
10. Shipped to Georgia Facility for Treatment, Storage, or Disposal						
11. Treated On-site						
12. Treatment Code						
13. Disposed of On-site						
14. Disposal Code						
15. On Hand, On-site on December 31, 1983					.800	.800
16. Storage Code						
17. Other (Explain)						
18. TOTAL AMOUNT OF DISPOSITION					22.360	22.360

NUS CORPORATION AND SUBSIDIARIES Reference No. 6 **TELECON NOTE**

CONTROL NO.	DATE: July 21, 1989	TIME: 4:00

DISTRIBUTION:

File Material
Atlantic Wood Indsutries

BETWEEN: Steve Woodal	OF: EPD Permitting Unit	PHONE: (404) 656-7802

AND: Sheri Panabaker, NUS Corporation SCP

DISCUSSION:

I asked Mr. Woodal about the RCRA Status of Atlantic Wood Industries. He said they are a generator and a transporter.

ACTION ITEMS:

Reference No. 7

EPA-600/2-87-035
April 1987

DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings

by

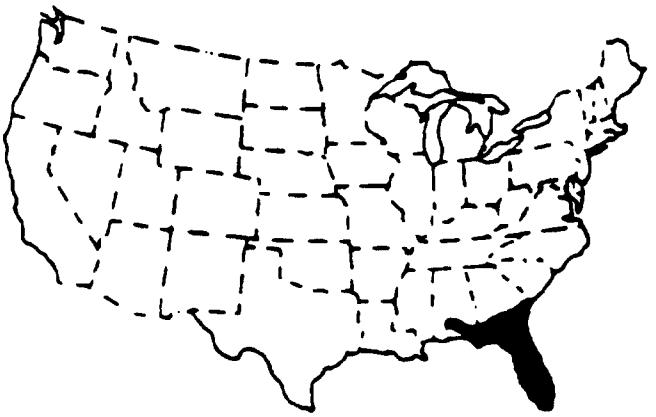
Linda Aller
Truman Bennett
Jay H. Lehr
Rebecca J. Petty
and
Glen Hackett
National Water Well Association
Dublin, Ohio 43017

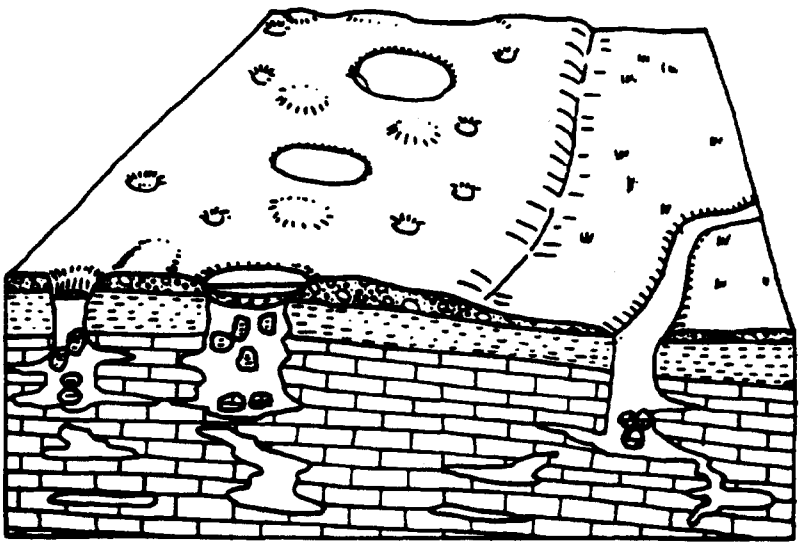
Cooperative Agreement CX-810715-01

Project Officer
Jerry Thornhill
Applications and Assistance Branch
Robert S. Kerr Environmental Research Laboratory
Ada, Oklahoma 74820

ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
ADA, OKLAHOMA 74820

11. SOUTHEAST COASTAL PLAIN GROUND-WATER REGION





11A	Solution Limestone and Shallow Surficial Aquifers
11B	Coastal Deposits
11C	Swamp
11D	Beaches & Bars

11. SOUTHEAST COASTAL PLAIN

(Thick layers of sand and clay over semi-consolidated carbonate rocks)

The Southeast Coastal Plain is an area of about 212,000 km^2 in Alabama, Florida, Georgia, and South Carolina. It is a relatively flat, low-lying area in which altitudes range from sea level at the coast to about 100 m down the center of the Florida peninsula and as much as 200 m on hills in Georgia near the interior boundary of the region. Much of the area, including the Everglades in southern Florida, is a nearly flat plain less than 10 m above sea level.

The land surface of the Southeast Coastal Plain is underlain by unconsolidated deposits of Pleistocene age consisting of sand, gravel, clay, and shell beds and, in southeastern Florida, by semiconsolidated limestone. From the coast up to altitudes of nearly 100 m, the surficial deposits are associated with marine terraces formed when the Coastal Plain was inundated at different times by the sea. In most of the region the surficial deposits rest on formations, primarily of middle to late Miocene age, composed of interbedded clay, sand, and limestone. The most extensive Miocene deposit is the Hawthorn Formation. The formations of middle to late Miocene age and, where those formations are absent, the surficial deposits overlie semiconsolidated limestones and dolomites that are as much as 1,500 m thick. These carbonate rocks range in age from early Miocene to Paleocene and are generally referred to collectively as Tertiary limestones.

The Tertiary limestone that underlies the Southeast Coastal Plain constitutes one of the most productive aquifers in the United States and is the feature that justifies treatment of the region separately from the remainder of the Atlantic and Gulf Coastal Plain. The aquifer, which is known as the Floridan aquifer, underlies all of Florida and southeast Georgia and small areas in Alabama and South Carolina. The Floridan aquifer consists of layers several meters thick composed largely of loose aggregations of shells of foraminifers and fragments of echinoids and other marine organisms interbedded with much thinner layers of cemented and cherty limestone. The Floridan, one of the most productive aquifers in the world, is the principal source of ground-water supplies in the southeast Coastal Plain region.

In southern Florida, south of Lake Okeechobee, and in a belt about 30 km wide northward along the east coast of Florida to the vicinity of St. Augustine, the water in the Floridan aquifer contains more than 100 mg/l of chloride. In this area, most water supplies are obtained from surficial aquifers, the most notable of which underlies the southeastern part of Florida and which in the Miami area consists of 30 to 100 m of cavernous limestone and

NUS CORPORATION AND SUBSIDIARIES Reference No. 8 **TELECON NOTE**

CONTROL NO.	DATE: July 20, 1989	TIME: 10:30

DISTRIBUTION:

File Material
Atlantic Wood Industries

BETWEEN: Kim Stuckey	OF: Middle Georgia Drilling Company	PHONE: (912) 537-4466

AND: Sheri Panabaker, NUS Corporation

DISCUSSION:

I asked Mr. Stuckey about the depth of most wells in the area. He said they are usually 300-500 feet deep. He said they never drill wells less than 300 feet. They primarily go through shale, clay and limestone. He guessed at least ¾ or more of the residents with private wells are in the 300-500-foot deep range.

ACTION ITEMS:

Reference No. 9

National Water Summary 1984

Hydrologic Events, Selected Water-Quality Trends, and Ground-Water Resources

United States Geological Survey
Water-Supply Paper 2275

Table 2. Aquifer and well characteristics in Georgia

[Ft = feet; gal/min = gallons per minute. Sources: Reports of the U.S. Geological Survey and Georgia Geologic Survey]

Aquifer name and description	Well characteristics			Remarks
	Depth (ft)	Yield (gal/min)		
	Common range	Common range	May exceed	
Floridan aquifer system: Limestone, dolomite, and calcareous sand. Generally confined.	40 - 900	1,000 - 5,000	11,000	Supplies 50 percent of ground water in State. Major users include the Savannah, the Brunswick, the Jesup, the St. Marys, the Albany, and the Dougherty Plain areas. Water-level declines at Savannah and Brunswick. Intrusion of brackish water from deeper zones at Brunswick. In some areas, water has natural radioactivity that exceeds State and national drinking-water regulations. Formerly called principal artesian aquifer.
Claiborne aquifer: Sand and sandy limestone. Generally confined.	20 - 450	150 - 600	1,500	Major source of water in southwestern Georgia. Supplies industrial and municipal users at Dougherty, Crisp and Dooly Counties and provides irrigation water north of Dougherty Plain. Called Tertiary sands aquifer in South Carolina and Tennessee. Part of Tertiary sedimentary aquifer system in Alabama.
Clayton aquifer: Limestone and sand. Generally confined.	40 - 800	250 - 600	2,150	Major source of water in southwestern Georgia. Supplies industrial and municipal users at Albany and provides irrigation water northwest of Albany. Water-level declines exceed 100 ft at Albany. Iron concentrations in Randolph County exceed national drinking-water regulations. Part of Tertiary sedimentary aquifer system in Alabama.
Cretaceous aquifer system: Sand and gravel. Generally confined.	30 - 750	50 - 1,200	3,300	Major source of water in east-central Georgia. Supplies water for kaolin mining and processing. Includes Providence aquifer in southwestern Georgia. Water-level declines greater than 50 ft at kaolin mining centers and 100 ft near Albany. Iron concentrations exceed national drinking-water regulations in some areas. Called Black Creek and Middendorf aquifers in South Carolina.
Paleozoic aquifers: Sandstone, limestone, and dolomite; storage is in regolith and fractures and solution openings in rock. Generally unconfined.	15 - 2,100	1 - 50	3,500	Not laterally extensive. Limestone and dolomite aquifers most productive. Springs in limestone and dolostone aquifers discharge at rates of as much as 5,000 gal/min. Sinkholes can form in areas of intensive pumping. Water is generally of good quality, although contamination from septic tanks and farm waste reported in some areas. Laterally equivalent to Paleozoic carbonate aquifers in Alabama and Pennsylvanian sandstone aquifers in Alabama and Tennessee.
Crystalline rock aquifers: Granite, gneiss, schist, and quartzite; storage is in fractures in rock and in regolith. Generally unconfined.	40 - 600	1 - 25	500	Not laterally extensive. Water of good quality with exception of large concentrations of iron and manganese in some areas and contamination from septic tank effluent in densely populated areas.

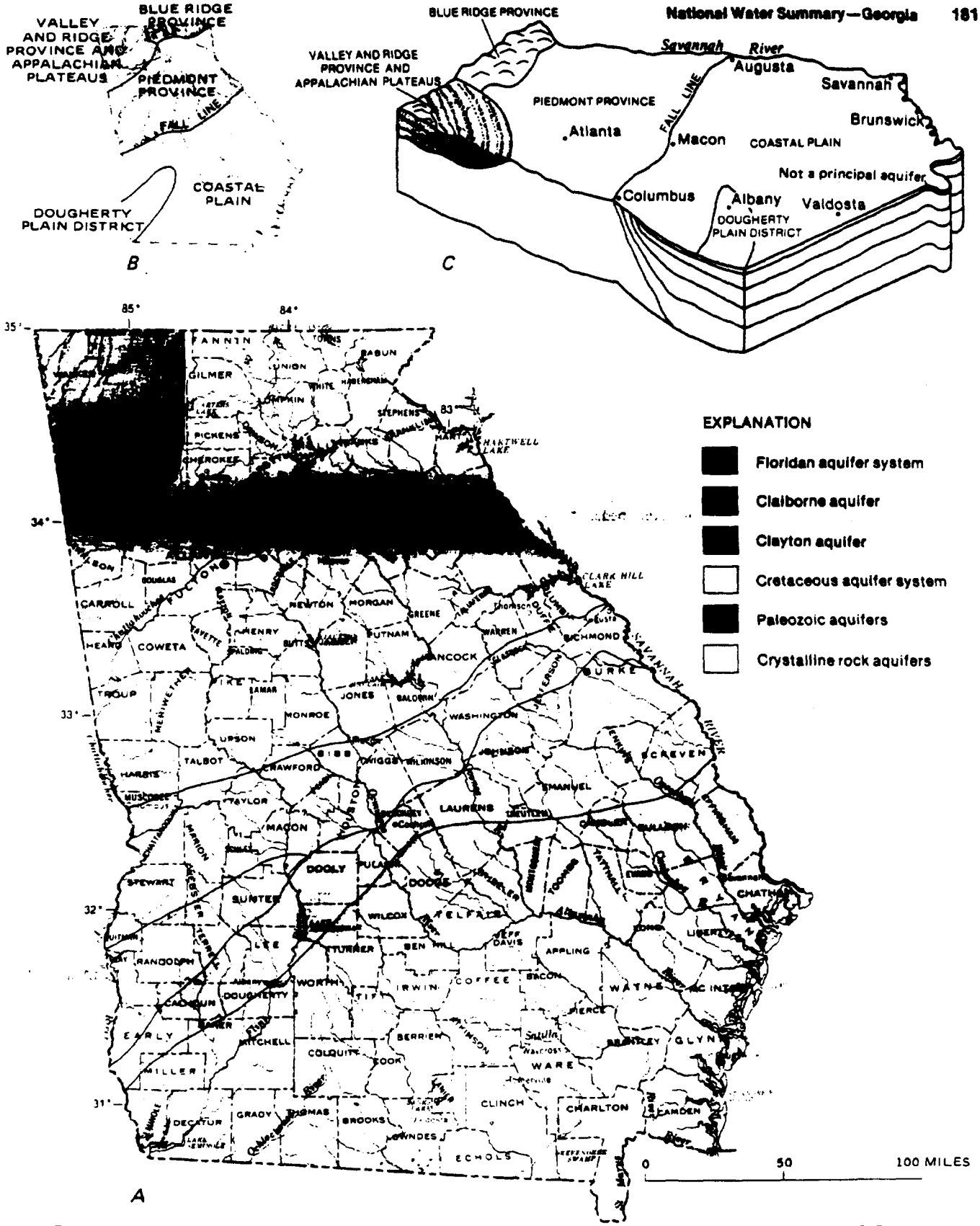


Figure 1. Principal aquifers in Georgia. *A*, Geographic distribution. *B*, Physiographic diagram and divisions. *C*, Block diagram showing principal aquifers and physiographic divisions. (See table 2 for a more detailed description of the aquifers. Sources: *A*, J. S. Clarke, U.S. Geological Survey, written commun., 1984. *B*, Fenneman, 1938; Raisz, 1954. *C*, Modified from Pierce and others, 1984.)

Claiborne Aquifer

The Claiborne aquifer is an important source of water in part of southwestern Georgia (fig. 1) and supplied an estimated 36 Mgal/d in 1980, primarily for irrigation (McFadden and Perriello, 1983). Although the Claiborne aquifer yields water suitable for most uses over most of its extent, naturally occurring concentrations of dissolved solids and chloride in the south-central part of the State have been reported as 22,200 and 11,900 mg/L, respectively (Wait, 1960).

Clayton Aquifer

The Clayton aquifer is an important source of water in southwestern Georgia (fig. 1), where it supplied an estimated 20 Mgal/d in 1980. Most of the withdrawals were for public supply (58 percent) and irrigation (35 percent). With the exception of large concentrations of iron (greater than 0.3 mg/L) in Randolph County, water from the aquifer is suitable for most uses (Clarke and others, 1984).

Cretaceous Aquifer System

The Cretaceous aquifer system is a major source of water in the northern one-third of the Coastal Plain (fig. 1). During 1980, the aquifer system yielded an estimated 128 Mgal/d, primarily for industrial and public-supply use. The aquifer system consists of sand and gravel that locally contain layers of clay and silt which function as confining beds. These confining beds locally separate the aquifer system into two or more aquifers. In southwestern Georgia, the Providence aquifer is part of the Cretaceous aquifer system. Water from the aquifer system is soft (less than 60 mg/L as calcium carbonate), has little dissolved solids (generally less than 100 mg/L), and is of a sodium bicarbonate type that is suitable for most uses. In the center of the area of usage (fig. 1), the iron concentration may be as much as 6.7 mg/L.

Paleozoic Aquifers

Water in the Paleozoic aquifers generally is unconfined, and storage is limited mainly to joints, fractures, and solution openings in the bedrock. During 1980, an estimated 33 Mgal/d was withdrawn from the Paleozoic aquifers, primarily for industrial supply. Wells that tap the Paleozoic aquifers yield differing amounts of water, depending on the aquifer used. Dolostone aquifers typically yield 5 to 50 gallons per minute (gal/min), whereas limestone and sandstone aquifers typically yield 1 to 20 gal/min; maximum reported yields from these aquifers are 3,500 and 300 gal/min, respectively. Springs discharge from the limestone and dolostone aquifers at rates of as much as 5,000 gal/min. Where the limestone and dolostone aquifers are near land surface, pumping can contribute to the formation of sinkholes. Water from wells and springs in the Paleozoic aquifers generally is suitable for most uses, although contamination from septic tanks and farm waste has been reported (Cressler and others, 1976).

Crystalline Rock Aquifers

Although individual crystalline rock aquifers are not laterally extensive, collectively they yielded an estimated 99 Mgal/d in 1980, primarily for rural supply. Ground-water storage occurs in the regolith and where the rocks have joints, fractures, and other types of secondary openings (Cressler and others, 1983). Crystalline rock aquifers in these areas generally are unconfined and show a pronounced response to rainfall, although deep fracture systems commonly are confined. Water from the aquifers generally is suitable for most uses, and, with the exception of iron (as much as 14 mg/L) and manganese (as much as 1.5 mg/L), constituent concentrations rarely exceed national drinking-water regulations (U.S. Environmental Protection Agency, 1982a,b). In some densely populated areas, septic-tank effluent has contaminated the aquifers (Cressler and others, 1983).

GROUND-WATER WITHDRAWALS AND WATER-LEVEL TRENDS

Major areas of ground-water withdrawals and trends in ground-water levels near selected pumping centers are shown in figure 2. With the exception of one center in the Valley and Ridge province (location 1, fig. 2), all major pumping centers are in the Coastal Plain, where aquifers are very productive. The largest pumping center is the Dougherty Plain area where ground-water withdrawal for irrigation exceeds 200 Mgal/d.

The hydrographs shown in figure 2 reflect the responses of aquifers to pumping at selected pumping centers under a variety of hydrologic conditions. In the Floridan aquifer system, large cones of depression have formed at Savannah, Brunswick, Jesup, and St. Marys as a result of pumping for industrial and public supply. At Savannah (location 5, fig 2.), the water level has declined at least 160 feet (ft) since pumping began in the late 1800's (McCollum and Counts, 1964). The hydrograph shows that the water level declined 45 ft from 1954 to 1961 and less than 10 ft from 1961 to 1984. These changes reflect pumping patterns in the area. At Brunswick, the water level in the aquifer system declined 65 ft from predevelopment to 1964 (Wait and Gregg, 1973). The decline continued until 1982 (location 7, fig. 2), then rose about 10 ft as the result of a significant decrease in pumping by a major water user. Near Valdosta (location 9, fig. 2), the water level in the Floridan aquifer system responds to changes in recharge derived from streamflow and to local pumping. The hydrograph shows a moderate long-term response to changing recharge rates and to pumping. Pumpage from the Floridan aquifer system in the Dougherty Plain area (location 11, fig. 2) is primarily for seasonal irrigation which, averaged over the year, exceeded 200 Mgal/d in 1980. In this area, pumpage is scattered widely. Some recharge to the Floridan aquifer system occurs locally. As a result, water-levels recover annually.

In the Albany area (location 10, fig. 2), water is withdrawn from the Tertiary Floridan aquifer system, the Claiborne aquifer, and the Clayton aquifer and the Cretaceous Providence aquifer. Water-level declines of more than 100 ft have occurred in the Clayton and Providence aquifers (Clarke and others, 1983, 1984). The water level in the Clayton aquifer near withdrawal location 10 (fig. 2) generally declined from 1958 to 1984 in response to increased pumping for public supply and agriculture.

The water level in the Cretaceous aquifer system has declined more than 50 ft since 1950 in areas of heavy pumping for public supply and industrial use. However, in the Huber-Warner Robins area (location 4, fig. 2), the water level has not declined significantly from 1975 to 1984 despite a slight increase in ground-water withdrawals during that period.

GROUND-WATER MANAGEMENT

Georgia has a comprehensive set of laws governing the quality and use of ground water. The Ground-Water Use Act of 1972 provided for the permitting of withdrawals for industrial and municipal use that exceed 100,000 gallons per day (gal/d) and authorized the Georgia Environmental Protection Division to issue regulations about reporting, timing of withdrawals, abatement of saltwater encroachment, well depth and spacing, and pumping levels or rates. Amendments to the

Reference No. 10

Bulletin Number 65 December 1956

STATE DIVISION OF CONSERVATION

DEPARTMENT OF MINES, MINING AND GEOLOGY

GARLAND PEYTON, Director

19 Hunter Street

Atlanta, Georgia

THE AVAILABILITY AND USE OF WATER IN GEORGIA

by

M. T. Thomson, S. M. Herrick, Eugene Brown, and others

Prepared cooperatively by the U. S. Geological Survey

· diagram, Plate 2

	Altitude in feet above Mean Sea Level	Depth of well in feet below land surface
ld.	358	509
rs.	236	425
d.	10	711
rs-	465	872
bi.	364	1005
	129	620
	445	549
LL	270	4902
ro.	310	873
s.	287	600
	364	1693
l.	47	400
e.	135	445
	202	490
	252	667
s-	550	1205
	11	1190
	140	775
al	6	740
	396	455
h	72	650
o.	650 Approximate	1770

market prices. It is estimated that about 400 irrigation wells have been drilled in the Coastal Plain in the past few years.

Area of the Principal Artesian Aquifer

The principal artesian aquifer underlies about two-thirds of the Coastal Plain (see fig. 64) and furnishes nearly 70 percent of the ground water used in Georgia. The formations composing this aquifer are, in ascending order, the Ocala limestone of late Eocene age, the Suwannee limestone of Oligocene age, and the Tampa limestone of Miocene age. These three limestones generally act as a single hydrologic unit. Above and below the aquifer are beds of low permeability that confine the water in the limestones. The upper confining bed is clay of the Hawthorn formation of Miocene age, which extends from the coastal area westward to the Flint River. The lower confining bed consists of clay and limestone of the McBean formation of middle Eocene age. The McBean underlies the principal artesian aquifer throughout the area of confinement (see pl. 1.)

The regional dip of the principal artesian aquifer is toward the southeast. Structural highs occur in western Camden and eastern Charlton Counties, in eastern Brantley and western Glynn Counties, and in Long and western McIntosh Counties. The limestone appears to form a syncline in eastern Glynn County and lies about 600 feet below the surface in the vicinity of Darien in McIntosh County. Beginning at Savannah the limestone rises toward the northeast to within 80 feet of the surface at Parris Island and Hilton Head Island, S. C.

The outcrop areas serve as the recharge areas for the limestones that make up the principal artesian aquifer. The Ocala limestone crops out in the Dougherty Plain area (see fig. 66) and in a narrow northeast-trending belt as far east as Effingham County. Parts of Brooks and Lowndes Counties on the Georgia-Florida line and Jenkins County in east-central Georgia also are recharge areas. Recharge occurs downward through the exposed rock and from the sink holes in the limestone. To the south and parallel to the Fall Zone where the limestone is underlain and overlain by sands, recharge takes place upward and downward from these sand units.

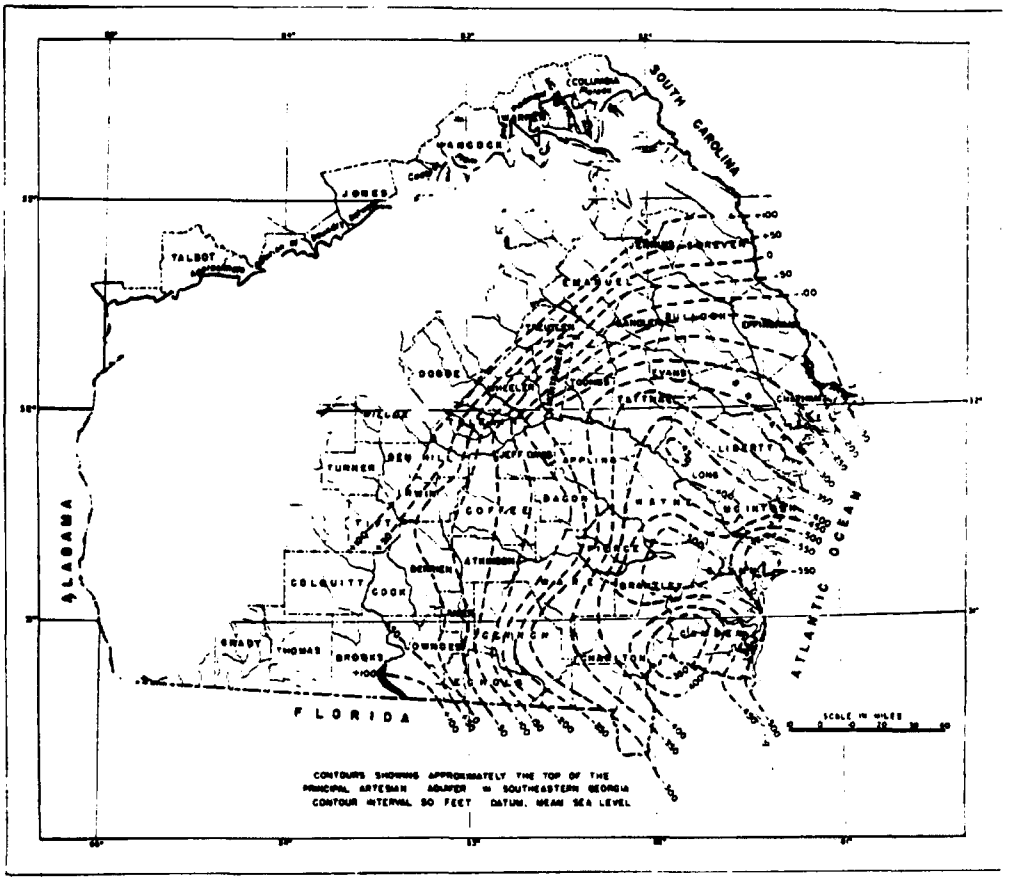


Figure 70. Structural contour map of the top of the principal artesian aquifer in southeastern Georgia. (After Warren, 1944).

Reference No. 11

CLIMATIC ATLAS OF THE UNITED STATES

RCE • Environmental Science Services Administration • Environmental Data Service

U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

JUNE 1968

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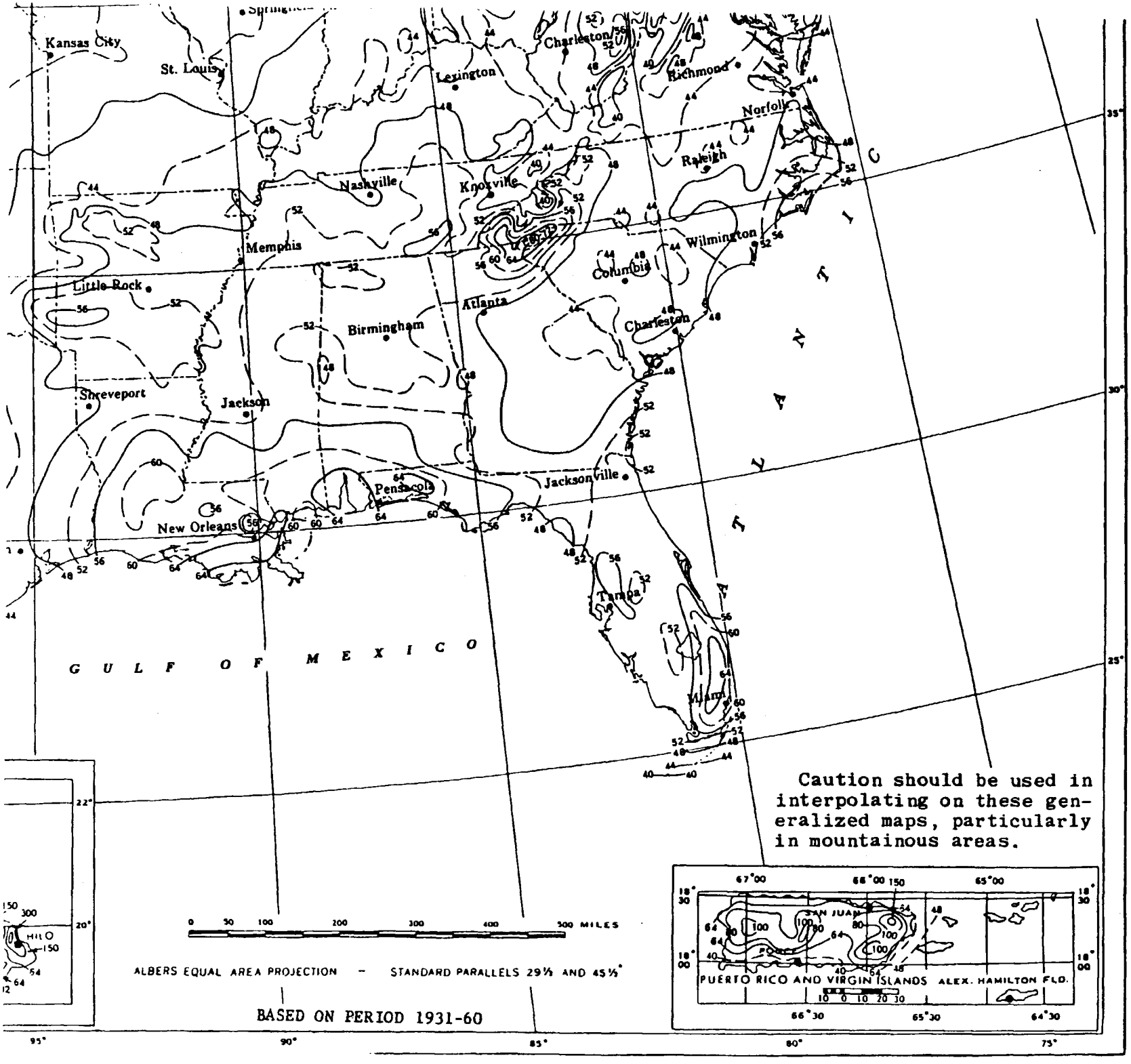
1983



Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.

U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

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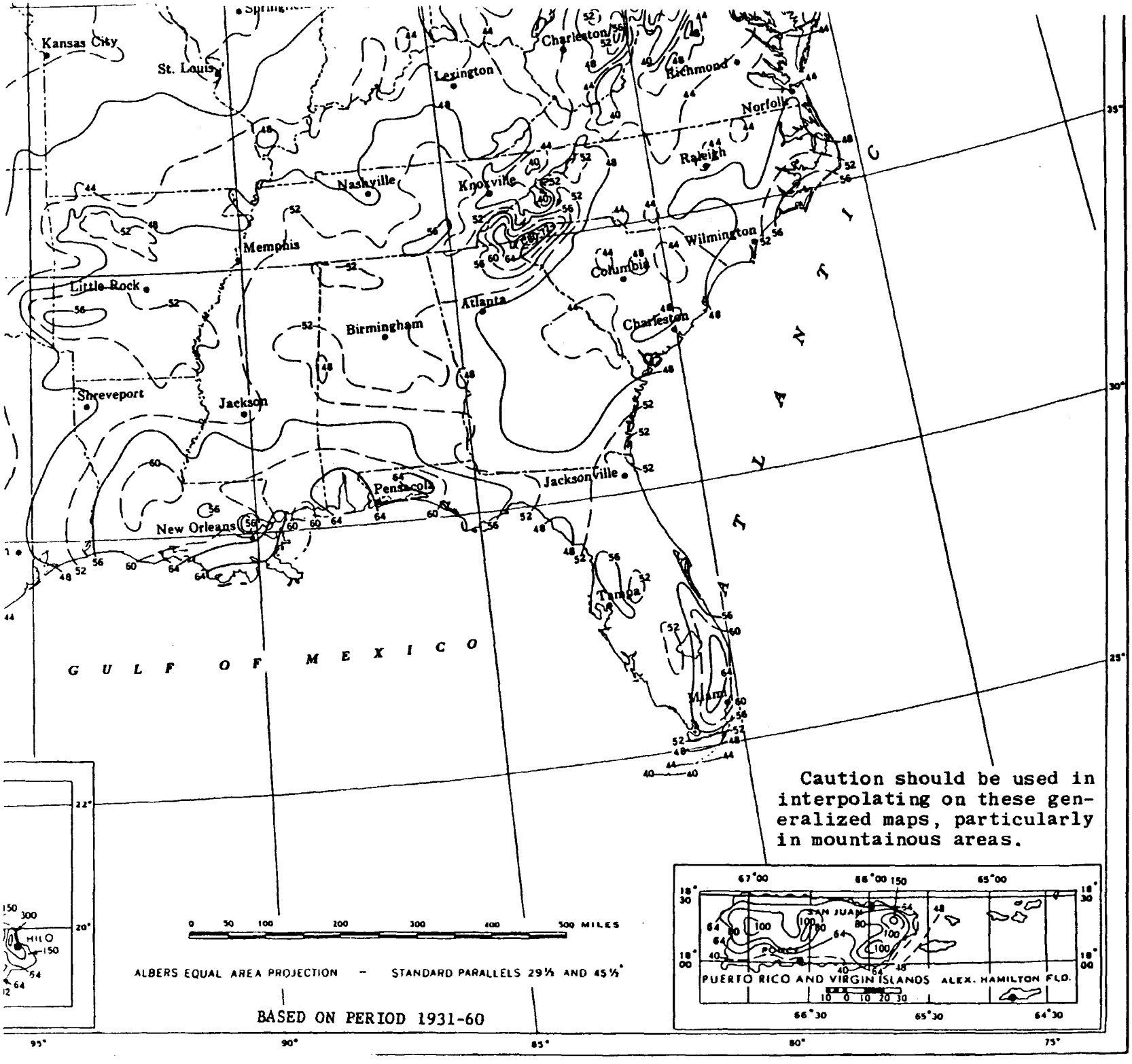
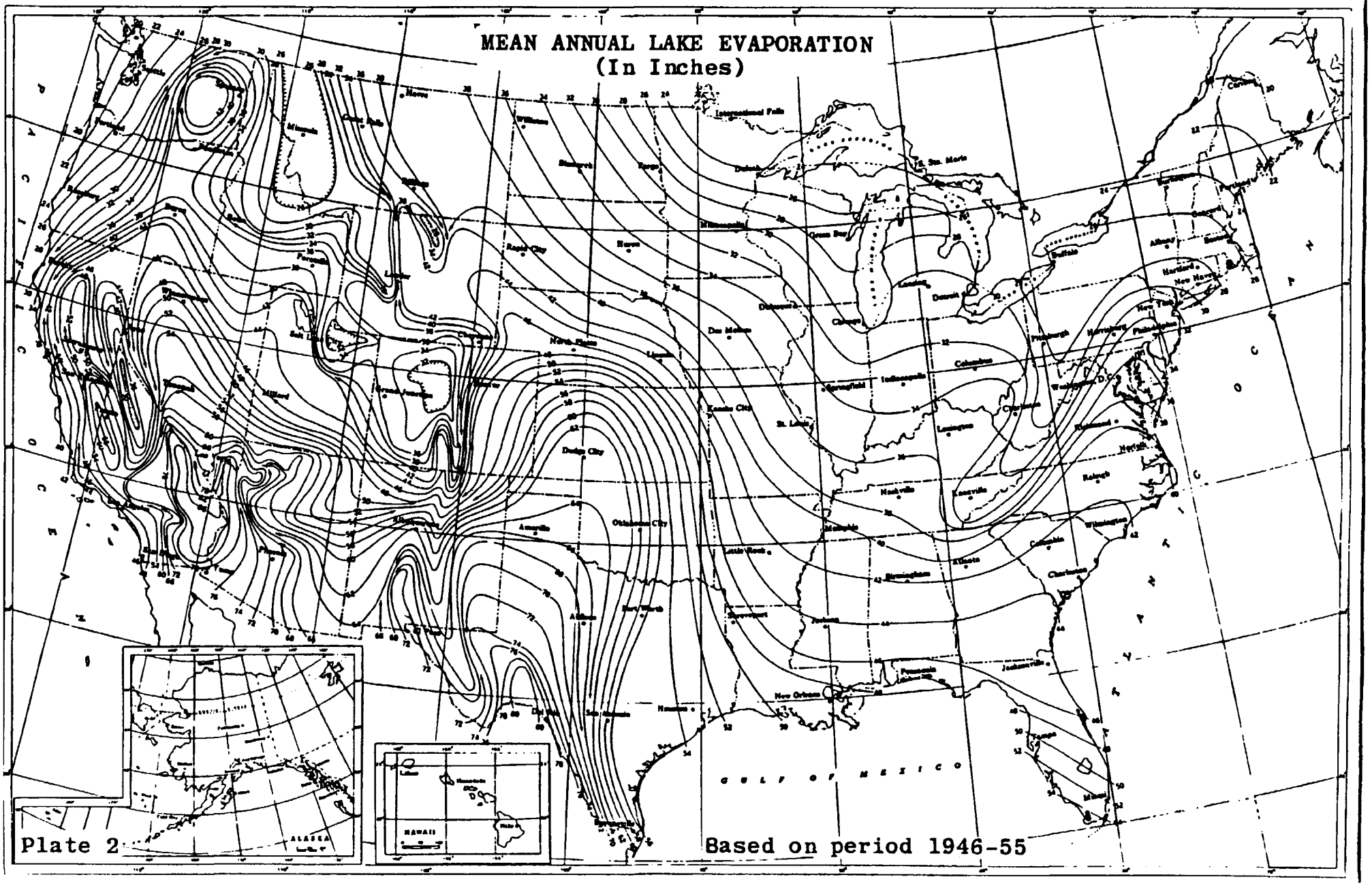
1983


Kansas City
St. Louis
Lexington
Charleston
Richmond
Norfolk
Raleigh
Nashville
Knoxville
Memphis
Wilmington
Columbia
Little Rock
Atlanta
Birmingham
Charleston
Shreveport
Jackson
Jacksonville
Pensacola
New Orleans
Tampa
Miami
G U L F O F M E X I C O
A T L A N T I C
Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.
0 50 100 200 300 400 500 MILES
ALBERS EQUAL AREA PROJECTION – STANDARD PARALLELS 29½ AND 45½°
BASED ON PERIOD 1931-60
HILO
SAN JUAN
PONCE
PUERTO RICO AND VIRGIN ISLANDS
ALEX. HAMILTON FLD.

AKE EVAPORATION



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WEATHE
F. W. REICH

TECHNICAL PAPER NO. 40

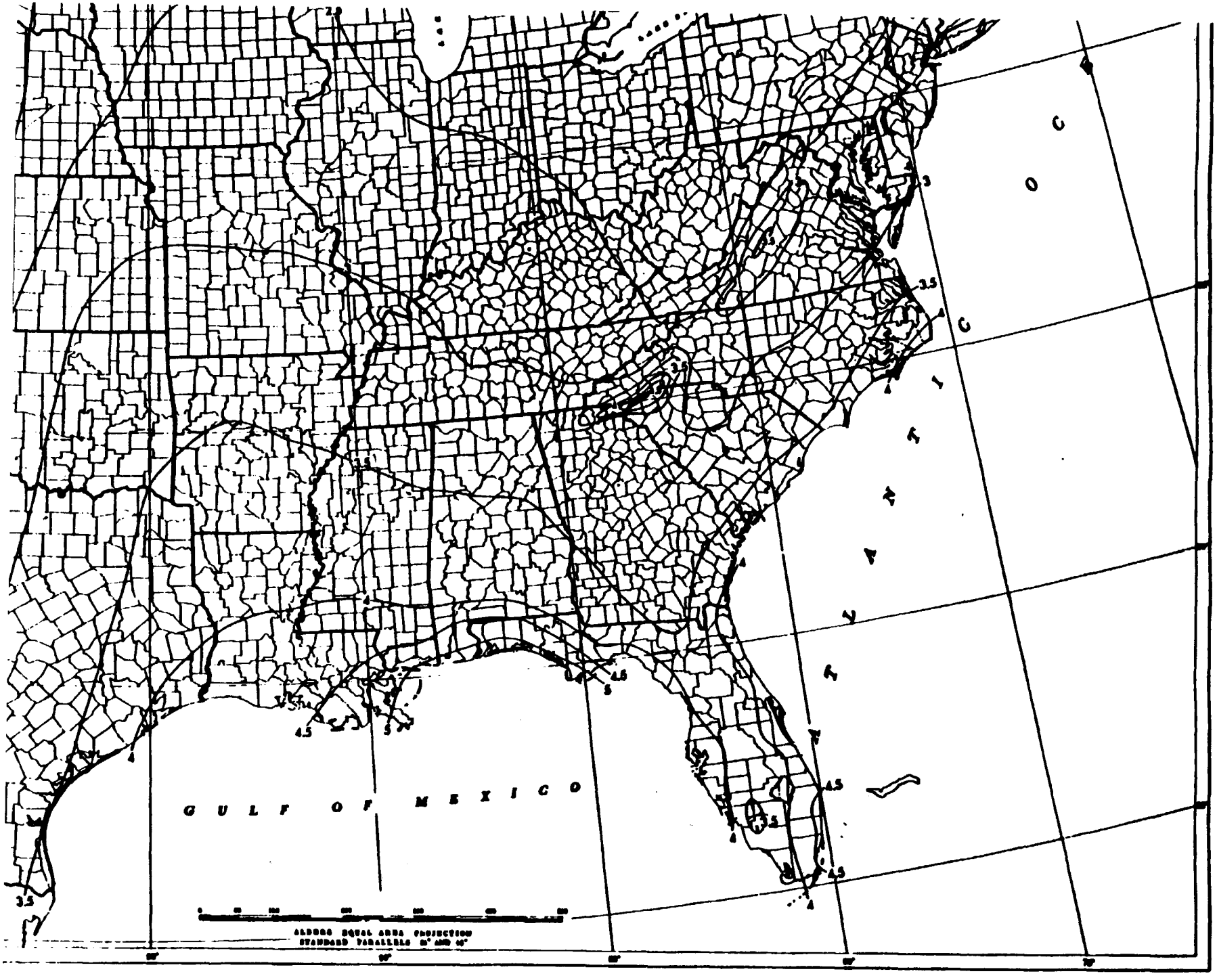
RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

Reference No. 12

PROPERTY
FIT


GULF OF MEXICO
ATLANTIC OCEAN
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°

Reference No. 14

DRAFT

WATER AVAILABILITY AND USE REPORT

ALTAMAHA RIVER BASIN

MARCH 1986

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

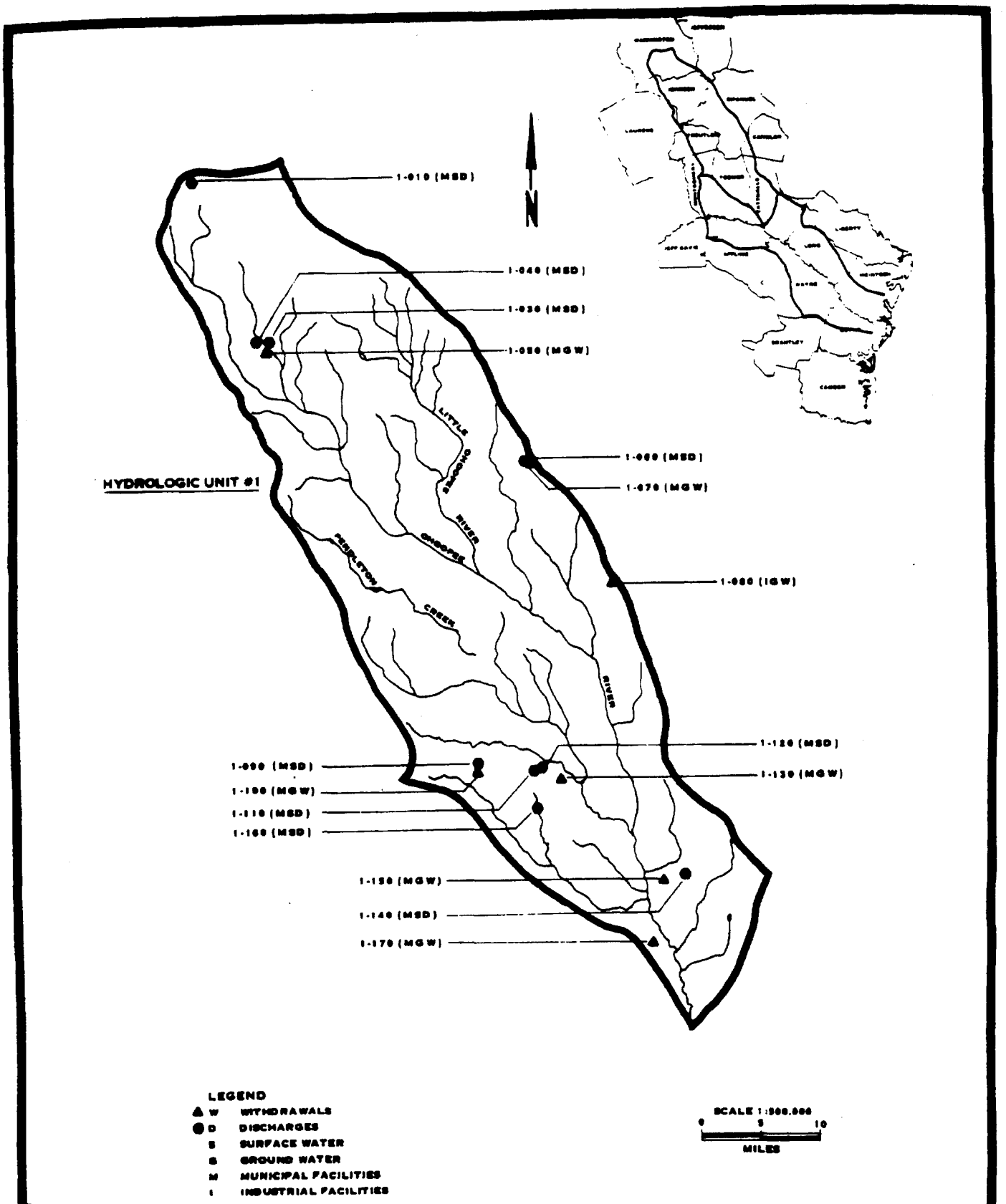
MAJOR PERMITTED FACILITIES
HYDROLOGIC UNIT NO. 1 (LYONS)

FACILITY I.D. NUMBER	FACILITY NAME	COUNTY	CITY	STREAM	RIVER MILE	PLANT DISCHARGE (mgd)	PERMITTED WITHDRAWAL (mgd)	DRAINAGE AREA (sq.mi.)	7Q10 (cfs)	LEVEL OF SERVICE (%)
1-010(MSD)	Tennille WPCP	Washington	Tennille	Dyers Creek	10.00	0.28	--	--	--	--
1-030(MSD)	Wrightsville 2 WPCP	Johnson	Wrightsville	Big Cedar Creek	5.44	0.26	--	--	--	--
1-040(MSD)	Wrightsville 1 WPCP	Johnson	Wrightsville	Little Cedar Creek	1.67	0.08	--	--	--	--
1-050(MGW)	City of Wrightsville	Johnson	Wrightsville	--	--	--	0.33	--	--	--
1-060(MSD)	Swainsboro WPCP	Emanuel	Swainsboro	Crooked Creek	4.08	3.00	--	--	--	--
1-070(MGW)	City of Swainsboro	Emanuel	Swainsboro	--	--	--	1.80	--	--	--
1-080(IGW)	Criders Poultry Inc.	Emanuel	Stillmore	--	--	--	0.30	--	--	--
1-090(MSD)	Vidalia WPCP	Toombs	Vidalia	Swift Creek	9.14	1.88	--	--	--	--
1-100(MGW)	City of Vidalia	Toombs	Vidalia	--	--	--	2.50	--	--	--
1-110(MSD)	Lyons 1 WPCP	Toombs	Lyons	Swift Creek	4.85	0.14	--	--	--	--
1-120(MSD)	Lyons 2 WPCP	Toombs	Lyons	Pendleton LCr.	2.22	0.19	--	--	--	--
1-130(MGW)	City of Lyons	Toombs	Lyons	--	--	--	0.82	--	--	--
1-140(MSD)	Reidsville WPCP	Tattnall	Reidsville	Brazzells Creek	2.78	0.18	--	--	--	--
1-150(MGW)	City of Reidsville	Tattnall	Reidsville	--	--	--	0.40	--	--	--
1-160(MSD)	Santa Claus WPCP	Toombs	Santa Claus	Little Rocky Creek	6.81	0.01	--	--	--	--
1-170(MGW)	Georgia State Prison	Tattnall	Reidsville	--	--	--	1.25	--	--	--

ALTAMAHA RIVER BASIN WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR PERMITTED FACILITIES
HYDROLOGIC UNIT NO. 1 (LYONS)
FIGURE NO. 3



ALTAMAHA RIVER BASIN WATER AVAILABILITY AND USE REPORT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

MAJOR WATER USERS HYDROLOGIC UNIT NO. 1 FIGURE NO. 5

NUS CORPORATION AND SUBSIDIARIES Reference No. 15 **TELECON NOTE**

CONTROL NO.	DATE: July 10, 1989	TIME: 8:30

DISTRIBUTION:

File Material
Atlantic Wood Industries

BETWEEN: Betty Davis	OF: City of Vidalia Water Department	PHONE: (912) 537-4566

AND: Sheri Panabaker, NUS Corporation

DISCUSSION:

I asked Ms. Davis about the service area of the water company. She said they just service inside the city limits. They have 3 wells, the water capacity is 4.7 mgd and they service approximately 5,000 connections. She said outside the city limits are private wells; there is no county water department. The static water level in the wells is 184 feet bls. All the wells have a water tower by them. One well is located on West 6th Street; the second well is on Hwy. 280 E; and the third well is located on 1st Avenue.

ACTION ITEMS:

Reference No. 16

"Rite in the Rain"®

ALL-WEATHER

LEVEL

Notebook No. 311

F4-1501

Atlantic Wood Industries
F4-8907-15
Vidalia, Toombs, Georgia
Sheri Panabaker
Recon

LOGBOOK REQUIREMENTS
REVISED - NOVEMBER 29, 1988

NOTE: ALL LANGUAGE SHOULD BE FACTUAL AND OBJECTIVE

1. Record on front cover of the Logbook: TDD No., Site Name, Site Location, Project Manager
2. All entries are made using ink. Draw a single line though errors. Initial and date corrections.
3. Statement of Work Plan, Study Plan, and Safety Plan discussion and distribution to field team with team member signatures.
5. Sign and date each page. Project Manager is to review and sign off on each logbook daily.
6. Document all calibration and pre-operational checks of equipment. Provide serial numbers of equipment used onsite.
7. Provide reference to Sampling Field Sheets for detailed sampling information.
8. Describe sampling locations in detail and document all changes from project planning documents.
9. Provide a site sketch with sample locations and photo locations.
10. Maintain photo log by completing the stamped information at the end of the logbook.
11. If no site representative is on hand to accept the receipt for samples an entry to that effect must be placed in the logbook.
12. Record I.D. numbers of COC and receipt for sample forms used. Also record numbers of destroyed documents.
13. Complete SMO information in the space provided.

I have read and understood the SSI-Phase I work plan for this facility.

Sheri Panabel
Julie Wkeller

000001

COCC02

7/12/89

Sunny ≈ 85°F

1600 arrived at site, can't see much. There is RR tracks east of the site w/ a creek running along side, ~~west~~ east (sic 7/12) of the tracks.

The nearest resident is approx. 500 ft from the site + is on city water. There are a few more houses down the dirt road, south of the site.

- we walked along RR track (owned by Railroad company) to see if we could see anything, we saw piles of logs.

- There is a drainage ditch along the west side of the tracks.

Sheri Panabal

7/12/89

- The area appears to slope east + north.

- There is no fense along side of site next to railroad tracks

- There is a gate across dirt road, open during day, w/ signs posted that visitors need to report to office + no unauthorized cameras.

- There is a barbered wire fense along the west side of the road.

- ≈ 1mi north of site we found a house w/ 5 people on well water. Other houses on the road ≈ 4, appeared to have well water, though no one was home to ask.

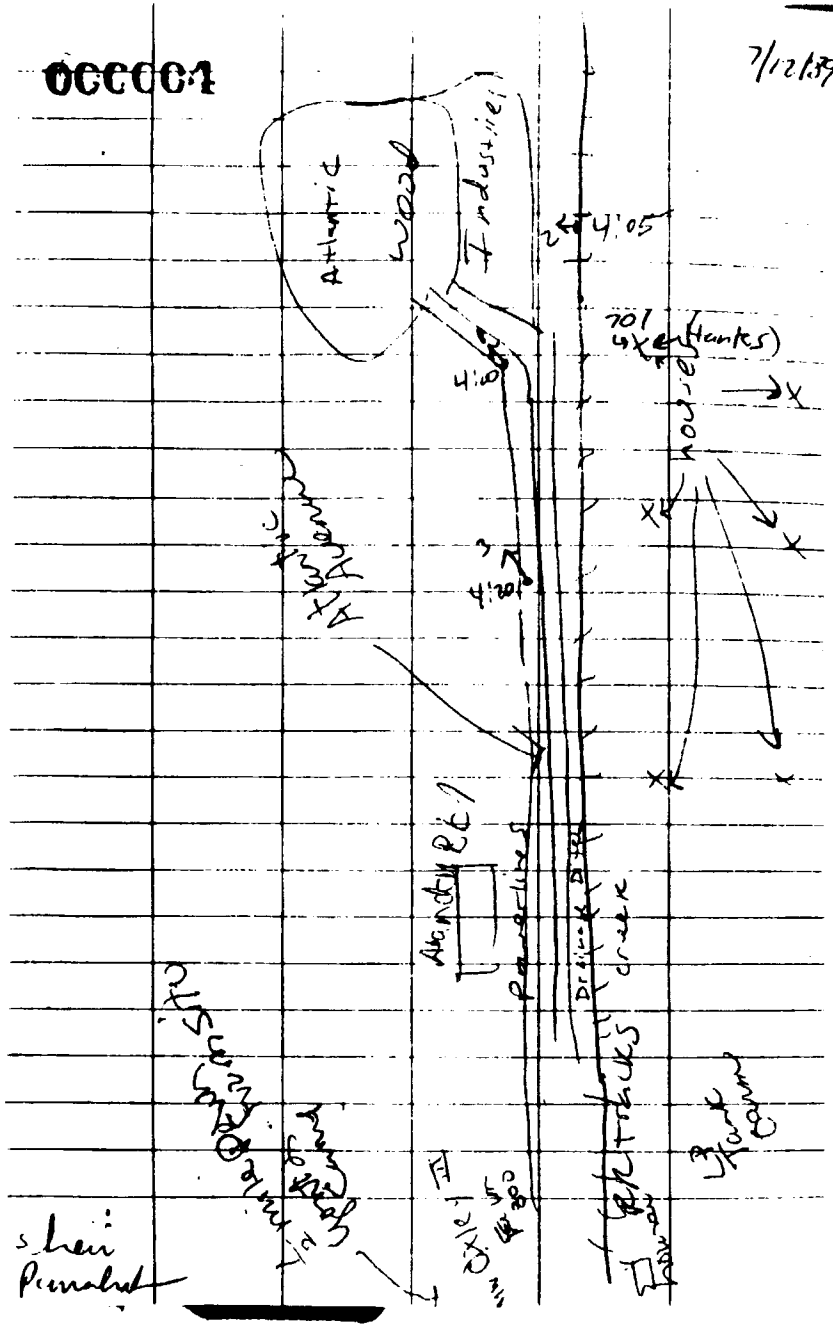
[redacted]

(b)(6) Personal Privacy

Sheri Panabal

COCC03

7/12/89



7/12/89

- approx. 1500 ft south of the site was a house w/ a well in the back yard.

(b)(6) Personal Privacy [redacted]

No one was home.

- Surface water path flow, appears to flow northeast to ~~into the drainage ditch~~ SCP 7/12/89 an interminant stream that flows northeast 3500 ft and enters Swift Creek. Swift Creek flows east and merges w/ Pendleton Creek after 9.5 mi.

from topo

Shei Panahat

NUS CORPORATION AND SUBSIDIARIES **TELECON NOTE**

Reference No. 17

CONTROL NO.	DATE: July 24, 1989	TIME: 10:00

DISTRIBUTION:

File Material
Atlantic Wood Industries

BETWEEN: Linda Sikes	OF: GA-DNR Fisheries Section	PHONE: (912) 685-2145

AND: Sheri Panabaker, NUS Corporation SCP

DISCUSSION:

Ms. Sikes said there is recreational fishing in Swift Creek, and Pendleton Creek.

ACTION ITEMS:

Reference No. 18

ENDANGERED AND THREATENED SPECIES

U.S. FISH AND WILDLIFE SERVICE

REGION 4 - ATLANTA

HAZARD RANKING SYSTEM SCORING SUMMARY

FOR

ATLANTIC WOOD INDUSTRIES
EPA SITE NUMBER GAD095815015
VIDALIA
TOOMBS COUNTY, GA
EPA REGION: 4

SCORE STATUS: IN PREPARATION

SCORED BY SHERI PANABAKER
OF NUS CORPORATION
ON 07/21/89

DATE OF THIS REPORT: 07/26/89
DATE OF LAST MODIFICATION: 07/26/89

GROUND WATER ROUTE SCORE	:	29.93
SURFACE WATER ROUTE SCORE	:	7.27
AIR ROUTE SCORE	:	0.00
MIGRATION SCORE	:	17.80

HRS GROUND WATER ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. ROUTE CHARACTERISTICS			
DEPTH TO WATER TABLE	300 FEET		
DEPTH TO BOTTOM OF WASTE	6 FEET		
DEPTH TO AQUIFER OF CONCERN	294 FEET	0	0
PRECIPITATION	48.0 INCHES		
EVAPORATION	45.0 INCHES		
NET PRECIPITATION	3.0 INCHES	1	1
PERMEABILITY	1.0X10-5 CM/SEC	1	1
PHYSICAL STATE		3	3
TOTAL ROUTE CHARACTERISTICS SCORE:			5
3. CONTAINMENT		3	3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE:ARSENIC			18
WASTE QUANTITY CUBIC YDS	2501		
DRUMS	0		
GALLONS	0		
TONS	0		
TOTAL	2501 CU. YDS	8	8
TOTAL WASTE CHARACTERISTICS SCORE:			26
5. TARGETS			
GROUND WATER USE		3	9
DISTANCE TO NEAREST WELL	5280 FEET		
AND	MATRIX VALUE	35	35
TOTAL POPULATION SERVED	19198 PERSONS		
NUMBER OF HOUSES	52		
NUMBER OF PERSONS	0		
NUMBER OF CONNECTIONS	5000		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			44

GROUND WATER ROUTE SCORE (Sgw) = 29.93

HRS SURFACE WATER ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. ROUTE CHARACTERISTICS			
SITE LOCATED IN SURFACE WATER	NO		
SITE WITHIN CLOSED BASIN	NO		
FACILITY SLOPE	0.0 %		
INTERVENING SLOPE	0.0 %	0	0
24-HOUR RAINFALL	3.4 INCHES	3	3
DISTANCE TO DOWN-SLOPE WATER	3500 FEET	2	4
PHYSICAL STATE	3		3
TOTAL ROUTE CHARACTERISTICS SCORE:			10
3. CONTAINMENT	3		3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE:ARSENIC			18
WASTE QUANTITY CUBIC YDS	2501		
DRUMS	0		
GALLONS	0		
TONS	0		
TOTAL	2501 CU. YDS	8	8
TOTAL WASTE CHARACTERISTICS SCORE:			26
5. TARGETS			
SURFACE WATER USE		2	6
DISTANCE TO SENSITIVE ENVIRONMENTS		0	0
COASTAL WETLANDS	NONE		
FRESH-WATER WETLANDS	NONE		
CRITICAL HABITAT	NONE		
DISTANCE TO STATIC WATER	> 3 MILES		
DISTANCE TO WATER SUPPLY INTAKE	> 3 MILES		
AND	MATRIX VALUE	0	0
TOTAL POPULATION SERVED	0		
NUMBER OF HOUSES	0		
NUMBER OF PERSONS	0		
NUMBER OF CONNECTIONS	0		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			6

SURFACE WATER ROUTE SCORE (Ssw) = 7.27

HRS AIR ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0

2. WASTE CHARACTERISTICS

REACTIVITY:

MATRIX VALUE

INCOMPATIBILITY

TOXICITY

WASTE QUANTITY CUBIC YARDS
DRUMS
GALLONS
TONS

TOTAL

TOTAL WASTE CHARACTERISTICS SCORE: N/A

3. TARGETS

POPULATION WITHIN 4-MILE RADIUS
- 0 to 0.25 mile
- 0 to 0.50 mile
- 0 to 1.0 mile
- 0 to 4.0 miles

DISTANCE TO SENSITIVE ENVIRONMENTS
- COASTAL WETLANDS
- FRESH-WATER WETLANDS
- CRITICAL HABITAT

DISTANCE TO LAND USES
- COMMERCIAL/INDUSTRIAL
- PARK/FOREST/RESIDENTIAL
- AGRICULTURAL LAND
- PRIME FARMLAND
- HISTORIC SITE WITHIN VIEW

TOTAL TARGETS SCORE: N/A

AIR ROUTE SCORE (Sa) = 0.00

HAZARD RANKING SYSTEM SCORING CALCULATIONS
FOR
SITE: ATLANTIC WOOD INDUSTRIES
AS OF 07/26/89

GROUND WATER ROUTE SCORE

ROUTE CHARACTERISTICS		5
CONTAINMENT	X	3
WASTE CHARACTERISTICS	X	26
TARGETS	X	44

= 17160 /57,330 X 100 = 29.93 = S_{gw}

SURFACE WATER ROUTE SCORE

ROUTE CHARACTERISTICS		10
CONTAINMENT	X	3
WASTE CHARACTERISTICS	X	26
TARGETS	X	6

= 4680 /64,350 X 100 = 7.27 = S_{sw}

AIR ROUTE SCORE

OBSERVED RELEASE 0 /35,100 X 100 = 0.00 = S_{air}

SUMMARY OF MIGRATION SCORE CALCULATIONS

	S	S^2
GROUND WATER ROUTE SCORE (S_{gw})	29.93	895.80
SURFACE WATER ROUTE SCORE (S_{sw})	7.27	52.85
AIR ROUTE SCORE (S_{air})	0.00	0.00
$S^2_{gw} + S^2_{sw} + S^2_{air}$		948.65
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}$		30.80
$S_M = \sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}/1.73$		17.80

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington, DC 20460

EPA Form 2070-13
July, 1981

EPA

Potential Hazardous Waste Site

Site Inspection Report

Site Inspection Report

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D095815015

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Atlantic Wood Industries	Atlantic Avenue

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Vidalia	GA	31474	Toombs	138	

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
__ __ __ __ __.__	__ __ __ __ __.__	☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
07,12,89 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1968 (BEGINNING YEAR) / Present (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☒ B. EPA CONTRACTOR NUS Corporation (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR ____ (Name of firm) ☐ G. OTHER ____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Sheri Panabaker	FIT TEAM	Region 4	(404) 938-7710

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Julie Keller	FIT TEAM	Region 4	(404) 938-7710
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☐ PERMISSION ☐ WARRANT	1400	sunny, ≈ 80°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Mario Villamarzo	EPA - Region 4	(404) 347-5065

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Sheri Panabaker	FIT 4	NUS corp.	404-938-7710	07,24,89 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D095815015

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER, FINES
- [ ] C SLUDGE
- [ ] D OTHER _____ (Specify)
- [ ] E SLURRY
- [ ] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be consistent)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS up to 40

03 WASTE CHARACTERISTICS (Check all that apply)

- [ ] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [ ] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	1800	lbs/month	Chromated copper arsenate in dust

IV. HAZARDOUS SUBSTANCES (See appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	CCA contaminated dirt and sawdust	999	55 gal. drums		

V. FEEDSTOCKS (See appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, State, and FIT Files

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D095815015

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
03 AREA POTENTIALLY AFFECTED: Unknown (Acres) 04 NARRATIVE DESCRIPTION

C.N. Kneer, chief engineer for Atlantic Wood Industries, indicates that before 11/19/80, ashes from CCA treated wood were scattered about the premises as were very small amounts of waste CCA sludge.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D085815015

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

NA

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/Runoff/Standing liquids, Leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

NA

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NA

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

NA

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e. g., state files, sample analysis, reports)*

EPA, State, FIT Files

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D085815015

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER _____ (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER _____ (Specify)

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE

_____ (Acres)

07 COMMENTS

LCA contaminated sawdust was spread all over the property

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

there is not a fence all the way around the property

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

EPA, state, FIT files

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: GA
02 SITE NUMBER: D085850 15

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☒
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE
A. _____ (mi)
B. ≈ 2 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER ≈5000 connections

03 DISTANCE TO NEAREST DRINKING WATER WELL 1 (mi)

04 DEPTH TO GROUNDWATER 300-400 (ft)

05 DIRECTION OF GROUNDWATER FLOW N

06 DEPTH TO AQUIFER OF CONCERN _____ (ft)

07 POTENTIAL YIELD OF AQUIFER _____ (gpd)

08 SOLE SOURCE AQUIFER ☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

10 RECHARGE AREA ☐ YES ☐ NO COMMENTS

11 DISCHARGE AREA ☐ YES ☐ NO COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Swift Creek	☐	0.5 (mi)
Pendleton Creek	☐	10.0 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE A. _____ NO. OF PERSONS
TWO (2) MILES OF SITE B. _____ NO. OF PERSONS
THREE (3) MILES OF SITE C. _____ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION <0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE _____

04 DISTANCE TO NEAREST OFF-SITE BUILDING <0.1 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

There is a residential area southeast and south of the site and a few houses north. The rest of the area appears wooded.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: GA | 02 SITE NUMBER: D095815015

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☒ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
_____ (ft)	_____ (ft)	_____

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
3 (in)	3.4 (in)	0 %	N	0 %

09 FLOOD POTENTIAL

SITE IS IN _____ YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. _____ (mi)

OTHER: B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. onsite (mi)	B. <0.1 (mi)	C. _____ (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

the site is located just inside the city limits of Vidalia. The area around the site is wooded with about 5 houses north of the site w/in 1mi of Atlantic woods. South and southeast of the site is a residential area. The nearest house is adjacent to the front gate.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, State, FIT Files

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D085815015

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF NUS Corporation (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS FIT Files

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, state, FIT Files

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D085825015

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Atlantic Wood Industries	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Atlantic Avenue	

05 CITY	06 STATE	07 ZIP CODE
Vidalia	GA	31474

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, State, FIT Files

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D095850505

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME: Same	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
14 CITY	15 STATE / 16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, state, FIT files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D095805015

II. ON-SITE GENERATOR

01 NAME: Same	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME: Same	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, State, FIT Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D008815015

II. PAST RESPONSE ACTIVITIES None Known

01 ☐ A. WATER SUPPLY CLOSED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ D. SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ F. WASTE REPACKAGED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ H. ON SITE BURIAL 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ L. ENCAPSULATION 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ N. CUTOFF WALLS 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION	02 DATE	03 AGENCY

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D095-8505

II PAST RESPONSE ACTIVITIES (Continued) None Known

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, state, FIT files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D095815015

II. ENFORCEMENT INFORMATION None known

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA, State, FIT Files

RECONNAISSANCE CHECKLIST FOR HRS2 CONCERNS

Instructions: Obtain as much "up front" information as possible prior to conducting fieldwork. Complete the form in as much detail as you can, providing attachments as necessary. Cite the source for all information obtained.

Site name: Atlantic Wood Industries
City, County, State: Vidalia, Toombs County, Georgia
EPA ID No.: GAD095815015
Person responsible for form: Sheri Panabaker
Date: July 21, 1999

Air Pathway

Describe any potential air emission sources onsite: None

Identify any sensitive environments within 4 miles: None

Identify the maximally exposed individual (nearest residence or regularly occupied building - workers do count): workers onsite

Groundwater Pathway

Identify any areas of karst terrain: None

Identify additional population due to consideration of wells completed in overlying aquifers to the AOC: None

Do significant targets exist between 3 and 4 miles from the site? NO

Is the AOC a sole source aquifer according to Safe Drinking Water Act? (i.e. is the site located in Dade, Broward, Volusia, Putnam, or Flager County, Florida) NO

Surface Water Pathway

Are there intakes located on the extended 15-mile migration pathway? No

Are there recreational areas, sensitive environments, or human food chain targets (fisheries) along the extended pathway? Fishing in Swift Creek

Onsite Exposure Pathway

Is there waste or contaminated soil onsite at 2 feet below land surface or higher? Yes

Is the site accessible to non-employees (workers do not count)? Yes

Are there residences, schools, or daycare centers onsite or in close proximity? Residences are adjacent to the site

Are there barriers to travel (e.g., a river) within one mile? Yes Swift Creek

M.2 - SITE MAINTENANCE FORM

ACTION: _

EPA ID : GAD095815015

SITE NAME: ATLANTIC WOOD INDUSTRIES INC SOURCE: H

STREET : ATLANTIC AVE CONG DIST: 01

CITY : VIDALIA ZIP: 31474

CNTY NAME: TOOMBS CNTY CODE : 279

LATITUDE : 32/14/26.0 LONGITUDE : 081/21/28.5

LL-SOURCE: R LL-ACCURACY:

SMSA : HYDRO UNIT:

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE:

SITE/SPILL IDS:

RPM NAME: RPM PHONE: - -

SITE CLASSIFICATION: SITE APPROACH:

DIOXIN TIER: REG FLD1: REG FLD2: 6

RESP TERM: PENDING ( ) NO FURTHER ACTION ( ) PENDING (_) NO FURTHER ACTION (_)

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( )
ENFORCED RESPONSE ( ) COST RECOVERY ( )

SITE DESCRIPTION:

M.2 - PROGRAM MAINTENANCE FORM

ACTION: _

SITE: ATLANTIC WOOD INDUSTRIES INC

EPA ID: GAD095815015 PROGRAM CODE: H01 PROGRAM TYPE:

PROGRAM QUALIFIER: ALIAS LINK :

PROGRAM NAME: SITE EVALUATION

DESCRIPTION:

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ATLANTIC WOOD INDUSTRIES INC
PROGRAM: SITE EVALUATION

EPA ID: GAD095815015 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E * _ __ _ *

EVENT NAME: DISCOVERY STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 07/01/80	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ATLANTIC WOOD INDUSTRIES INC
PROGRAM: SITE EVALUATION

EPA ID: GAD095815015 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ ___ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START: 03/01/84	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 03/01/84	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	_____	_____	__	___

REGION: 04
STATE : GA

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
C E R C L I S V 1.2

M.2 - COMMENT MAINTENANCE FORM

SITE: ATLANTIC WOOD INDUSTRIES INC

EPA ID: GAD095815015

COM NO	COMMENT	ACTION
001	ARSENIC. HEXAVALENT CHROMIUM	* - *
		* *
002	ARSENIC. LEXAVALENT CHROMIUM	* - *
		* *

PRELIMINARY ASSESSMENT CHECKLIST (revised 2/6/84)

✓ EPA SITE IDENTIFICATION NUMBER GAD095815015

Site Name and Location

✓ Site Name

✓ Specific Location (include street number)

✓ City, State, Zip Code

✓ County, County Code

____ Congressional District

✓ Coordinates

✓ Directions to site from nearest public road

Ready to go CBW 3/28/84

Responsible Parties

✓ Owner

✓ Owner address and telephone

✓ Operator (indicate if same as owner)

✓ Operator address and telephone

✓ Type of ownership

____ Owner/Operator notification

Characterization of Potential Hazard

✓ Site Inspection State

✓ Site Status active

✓ Years of operation since '68

✓ Substances known or alleged on site arsenic

✓ Potential Hazard Description (include hexavalent chromium relative population, water body in vicinity)

✓ Priority Assessment Low

Information

✓ Contact, phone number

✓ Person responsible for preliminary assessment, phone number

Waste Information

✓ Waste physical states

✓ Waste quantities

✓ Waste characteristics

✓ Waste type, comments (what kind of sludge?)

✓ Name of hazardous substances possibly/actually present

✓ CAS number of hazardous substance

____ Storage/disposal method w/hazardous substances

____ Concentration of hazardous substances

____ Measure of concentration

____ Feedstock Name

Sources of information

✓ Date of Report Cited

NO Other Sources Recommended

Description of Hazardous Conditions, etc.

____ Need More Information

____ Need Narrative Description

____ Surface Water Name (Is there a river, lake, stream nearby?)

____ Potential Population (name of town, number of residents)

____ Pertinent Hydrogeologic Information (Is this an aquifer recharge area? What are the significant geologic structures in the vicinity?)

____ Other (see note)

listed in ERRIS

RECEIVED MAR 20 19

LOW

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD095815015

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Atlantic Wood Ind. Inc.	Atlantic Avenue

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Vidalia	GA	31474	Toombs	138	

09 COORDINATES LATITUDE	LONGITUDE
32°14'26.0"	081°21'28.5"

10 DIRECTIONS TO SITE (Starting from nearest public road)

From I-16: take 297 south. One half mile inside Vidalia city limits, turn left on dirt road between Paul Anderson's Youth Ranch and rail road track. Facility is at end of road.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Atlantic Wood Ind. Inc.	P.O. Box 1608

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Savannah	GA	31498	(912) 964-1234

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A. RCRA 3001 DATE RECEIVED: 7/21/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 11/4/81 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1968 (BEGINNING YEAR) | Continuing (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Arsenic
hexavalent chromium

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Low - C.N. Keer of Atlantic Wood Ind., indicates that prior to RCRA regulations, all treated wood waste was burned on site and ashes scattered around the property to fill in holes, etc. A very small amount of waste CCA sludge was also scattered around.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
C.N. Keer, Chief Engineer	Atlantic Wood Industries, Inc.	(912) 964-1234

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Steve Walker	D.N.R.	E.P.D.-Haz. Was.	(404) 656-2836	2/23/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD095815015

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER _____ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS up to 40

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [ ] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	1800	lbs./month	Chromated copper arsenate in dust.

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	CCA contaminated dirt and sawdust	999	55 gal. drums	up to 2	weight %

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

RCRA part A permit application, application for Hazardous Waste facility permit 7-29-81, RCRA operations manual for A.W. Ind.-Vidalia prepared by Dames and Moore 9-81, trip report by R. Rose 11-4-81, Hazardous Waste Questionnaire received 1-27-84, and phone conversation with C.N. Keer-Chief Engineer for Vidalia plant 3-12-84. See attachment A.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD0915815015

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: unknown (Acres)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

C.N. Keer, chief engineer for Atlantic Wood Ind., indicates that before 11/19/80, ashes from CCA treated wood were scattered about the premises as were very small amounts of waste CCA sludge.

01 ☐ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	GAD0915815015

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

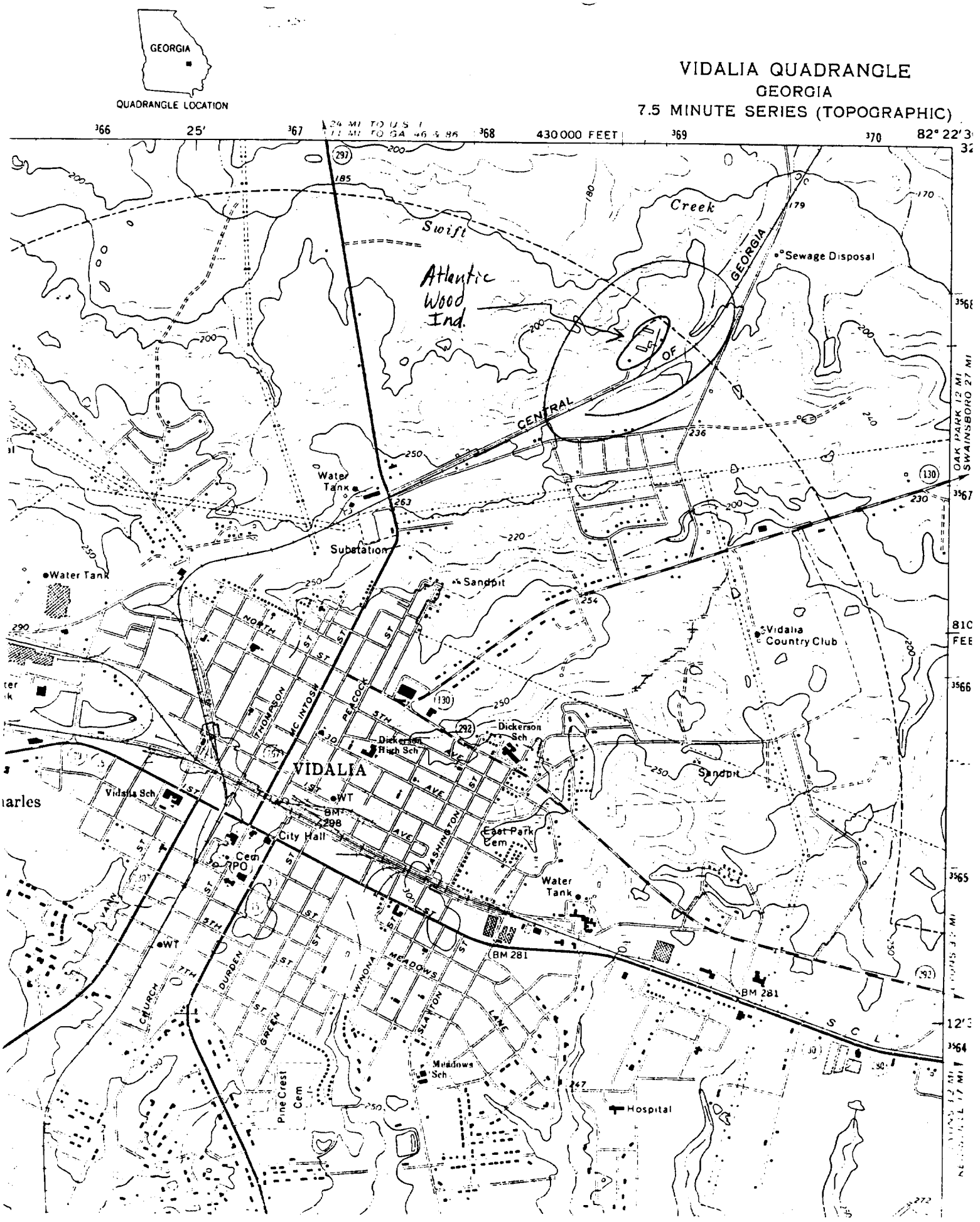
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Phone conversation with C.N. Keer, chief engineer for Atlantic Wood Industries, Inc. 3/12/84.


GEORGIA
QUADRANGLE LOCATION
VIDALIA QUADRANGLE
GEORGIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
430 000 FEET
Swift
Creek
Atlantic Wood Ind.
Sewage Disposal
CENTRAL OF GEORGIA
Water Tank
Substation
Sandpit
Vidalia Country Club
Dickerson High Sch
Dickerson Sch
VIDALIA
Vidalia Sch
City Hall
Cem
PO
East Park Cem
Water Tank
BM 281
Meadows Sch
Pine Crest Cem
Hospital
NORTH
THOMPSON
MC INTOSH
PEACOCK
WASHINGTON
WINONA
MEADOWS
SLATTON
LANE
GREEN
DURDEN
CHURCH
VANN
OAK PARK 12 MI
SWAINSBORO 27 MI

ATTACHMENT A

Site assessed as low priority for inspection because before November 19, 1980, all waste wood trimmings (some CCA contaminated) were burned on site. Chief engineer for Atlantic Wood Industries indicated that the ashes were scattered around on the facility property.

Present hazardous waste handling practices involve storage in 55 gallon drums and eventual transport to S.C.A. in Pinewood, South Carolina.

OVERSIZED

DOCUMENT

RCRA/NPL POLICY QUESTIONNAIRE FOR INITIAL SCREENING

Site Name: Atlantic Wood Industries

City: Vidalia State: Georgia

EPA I.D. Number: GAD095815015

Type of Facility: Generator ✓ Transporter ✓ Disposal ___
Treatment ___ Storage (more than 90 days) ___

I. RCRA APPLICABILITY	yes	no
Has this facility treated, stored or disposed of a RCRA hazardous waste since Nov. 19, 1980?		✓
Has a RCRA Facility Assessment (RFA) been performed on this site?		✓
Does the facility have a RCRA operating or post-closure permit? If so, date issued _____		✓
Did the facility file a RCRA Part A application?	✓	
If so:		
1) Does the facility currently have interim status?		✓
2) Did the facility withdraw its interim status?	✓	
3) Is the facility a known or possible protective filer?		✓
Is the facility a late (after Nov. 19, 1980) or non-filer that has been identified by EPA or the State?		✓

STOP HERE IF ALL ANSWERS TO QUESTIONS IN SECTION I ARE NO

II. FINANCIAL STATUS		
Is the facility owned by an entity that has filed for bankruptcy under federal or State laws?		✓

III. RCRA ENFORCEMENT STATUS		
Has the facility lost authorization to operate or had its interim status revoked?		✓
Has the facility been involved in any other RCRA enforcement action?		✓

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REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IV

EPA ID: GAD981244767 **Site Name:** MCKENZIE TANK LINES, INC **State ID:** 34919

Alias Site Names:

City: GARDEN CITY **County or Parish:** CHATHAM **State:** GA

Refer to Report Dated: 06/22/1998 **Report Type:** SITE INSPECTION 001

Report Developed by: STATE

DECISION:

- [X] **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**
  - [X] **1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)**
  - [ ] **1b. Site may qualify for action, but is deferred to:**
- [ ] **2. Further Assessment Needed Under CERCLA:**
  - **2a. Priority:** [ ] **Higher** [ ] **Lower**
  - **2b. Other: (recommended action)** NFRAP (No Futher Remedial Action Planned

DISCUSSION/RATIONALE:

This site has a draft score of 26.1. Historical soil contamination has been excavated and removed. Currently, groundwater contamination is being actively remediated at this site. Due to a lack of receptors in the immediate vicinity and due to the past remediation efforts, this site is being NFRAPed at this time.

Site Decision Made by: ALAN W. YARBROUGH

Signature: _____ **Date:** 01/07/1999

EPA Form # 9100-3

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IV

EPA ID: GAD981244767 **Site Name:** MCKENZIE TANK LINES, INC **State ID:**

Alias Site Names:

City: GARDEN CITY **County or Parish:** CHATHAM **State:** GA

Refer to Report Dated: 06/30/97 **Report Type:** PRELIMINARY ASSESSMENT 001

Report Developed by:

DECISION:

- ☐ **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**
  - ☐ **1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)**
  - ☐ **1b. Site may qualify for action, but is deferred to:**
- ☒ **2. Further Assessment Needed Under CERCLA:**
  - **2a. Priority:** ☒ **Higher** ☐ **Lower**
  - **2b. Other: (recommended action)**

DISCUSSION/RATIONALE:

Evidence of extensive releases has been found. The draft score is 62.

Site Decision Made by: ALAN W. YARBROUGH

Signature: Alan W. Yarbrough **Date:** 08/28/98

EPA Form # 9100-3

SITE INSPECTION REPORT

FOR

McKENZIE TANK LINES
PORT WENTWORTH, CHATHAM COUNTY, GEORGIA

EPA ID No. GAD981244767

Prepared By:

Billy Hendricks
Environmental Specialist

Madeleine Kellam
Geologist
Georgia Environmental Protection Division
Hazardous Waste Management Branch

June 22, 1998

Reviewed By:

Bruce Khaleghi
Unit Coordinator
Georgia Environmental Protection Division
Hazardous Waste Management Branch

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1. INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Georgia Environmental Protection Division conducted a Site Inspection (SI) at the McKenzie Tank Lines site in Chatham County, Georgia. The purpose of this investigation was to collect information concerning conditions at the McKenzie Tank Lines site sufficient to assess the threat posed to human health and the environment and to determine the need for additional CERCLA/SARA or other appropriate action. The scope of the investigation included review of available file information, a comprehensive target survey, and a review of on-site and off-site sampling data. The Preliminary Assessment for this site, completed June 30, 1997, is used as source information for much of the background of this report.

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

McKenzie Tank Lines is located on Grange Road in Port Wentworth, Georgia. The site is approximately three-quarters of a mile east-southeast of the Port Wentworth City Hall. From the intersection of Interstate Highway 16 and Dean Forest Road, travel north and east on Dean Forest Road to its intersection with U. S. Highway 17, approximately six miles. Turn left (north) on U. S. 17 and travel approximately three-quarters of a mile. Turn right onto Grange Road and travel approximately two hundred yards. The facility is on the right (south) of the road at 111 Grange Road. The geographic coordinates are 32° 08' 17.91" north latitude and 81° 09' 10.11" west longitude (Reference 1)(Reference 2)(Reference 3).

Port Wentworth, a suburb of Savannah, is located in Georgia's Coastal Empire along the Savannah River twenty miles inland from the Atlantic Ocean. The area experiences typical, semi-tropical, coastal Georgia weather: long, hot, humid summers and short, mild winters. Average summer temperatures are approximately 80°F, with 100-degree days rare. Winters are moderate due to the low latitude and proximity of the Atlantic Ocean. Average winter temperatures are approximately 51°F; first freeze is typically in mid-November, with last freeze in early March. Mid-autumn is usually the period of minimum precipitation, with maxima during the thunderstorm season of mid-June to mid-September. The area receives 50 inches of water-equivalent precipitation in a typical year. The maximum 24-hour rainfall intensity is approximately 7.0 inches (Reference 4).

2.2 Site Description, Operational History and Waste Characteristics

McKenzie Tank Lines is a tanker trailer terminal and tanker cleaning facility, with home offices in Tallahassee, Florida. The site comprises approximately 9.5 acres in a rough

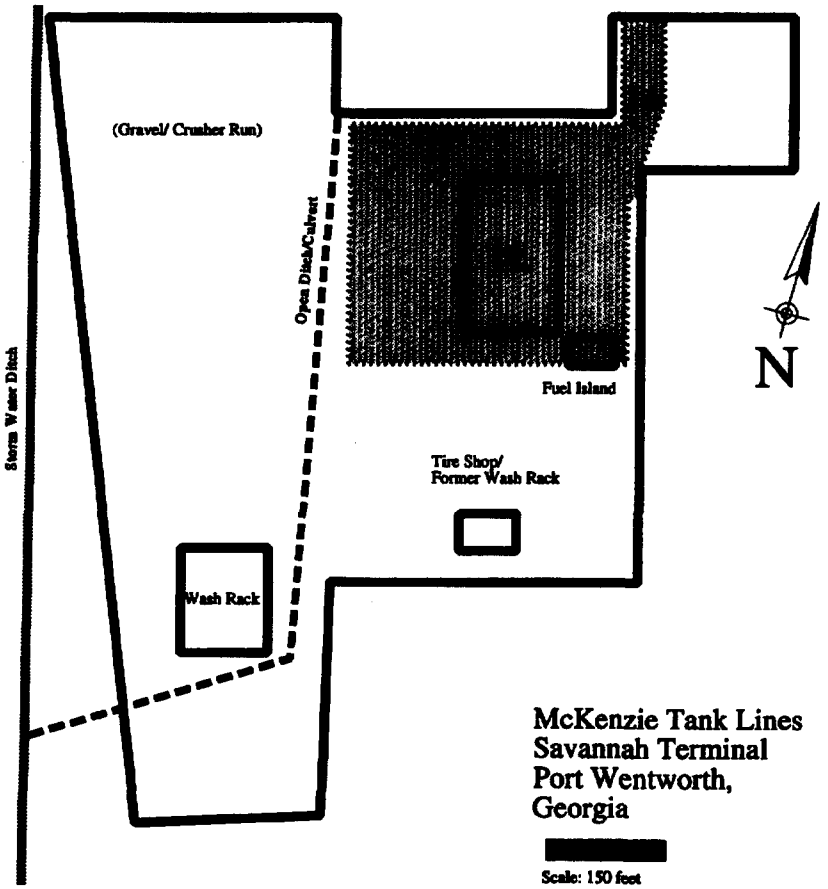

Figure 1

square within the city limits of Port Wentworth (Figure 1) (Reference 5) The business at the site is a viable, going concern. Elevations in the site area are roughly 10 feet msl. The site is bounded to the north by undeveloped land, the Savannah Sugar Refinery, and Atlantic Wood Preserving Company; to the east by Bridge Terminal Transport Co., Koch Materials Co., and the Savannah River; to the south and east by undeveloped land and the massive Georgia Ports Authority Garden City containerport; and to the west by undeveloped land. The main residential areas of Port Wentworth are northwest of the site, beyond one-half mile. Approximately one mile north of the site is a paper mill and paper products factory owned and operated by Stone Container. One mile northeast is the Port Wentworth electric generating station of the Savannah Electric Power Company. Beyond one mile south and southeast of the site lie the city of Savannah. Beyond one mile east of the site is the Savannah National Wildlife Refuge, which comprises nearly half of the land area within the four-mile target radius (References 2 and 5)(Reference 6).

Surface water features at the site include an intermittently open and covered drainage ditch, draining the site from north to south to a county stormwater ditch offsite. Overall

topographic slope is towards the southwest, with very little relief.

The site is completely surrounded by an eight-foot chain link fence topped with barbed wire, and has locked access gates.

3. WASTE/SOURCE SAMPLING

3.1 Sample Locations

Soil, sediment, surface water and ground water samples have previously been collected on and offsite by McKenzie's consultants and by consultants for the Georgia State Properties Commission. On site, surface soil samples were collected from areas of known or suspected contamination (stained soils, spill areas, etc). Subsurface soil and ground water samples were collected in multiple locations during well construction or site characterization, including at the most downgradient portion of the property. Surface water was collected from the site drainage ditch. Samples were analyzed for volatile and semivolatile organic compounds and total metals. Offsite samples of each medium have been collected in all directions from the site at distances of from a few feet to miles away (Reference 7)(Reference 8)

3.2 Analytical Results

Historical results for media other than groundwater are of limited utility; the samples were taken in response to spills which were subsequently remediated (References 7 and 8). Table 1 below shows monitor well concentration data from 1993 to the present. Some constituents detected in samples collected from the McKenzie Tank Lines site are present at levels as high as five orders of magnitude over background.

3.3 Conclusions

No significant contamination of soil, sediment, or surface water remains at the McKenzie Tank Lines site. Chlorinated solvents have been found in the groundwater at the site at levels far exceeding any regulatory limit. The following constituents have been found on site at levels greater than background levels: tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride. These constituents were found in a plume with its origin at the former Detrex tank wash rack.

4. GROUND WATER PATHWAY

4.1 Hydrogeology

The McKenzie site lies in the Barrier Island Sequences District of the Coastal Plain Province of Georgia. The Coastal Plain is relatively flat topographically and is dissected

by streams. The Barrier Island Sequences District is characterized by a series of marine terraces, parallel to the present shoreline, which decrease in altitude, step-wise, towards the sea. Marshes may occupy poorly drained low areas. The area is underlain by a sequence of Cretaceous and younger sedimentary rocks resting on a basement of much older igneous, metamorphic and/or sedimentary rocks (Reference 9)(Reference 10).

The thick sequence of clastic and carbonate sediments of the Coastal Plain can be subdivided into numerous aquifers (Figure 2)(Reference 1). Groundwater is the sole source for drinking water in this area, and most industrial and municipal ground water supplies originate from the Floridan Aquifer System (Reference 11).

Post-Miocene sands compose the shallow surficial aquifer. These sediments are unconsolidated and well-sorted, with locally occurring interlayers of poorly-sorted sand, clayey, sandy silt, and argillaceous limestone. Thicknesses for this aquifer range between 10 feet and 120 feet thick (Reference 12). At the McKenzie site, this aquifer is 25 to 30 feet thick and consists of clayey sands and silts and sandy clays (Reference 8). Water in the surficial aquifer is under water table conditions, and depth to the water table at the site is shallow (ranging from approximately 2.5 to 6.5 feet) (Reference 7). The surficial aquifer could potentially recharge the underlying Floridan aquifer in areas where the hydraulic gradient is downward (Reference 12).

The surficial aquifer is underlain by the Miocene-age Hawthorn Formation. The Hawthorn is composed of marl, sandy clay, and clayey sand, and ranges in thickness from 50 to 600 feet. This unit acts as an upper confining unit for the Floridan aquifer. The vertical hydraulic conductivity of the Hawthorn is apparently controlled by the thickness of the unit: hydraulic conductivity decreases with increasing thickness (Reference 12). The Hawthorn in the vicinity of Savannah is approximately 200 feet thick (Reference 8).

The uppermost laterally continuous aquifer in this area is the Floridan aquifer system. The Floridan is the most important source of water supply in the coastal area of Georgia. It is composed of a vertically continuous sequence of several limestones ranging in age from Miocene to Upper Eocene, but the two primary units are the Oligocene-age Suwannee Limestone and the Upper Eocene-age Ocala Limestone (Reference 12). The Floridan at the site is approximately 600 feet in thickness

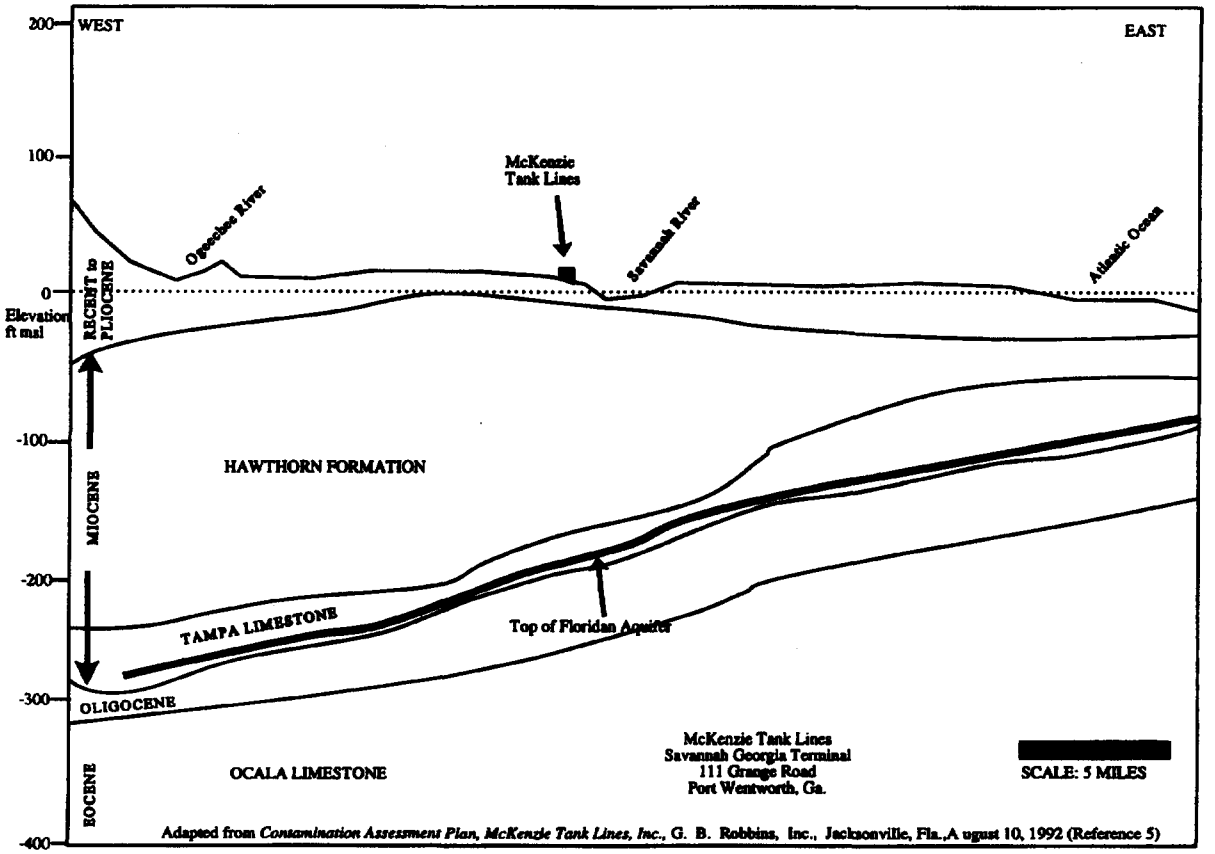

Figure 2

(Reference 8).

4.2 Ground Water Targets

The Port Wentworth Water Department is the agency responsible for providing water to the city of Port Wentworth. There are similar agencies managing water systems for Garden City and Savannah. Port Wentworth operates two wells and provides water to 1,300 service connections, an estimated 3,380 people (Reference 13). Garden City purchases water from the City of Savannah under a reciprocal supply agreement. Savannah's city Water & Sewer Revenue Department operates 22 wells permitted by the EPD for twenty-five to thirty million gallons per day withdrawal, serving 59,800 connections, an estimated 155,480 individuals (Reference 14). These estimates are based on an estimated 2.6 persons per household according to the 1990 U. S. Census (Reference 15). The closest municipal wells to the site are the two Port Wentworth wells, 1.3 miles north; two Savannah wells, 1.5 miles south-southeast; and two further Savannah wells 3.5 miles southeast. Few private household drinking water wells are known to exist within the city limits of Port Wentworth, Garden City, and Savannah; all households

within these cities, which have access to city water, are required to connect to the system (Reference 14).

The data supplied from CENTRACTS indicate there is an estimated population of 638 within the four-mile target area, and three within a ½-mile radius, which uses water from private wells (Reference 16). This information is not supported by physical survey; no wells were discovered within ½ mile of the site.

McKenzie Tank Lines, in concert with the State Properties Commission, has developed and installed a groundwater remediation system in an attempt to mitigate the existing contamination. The system comprises a network of three water/air recovery wells, a sealed air stripper, carbon adsorption units for the offgases and contaminated groundwater, and an infiltration pond for return of treated groundwater to the flow system at the site (Photos 1 - 5). Preliminary data indicate that the system is recovering chlorinated solvents from the groundwater; efficiency has not yet been adequately characterized.

4.3 Sample Locations

No groundwater samples were collected on site as part of this investigation. The data in Tables 1 and 2 were obtained from the facility, collected as part of their routine groundwater monitoring. Monitoring wells are located onsite at the perimeter of the property and the edge of the plume (installed by the facility) and offsite approximately fifty yards from the site fence (installed by the State Properties Commission). Three recovery wells are located radially along the length of the plume. Figures 2 through 9 in the attached 1998 Compliance Status Report filed with the Georgia Hazardous Sites Response Program, show the locations of the monitoring wells and the results of the most recent groundwater sampling event (Reference 17).

4.4 Analytical Results

The following constituents were detected in groundwater on site at levels greater than three times background: tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride (Table 1).

4.5 Ground Water Conclusions

A substantial release to the groundwater has been demonstrated by chemical analysis. No offsite wells have been documented to be contaminated by releases from the site. Because municipal wells supply water to all downgradient residences and businesses, no primary targets have been identified. An active groundwater remediation program is underway at the site. However, the underlying Floridan aquifer is a sole source of drinking water for the region and merits extraordinary efforts to prevent its

contamination.

5. SURFACE WATER PATHWAY

5.1 Hydrologic Setting

Surface drainage in the Savannah area, because of the low relief, is sparse. Precipitation either infiltrates the ground, or enters depression storage in low-lying areas. The majority of precipitation filters downward, into the soil. Precipitation in excess of the infiltration rate is managed in man-made ditches draining to the Savannah River. Because of the use of ditches for storm-water management, the surface water pathway, as customarily derived from surface topography, is not reliable. Surface discharge in the immediate area of McKenzie is via drainage ditch to Pipe-Maker's Canal, west and south of the property, which discharges to the Savannah River three-quarters of a mile southeast (Figure 3)(References 6 and 2).

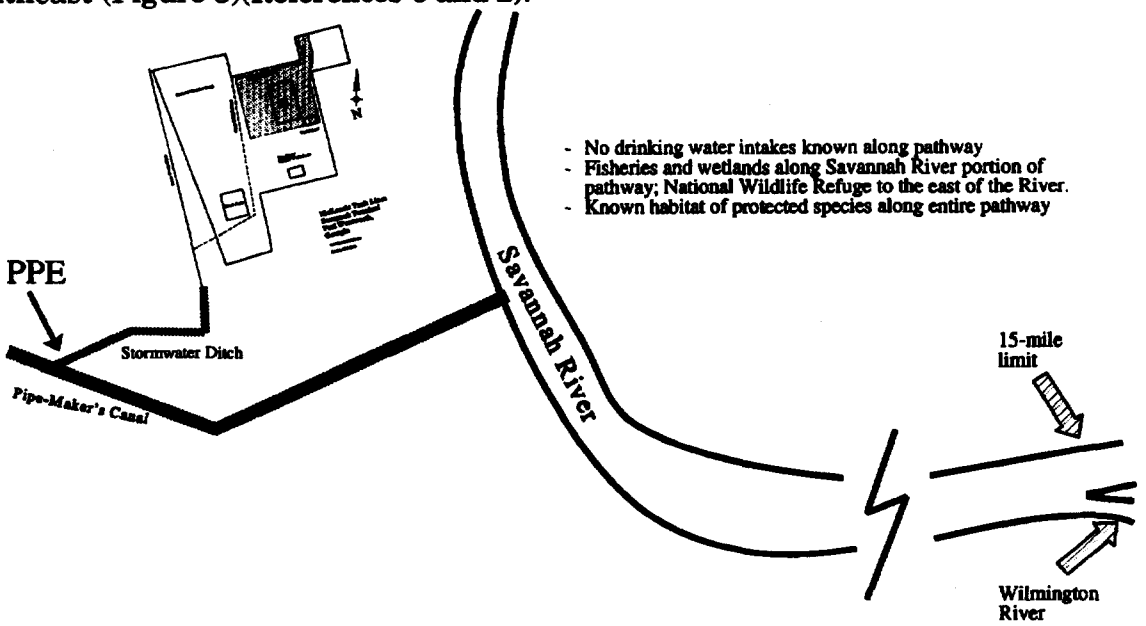

Figure 3

According to Federal Emergency Management Agency Flood Hazard Boundary Map/Flood Insurance Rate Map for the City of Port Wentworth, the site is located in an area classified as A14, indicating special flood hazards, and a base flood elevation in excess of two feet above land surface. There is no physical evidence on the property of historical flooding (Reference 18).

5.2 Surface Water Targets

There have been numerous sampling events to document a release to surface water.

There are, however, no water intakes of any sort within 15 miles downstream of the site; indeed, the only surface water intakes within the remaining twenty-five river miles of the Savannah River are for noncontact industrial use (Reference 14). The residents in the area of the site are supplied with potable water by the municipal systems of Port Wentworth, Garden City, and Savannah (References 13 and 14).

The Savannah River is a heavily utilized recreational and subsistence fishery; evidence of fishing activity was directly observed during the site visit. Evidence of fishing is ambiguous for Pipe-Maker's Canal. Neither the Canal nor the Savannah River is considered a primary fishery since there is no documented contamination release to surface water.

Chatham County is included in the range of a number of species of concern. Animals listed as threatened or endangered include the American alligator, the eastern indigo snake, the eastern brown pelican, the shortfin sturgeon, the loggerhead turtle, the wood stork, the West Indian manatee, and the southern bald eagle (Reference 19). Protected plants include the pondberry, the hooded pitcher-plant, the cutleaf beardtongue, the climbing buckthorn, and the silky camellia (Reference 20). None of these species was noted as present on the McKenzie site, but there are suitable habitats for all of these species within the fifteen-mile downstream target distance.

No permanent or seasonal wetlands were observed on the McKenzie site. There was no standing water of any sort on the property and none of the indicator species for wetlands were present. A variety of sensitive environments is known to exist along the 15 miles downstream of the site. These include riverine, lacustrine, palustrine, and estuarine wetlands, and the Savannah National Wildlife Refuge (Reference 21).

5.3 Sample Locations

No surface water or sediment samples were collected in association with this site investigation. Historical data indicate that contamination found onsite was remediated under State emergency response guidelines. No contamination of surface water is now known to be caused by the facility.

5.4 Analytical Results

Confirmatory data generated by the facility in response to prior releases indicate that no surface water or sediment samples contained hazardous constituents at levels above background.

5.5 Surface Water Conclusions

There are demonstrated historical releases to surface water from the site. No current

releases are known. No drinking water intakes exist within 15 miles downstream of the site. No wetlands exist on the property, but wetlands are in evidence along the entire length of the Pipe-Maker's Canal and the Savannah River downstream of the site. Other sensitive environments, including the Savannah National Wildlife Refuge, were identified within the 15-mile downstream limit.

6. SOIL EXPOSURE AND AIR PATHWAYS

6.1 Physical Condition

The McKenzie Tank Lines site is located in a generally developed suburban-industrial setting in the southeasternmost corner of the city limits of Port Wentworth. Land use within one mile ranges from residential and commercial to heavy industrial. Northwest are primarily residential and commercial properties, including the entire City of Port Wentworth. Northeast are a paper mill, a wood treater, an electric utility generating plant, and a sugar refinery. Properties to the south include the extensive Georgia Ports Authority Garden City Containerport and its support businesses (References 6 and 2).

Surface and subsurface soils at the McKenzie site are Pleistocene to Recent, fluvial and marine deposits of silt, sand, gravel and argillaceous marl. These clayey sands and silts and sandy clays range from 25 to 30 feet in thickness. However, the surface soil is best described as urban. Boring logs from the site have disclosed road gravel and ballast stones at depths up to five feet. Underlying the recent soils is the Hawthorn group, a generally clayey layer roughly 200 feet thick in the vicinity of the site (References 5, 7, and 8).

As described in the waste description section above, significant historical contamination of the soil has been demonstrated by chemical analysis and direct observation. Current operations are not contributing to any contamination of the soil at the site. Remediation at the site has been virtually completed for the soil pathway.

There are no point sources of air emissions at McKenzie. The maintenance shop uses mineral spirits in parts washers to degrease equipment. Potential emissions are small, and the solvent is not subject to regulation under Georgia's Air Toxics Strategy. Because the wash rack uses high-pressure hot water to clean the tankers, there is potential for volatilization of light components of the residual material in the tankers. No metals or carcinogens are known to be emitted from any source (Reference 6).

6.2 Soil and Air Targets

The population within a 4-mile radius was determined using 1990 Census Bureau information (Reference 16). The total population within this area is 15,304 people. Subsequent to the 1997 Preliminary Assessment, the State Properties Commission

purchased and demolished all the residences previously adjacent to the property (Photos 6 & 7). As they acquire more property, the closest target recedes farther from any area of contamination. The site is fenced, and has locked gates preventing free access. During the on-site reconnaissance, no tracks or other evidence of wildlife population was observed.

6.3 Soil Sample Locations

No new soil samples were collected at the McKenzie Tank Lines site for this site investigation. Samples have been previously collected along the sides of surface drainage features and in areas where buried drums were located. Confirmatory samples taken after removal actions in these areas indicate no hazardous constituents remain above background levels (References 5 and 7).

6.4 Soil Analytical Results

Soil samples taken after remediation of areas known to be contaminated indicate no hazardous constituents present above background levels (Reference 5).

6.5 Soil Exposure and Air Pathway Conclusions

There is no evidence of contaminated soil and subsoil by chemical analysis or direct observation. Subsurface contamination of soils by contact with the groundwater plume continues. Air releases are limited in scope and hazard.

7. SUMMARY AND CONCLUSIONS

The primary pathway of concern at the McKenzie Tank Lines site is the groundwater pathway. No contamination of the soil, sediment, or surface water at the site is now known or suspected. Air exposures at the site are virtually nonexistent either as a result of current facility operations or historical releases. No offsite wells have been affected by the groundwater contamination at the site.

A considerable plume of chlorinated solvents exists in the subsurface. This contamination is being actively remediated by the facility. Due to the critical nature of the Floridan aquifer underlying the site, extraordinary precautions are merited in the management of the groundwater pathway at the site. However, McKenzie Tank Lines is a viable owner and the State Properties Commission is performing its own due-diligence actions at the site. **It is recommended that McKenzie Tank Lines not be considered for further investigation under CERCLA.**

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2. U.S. Geological Survey, 7.5-minute series Topographical Quadrangle Maps of metropolitan Savannah, Georgia: Port Wentworth, Garden City, Savannah, Georgia; Limehouse, South Carolina.

3. *Latitude and Longitude Calculation Worksheet #2* for McKenzie Tank Lines, Port Wentworth, Georgia, May 9, 1997.

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13. Hendrick, Janet, Port Wentworth Water Department, telephone conversation with Billy Hendricks, June 30, 1997.

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15. U. S. Department of Commerce, Proof Copy of Table generated for 1990 CPH-1: Summary Population and Housing Characteristics, Bureau of the Census, April 1991.

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20. *Protected Plants of Georgia,* Georgia Department of Natural Resources, 1995.

21. U. S. Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Maps, Port Wentworth, Savannah, and Fort Pulaski, Georgia.

Appendix A

Photographs

UNSCANNABLE

MEDIA

(PHOTOGRAPHS)

Appendix B

References

Appendix C

Compliance Status Report

Reference 17

Handex

March 26, 1998

RECEIVED

MAY 1 1 1998

HAZ. SITES RESPONSE PROG.

Mr. Steve Woodall
Georgia Department of Natural Resources
205 Butler Street, S.E., Suite 1462
Atlanta, Georgia 30334

Subject: Compliance Status Report Submittal (Chatham County)
McKenzie Tank Lines, Inc.
HSI #10406

Dear Mr. Woodall:

On behalf of McKenzie Tank Lines, Handex of Florida (Handex) is pleased to submit the attached Compliance Status Report. This report represents a tremendous amount of work that has been performed by McKenzie Tank Lines over the last 6 years. The report has been structured to either directly answer each required item in your Rules for Hazardous Site Response or has direct references to where the required information can be found in the documents that have been previously submitted to your department. To facilitate and streamline your review, all the previously submitted documents are incorporated into this report.

I have notified Mr. David Brownlee of your office that McKenzie Tank Lines is currently installing the corrective action system that is presented in Appendix A of this report. They are eager to move forward with the environmental restoration of this property.

If you have any questions please contact either me at (850) 906-9011 or Richard Healy at McKenzie Tank Lines at (850) 576-1221.

Sincerely,
HANDEX OF FLORIDA, INC.

Glenn R. MacGraw, P.G.
Project Manager

ATTACHMENT

1535 Killearn Center Boulevard, Suite C-6, Tallahassee, FL 32308 • (904) 906-9011 • Fax: (904) 906-3199

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Appendix B Contamination Assessment Report - Farley-Jones, Dated December 8, 1993
Appendix C Contamination Assessment Report Addendum - Farley-Jones, Dated April 6, 1994
Appendix D Remedial Action Plan - Farley-Jones, Dated July 10, 1995
Appendix E Soil Disposal Records, Characterization Analyses, and Manifests

Summary of Report Findings

This Compliance Status Report characterizes the site located at 111 Grange Road, Port Wentworth, Georgia. McKenzie Tank Lines has collected sufficient data to determine that corrective action is warranted for the facility and McKenzie Tank Lines is committed to performing the required corrective actions. McKenzie executed a consent order (EPD-WO-1896) with the Georgia Environmental Protection Division (GEPD) and the work products required under this consent order are provided as Appendices B and C of this report. Appendices B, C, and D have been previously submitted to the GEPD but are included in this compliance status report in order to facilitate your review.

A chlorinated solvent groundwater plume has been delineated at the facility. At this time, we propose to install a corrective action system that consists of 3 groundwater recovery wells for hydraulic control of the groundwater at the facility. The vertical extent of the contamination appears to be limited to the upper 35 feet of aquifer at the facility. Laboratory permeability testing has confirmed that existence of the Miocene confining/semi-confining unit with a value of 6×10^{-6} feet per day. This clay layer will severely inhibit downward migration of the contaminant plume and is reported to have a thickness of approximately 200 feet in the area of the site. As chlorinated solvents have a propensity to sink in an aquifer, it is essential that groundwater remediation begin as soon as possible to accomplish hydraulic control and mass removal at the facility. Upon confirmation of the proposed system's capture zone, any necessary additional assessment that GEPD feels would be appropriate could be discussed. Our proposed Corrective Action Plan has been purposely kept brief due to the fact that many of the operational parameters and aquifer yield information has only been derived from slug testing and many of the required engineering specifications are presented in Appendix D. Upon approval of the Corrective Action Plan, McKenzie will use the system startup as an extended pump test to verify well yields and operational parameters and will prepare a system startup report to GEPD with the results and any additional recommendations for complete capture of the groundwater plume.

Soil contamination has been identified and remediated during the original emergency response in the stormwater ditch that borders the facility. On-site soils have been removed as stated in this report and in Appendix D. After performing aeration, tilling, and vapor extraction remediation on the soils, they were sampled and properly disposed of as stated in this report. As stated in Appendix D, soil contamination that currently exists on the site is likely off-gassing from the groundwater plume at the facility.

Compliance Status Certification

I certify under penalty of the law that this report and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or person 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 of the significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Based on my review of the findings of this report with respect to the risk reduction standards of the Rules for Hazardous Site Response, Rule 391-3-19-.07, I have determined that this site/property is not in compliance with any Type risk reduction standards. We have submitted as part of this Compliance Status Report, a proposed Corrective Action Plan to accomplish cleanup and compliance to an applicable risk reduction standard.

Mr. Jim Sheffer, President - McKenzie Tank Lines, Inc.

March 23, 1998
Date

Joyce C. Hill
Witness

Joyce C. Hill
Witness (Printed Name)

March 23, 1998
Date

Introduction

In response to your letter dated September 30, 1997, and to continue our efforts to keep the Georgia Department of Natural Resources appraised of McKenzie Tank Lines, Inc. (McKenzie) desire to accomplish corrective action at our facility located at 111 Grange Road, Port Wentworth, Georgia, this Compliance Status Report is intended to fulfill the requirements of Section 391-3-19-.06(3) to summarize past assessment and remediation that has been conducted at the facility, as well as to provide our Corrective Action Plan for the contaminated groundwater plume that exists at the facility. We have provided as appendices to this report the previously submitted documents regarding the investigations that have already been performed. Rather than recreate those documents in the text of this report, we will provide short summaries or references to where the information required by the above referenced rule can be found. McKenzie has been aggressively attempting to characterize the site and we are now ready to commence corrective action as soon as possible. We ask that you review Appendix A of this report as soon as possible to provide feedback on our remedial strategy to allow for an expedited installation and commencement of remedial activities at the site.

1.0 Description of each known source which has contributed or is contributing to a release

The primary constituents of the contaminant plume at the McKenzie Tank Lines, Inc. (McKenzie) facility are Trichloroethylene (TCE), and Tetrachloroethylene (PCE). Other chlorinated solvent breakdown products are also present at the facility including the end breakdown product which is Vinyl Chloride (VC).

(i) Source name, number, or other descriptor

McKenzie has been operating a truck terminal and tanker cleaning facility on this property since 1983. Prior to 1985, tankers were cleaned with a Detrex Vapor Generator (Detrex). A solvent solution was vaporized in the Detrex Vapor Generator and the vapor was used for degreasing and cleaning of the interiors of the tanker trailers. The Detrex used Tetrachloroethylene (PCE) to dissolve the basic soils on the inside of a tanker which allowed the solids to be washed away. Theoretically, the cleaning solvents were recycled within the Detrex system process and waste solvent products were not produced. Attempts to find employees that could substantiate any mechanism by which the chlorinated solvents were released to the soils and groundwater on the site have been fruitless. In 1985, McKenzie changed it's tanker cleaning protocol and in 1987 the use of the Detrex system was terminated. In 1989, a new tanker trailer cleaning facility was constructed southeast of the old tanker cleaning building. The original tanker washing building is now used as a tire storage and repair shop. No organic solvents are currently used in the tanker washing process.

Tankers are cleaned with an inorganic acid/base solution. After pH neutralization and oil removal, the wash water is collected in two aboveground storage tanks and transported for disposal to a permitted industrial pretreatment facility.

(ii) Location of source on a map of scale of 1 inch = 200 feet or less.

See Figure 3 (Page 10) of the December 8, 1993 Contamination Assessment Report (Appendix B) which was prepared by Farley-Jones & Associates. The former wash rack is located near the center of the map. Considering the orientation of the plume as it existed in previous maps and as presented in the recently performed baseline sampling event, any potential solvent release originated from the former wash rack area.

(iii) Name of each regulated substance released from each source

The chlorinated solvents present at the site are:

CAS Number	Compound Name	Origin
79016	Trichloroethylene	Parent Product
127184	Tetrachloroethylene	Parent Product
75343	1,1 Dichloroethane	Breakdown Product
75354	1,1 Dichloroethene	Breakdown Product
71556	1,1,1 Trichloroethane	Breakdown Product
156605	Trans-1,2-Dichloroethene	Breakdown Product
75014	Vinyl Chloride	Breakdown Product

(iv) Chronology of each source of a release

The potential release that occurred at this facility was undocumented and efforts to establish the mechanism for any release have been hampered by the fact that no former employee can be found to provide insight to the former operations at the facility. The undocumented release either occurred prior to McKenzie's occupation of the facility in 1983 or may have happened during the truck washing operations between 1983 and 1987. In 1987, McKenzie discontinued using solvents for truck washing operations and shifted to an inorganic acid/base wash solution.

(v) If the Source is an engineered structure or a waste management unit, a description of the function, design, dimensions, capacity, and operation of the source, including as-built construction drawings where available.

The former wash rack (now tire shop) building was constructed prior to McKenzie commencing operations at the facility. As-built drawings have not been located and their whereabouts are unknown. McKenzie personnel will continue their attempt to locate drawings that may provide documentation of the engineering design of the building.

2.0 Soil Characterization

(I) General approach used

The initial contamination assessment of the site considered two areas of soils to be of concern. The first area is the City of Port Wentworth storm water drainage ditch just west of the McKenzie property. Samples of the soils in the ditch indicate the presence of halocarbons, fuel related volatile organics, and total naphthalenes. It was proposed to excavate this ditch. Upon further inspection of the data, the contamination detected in the ditch, especially the halocarbons, appear to be related to the groundwater contamination that is present at the facility. The ditch may be a discharge point for groundwater. The analyses conducted on the soils do not distinguish between contamination adsorbed on the soils, contamination in the soil moisture, or gasses in the pore space. Therefore, one cannot determine if the detected compounds are adsorbed in soils or moisture from groundwater. The areal pattern of contaminant levels in soil samples (see Figure 7 of Appendix D, titled Remedial Action Plan, dated July 10, 1995) does, however, indicate the origin of the contaminants found in the samples. The samples with the highest detected levels are found at a point where the middle of the plume discharges into the ditch. In addition, samples taken just upstream of the groundwater plume discharge point do not indicate halocarbon contamination. This suggests that the contaminants detected in the sediment samples may have come from groundwater discharging into the ditch. High organic content likely to be found in channel bottom sediments probably cause partitioning from groundwater to soils. The ultimate source, however is groundwater. As a result of contaminated groundwater discharging into the ditch, excavation of the ditch would be a futile attempt at remediation at this time. The source of contamination, groundwater, detected in the ditch needs to be hydraulically controlled. This will be accomplished by the Corrective Action Plan that is included in Appendix A. After the groundwater treatment system is installed, soils in the stormwater ditch will be re-examined.

The second soils area of concern is the area southeast of the tire shop. This area overlies the groundwater plume. This was identified by analyzing, with an Organic Vapor Analyzer (OVA), the headspace of soil samples collected in a jar. This analysis does not distinguish between compounds adsorbed on soil, in soil moisture, or gas in pore space. As with the stormwater ditch, one cannot determine if the soils are contaminated or if the results are due to the presence of contaminated groundwater. The depth to groundwater ranges from 2 to 6 feet

below land surface on the site. Since sampling went to 6 feet, the majority of the samples showing elevated levels are probably the result of being in contact with contaminated groundwater. In either case, about 1,100 cubic yards of soil in this area were excavated and a vapor extraction pilot study was conducted on the excavated soils. The results of the study indicated that the contaminants in the soil are conductive to vapor extraction; however, the soils settle and tend to become dense reducing the actual surface area/volume ratio, reducing the soil surface that can be readily exposed to moving air. The 1,100 cubic yards of soils were tested and met disposal criteria for recycling which was accomplished by Soil Safe Technologies, Inc., and were transported and disposed of on August 27-28, 1997. The analytical results and the manifests are provided in Appendix E.

(ii) Analytical parameters selected and rationale for selection.

The soils were sampled for various physical parameters and the following organic analyses:

EPA 3550/8270 - (EPA 610 in Soil)
EPA 5030/8021 - (EPA 601/602 in Soil)
EPA 3050/7130 - Cadmium
EPA 3050/7420 - Lead
EPA 3050/7061 - Arsenic
EPA 3050/7190 - Chromium
EPA 3050/7210 - Copper
EPA 3050/7020 - Aluminum
EPA 3050/7770 - Sodium
EPA 3050/7610 - Potassium
EPA 3050 - Titanium
EPA 926C - Sulfate
EPA 9073 - TRPH

These parameters were selected to cover all the contaminants of concern that were either present on the site or were discovered during the investigation.

(iii) Location of all sampling points by sample identification number on a map....

See the various documents in Appendices B, C, and D. The original soil sampling grid can be found on pages 28-30 of the December 8, 1992 Contamination Assessment Report (Appendix B).

(iv) Sampling and analysis procedures

All sampling procedures that led to the data presented in this report were in compliance with the EPA Region IV Standard Operating Procedures for Quality Assurance Manual (SOP QAM 2-1991). All laboratories that analyzed samples are certified in the State of Georgia.

(I) Sampling equipment and collection techniques

Soil samples were obtained either through the use of split spoons with a drill rig, or a decontaminated stainless steel hand auger. Each sample was transferred using a decontaminated stainless steel spoon. Headspace measurements were performed with either a Foxboro Organic Vapor Analyzer (OVA) or a HNu Photo Ionization Detector (PID). Sample collection techniques followed the above referenced SOP's.

(II) Field analytical or measurement techniques including make and model of equipment and calibration schedule and type

The model PID that was used was a Hnu HW101 PID, the OVA was a Foxboro 135 OVA. Each instrument was calibrated a minimum of two times per day and most days a midday calibration was also performed to enhance quality assurance. The method of measurement is predominantly referred to as the jar headspace measurement method. In this method, a 16 ounce jar is filled approximately half way and the jars headspace is measured after the sample equilibrates for 5 minutes. Aluminum foil is used as a cover which is pierced by the instrument to measure the headspace in the top half of the jar.

(III) Sample handling and preservation techniques

Laboratory samples were obtained, properly labeled and listed on the chain of custody, and packed in a cooler that was filled with ice for shipment to the laboratory. All soil samples were sent without preservative (unpreserved) for immediate laboratory analysis.

(IV) Equipment decontamination procedures

All sampling instruments were decontaminated using the following procedures:

1. Scrub instrument with a mixture of potable water and Alconox soap (liquid or powder).
2. Deionized water rinse.
3. Rinse with Isopropyl Alcohol.
4. Final rinse with deionized water.
5. Air drying and wrapping in aluminum foil.

(V) Chain-of-custody procedures

Any samples sent to a laboratory for analysis were accompanied by a chain-of-custody which listed the date, time of sample, sample location, number of sample bottles, preservatives used, and a signature from anyone that was a part of the sampling process including laboratory shipping and receiving personnel and common carriers that delivered the samples to the laboratory. Chain-of-custody forms are presented in the reports with their associated data sheets.

(VI) Laboratory analytical techniques.....

The soils were sampled for various physical parameters and the following organic analyses:

EPA 3550/8270 - (EPA 610 in Soil)
EPA 5030/8021 - (EPA 601/602 in Soil)
EPA 3050/7130 - Cadmium
EPA 3050/7420 - Lead
EPA 3050/7061 - Arsenic
EPA 3050/7190 - Chromium
EPA 3050/7210 - Copper
EPA 3050/7020 - Aluminum
EPA 3050/7770 - Sodium
EPA 3050/7610 - Potassium
EPA 3050 - Titanium
EPA 926C - Sulfate
EPA 9073 - TRPH

These parameters were selected to cover all the contaminants of concern that were either present on the site or were discovered during the investigation.

(v) A description of any statistical procedures used to evaluate data

No statistical methods were used to evaluate the data presented in this report The data has been reported as received from the laboratory or the field instrument as appropriate.

(vi) Procedures used to establish background soil concentrations

Background soil samples were obtained from the outer area of the site in an area that was not affected by the plume.

(vii) Tabular summary of all pertinent data.....

Data has been summarized as requested in all the reports submitted as part of this compliance report. The recently completed baseline sampling event is presented in the Tables section of this report.

3.0 Groundwater Characterization

(I) Analytical Parameters selected and rationale for selection.

The groundwater investigation at this facility has focused on the petroleum volatile and semi-volatile organic constituents of petroleum handling operations at the as well as the documented chlorinated solvent plume that has been discovered at the facility. These parameters were:

EPA 5030/8020 - Volatile Organics
EPA 3510/8270 - Semi-volatile Organics
EPA 5030/8021 - Chlorinated Solvents

(ii) A description of the methods used to characterize subsurface geology.

Characterization of the subsurface geology of the site was predominantly accomplished through the use of drilling logs through well installation and soil borings. All soil boring and well installation was supervised by a geologist. The detail of the site specific geology is presented in Appendix B (pages 14-16) in the Farley-Jones CAR dated December 8, 1993 and subsequent documents that are also part of this report.

(iii) A description of the methods used to characterize horizontal and vertical groundwater gradients, flow rates, and flow directions.

The various aquifer parameters, groundwater flow direction and rate are presented in Appendix B, (pages 46-53) in the Farley-Jones CAR dated December 8, 1993 and subsequent documents that are also part of this report.

(iv) A description of the methods used to determine hydraulic conductivities and other pertinent hydrogeological characteristics, including a description of any slug and/or aquifer pumping tests.

See (iii) above for report references and locations of the requested information.

(v) A description of groundwater monitoring well locations, and their installation and construction methods, including:

(I) A map with scale of 1 inch = 200 feet or less depicting all existing well locations including a survey of each well's surface reference point and the elevation of its top-of-casing

The investigation at this facility was conducted in several phases. The Farley-Jones CAR, Appendix B, the Farley-Jones CAR Addendum, Appendix C and the Farley-Jones Remedial Action Plan, Appendix D have the requested maps. The Tables and Figures section of this report contain the most recent baseline groundwater data, data tables, and plume maps also provide recently surveyed well locations as well as the location of the wells that were installed by Law Engineering on the adjacent property to the east of the facility. This investigation was performed for the Georgia Port Authority which has an interest in acquiring the McKenzie property.

(II) Type of well casing material

Polyvinylchloride (PVC) was used for all well construction at the facility.

(III) Description of well-intake design including screen slot size and length, filter pack materials and length, and method of filter pack emplacement.

Monitor well construction is described throughout the Farley-Jones CAR and CAR Addendum (Appendices B and C). A detailed description of the well construction details and techniques can be found in the Farley-Jones CAR in Appendix B on pages 43-44.

(IV) Method used to seal the well from the surface and any other features designed to prevent or minimize downward migration of contaminants along the well annulus.

Each well was installed with a drill rig using hollow stem augers, upon reaching the installation depth of each well, the PVC casing with the appropriate screen length was installed and 20/30 silica sand was placed in the borehole while constantly measuring the depth to the top of the sandpack to ensure that the sandpack was installed to no more than 2 feet above the top of the screened interval. Bentonite pellets were then placed on top of the sandpack with a thickness of at least 2-3 feet. The pellets were then hydrated with potable water to accomplish swelling and sealing of the well annulus. The remainder of the borehole was grouted to the surface using a 5% bentonite grout. Each well was then fitted with flush mounted steel manholes which were places within an outward sloping concrete pad measuring 2 feet by 2 feet (minimum) by six inches thick. Water-tight locking caps were then placed on each well. See the well construction diagram on page 44 of the Farley-Jones CAR (Appendix B).

(V) Description of the methods and procedures used to develop the wells.

Each well was developed using a centrifugal pump with a 1.5 inch diameter hose which was decontaminated through thorough cleaning with a steam cleaner prior to insertion into the well. All development/purge waters were placed on asphalt surfaces and regulated to accomplish evaporation without causing runoff.

(vi) Description of all sampling and analysis procedures used, including at a minimum:

(I) Procedures and timing for measuring groundwater elevations for each sampling event.

The top of each well casing was surveyed to a temporary benchmark to establish the elevation of the top of each well casing. The surveyed location on each well casing was on the north side of the well casing which was marked for consistency in subsequent measurement events. Although this site is in a tidally influenced area, the groundwater elevation fluctuation is less than 0.2 feet between high and low tides and overall does not significantly change the groundwater flow at the site. Water level measurements were collected using a calibrated electronic water level indicator which was decontaminated between each well. All groundwater elevations were obtained at the start of each sampling event prior to any groundwater pumping to maximize measurement accuracy. The casing elevations have been provided in Table 2 of this compliance status report. The groundwater elevations for the supplied contour maps are included in the reports in Appendix B and C.

(II) Well evacuation procedures including volume evacuated prior to sampling.

Each well was purged a minimum of 3 full well volumes when the well's pH, conductivity, and temperature became constant. Some of the wells were purged a minimum of 5 well volumes when the physical parameters were not being observed. Each well was purged using either a centrifugal pump, a downhole submersible pump, or a bailer which was used in some of the wells where the hydraulic conductivity of the well caused the well to purge dry. In the case where a well purged dry, two volumes were purged to ensure that formation water was being sampled and not just water that was stagnant in the well pack

(III) Sample withdrawal techniques, sampling equipment and materials (tubing, rope, pump, etc.)

All samples were obtained through use of either a decontaminated Teflon bailer or a disposable Teflon bailer. New nylon twine was used to lower and retrieve

the bailer from the well. As the predominant contaminants of concern were chlorinated solvents, samples were not obtained using a pump due to separation and agitation problems inherent to pumps.

(IV) Sample handling and preservation techniques.

Laboratory samples were obtained, properly labeled and listed on the chain of custody, and packed in a cooler that was filled with ice for shipment to the laboratory. EPA 602 samples were always preserved with dilute hydrochloric acid. All samples were sent either via overnight mail or through an overnight common carrier to assure expedited and safe delivery to the laboratory.

(V) Procedures for decontaminating sampling equipment between samples and sampling events

All sampling equipment was decontaminated using the following procedures:

1. Scrub equipment with a mixture of potable water and Alconox soap (liquid or powder).
2. Deionized water rinse.
3. Rinse with Isopropyl Alcohol.
4. Final rinse with deionized water.
5. Air drying and wrapping in aluminum foil.

(VI) Chain-of-custody procedures for all phases of sample management.

Any samples sent to a laboratory for analysis were accompanied by a chain-of-custody which listed the date, time of sample, sample location, number of sample bottles, preservatives used, and a signature from anyone that was a part of the sampling process including laboratory shipping and receiving personnel and common carriers that delivered the samples to the laboratory. Chain-of-custody forms are presented in the reports with their associated data sheets.

(VII) Laboratory analytical techniques, including references to the analytical methods used, if standard, or in cases where standard analytical techniques do not exist, descriptions of the analytical methods used, including quality assurance and quality control procedures utilized.

EPA 5030/8020 - Volatile Organics
EPA 3510/8270 - Semi-volatile Organics
EPA 5030/8021 - Chlorinated Solvents

All laboratories used during this project are certified to perform analyses in Georgia and follow standard EPA Methods and protocols for quality assurance/quality control.

(vii) A description of the procedures used to determine background groundwater quality which is representative of groundwater not affected by the release.

The site has several wells that are not contaminated that were used to assist in horizontal delineation of the plume. Specifically, wells MW-1S, MW-5S, MW-6S, and MW-7S are all outside the contaminate plume and could be considered for background water quality at the site.

(viii) A map with scale of 1 inch = 200 feet or less depicting the horizontal extent of groundwater contamination

Several maps are presented in this compliance status report that depict the horizontal extent of groundwater contamination on the site. The reports previously submitted by Farley-Jones are included in Appendices B, C, and D. Recent sampling events and maps depicting the most recent plume configuration both horizontally and vertically are presented in the Figures section of this report.

(ix) A map with the scale of 1 inch = 200 feet or less depicting the potentiometric surface of groundwater.

The groundwater flow has been sufficiently characterized at this site and is represented in Appendix B on pages 52 and 53, and in Appendix C on Figure 3.

(x) Maps and vertical cross-sections of appropriate scale depicting concentrations for all contaminants superimposed upon site stratigraphic features and monitoring wells.

A vertical cross section of the property is presented in Appendix D, Figure 4 of the Farley-Jones Remedial Action Plan. The maps presented in the Figures section of this report have concentrations of various contaminants of concern depicted at each well location as well as on the supplied contours.

(xi) Narrative and tabular summary of all pertinent field data and the results of all final laboratory analyses that are supported by sufficient quality assurance/quality control data to validate the results.

The historical data has been summarized as Table 1 in this Compliance Status Report. The laboratory data sheets are also supplied in the back of the Tables section. Additionally, the data supplied by the Georgia Port Authority has also been supplied in this section. Appendices B, C, and D also have data and tables which represent the work previously performed on the property. Monitor well 2V which is presented in Appendix D, could not be located for the most recent sampling event. The original data from this well can be found in Appendix D.

4.0 Receptor Survey

The possible pathways of exposure that currently exist on this site is through contact or ingestion of contaminated groundwater and a minimal chance of exposure in the drainage ditch on the downgradient edge of the plume. The Farley-Jones CAR (Appendix B) indicates on Page 18, that the potable water source in the area is the City of Port Wentworth Water Department which obtains water from three 600-700 foot wells which are completed in the Floridan Aquifer. The city records also indicate that the residences south of Grange Road are connected to the municipal water supply. The chances for contact with groundwater at the site are minimal as practically the entire plume is on the McKenzie property which has controlled access. Contact with contaminated water in the stormwater ditch is also highly unlikely due to the intermittent nature of seepage into the ditch, which may not be occurring at the present time.

The proposed remediation system would provide a possible airborne pathway through the off-gas from the sparge tank, however the Farley-Jones Remedial Action Plan (Appendix D) calculated that the expected concentrations of off-gas would be well below any established levels.

No other exposure pathways are present at the facility for the chemicals of concern. Chlorinated solvents are not used at the facility and have not been used after the Detrex system was replaced in 1989.

5.0 Site/Responsible Party Identification

The subject property is owned by:

McKenzie Tank Lines, Inc.
Mr. Jim Sheffer
P.O. Box 1200
Tallahassee, Florida 32302

Phone (850) 576-1221

6.0 Additional Responsible Party Identification

No other responsible party has been identified at this time.

7.0 Summary of Procedures to Minimize Risk

McKenzie personnel excavated 855 tons of soil from the southwest corner of the tire shop. These soils were identified as soils that could possibly cause additional groundwater contamination through leaching from infiltration of rainwater. These soils were stockpiled on site and landfarmed with additional vacuum extraction added to expedite remediation. The soils were stockpiled on visqueen which was bermed to prevent any runoff from leaving the containment area. A roof structure was placed over the soils to prevent rainwater from interacting with the soils. Soils were constantly tilled by McKenzie personnel to increase their surface area/volume ratio. The soils were tested and recycled through Soil Safe Technologies, Incorporated. Through the soil removal, McKenzie removed the bulk of the soils that exhibited potential to be a continuing source to groundwater.

Elimination of the solvent based tank cleaning operations have definitely eliminated a potential for release of solvents at the facility. McKenzie has also conducted a previous removal of soils on an emergency basis from the Port Wentworth storm water ditch. The removal and proper disposal of 60 cubic yards of soil is documented on pages 7 and 8 of Appendix B. McKenzie has also conducted, primarily on a voluntary basis (with exception of the requirements of the Consent Order), a tremendous amount of site characterization which is presented in this report.

TABLE 1
MONITOR WELL CONCENTRATION DATA
McKenzie Tank Line, Inc.
111 Grange Road, Fort Westworth, Georgia

DATE MW-1s	Tetrachloroethene ug/l	Trichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Vinylchloride ug/l	Trans-1,2-Dichloroethene mg/l	1,1-Dichloroethene mg/l
MW-2s						
3/1993	2390	460	ND	8830	ND	40.7
03/01/94	ND	ND	ND	1200	11000	ND
02/01/96	--	--	--	--	--	--
03/26/96	20	270	ND	78	130	ND
09/05/96	11000	400	ND	280	33	9
10/02/96	31	5450	ND	676	58	ND
04/03/97	47	180	ND	2200	ND	ND
07/24/97	111	338	ND	380	ND	ND
02/04/98	81.9	238	8920	2530	ND	56.1
MW-3s						
07/24/97	550	3,400	ND	28	ND	ND
02/04/98	ND	ND	ND	ND	ND	ND
MW-4s						
3/1993	1,910	125	ND	ND	ND	ND
03/01/94	2,900	680	ND	ND	ND	ND
02/01/96	460	500	ND	ND	5.9	ND
03/26/96	--	--	--	--	--	--
09/05/96	--	--	--	--	--	--
10/02/96	--	--	--	--	--	--
04/03/97	--	--	--	--	--	--
07/24/97	--	--	--	--	--	--
02/04/98	267	336	838	2.4	13.5	ND
MW-5s						
MW-6s						
03/01/94	ND	ND	ND	ND	ND	ND
07/24/97	ND	ND	ND	ND	ND	ND
02/04/98	ND	ND	ND	ND	ND	ND
MW-7s						
02/04/97	ND	ND	ND	ND	ND	ND
02/04/98	ND	ND	ND	ND	ND	ND
MW-8s						
3/1993	--	--	--	--	--	--
03/01/94	580	410	ND	ND	480	ND
02/01/96	600	770	ND	3.2	23	ND
03/26/96	--	--	--	--	--	--
09/05/96	ND	2	ND	ND	ND	ND
10/02/96	--	--	--	--	--	--
04/03/97	--	--	--	--	--	--
07/24/97	ND	6.9	ND	13	ND	ND
02/04/98	1090	641.0	539	24.2	14.7	0.5[illegible]

NOTE: ND = Not Detected -- = Not Sampled

MCK_SVA.XLS

TABLE 1
MONITOR WELL CONCENTRATION DATA

DATE MW-xx	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/1993	–	–	–	–	–	–
03/01/94	ND	ND	ND	ND	ND	ND
02/01/96	–	–	–	–	–	–
03/26/96	–	–	–	–	–	–
09/05/96	–	–	–	–	–	–
10/02/96	–	–	–	–	–	–
04/03/97	–	–	–	–	–	–
07/24/97	ND	ND	ND	ND	ND	ND
02/04/98	ND	ND	ND	ND	ND	ND
MW-19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07/24/97	–	–	–	–	–	–
02/04/98	ND	ND	ND	ND	ND	ND
MW-20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/1993	–	–	–	–	–	–
03/01/94	49000	880	ND	ND	ND	ND
02/01/96	10000	1600	ND	31	7.1	ND
03/26/96	120	260	ND	1000	89	21
09/05/96	8	11	ND	1300	25	9
10/02/96	15880	5805	ND	678	78	ND
04/03/97	13000	ND	ND	140	ND	ND
07/24/97	10000	8700	ND	5400	ND	ND
02/04/98	7750	3580	3450	120	25	ND
MW-40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/1993	–	–	–	–	–	–
03/01/94	–	–	–	–	–	–
02/01/96	1	ND	ND	2.6	ND	ND
03/26/96	–	–	–	–	–	–
09/05/96	–	–	–	–	–	–
10/02/96	–	–	–	–	–	–
04/03/97	–	–	–	–	–	–
07/24/97	–	–	–	–	–	–
02/04/98	2.6	17	61.6	14.5	ND	ND
MW-50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07/24/97	–	–	–	–	–	–
02/04/98	1.4	1	4.2	4.1	ND	ND
MW-90	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
07/24/97	–	–	–	–	–	–
02/04/97	ND	ND	ND	ND	ND	ND

NOTE: [illegible]

TABLE [illegible]

MONITORING WELL CONCENTRATION DATA

[illegible]

113 Grange Road, Fort Wentworth, Georgia

DATE	Tetrachloroethene	Trichloroethene	cis -1,2 Dichloroethene	Vinylchloride	Trans-1,2-Dichloroetjene	1,1 Dichloroethene
PAW-1	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l
10/11/97	ND	ND	ND	ND	ND	ND
PAW-2						
10/11/97	ND	ND	ND	ND	ND	ND
PAW-3						
10/11/97	ND	ND	3990	678	ND	ND
PAW-4						
10/11/97	11900	ND	3330	ND	ND	ND
PAW-5						
10/11/97	ND	ND	ND	ND	ND	ND
PAW-6						
10/11/97	ND	ND	ND	ND	ND	ND

NOTE: ND = Not Detected -- = Not Sampled

MW-1	12.72	2.76	9.97	ND	12.72		12.72		12.72		12.72		12.72
MW-2S	11.74	2.46	9.28	1.35	10.39		11.74		11.74		11.74		11.74
MW-2D	12.23	3.58	8.65	2.68	9.55		12.23		12.23		12.23		12.23
MW-3S	10.93	3.15	7.78	2.59	8.34		10.93		10.93		10.93		10.93
MW-4S	11.52	4.37	7.15	4.00	7.52		11.52		11.52		11.52		11.52
MW-5S	8.86	2.69	6.17	ND	8.86		8.86		8.86		8.86		8.86
MW-6S	12.03	2.72	9.31	1.45	10.58		12.03		12.03		12.03		12.03
MW-7S	16.98	6.34	10.64	4.20	12.78		16.98		16.98		16.98		16.98
MW-8S	14.23	6.71	7.52	6.17	8.06		14.23		14.23		14.23		14.23
MW-9S	11.00	2.90	8.10	1.82	9.18		11.00		11.00		11.00		11.00
MW-10S	12.88	5.73	7.15	4.80	8.08		12.88		12.88		12.88		12.88

Progress Environmental Laboratories
4420 Pendola Point Road
Tampa, Florida 33619
(813) 247-2808
FAX: (813) 248-1537

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-1
Client ID : MW-7
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 10:50
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	1.3	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	91.7	%R	
*4-BFB (10-150%)	EPA 8010	87.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-2
Client ID : EQ-BLK
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 11:10
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.83
1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.81
Analysis date	EPA 8010	02-05-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	102	%R	
*4-BFB (10-150%)	EPA 8010	99.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-3
Client ID : MW-6S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 11:17
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.32
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.35
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.34
Bromodichloromethane	EPA 8010	ND	ug/l	0.42
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.4[illegible]
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.52
Tetrachloroethene	EPA 8010	ND	ug/l	0.35
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.8[illegible]
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.8[illegible]
Analysis date	EPA 8010	02-05-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	98.3	%R	
*4-BFB (10-150%)	EPA 8010	90.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-4
Client ID : MW-10S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 11:25
Sampled By : Client
Sample Quality:

ND = Less than MDL

_ rameter	Method	Results	Units	MDL
GC Volatiles Non-Preserved	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
ɔmoform	EPA 8010	ND	ug/l	0.80
ɪ,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	102	%R	
*4-BFB (10-150%)	EPA 8010	95.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-5
Client ID : MW-3S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 11:35
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	107	%R	
*4-BFB (10-150%)	EPA 8010	98.0	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-6
Client ID : MW-9D
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 11:45
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
alysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	102	%R	
*4-BFB (10-150%)	EPA 8010	97.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-7
Client ID : MW-9S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:05
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	103	%R	
*4-BFB (10-150%)	EPA 8010	98.3	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-8
Client ID : MW-8D
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:15
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	4.2	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	4.1	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.33
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.4[illegible]
Trichloroethene	EPA 8010	1.2	ug/l	0.[illegible]
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.[illegible]
Bromodichloromethane	EPA 8010	ND	ug/l	0.4[illegible]
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.[illegible]
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.[illegible]
Tetrachloroethene	EPA 8010	1.4	ug/l	0.[illegible]
Dibromochloromethane	EPA 8010	ND	ug/l	0.44
Bromoform	EPA 8010	ND	ug/l	0.[illegible]
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.[illegible]
Analysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	99.3	%R	
*4-BFB (10-150%)	EPA 8010	95.0	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-9
Client ID : MW-8S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:20
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	539	ug/l	4.0
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	24.2	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	0.69	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	14.7	ug/l	0.42
1,1-Dichloroethane	EPA 8010	0.52	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	641	ug/l	7.2
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.42
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.52
Tetrachloroethene	EPA 8010	1090	ug/l	7.2
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.82
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	82.3	%R	
*4-BFB (10-150%)	EPA 8010	73.3	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-10
Client ID : MW-4D
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:30
Sampled By : Client
Sample Quality:

ND = Less than MDL

arameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	81.6	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	14.5	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	1.2	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	16.8	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	2.6	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-06-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	93.7	%R	
*4-BFB (10-150%)	EPA 8010	94.0	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-11
Client ID : MW-4S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:40
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	838	ug/l	5.0
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	2.4	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	0.56	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	13.5	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	336	ug/l	9.0
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	267	ug/l	9.0
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	71.3	%R	
*4-BFB (10-150%)	EPA 8010	66.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-12
Client ID : MW-2D
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 12:50
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
C Volatiles Non-Preserved	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	3450	ug/l	20.0
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	120	ug/l	25.0
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	1.6	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	7.5	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	25.0	ug/l	0.42
1,1-Dichloroethane	EPA 8010	1.4	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	3560	ug/l	36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.34
Bromodichloromethane	EPA 8010	ND	ug/l	0.42
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.52
Tetrachloroethene	EPA 8010	7750	ug/l	36
Dibromochloromethane	EPA 8010	ND	ug/l	0.44
Bromoform	EPA 8010	ND	ug/l	0.[illegible]
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.[illegible]
nalysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	69.0	%R	
*4-BFB (10-150%)	EPA 8010	71.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-13
Client ID : MW-2S
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 13:00
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	48.0
cis-1,2-Dichloroethene	EPA 8010	8920	ug/l	20
Chloromethane	EPA 8010	ND	ug/l	74.0
Vinyl chloride	EPA 8010	2530	ug/l	25.0
Bromomethane	EPA 8010	ND	ug/l	51.0
Chloroethane	EPA 8010	ND	ug/l	29.0
Trichlorofluoromethane	EPA 8010	ND	ug/l	36.0
1,1-Dichloroethene	EPA 8010	ND	ug/l	36.0
Methylene chloride	EPA 8010	ND	ug/l	100
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	42.0
1,1-Dichloroethane	EPA 8010	59.1	ug/l	35.0
Chloroform	EPA 8010	ND	ug/l	100
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	30.0
Carbontetrachloride	EPA 8010	ND	ug/l	34.0
1,2-Dichloroethane	EPA 8010	ND	ug/l	42.0
Trichloroethene	EPA 8010	238	ug/l	36
1,2-Dichloropropane	EPA 8010	ND	ug/l	38
Bromodichloromethane	EPA 8010	ND	ug/l	42
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	13
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	52
Tetrachloroethene	EPA 8010	81.9	ug/l	36
Dibromochloromethane	EPA 8010	ND	ug/l	48
Bromoform	EPA 8010	ND	ug/l	80
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	82
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	106	%R	
*4-BFB (10-150%)	EPA 8010	102	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-14
Client ID : Dup-A
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 0:00
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	3350	ug/l	20.0
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	140	ug/l	25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	1.1	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	4.7	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	16.9	ug/l	0.42
1,1-Dichloroethane	EPA 8010	1.0	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	3520	ug/l	36.0
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	7800	ug/l	36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	45.7	%R	
*4-BFB (10-150%)	EPA 8010	47.7	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-15
Client ID : Dup-B
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/04/98
Sample Time: 0:00
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	48.0
cis-1,2-Dichloroethene	EPA 8010	8120	ug/l	20
Chloromethane	EPA 8010	ND	ug/l	74.0
Vinyl chloride	EPA 8010	2040	ug/l	25.0
Bromomethane	EPA 8010	ND	ug/l	51.0
Chloroethane	EPA 8010	ND	ug/l	29.0
Trichlorofluoromethane	EPA 8010	ND	ug/l	36.0
1,1-Dichloroethene	EPA 8010	ND	ug/l	36.0
Methylene chloride	EPA 8010	ND	ug/l	100
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	42.0
1,1-Dichloroethane	EPA 8010	56.3	ug/l	35.0
Chloroform	EPA 8010	ND	ug/l	100
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	30.0
Carbontetrachloride	EPA 8010	ND	ug/l	34.0
1,2-Dichloroethane	EPA 8010	ND	ug/l	42.0
Trichloroethene	EPA 8010	218	ug/l	36.0
1,2-Dichloropropane	EPA 8010	ND	ug/l	38.0
Bromodichloromethane	EPA 8010	ND	ug/l	41.0
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	130
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	38.0
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	42.0
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	51.0
Tetrachloroethene	EPA 8010	67.1	ug/l	36.0
Dibromochloromethane	EPA 8010	ND	ug/l	48.0
Bromoform	EPA 8010	ND	ug/l	80.0
1,1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	82.0
Analysis date	EPA 8010	02-09-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	102	%R	
*4-BFB (10-150%)	EPA 8010	96.0	%R	

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

PEL Lab # : 9802-00060-16
Client ID : Trip Blank
Project ID : 115869-01
Location : McKenzie-Savannah
Matrix : Liquid

Collection Information:
Sample Date: 2/05/98
Sample Time: 0:00
Sampled By : Client
Sample Quality:

ND = Less than MDL

rameter	Method	Results	Units	MDL
GC Volatiles	EPA 8010			
Dichlorodifluoromethane	EPA 8010	ND	ug/l	0.48
cis-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.20
Chloromethane	EPA 8010	ND	ug/l	0.74
Vinyl chloride	EPA 8010	ND	ug/l	0.25
Bromomethane	EPA 8010	ND	ug/l	0.51
Chloroethane	EPA 8010	ND	ug/l	0.29
Trichlorofluoromethane	EPA 8010	ND	ug/l	0.36
1,1-Dichloroethene	EPA 8010	ND	ug/l	0.36
Methylene chloride	EPA 8010	ND	ug/l	1.0
trans-1,2-Dichloroethene	EPA 8010	ND	ug/l	0.42
1,1-Dichloroethane	EPA 8010	ND	ug/l	0.35
Chloroform	EPA 8010	ND	ug/l	1.0
1,1,1-Trichloroethane	EPA 8010	ND	ug/l	0.30
Carbontetrachloride	EPA 8010	ND	ug/l	0.34
1,2-Dichloroethane	EPA 8010	ND	ug/l	0.42
Trichloroethene	EPA 8010	ND	ug/l	0.36
1,2-Dichloropropane	EPA 8010	ND	ug/l	0.38
Bromodichloromethane	EPA 8010	ND	ug/l	0.41
2-Chloroethyl vinyl ether	EPA 8010	ND	ug/l	1.3
cis-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.38
trans-1,3-Dichloropropene	EPA 8010	ND	ug/l	0.42
1,1,2-Trichloroethane	EPA 8010	ND	ug/l	0.51
Tetrachloroethene	EPA 8010	ND	ug/l	0.36
Dibromochloromethane	EPA 8010	ND	ug/l	0.48
Bromoform	EPA 8010	ND	ug/l	0.80
1,2,2-Tetrachloroethane	EPA 8010	ND	ug/l	0.82
Analysis date	EPA 8010	02-10-98		
*1,4Dichlorobutane(10-150%)	EPA 8010	93.7	%R	
*4-BFB (10-150%)	EPA 8010	102	%R	

- CONTINUED ON NEXT PAGE -

Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306)

To: Handex Tallahassee
1535 Killearn Boulevard
Suite C-6
Tallahassee, FL 32308

Attn: Glenn MacGraw

Report Date: 2/10/98

Respectfully submitted,
Charles R. Ingram, Quality Assurance Officer.

Progress Environmental Laboratories

№ 26341

4420 Pendola Point Road
Tampa, Florida 33619
(813) 247-2805
FAX: (813) 248-1537

Client: HANDEX
Project Mgr: Glenn MacGraw
Project: Mckenzie-Savannah
Project #: 115869-01
PO #:

Due Date(TAT): 2/18/98
Fax Reports to: ( ) -
Bill to: 1535 Killearn Center Blvd
Tallahassee, Florida 32308
Sampler's Initials: DKM

601

9802-060

Station ID	Date	Time	PEL Lab #	# of Bttls	Pres										Remarks
MW-7	2/4/98	10:50	-01 (W)	3	HCl	✓									
FD-BLK	2/4/98	11:10	-02 (W)	3	HCl	✓									
MW-6S	2/4/98	11:17	-03 (W)	3	HCl	✓									
MW-10S	2/4/98	11:25	-04 (W)	3	HCl	✓									pH 4
MW-3S	2/4/98	11:35	-05 (W)	3	HCl	✓									
MW-9D	2/4/98	11:45	-06 (W)	3	HCl	✓									
MW-9S	2/4/98	12:05	-07 (W)	3	HCl	✓									
MW-8D	2/4/98	12:15	-08 (W)	3	HCl	✓									
MW-8S	2/4/98	12:20	-09 (W)	3	HCl	✓									
MW-4D	2/4/98	12:30	-10 (W)	3	HCl	✓									
MW-4S	2/4/98	12:40	-11 (W)	3	HCl	✓									
MW-2D	2/4/98	12:50	-12 (W)	~~3~~ 2	HCl	✓									(1) vial seal broken

Relinquished By	Received By	Date	Time	Project Notes
[signature]	[signature]	2-2-98	2/3/98 10:00	Rec'd on ice (2°C)
[signature]	FED-EXP	2/3/98	14:30	pH<2 except sample (-04)
	[illegible]	2/5	1000	
				due: 2-18-98

Progress Environmental Laboratories

№ 26340

4420 Pendola Point Road
Tampa, Florida 33619
(813) 247-2805
FAX. (813) 248-1537

page 2 of 2

DC

lient: HANDEY	Due Date(TAT): 2/18/98
roject Mgr: Glenn MacGwaw	Fax Reports to:( ) -
roject : Mckenzie - Savannah	Bill to:
roject #: 115869-01	
O #:	Sampler's Initials:

9802-060

tation ID	Date	Time	PEL Lab #	# of Bttls	Pres	pH<2	601								Remarks
MW-2S	2/4/98	13:00	~~0~~ 13 (W)	3	HCl	✓									
Dup-A	2/4/98	—	~~0~~ 14 (W)	3	HCl	✓									
Dup-B	2/4/98	—	~~0~~ 15 (W)	3	HCl	✓									
TRIP			~~0~~ 16 (W)	1	HCl	✓									

elinquished By:	Received By:	Date	Time	Project Notes
[signature]	[signature]	2-2-98	2/4/98 10:00	Rec'd on ice (2°C)
elinquished By: [signature]	Received By: FED-EXP.	Date 2/4/98	Time 19:30	pH<2
	Received By [signature]	Date 2/5	Time 1000	
	Received By	Date	Time	due: 2-18-98

TABLE 2
GROUNDWATER QUALITY DATA
OCTOBER 11, 1997

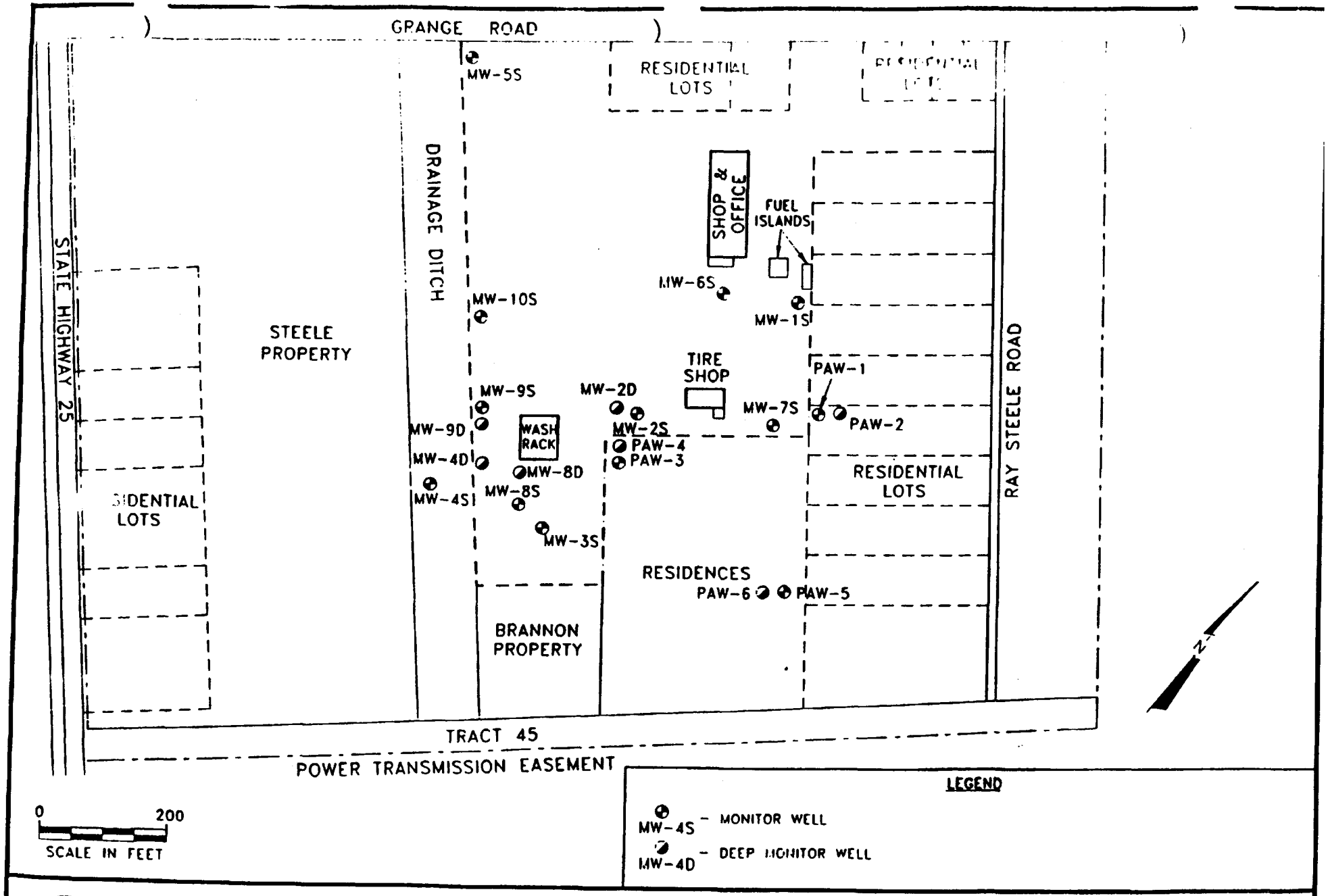
GEORGIA PORTS AUTHORITY
CB-8 EXPANSION

WELL ID NO.	CIS-1,2-DICHLORO-ETHENE (ug/l)	TETRACHLORO-ETHENE (ug/l)	TRICHLORO-ETHENE (ug/l)	VINYL CHLORIDE (ug/l)
PAW-1	ND<5	ND<5	ND<5	ND<10
PAW-2	ND<5	ND<5	ND<5	ND<10
PAW-3	[illegible]	ND<250	ND<250	[illegible]
PAW-4	[illegible]	[illegible]	ND<1,000	ND<2,000
PAW-5	ND<5	ND<5	ND<5	ND<10
PAW-6	ND<5	ND<5	ND<5	ND<10
[illegible]	70	5	5	2

NOTES:

ug/l = micrograms per liter or parts per billion
MCL = Maximum Contaminant Level for drinking water as established by the USEPA
ND< = Not Detected, less than listed laboratory detection limit

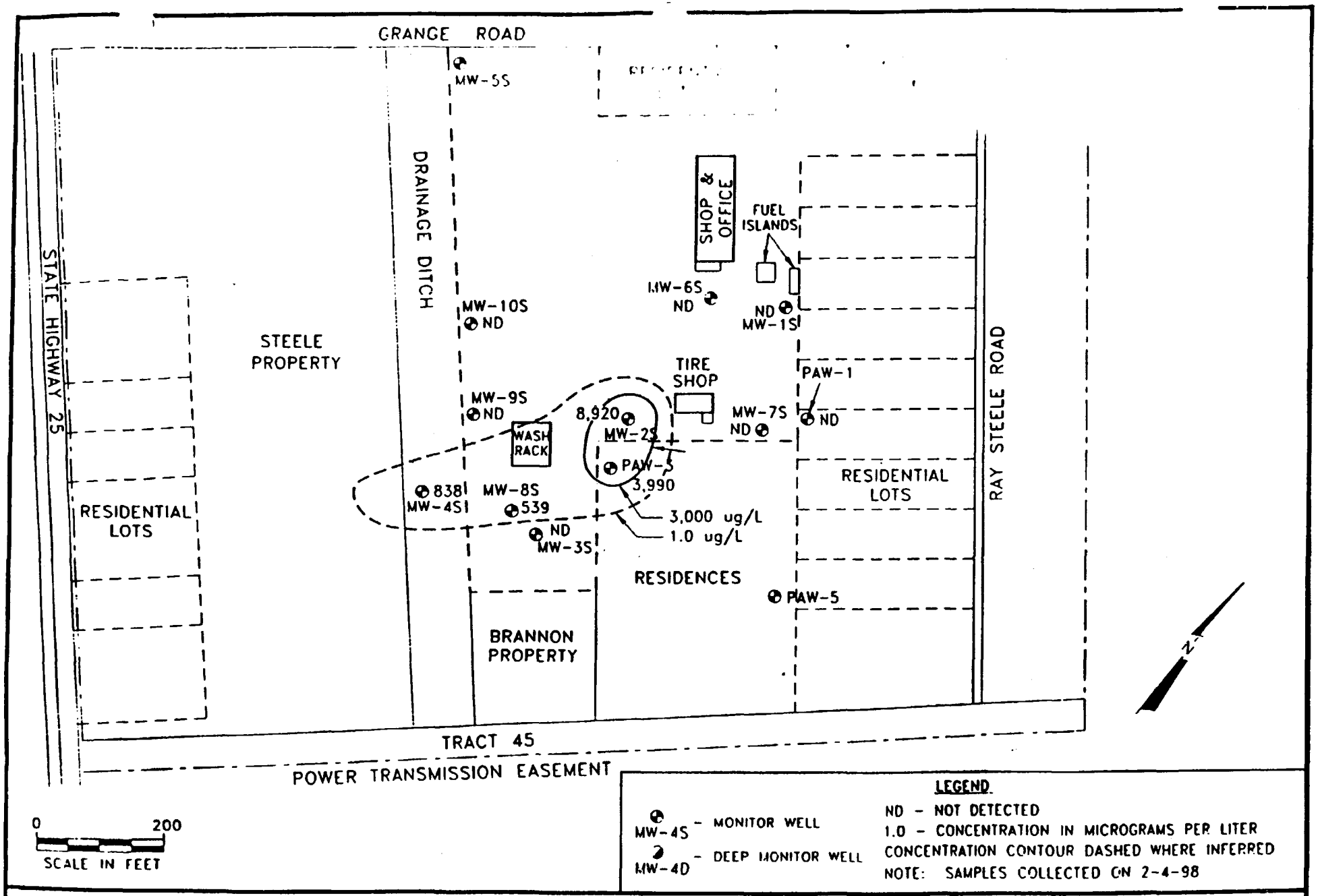
Wells PAW-1, PAW-3 and PAW-5 were installed in a shallow zone within the surficial aquifer and were installed by LAW in October 1997
Wells PAW-2, PAW-4 and PAW-6 are installed in a deeper zone within the surficial aquifer and were installed by LAW in October 1997
Well MW-4S was installed in a shallow zone within the surficial aquifer and was installed by D.L. Smith and Associates, Inc. in January 1993



Handex

McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 1
SITE MAP



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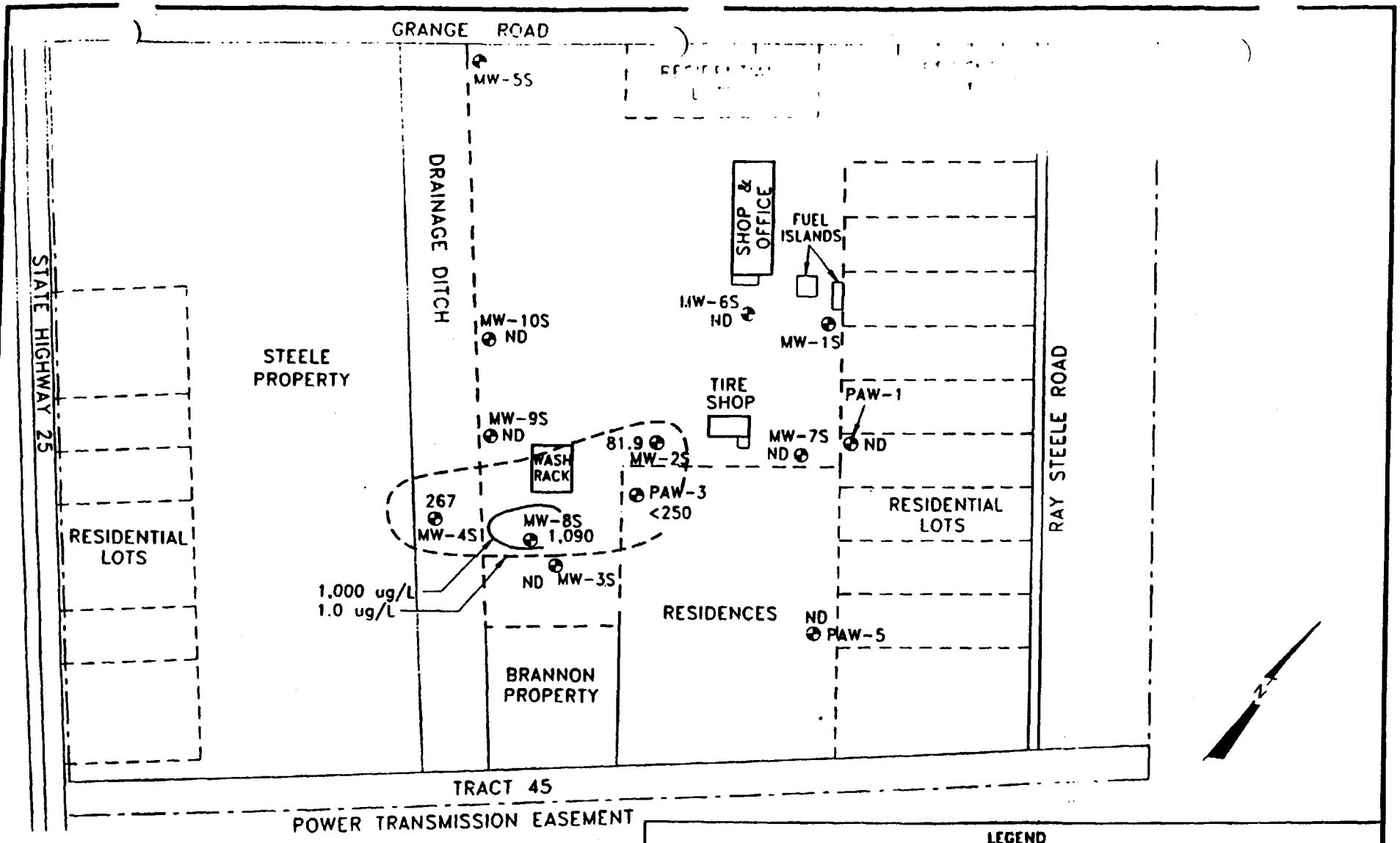
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 2
CIS 1,2 DICHLOROETHENE CONCENTRATION IN THE SURFICIAL AQUIFER



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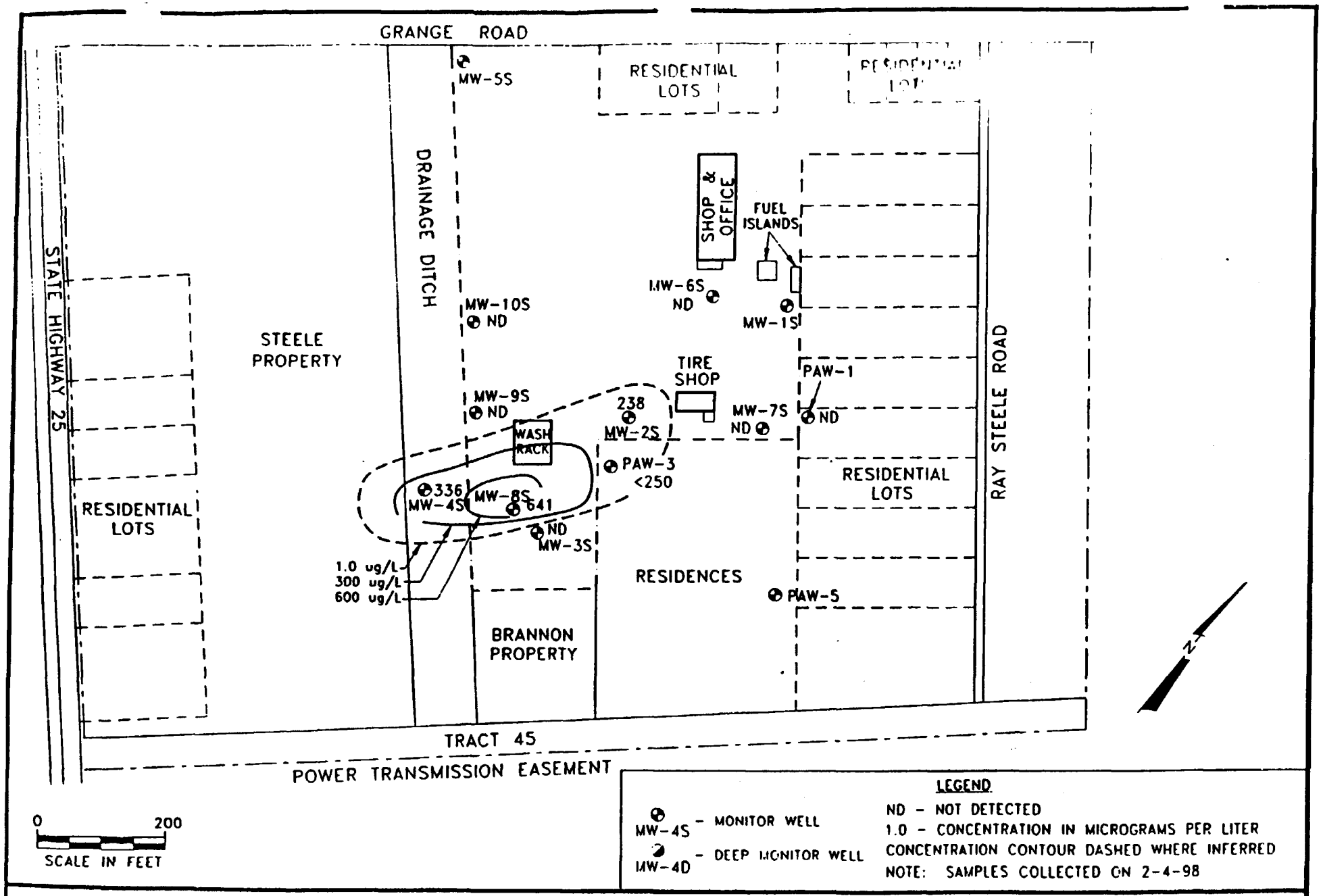
SAVANNAH, GEORGIA
03-09-98

FIGURE 3
TETRACHLOROETHENE
CONCENTRATION IN THE
SURFICIAL AQUIFER



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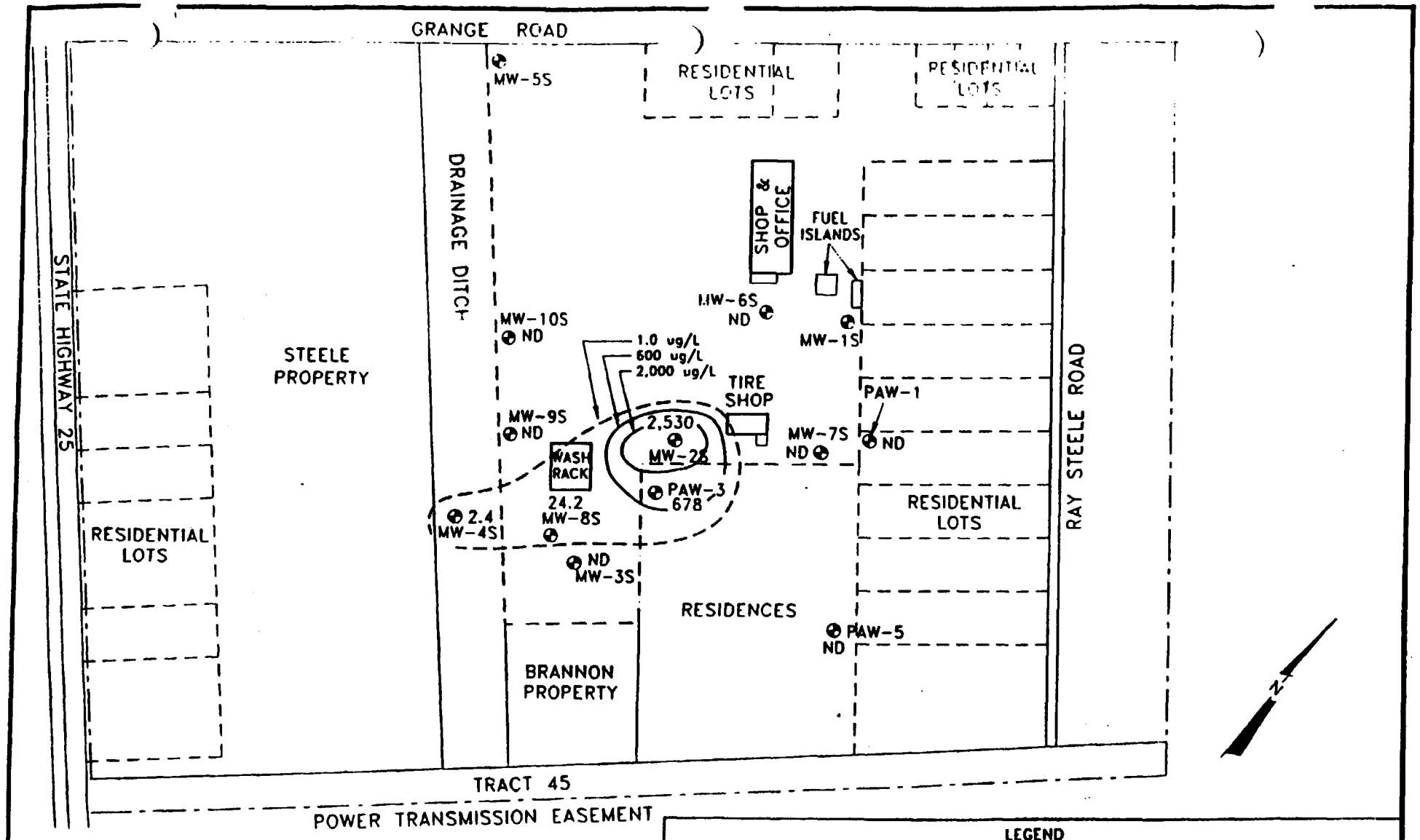
SAVANNAH, GEORGIA
03-09-98

FIGURE 4
TRICHLOROETHENE
CONCENTRATION IN
THE SURFICIAL AQUIFER



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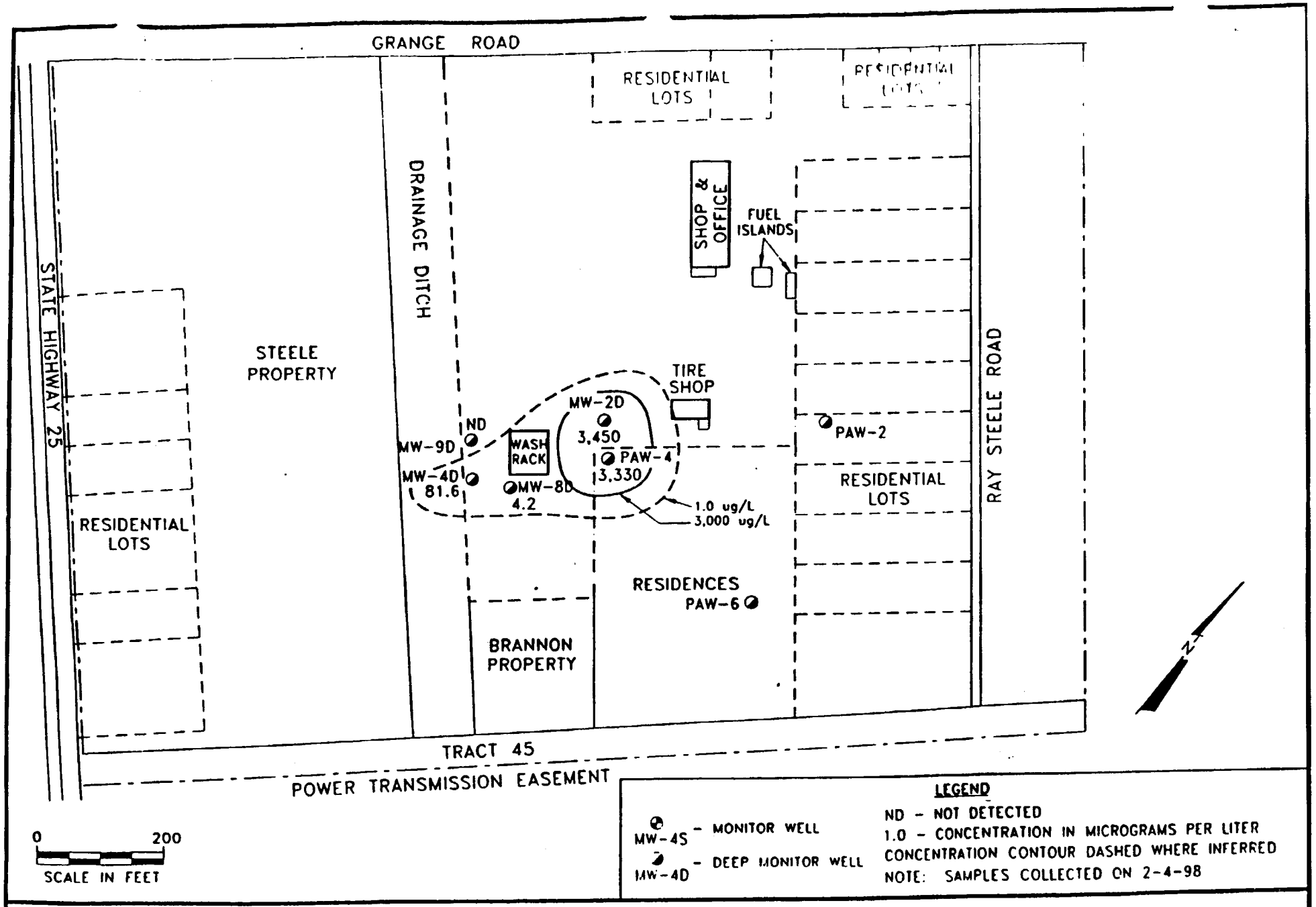
SAVANNAH, GEORGIA
03-09-98

FIGURE 5
VINYL CHLORIDE
CONCENTRATION IN
THE SURFICIAL AQUIFER



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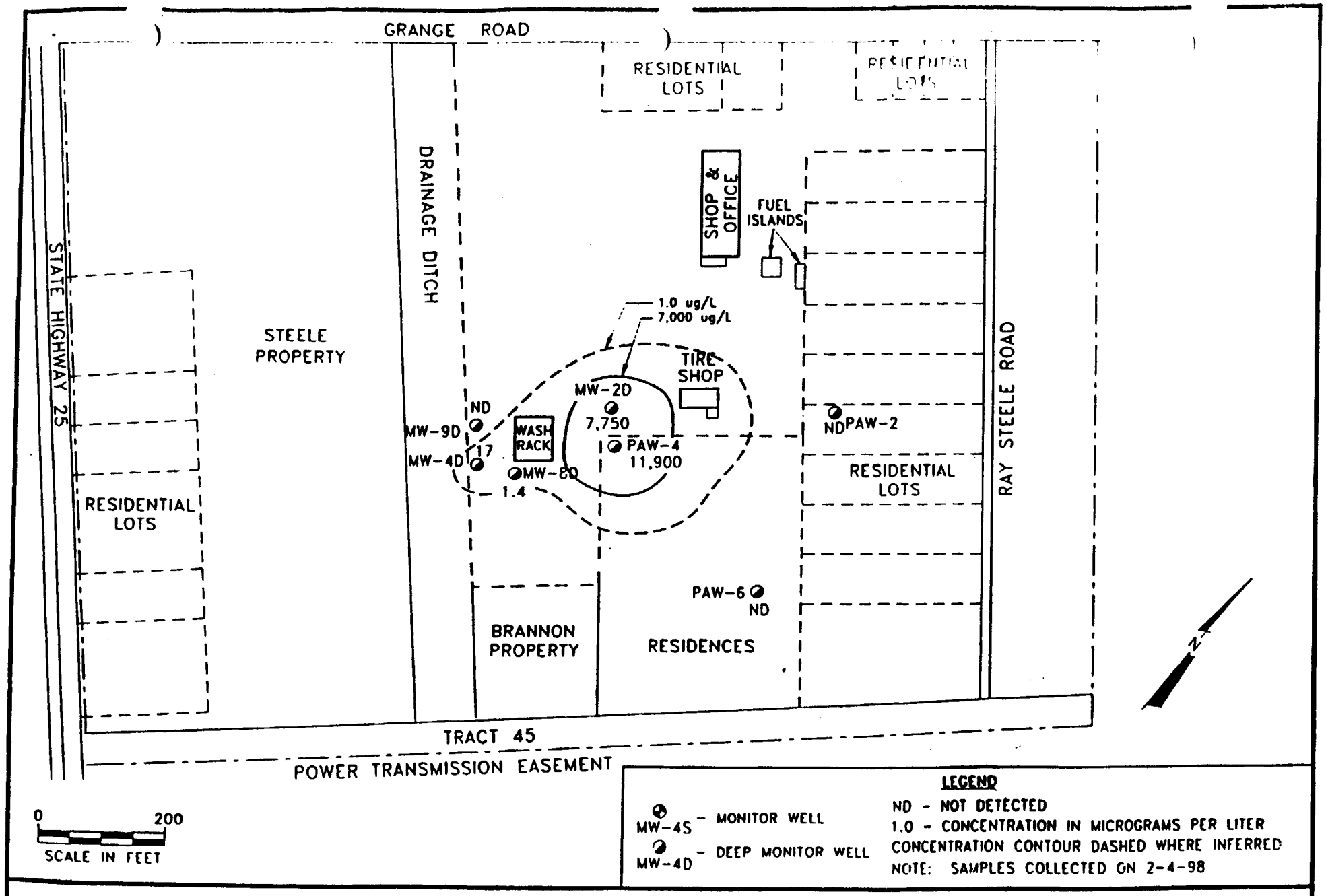
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 6
CIS-1,2, DICHLOROETHENE
CONCENTRATION IN THE
DEEP SURFICIAL AQUIFER



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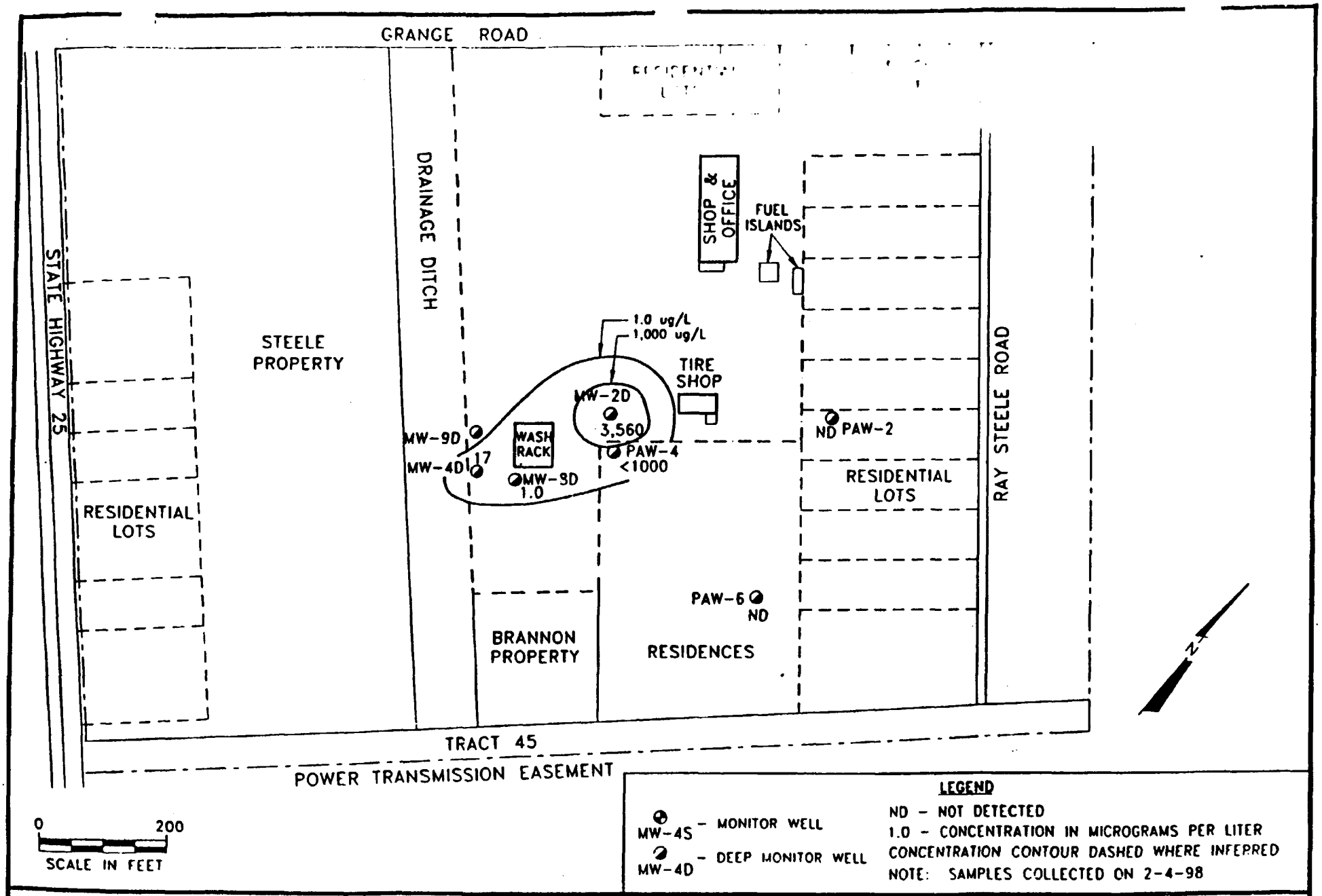
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 7
TETRACHLOROETHENE
CONCENTRATION IN THE
DEEP SURFICIAL AQUIFER



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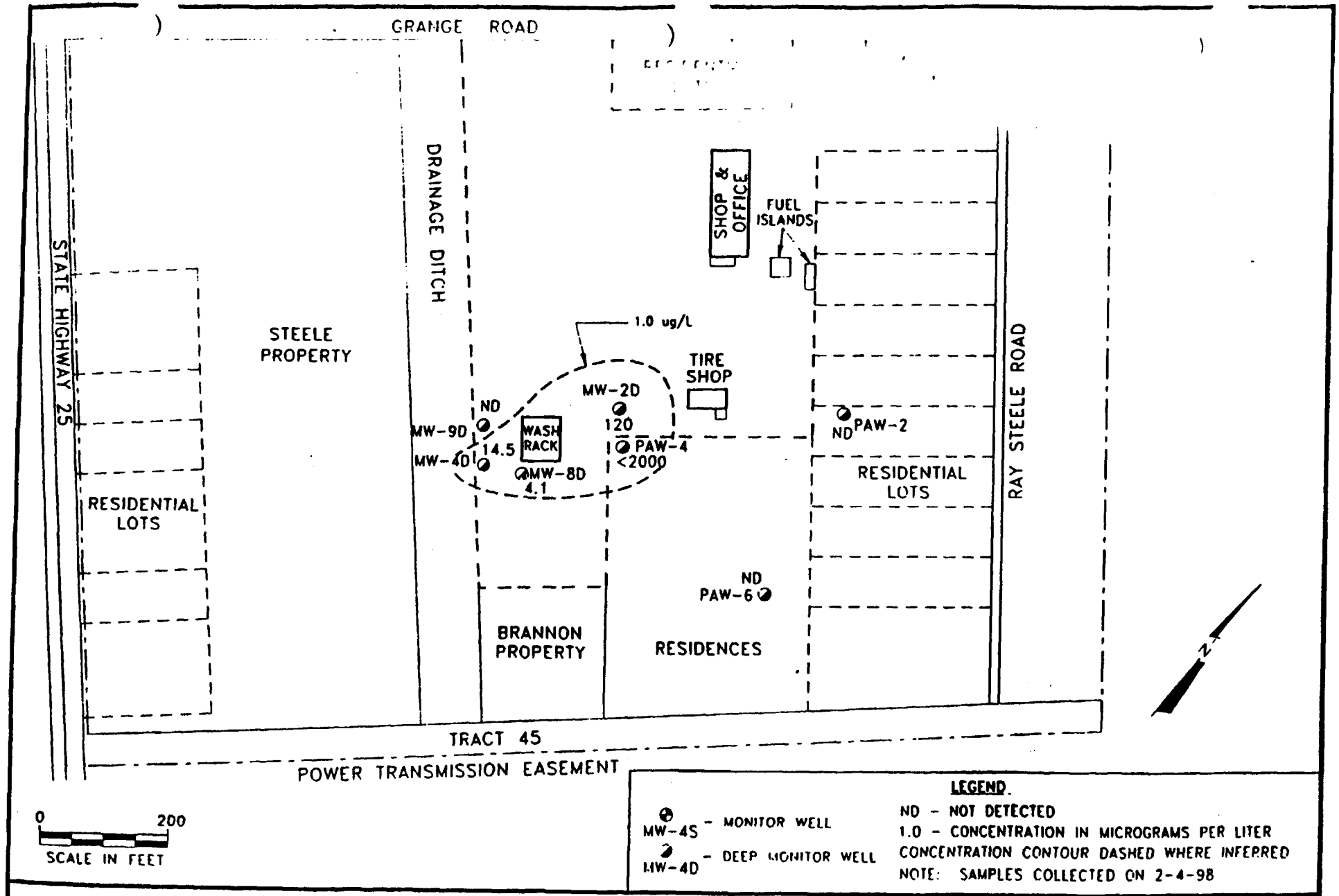
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 8
TRICHLOROETHENE
CONCENTRATION IN THE
DEEP SURFICIAL AQUIFER



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McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 9
VINYL CHLORIDE
CONCENTRATION IN THE
DEEP SURFICIAL AQUIFER

McKenzie Savannah Corrective Action Plan (CAP) Modification Plan

The following modifications have been made to the existing CAP prepared by Farley-Jones and Associates on behalf of McKenzie Tank Lines, as submitted to the Georgia Environmental Protection Department (GEPD) on July 10, 1995.

The recovery trench has been replaced with three recovery wells located as shown on Figure 10. The wells will be constructed of four inch diameter schedule 40 PVC well screen and casing, completed to a depth of thirty five feet, representing a vertical remediation capacity increase of approximately ten feet. Thirty feet of 0.20" slot screen and five feet of solid casing will be utilized. The solid casing will be divided between three feet at the top of the well, and two feet on the bottom to act as a sump. By advancing well completion to a depth of thirty five feet, the well screen will be installed at the interface of the Miocene and Recent deposits to capture chlorinated volatile organic compounds at this interval. Past investigative work has defined the Miocene as a confining unit for the water table aquifer, and it is anticipated that this well design will maximize contaminant mass removal and site remediation efforts.

As an alternate to the pneumatic submersible pumps previously proposed in the CAP, a common self priming centrifugal pump will be employed to extract water from each of the three recovery wells. This type of extraction is generally more reliable than a pneumatic system as it does not require a compressed air source for pump operation.

Vacuum assisted fluid extraction will also be utilized to augment the original design illustrated in the previous corrective action plan. The application of vacuum to a recovery well is known to have site remediation benefits. Well yield is improved under vacuum conditions, providing a larger hydraulic capture zone and increased contaminant mass removal. The vacuum will also extract volatile compounds in a vapor phase (soil vapor extraction) further removing mass, while increasing oxygen transport through the formation provides an oxygen source for the intrinsic aerobic biological contaminant degradation system.

As the system flow rate is anticipated to be greater than the original CAP estimate of 0.3 gpm, the POTW disposal option by tank truck has been replaced with an infiltration gallery. The logistics of tanker disposal can make this option difficult, and it is anticipated that the gallery will allow continuous system run time. Contaminant conveyance from the upgradient edge of the plume to the recovery wells will also be augmented by hydraulic transport as a function of the induced gradient created by the recovery wells. The gallery will be located in an area upgradient of the recovery wells, and the discharge water will be spray

aerated into a contained reinfiltration area to maximize dissolved oxygen concentrations, and precipitation of inorganics, prior to infiltration to groundwater.

As the effectiveness of a remediation system can only be determined under actual operating conditions, it is planned that performance measurement of the system will be analyzed during the start up and subsequent operation period. At that time, the hydraulic influence and plume control data parameters will be collected to determine system performance. Well yields, treatment system efficiency, and infiltration effects will be monitored and reviewed to gain understanding of the applicability of the design, its effects on the water table aquifer, and the effectiveness of the remediation system. This data will be reinforced with laboratory analysis of the impacted water to be collected on a quarterly basis from the remediation system, and select monitoring wells. The wells will be chosen to maximize system performance and overall remediation goals. Modifications to the system will be made on an as needed basis to help achieve remedial objectives.

Remediation System Effectiveness Sampling and Evaluation

The system will be sampled quarterly for the first year of operation and semi-annually for subsequent years until appropriate Risk Reduction Standards are achieved. Any areas remediated to Risk Reduction Standards within Year 1 and in subsequent years will be discontinued from the sampling regime.

Designated Sampling Points

Quarterly during Year 1:

Vapor Monitoring: All vapor sampling points will be monitored through sampling each vapor sampling point with a Photoionization Detector (PID). Readings will be recorded for trend analysis.

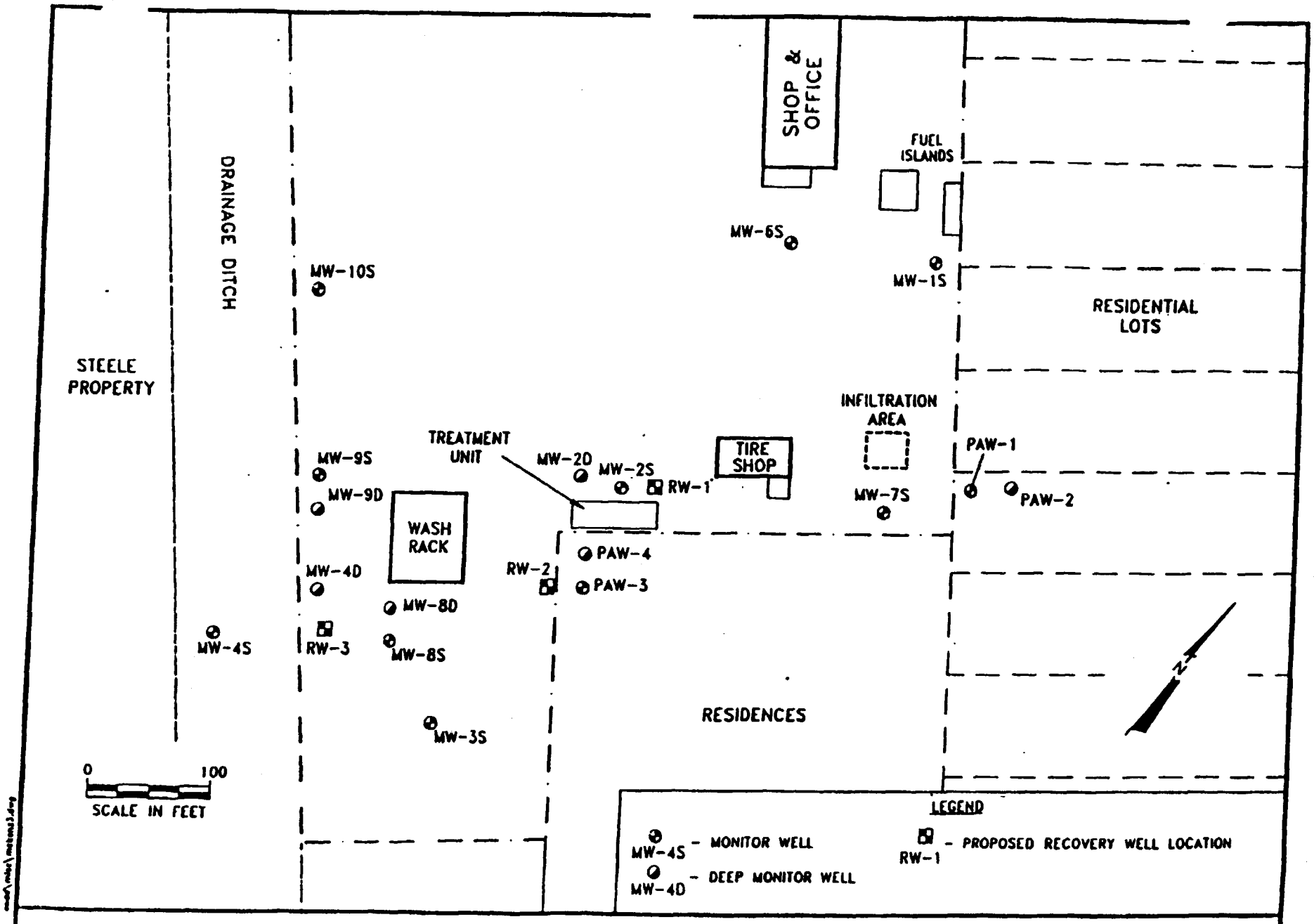
Monitor and Recovery Wells: The following wells will be sampled for EPA 8010 (Chlorinated Solvents):

RW-1	MW-8S
RW-2	MW-8D
RW-3	MW-9D
MW-2S	MW-11D (New Well Between Infiltration Area and Tire Shop)
MW-2D	PAW-3
MW-3S	PAW-4
MW-4S	Combined Influent to Treatment System
MW-4D	Effluent to Infiltration Area

Stormwater Ditch Water Sample:

The water in the stormwater ditch in the downgradient edge of the plume will be sampled to discern whether or not any leaching to the stormwater ditch is occurring. The water will be sampled for EPA 8010 analysis.

An additional monitor well is also going to be installed between the Infiltration Area and the Tire Shop building to evaluate mounding conditions from the re-infiltration of the treated effluent as well as to ensure that no water quality violations are occurring from the treated effluent discharge to the Infiltration Area.



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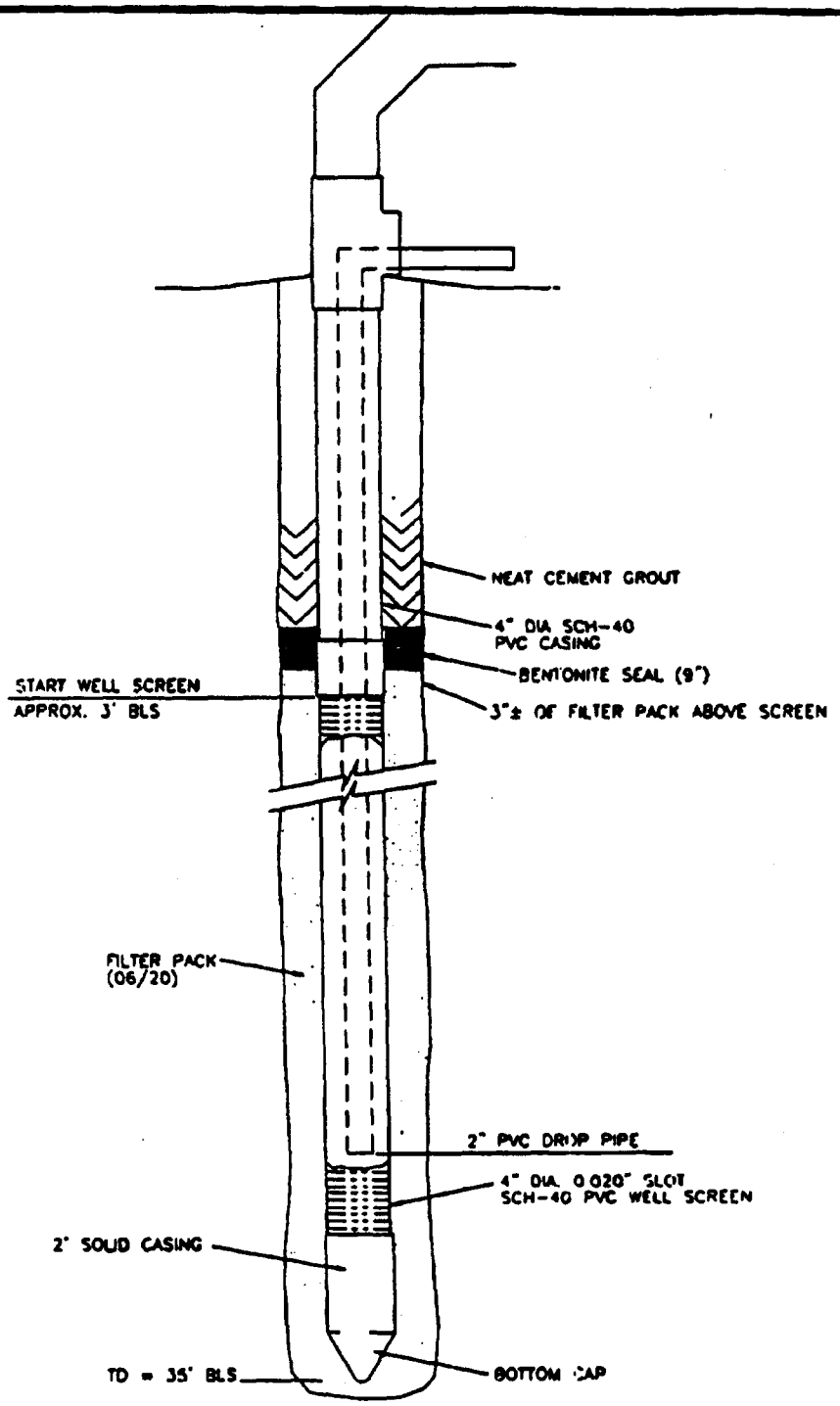
MCKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH GEORGIA
03 -98

FIGURE 10
PROPOSED REMEDIATION SYSTEM LOCATION



RECOVERY WELL DETAIL

NOT TO SCALE

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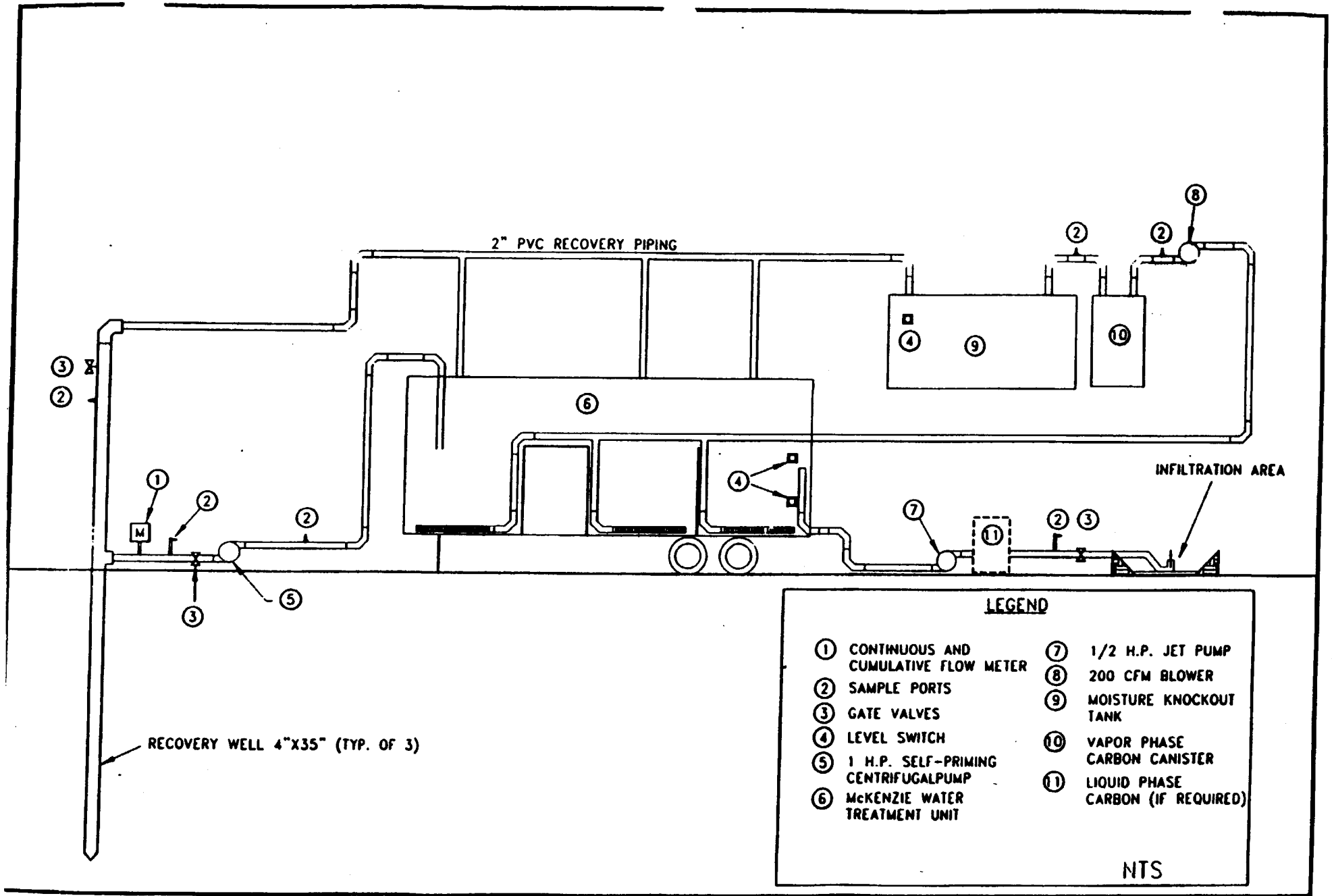
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA

03-09-86

FIGURE 11
RECOVERY WELL DETAIL



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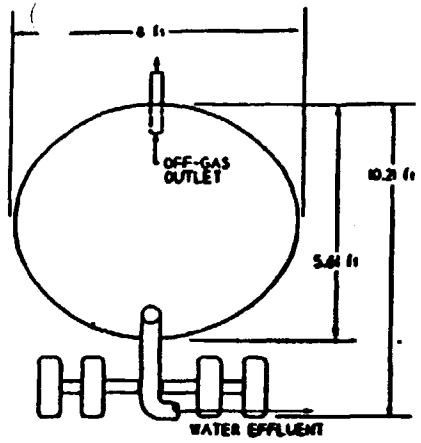
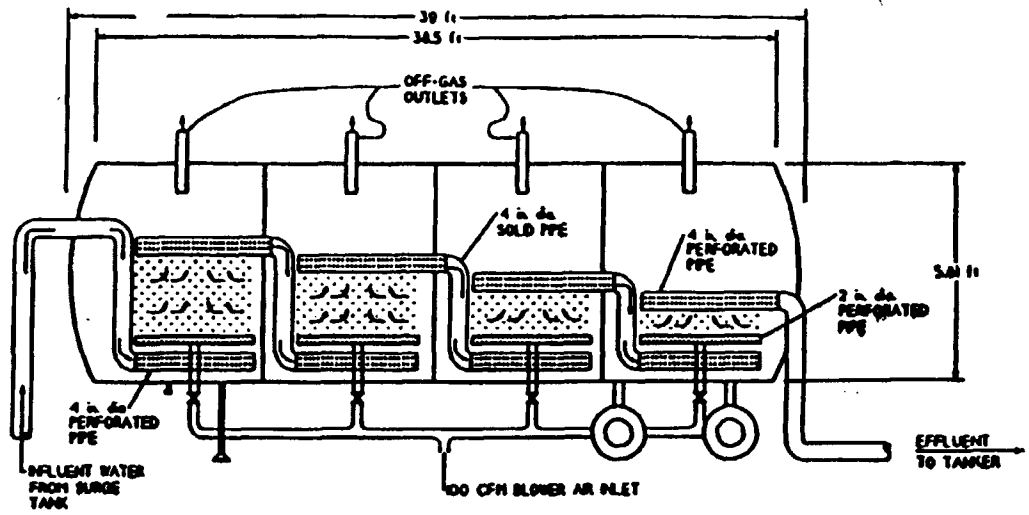
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
09-98

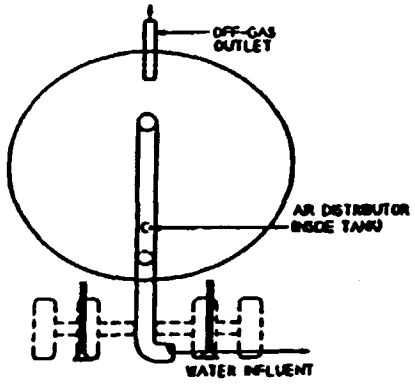
FIGURE 12
PROPOSED REMEDIATION SYSTEM



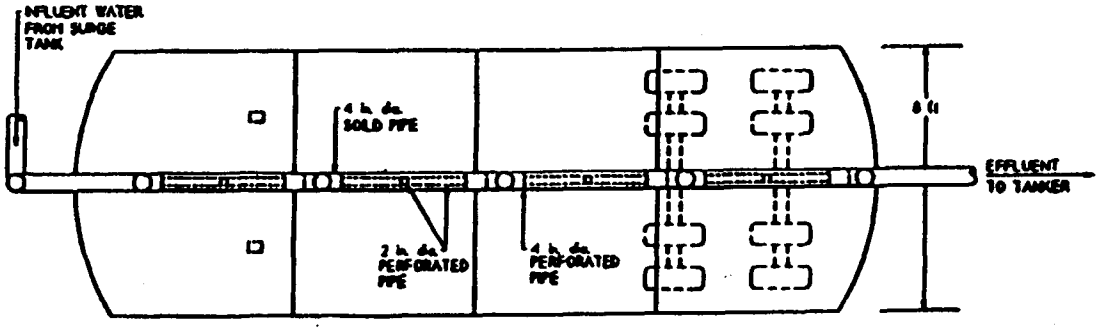
REAR END VIEW



SIDE VIEW



FRONT END VIEW

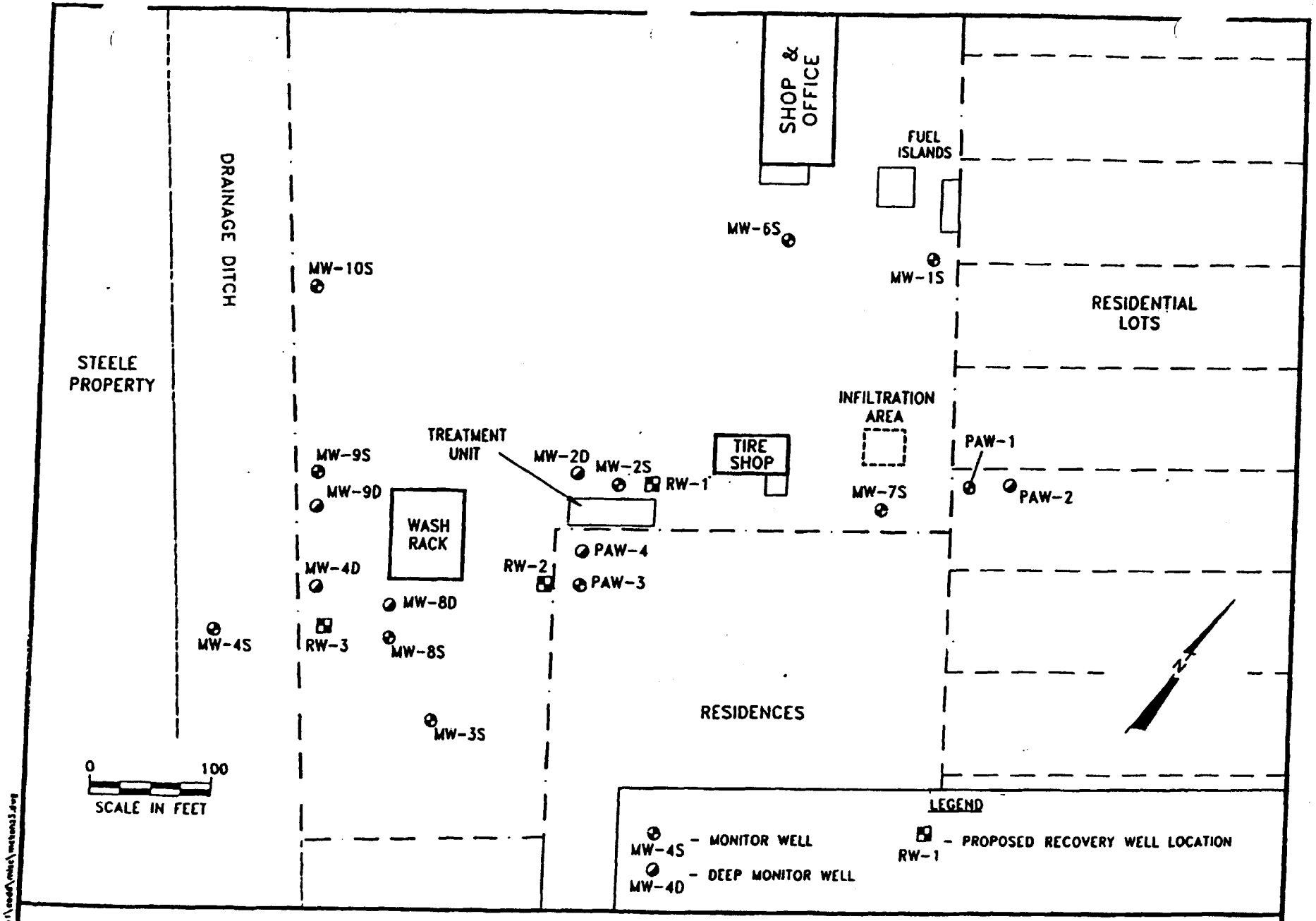


PLAN VIEW

NOT TO SCALE

FIGURE 6

FARLEY-JONES & ASSOCIATES
DOUBLE TANK LINES INC
SAVANNAH GA TERMINAL - PROPOSED DIFFUSED AREATOR SCHEMATIC



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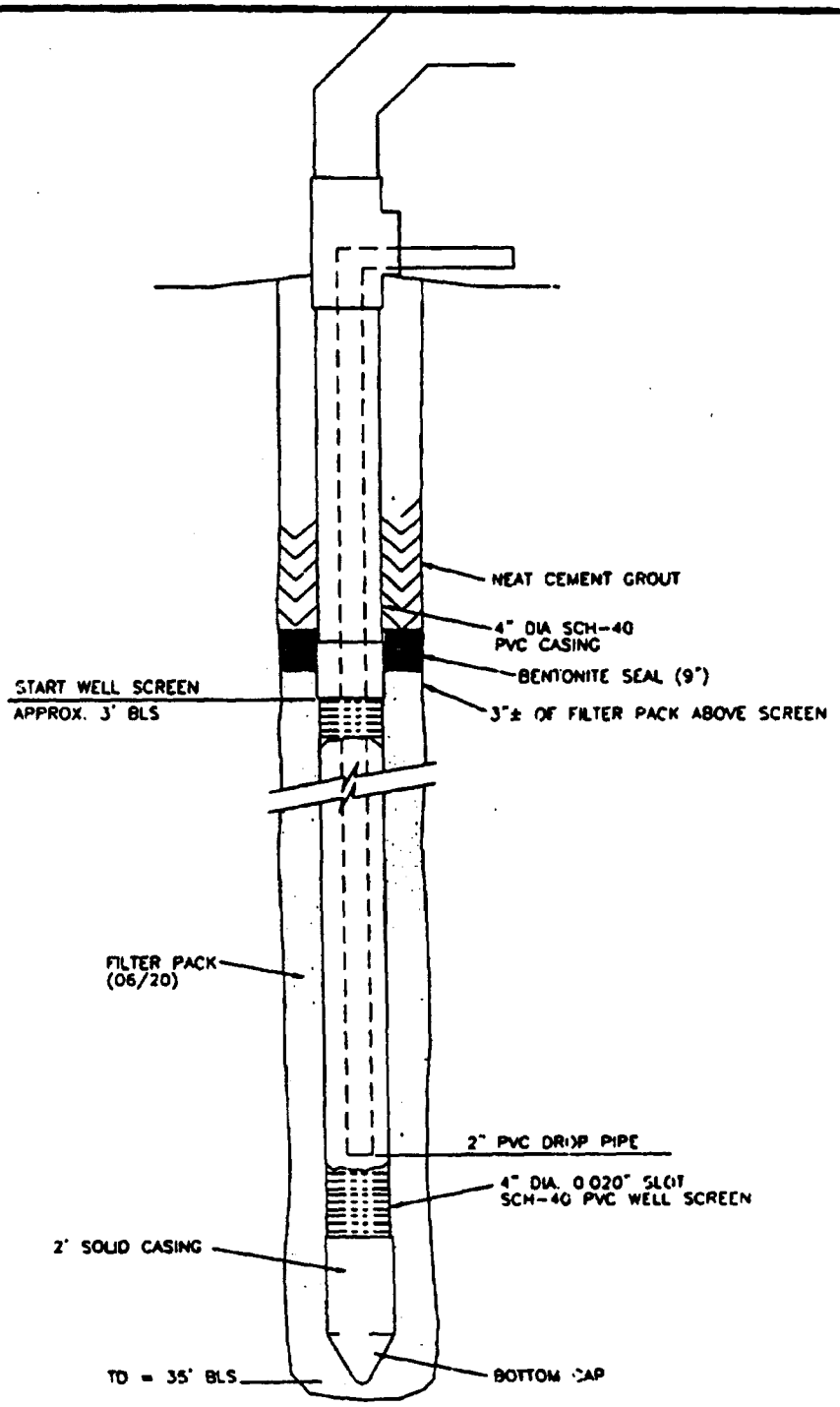
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

FIGURE 10
PROPOSED REMEDIATION SYSTEM LOCATION



RECOVERY WELL DETAIL

NOT TO SCALE

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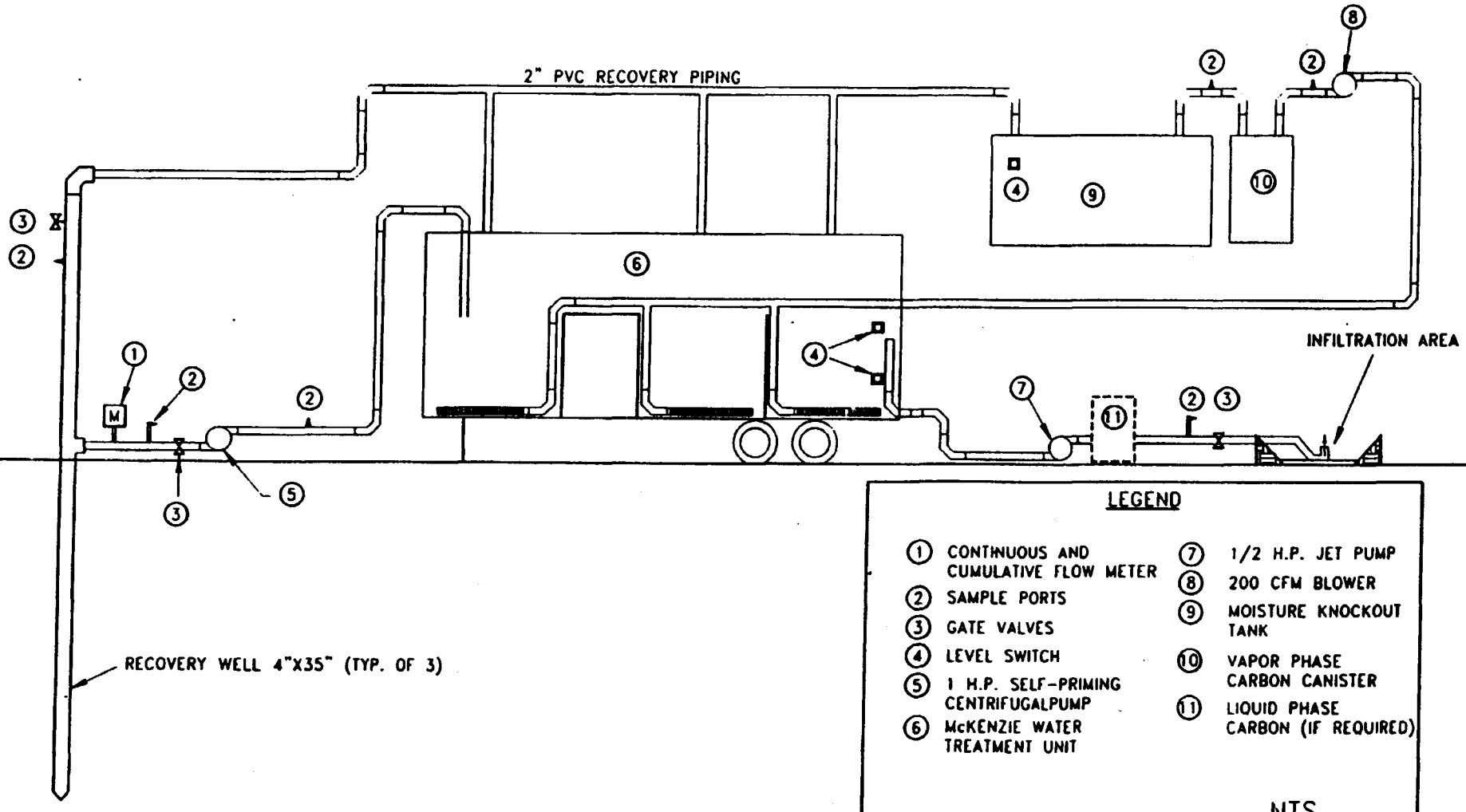
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA

03-09-98

FIGURE 11
RECOVERY WELL



LEGEND

1. CONTINUOUS AND CUMULATIVE FLOW METER
2. SAMPLE PORTS
3. GATE VALVES
4. LEVEL SWITCH
5. 1 H.P. SELF-PRIMING CENTRIFUGALPUMP
6. McKENZIE WATER TREATMENT UNIT
7. 1/2 H.P. JET PUMP
8. 200 CFM BLOWER
9. MOISTURE KNOCKOUT TANK
10. VAPOR PHASE CARBON CANISTER
11. LIQUID PHASE CARBON (IF REQUIRED)

NTS

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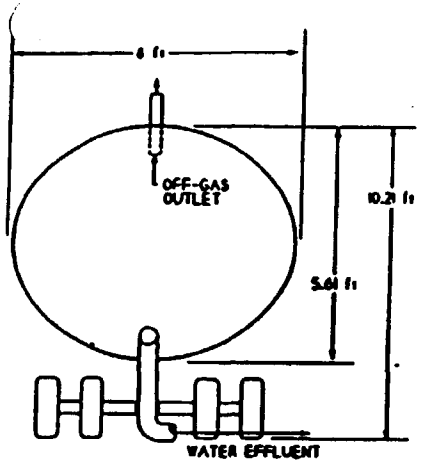
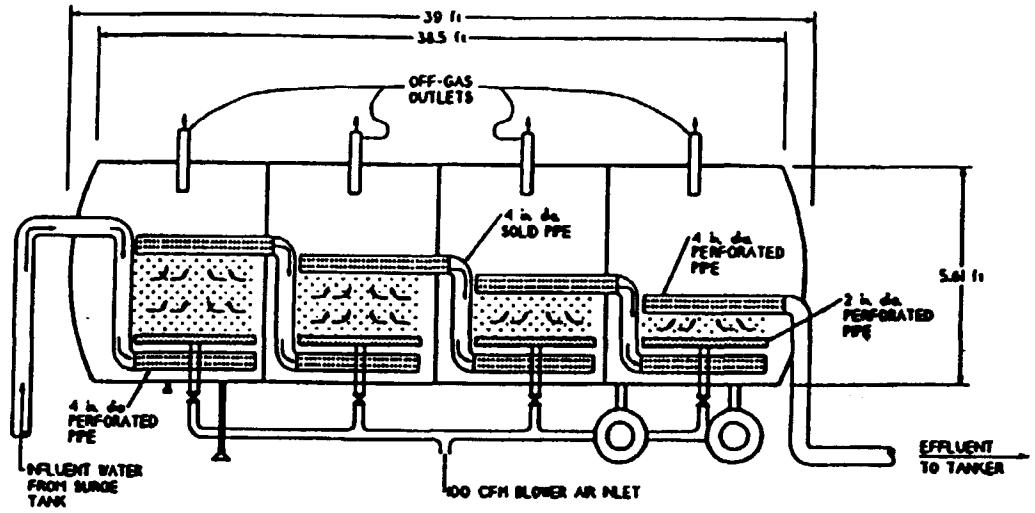
McKENZIE TANK LINES
GEORGIA PORTS AUTHORITY
STATE HIGHWAY 25
SAVANNAH, GEORGIA
03-09-98

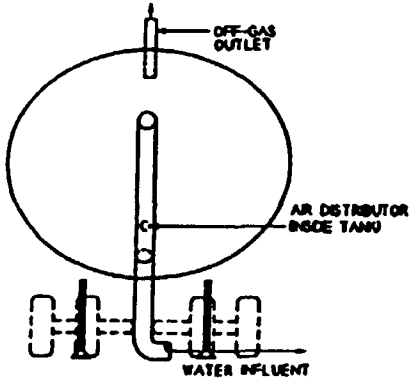
FIGURE 12
PROPOSED REMEDIATION SYSTEM



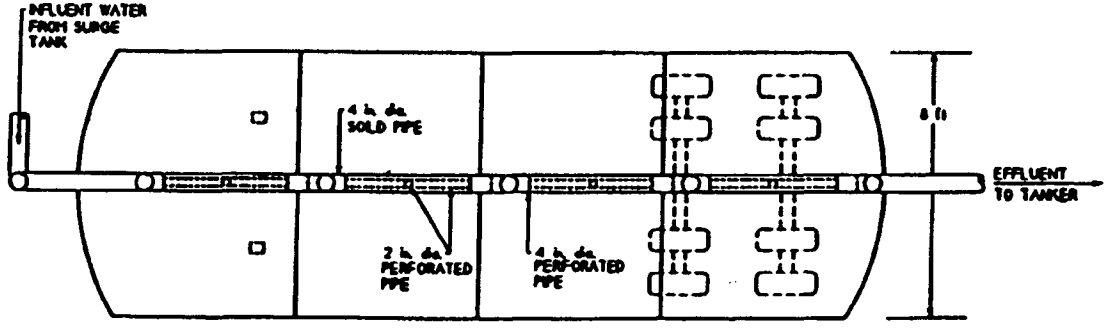
REAR END VIEW



SIDE VIEW



FRONT END VIEW



PLAN VIEW

NOT TO SCALE

FARLEY-JONES & ASSOCIATES

FIGURE 6

MCKENZIE TANK LINES, INC

SAVANNAH, GA TERMINAL - PROPOSED DIFFUSED AREATOR SCHEMATIC

SITE INSPECTION WORKSHEETS

	CERCLIS IDENTIFICATION NUMBER GAD981244767

SITE LOCATION

SITE NAME: LEGAL, COMMON, OR DESCRIPTIVE NAME OF SITE McKenzie Tank Lines, Inc.			
STREET ADDRESS, ROUTE, OR SPECIFIC LOCATION IDENTIFIER 111 Grange Rd., Port Wentworth, Chatham County			
COORDINATES: LATITUDE AND LONGITUDE 32° 08' 17.91" north latitude, 81° 09' 10.11" west longitude	**STATE** GA	**ZIP CODE** 31407	**TELEPHONE** 800-562-7580

OWNER/OPERATOR IDENTIFICATION

OWNER McKenzie Tank Lines, Inc.			**OPERATOR** McKenzie Tank Lines, Inc.		
OWNER ADDRESS P. O. Box 1200			**OPERATOR ADDRESS** 111 Grange Rd.		
CITY Tallahassee			**CITY** Port Wentworth		
STATE FL	**ZIP CODE** 32302	**TELEPHONE** 850-576-1221	**STATE** GA	**ZIP CODE** 31407	**TELEPHONE** 800-562-7580

SITE EVALUATION

AGENCY/ORGANIZATION Georgia Environmental Protection Division		
INVESTIGATOR Billy Hendricks, Madeleine Kellam		
CONTACT Steve White		
ADDRESS 205 Butler Street, SE, Suite 1162		
CITY Atlanta	**STATE** Georgia	**ZIP CODE** 30334
TELEPHONE 404/656-2833		

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, alreas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive environments, and other features.

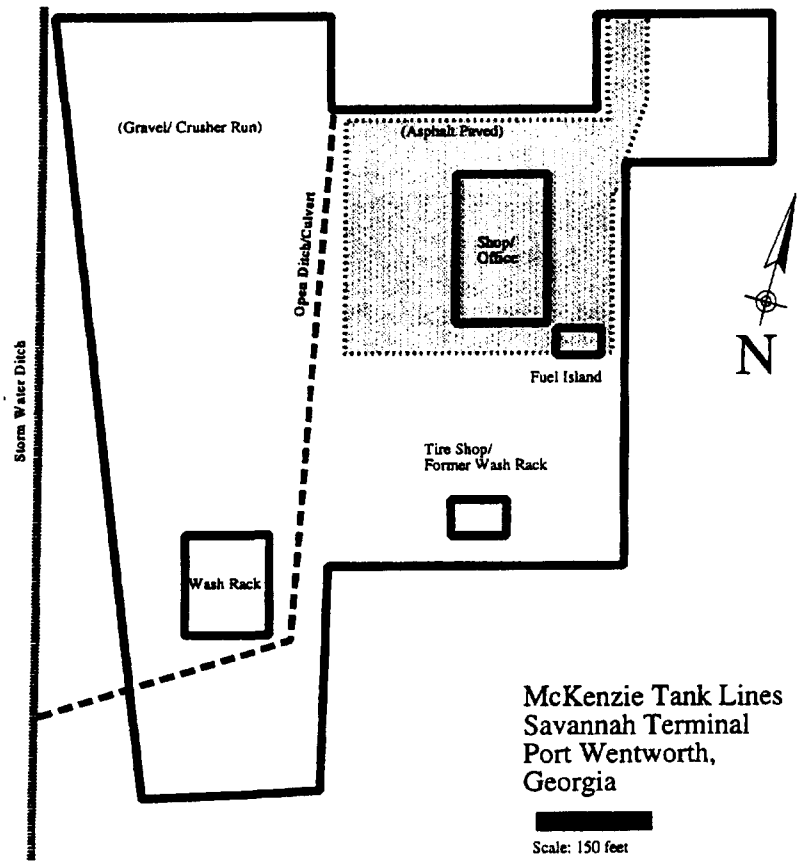


Figure 1

GENERAL INFORMATION

Site Description and Operational History: Provide a brief description of the site and its operation history. State the site name, owner, operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note whether these activities are documented or alleged. Identify all source types and prior spills, floods, or fires. Summarize highlights of the PA and other investigations. Cite references.

McKenzie Tank Lines is a tanker trailer terminal and tanker cleaning facility, comprising approximately 9.5 acres in a rough square within the city limits of Port Wentworth (Reference 1). Elevations in the site area are roughly 10 feet msl. The site is bounded by industrial and undeveloped land, including the massive Georgia Ports Authority Garden City containerport. The main residential areas of Port Wentworth are northwest of the site, beyond one-half mile. Beyond one mile south and southeast of the site lie the city of Savannah. Beyond one mile east of the site is the Savannah National Wildlife Refuge, which comprises nearly half of the land area within the four-mile target radius (Reference 2). The Georgia Ports Authority has purchased virtually all the surrounding property for its planned containerport expansion, and is negotiating the purchase of the McKenzie property. The site is completely surrounded by an eight-foot chain link fence topped with barbed wire, and has locked access gates.

In the early 1980's, demand for transport of black liquor and other chemicals associated with the pulp and paper industry led McKenzie to buy the previously residential property to build a Savannah-area satellite to its Tallahassee operation. McKenzie built the existing combination shop and office in 1982, along with a wash rack.. This wash rack included a tanker cleaning system manufactured by Detrex which used solvents such as tetrachloroethylene for degreasing and cleaning the interiors of tankers. This system was shut down in 1987, and in 1989 a new wash rack was built (Reference 2) (Reference 1).

The site currently comprises a combination office building and maintenance shop, covering 10,500 square feet; a tire shop of 2,500 square feet; the "new" wash rack of roughly 5,000 square feet; a fueling island, area for trailer parking, and a small outparcel to the north side currently leased out (Reference 1).

Hazardous waste generation at the site is currently limited to spent mineral spirits used in the degreasing and cleaning of truck and trailer parts, and maintenance and housekeeping waste. Used oil is accumulated in an approximately 1000-gallon tank, and picked up by Coastal Refining in Savannah. There are no known underground storage tanks; fuel is managed in an aboveground tank with separator.

McKenzie Tank Lines first came to the attention of the CERCLA program as a result of a spill report to EPD's Emergency Response Team in 1992. A spill of diesel fuel and black liquor occurred into the stormwater drainage system at and adjacent to the site. The city stormwater ditch was dammed and approximately 40,000 gallons of spilled material was removed along with sixty cubic yards of heavily contaminated soils. Elevated levels of tetrachloroethylene, trichloroethylene, and formaldehyde were detected in these soils; these are not typically components of either black liquor or diesel fuel. Subsequent investigation disclosed three areas of concern: buried drums in two locations on the site; contaminated sediments in the drainage ditch; and contaminated groundwater from the former wash rack location.

A 1994 sampling report showed levels of the chlorinated constituents in the range of tens of parts per million in groundwater, with four of eleven wells contaminated. In addition, soil contamination near the former wash rack was demonstrated at similar levels. Further vertical delineation of the groundwater plume, with four additional wells, confirm the presence of chlorinated solvents to at least sixty feet below land surface (Reference 2). Current data indicate little change to the suite of contaminants (Reference 3).

The Preliminary Assessment, performed in May 1997, confirmed the findings of these studies. Site conditions now have changed in that McKenzie has installed a groundwater remediation system. No data yet exist to measure its effectiveness (Reference 4).

1. *Contamination Assessment Plan, McKenzie Tank Lines, Inc.*, G. B. Robbins, Inc., Jacksonville, Fla., August 10, 1992.
2. *CERCLA Preliminary Assessment, McKenzie Tank Lines*, Georgia Department of Natural Resources, Environmental Protection Division, June 30, 1997.
3. McKenzie Tank Lines, *Compliance Status Report*, prepared by Handex of Florida, Inc., Tallahassee, Florida, March 26, 1998.
4. Billy Hendricks, Field Notes for Site Inspection of McKenzie Tank Lines, June 17, 1998.

GENERAL INFORMATION (continued)

Source Description: Include description of containment per pathway for ground water (see HRS Table 3-2), surface water (see HRS Table 4-2), and air (see HRS Tables 6-3 and 6-9).

Contaminated soil has leached chlorinated solvents into groundwater. No containment. (Reference 17)
Source area approximately 250' x 100' x 30'.

No known, demonstrated releases remain to soil, air, surface water.

Hazardous Waste Quantity (HWQ) Calculation: SI Tables 1 and 2 (See HRS Tables 2-5, 2-6, and 5-2).

Source Name: Old Wash Rack Plume	Source Waste Quantity (WQ) Calculations: Groundwater Plume, Constituent Tier, perchloroethylene: A. >10000ppb isocon: 25000ppb (est. mean) x 250' x 100' x 30' x 0.1 storativity x 101 lb/ft³ ≈ 190 lb B. 1000 - 10000ppb isocon: 5000ppb (est. mean) x [(500' x 150' x 30') - (250' x 100' x 30')] x 0.1 storativity x 101 lb/ft³ ≈ 75 lb C. 0 - 1000 ppb isocon: 500ppb (est. mean) x [(550' x 200' x 30') - (500' x 150' x 30')] x 0.1 storativity x 101 lb/ft³ ≈ 5 lb WQ = 190 + 75 + 5 = 270 lb ÷ 1 = 270
Source Description: Concrete pad with floor drain which was formerly used for cleaning the inside of tanker trailers Solvents used include perchloroethylene, trichloroethylene, and surfactants. There are demonstrated releases from spills and incompetent plumbing.	

Hazardous Constituent Quantity data are incomplete; therefore HWQ = 10

Attach additional pages, if necessary

HWQ = 10

SI TABLE 3: WASTE CHARACTERIZATION WORKSHEET

Site Name: McKenzie Tank Lines, Port Wentworth, Ga **References:** SCDM, 1, 17

Sources:

1. Contaminated GW
2.
3.
4.
5.
6.
7.
8.
9.

SOURCE	HAZARDOUS SUBSTANCE	TOXICITY	GROUND WATER PATHWAY		SURFACE WATER PATHWAY										
					OVERLAND/FLOOD MIGRATION							GROUND WATER TO SURFACE WATER			
			GW Mobility (HRS Table 3-8)	Tox/ Mobility Value (HRS Table 3-9)	Per (HRS Tables 4-10 and 4-11)	Tox/ Per Value (HRS Table 4-12)	Bioac Pot. (HRS Table 4-15)	Tox/ pers/ Bioac Value (HRS Table 4-16)	Ecotox (HRS Table 4-19)	Ecotox/Pers (HRS Table 4-20)	Ecotox/Pers/ Bioac Value (HRS Table 4-21)	Tox/ Mob/ Pers Value (HRS Table 4-26)	Tox/ Mob/ Pers/ Bioac Value (HRS Table 4-28)	Ecotox/ Mob/ Pers Value (HRS Table 4-29)	Ecotox/ Mob/ Per/ Bioac Value (HRS Table 4-30)
1	Tetrachloroethylene	100	1.00e+00	100	1	1.00e+02	50	5.00e+03	100	100	5.00e+03	1.00e+02	5.00e+03	1.00e+02	5.00e+03
1	Trichloroethylene	10	1.00e+00	10	1	1.00e+01	50	5.00e+02	100	100	5.00e+03	1.00e+01	5.00e+02	1.00e+02	5.00e+03
1	Vinyl Chloride	10000	1.00e-02	100	.0007	7.00e+00	5	3.50e+01	ND		0.00e+00	7.00e-02	3.50e-01	0.00e+00	

SI TABLE 4: GROUND WATER OBSERVED RELEASE SUBSTANCES (BY AQUIFER)

Sample ID	Hazardous Substance	Bckgrd. Conc.	Toxicity/ Mobility	References
	Tetrachloroethene	0	100·1 = 100	17
	Trichloroethene	0	10·1 = 10	17
	Vinyl Chloride	0	10000·1 = 10000	17
		Highest Toxicity/Mobility	10000	

SI TABLE 5: GROUND WATER ACTUAL CONTAMINATION TARGETS

Well ID: N/A Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Well ID: _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use within 4 Miles of the Site:
Describe generalized stratigraphy, aquifers, municipal and private wells

The McKenzie site lies in the Barrier Island Sequences District of the Coastal Plain Province of Georgia. The area is underlain by a sequence of Cretaceous and younger sedimentary rocks resting on a basement of much older igneous, metamorphic and/or sedimentary rocks . The thick sequence of clastic and carbonate sediments of the Coastal Plain can be subdivided into numerous aquifers. Groundwater is the sole source for drinking water in this area, and most industrial and municipal ground water supplies originate from the Floridan Aquifer System.

Post-Miocene sands compose the shallow surficial aquifer. These sediments are unconsolidated and well-sorted, with locally occurring interlayers of poorly-sorted sand, clayey, sandy silt, and argillaceous limestone. At the McKenzie site, this aquifer is 25 to 30 feet thick and consists of clayey sands and silts and sandy clays. Water in the surficial aquifer is under water table conditions, and depth to the water table at the site is shallow (ranging from approximately 2.5 to 6.5 feet). The surficial aquifer could potentially recharge the underlying Floridan aquifer in areas where the hydraulic gradient is downward.

The surficial aquifer is underlain by the Miocene-age Hawthorn Formation. The Hawthorn is composed of marl, sandy clay, and clayey sand, and acts as an upper confining unit for the Floridan aquifer. The Hawthorn in the vicinity of Savannah is approximately 200 feet thick.

The uppermost laterally continuous aquifer in this area is the Floridan aquifer system. The Floridan is the most important source of water supply in the coastal area of Georgia. It is composed of a vertically continuous sequence of several limestones ranging in age from Miocene to Upper Eocene, but the two primary units are the Oligocene-age Suwannee Limestone and the Upper Eocene-age Ocala Limestone. The Floridan at the site is approximately 600 feet in thickness.

The closest municipal wells to the site are the two Port Wentworth wells, 1.3 miles north; two Savannah wells, 1.5 miles south-southeast; and two further Savannah wells 3.5 miles southeast.

Show Calculations of Ground Water Drinking Water Populations for each Aquifer:
Provide apportionment calculations for blended supply systems.
County average number of persons per household: _____ **Reference** _____

There is no drinking water use from the surficial aquifer.The three local water agencies use water from the Floridan to supply their customers. Port Wentworth operates two wells and provides water to 1,300 service connections, an estimated 3,380 people. Garden City purchases water from the City of Savannah under a reciprocal supply agreement. Savannah's city Water & Sewer Revenue Department operates 22 wells permitted by the EPD for twenty-five to thirty million gallons per day withdrawal, serving 59,800 connections, an estimated 155,480 individuals. These estimates are based on an estimated 2.6 persons per household according to the 1990 U. S. Census. Census data indicate there is an estimated population of 638 within the four-mile target area, and three within a ½-mile radius, which uses water from private wells. This information is not supported by physical survey; no wells were discovered within ½ mile of the site.

GROUND WATER PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.	550		17
2. POTENTIAL TO RELEASE: Depth to aquifer: _____feet. If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.			
LR =	550		

TARGETS			
Are any wells part of a blended system? Yes____ No X If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any target drinking water well for the aquifer has been exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5). Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ Total =	-0-		
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water wells for the aquifer or overlying aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.	424		16
5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets for the aquifer or overlying aquifer. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking water wells exist within 4 miles, assign 0.	5		
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.	-0-		
7. RESOURCES: Assign a score of 5 if one or more ground water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Supply for commercial aquaculture • Supply for a major or designated water recreation area, excluding drinking water use	5		
Sum of Targets T=	434		

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile	0	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455		
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	0	18	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122		
> $\frac{1}{2}$ to 1 mile	0	9	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385		
> 1 to 2 miles	17,514	5	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842	2939	16
> 2 to 3 miles	0	3	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219		
>3 to 4 miles	14,134	2	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596	1306	16

Nearest Well = 5

Sum = 4245

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.	10		
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	10000		
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7)	10 X 10000 = 100,000		

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

WC = 18

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100.

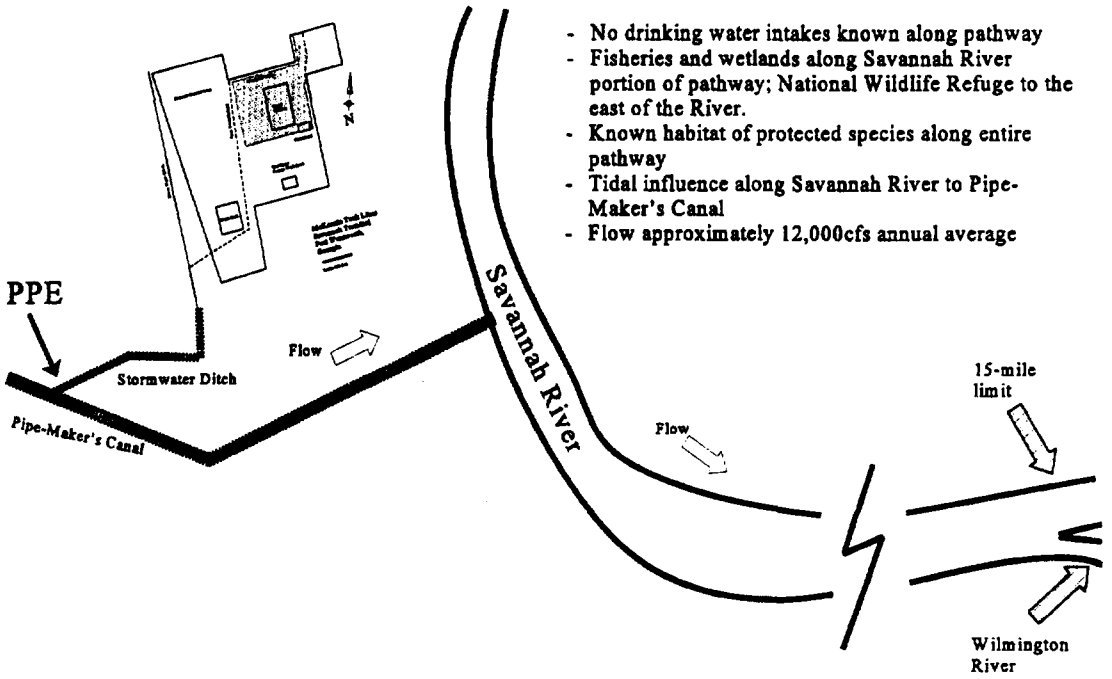
GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$

52 (Maximum of 100)

$$\frac{550 \times 434 \times 18}{82,500} = \frac{4,296,600}{82,500} = 52.08$$

SURFACE WATER PATHWAY

Sketch of the Surface Water Migration Route:
Label all surface water bodies. Include runoff route and drainage direction, probable point of entry, and 15-mile target distance limit. Mark sample locations, intakes, fisheries, and sensitive environments. Indicate flow directions, tidal influence, and rate.



- No drinking water intakes known along pathway
- Fisheries and wetlands along Savannah River portion of pathway; National Wildlife Refuge to the east of the River.
- Known habitat of protected species along entire pathway
- Tidal influence along Savannah River to Pipe-Maker's Canal
- Flow approximately 12,000cfs annual average

SI TABLE 7: SURFACE WATER OBSERVED RELEASE SUBSTANCES

Sample ID	Hazardous Substance	Bckgrd. Conc.	Toxicity/ Persistence	Toxicity/ Persis./ Bioaccum	Ecotoxicity/ Persis/ Ecobioaccum	References
	N/A					
		Highest Values				

SI TABLE 8: SURFACE WATER DRINKING WATER ACTUAL CONTAMINATION TARGETS

Intake ID: _____ Sample Type _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Intake ID: _____ Sample Type _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

LIKELIHOOD OF RELEASE- OVERLAND/FLOOD MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.			
2. POTENTIAL TO RELEASE: Distance to surface water: 1000 (feet) If sampling data do not support a release to surface water in the watershed, use the table below to assign a score from the table below based on distance to surface water and flood frequency.	500		
Optionally, evaluate surface water potential to release according to HRS Section 4.1.2.1.2			
LR =	500		

Distance to surface water <2500 feet	500
Distance to surface water >2500 feet, and:	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

LIKELIHOOD OF RELEASE GROUND WATER TO SURFACE WATER MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7. NOTE: Evaluate ground water to surface water migration only for a surface water body that meets all of the following conditions: 1) A portion of the surface water is within 1 mile of site sources having a containment factor greater than 0. 2) No aquifer discontinuity is established between the source and the above portion of the surface water body. 3) The top of the uppermost aquifer is at or above the bottom of the surface water. Elevation of top of uppermost aquifer _____ Elevation of bottom of surface water body _____			
2. POTENTIAL TO RELEASE: Use the ground water potential to release. Optionally, evaluate surface water potential to release according to HRS Section 3.1.2.	340		
LR =	340		

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	Score	Data Type	Refs
Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5. Intake Name / Water Body Type / Flow / People Served None Are any intakes part of a blended system? Yes _____ No _____ If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8). Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ Total =	-0-		
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.	-0-		
5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.	-0-		
6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking water use	5		
SUM OF TARGETS T=	5		

SI TABLE 9 (From HRS Table 4-14): DILUTION-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FOR SURFACE WATER MIGRATION PATHWAY

Type of Surface Water Body	Pop.	Nearest Intake	Number of people									Pop. Value
			0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	
Minimal Stream (<10 cfs)		20	0	4	17	53	164	522	1,633	5,214	16,325	
Small to moderate stream (10 to 100 cfs)		2	0	0.4	2	5	16	52	163	521	1,633	
Moderate to large stream (> 100 to 1,000 cfs)		0	0	0.04	0.2	0.5	2	5	16	52	163	
Large Stream to river (>1,000 to 10,000 cfs)		0	0	0.004	0.02	0.05	0.2	0.5	2	5	16	
Large River (> 10,000 to 100,000 cfs)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	16	
Very Large River (>100,000 cfs)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Shallow ocean zone or Great Lake (depth < 20 feet)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2	
Moderate ocean zone or Great Lake (Depth 20 to 200 feet)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Deep ocean zone or Great Lake (depth > 200 feet)		0	0	0	0	0	0.001	0.003	0.008	0.03	0.08	
3-mile mixing zone in quiet flowing river (≥ 10 cfs)		10	0	2	9	26	82	261	817	2,607	8,163	

Nearest Intake = 0

Sum = 0

References 1, 6

SI TABLE 10: HUMAN FOOD CHAIN ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Fishery ID: None Sample Type _____ Level I _____ Level II _____ References _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Benchmark Concentration (FDAAL)	% of Benchmark	Cancer Risk Concentration.	% of Cancer Risk Concentration	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SI TABLE 11: SENSITIVE ENVIRONMENT ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Environment ID: None Sample Type _____ Level I _____ Level II _____ Environment Value _____

Sample ID	Hazardous Substance	Conc.. (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			Highest Percent		

Environment ID: _____ Sample Type _____ Level I _____ Level II _____ Environment Value _____

Sample ID	Hazardous Substance	Conc.. (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			Highest Percent		

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT TARGETS	Score	Data Type	Refs
Record the water body type and flow for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.			

Fishery Name_____ Water Body_____ Flow_____cfs

Species_____ Production_____lbs/yr
Species_____ Production_____lbs/yr

Fishery Name_____ Water Body_____ Flow_____cfs

Species_____ Production_____lbs/yr
Species_____ Production_____lbs/yr

Fishery Name_____ Water Body_____ Flow_____cfs

Species_____ Production_____lbs/yr
Species_____ Production_____lbs/yr

FOOD CHAIN INDIVIDUAL

7. ACTUAL CONTAMINATION FISHERIES:

If analytical evidence indicates that a fishery has been exposed to a hazardous substance with a bioaccumulation factor greater than or equal to 500 (SI Table 10), assign a score of 50 if there is a Level I fishery. Assign 45 if there is a Level II fishery, but no Level I fishery.

8. POTENTIAL CONTAMINATION FISHERIES:

If there is a release of a substance with a bioaccumulation factor greater than or equal to 500 to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 20.

If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the lowest flow at all fisheries within the target distance limit:

Lowest Flow	FCI Value
<10 cfs	20
10 to 100 cfs	2
>100 cfs, coastal tidal waters, oceans, or Great Lakes	0
3-mile mixing zone in quiet flowing river	10

FCI Value = 0

SUM OF TARGETS T = 0

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

ENVIRONMENTAL THREAT TARGETS	Score	Data Type	Refs
Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page.			

Environment Name	Water Body Type	Flow
		cfs
		cfs
		cfs
		cfs
		cfs

9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14).

Environment Name	Environment Type and Value (SI Tables 13 & 14)	Multiplier (10 for Level I, 1 for Level II)	Product
		x =	
		x =	
		x =	
		x =	
		Sum =	-0-

10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:

Flow	Dilution Weight (SI Table 12)	Environment Type and Value (SI Tables 13 & 14)	Pot. Cont.	Product
12000 cfs	0.0001 x	Natl wildlife Refuge 75 x	0.1 =	9
12000 cfs	0.0001 x	20 mi. wetlands 500 x	0.1 =	60
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	
cfs	x	x	0.1 =	
		Sum =		69

	Score	Data Type	Refs
	69		1

T = 69

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS

		Score
14.	If an Actual Contamination Target (drinking water, human food chain, or environmental threat) exists for the watershed, assign the calculated hazardous waste quantity score, or a score of 100, whichever is greater.	
15.	Assign the highest value from SI Table 7 (observed release) or SI Table 3 (no observed release) for the hazardous substance waste characterization factors below. Multiply each by the surface water hazardous waste quantity score and determine the waste characteristics score for each threat.	

	Substance Value		HWQ		Product	WC Score (From Table) (Maximum of 100)
Drinking Water Threat Toxicity/Persistence	100	x	10	=	1000	6
Food Chain Threat Toxicity/Persistence/ Bioaccumulation	5000	x	10	=	50000	10
Environmental Threat Ecotoxicity/Persistence/ Ecobioaccumulation	5000	x	10	=	50000	10

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 to <1E + 09	100
1E + 09 or greater	1000

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score $\frac{LR \times T \times WC}{82,500}$
Drinking Water	500	5	6	(maximum of 100) 0.2
Human Food Chain	500	0	10	(maximum of 100) 0
Environmental	500	69	10	(maximum of 60) 4

SURFACE WATER PATHWAY SCORE (Drinking Water Threat + Human Food Chain Threat + Environmental Threat) (maximum of 100) 4.2

SOIL EXPOSURE PATHWAY

If there is no observed contamination (e.g., ground water plume with no known surface source), do not evaluate the soil exposure pathway. Discuss evidence for no soil exposure pathway.

Soil Exposure Resident Population Targets Summary

For each property (duplicate page 35 as necessary):

If there is an area of observed contamination on the property and within 200 feet of a residence, school, or day care center, enter on Table 15 each hazardous substance by sample ID. Record the detected concentration. Obtain cancer risk, and reference dose concentrations from SCDM. Sum the cancer risk and reference dose percentages for the substances listed. If cancer risk or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the residents and students as Level I. If both percentages are less than 100% or all are N/A, evaluate the targets as Level II.

The soil exposure pathway is not being evaluated. Significant historical contamination of the soil due to spills and routine operations of the facility has been demonstrated by chemical analysis and direct observation. However, no current operations are contributing to any contamination of the soil and subsurface. Remediation at the site has been virtually completed for the soil pathway (References 1 and 17).

AIR PATHWAY

Air Pathway Observed Substances Summary Table

On SI Table 21, list the hazardous substances detected in air samples of a release from the site. Include only those substances with concentrations significantly greater than background levels. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For NAAQS/NESHAPS benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate targets in the distance category from which the sample was taken and any closer distance categories as Level I. If the percentages are less than 100% or all are N/A, evaluate targets in that distance category and any closer distance categories that are not Level I as Level II.

The air exposure pathway is not being evaluated. There are no known or suspected releases to air from current or former operations of the facility.

SITE SCORE CALCULATION	S	S^2
GROUND WATER PATHWAY SCORE (S_{GW})	52	2704
SURFACE WATER PATHWAY SCORE (S_{SW})	4.2	17.6
SOIL EXPOSURE (S_S)	0	0
AIR PATHWAY SCORE (S_A)	0	0
SITE SCORE $\sqrt{\frac{S_{GW}^2+S_{SW}^2+S_S^2+S_A^2}{4}}$ =	26.1	$\sqrt{680.41}$

COMMENTS

The McKenzie Tank Lines site is now being actively remediated under other auspices and merits no further investigation under CERCLA.

CERCLA PRELIMINARY ASSESSMENT

MCKENZIE TANK LINES
GAD981244767
111 GRANGE ROAD
PORT WENTWORTH, GEORGIA 31407

GEORGIA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

June 30, 1997

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PRELIMINARY ASSESSMENT

McKenzie Tank Lines

Port Wentworth, Chatham County, Georgia

1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) the Georgia Department of Natural Resources, Environmental Protection Division, conducted a Preliminary Assessment (PA) at McKenzie Tank Lines, Port Wentworth, Chatham County, Georgia. The purpose of this investigation was to collect information concerning conditions at the site to assess the immediate or potential threat posed to human health and the environment and to determine the need for an additional investigation under CERCLA/SARA or other action. The scope of this investigation included a review of available file information, a comprehensive target survey, and a Visual Site Inspection (VSI), an on-site reconnaissance. The VSI for the McKenzie Tank Lines site was performed May 14, 1997 (Reference 1).

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

McKenzie Tank Lines is located on Grange Road in Port Wentworth, Georgia. The site is approximately three-quarters of a mile east-southeast of the Port Wentworth City Hall. From the intersection of Interstate Highway 16 and Dean Forest Road, travel north and east on Dean Forest Road to its intersection with U. S. Highway 17, approximately six miles. Turn left (north) on U. S. 17 and travel approximately three-quarters of a mile. Turn right onto Grange Road and travel approximately two hundred yards. The facility is on the right (south) of the road at 111 Grange Road. The geographic coordinates are 32° 08' 17.91" north latitude and 81° 09' 10.11" west longitude (Reference 2) (Reference 3).

Port Wentworth, a suburb of Savannah, is located in Georgia's Coastal Empire along the Savannah River twenty miles inland from the Atlantic Ocean. The area experiences typical, semi-tropical, coastal Georgia weather: long, hot, humid summers and short, mild winters. Average summer temperatures are approximately 80°F, with 100-degree days rare. Winters are moderate due to the low latitude and proximity of the Atlantic Ocean. Average winter temperatures are approximately 51°F; first freeze is typically in mid-November, with last freeze in early March. Mid-autumn is usually the period of minimum precipitation, with maxima during the thunderstorm season of mid-June to mid-September. The area receives 50 inches of water-equivalent precipitation

in a typical year. The maximum 24-hour rainfall intensity is approximately 7.0 inches (Reference 4).

2.2 Site Description

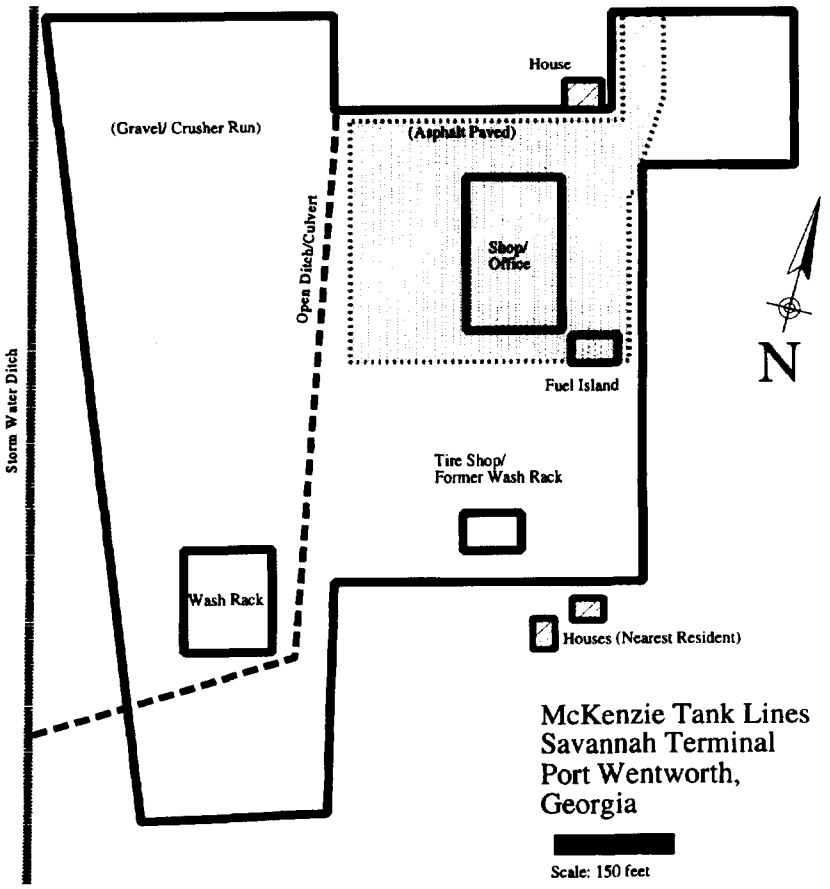

Figure 1

McKenzie Tank Lines is a tanker trailer terminal and tanker cleaning facility, with home offices in Tallahassee, Florida (Photo 1). The site comprises approximately 9.5 acres in a rough square within the city limits of Port Wentworth (Figure 1) (Reference 5). The business at the site is a viable, going concern. Elevations in the site area are roughly 10 feet msl. The site is bounded to the north by a single residence on the south side of Grange Road and by undeveloped land, the Savannah Sugar Refinery, and Atlantic Wood Preserving Company to the north; to the east by residences, Bridge Terminal Transport Co., Koch Materials Co., and the Savannah River; to the south and east by undeveloped land and the massive Georgia Ports Authority Garden City containerport; and to the west by undeveloped land. The main residential areas of Port Wentworth are northwest of the site, beyond one-half mile. Approximately one mile north of the site is a paper mill and paper products factory owned and operated by

Stone Container. One mile northeast is the Port Wentworth electric generating station of the Savannah Electric Power Company. Beyond one mile south and southeast of the site lie the city of Savannah. Beyond one mile east of the site is the Savannah National Wildlife Refuge, which comprises nearly half of the land area within the four-mile target radius (References 1, 2, and 5).

Surface water features at the site include an intermittently open and covered drainage ditch, draining the site from north to south to a county stormwater ditch offsite. Overall topographic slope is towards the southwest, with very little relief.

The site is completely surrounded by an eight-foot chain link fence topped with barbed wire, and has locked access gates.

2.3 Operational History and Waste Characteristics

The property upon which McKenzie is operating was in residential use when the site was purchased in the early 1980's. At that time, demand for transport of black liquor and other chemicals associated with the pulp and paper industry led McKenzie to build a Savannah-area satellite to its Tallahassee operation. McKenzie built the existing combination shop and office in 1982, along with a wash rack. (Photo 6). This wash rack included a tanker cleaning system manufactured by Detrex. That system used vapors from solvents, such as tetrachloroethylene, for degreasing and cleaning the interiors of tankers previously containing organics such as black liquor and creosote. This system was discontinued in 1987, and in 1989 the new wash rack was built southwest of the old (Reference 1) (Reference 5)(Photos 7 & 8).

The site currently comprises a combination office building and maintenance shop, covering 10,500 square feet; a tire shop of 2,500 square feet; the "new" wash rack of roughly 5,000 square feet; a fueling island, area for trailer parking, and a small outparcel to the north side currently leased out (Reference 5).

Hazardous waste generation at the site is currently limited to spent mineral spirits used in the degreasing and cleaning of truck and trailer parts, and maintenance and housekeeping waste. Used oil is accumulated in an approximately 1000-gallon tank, and picked up by Coastal Refining in Savannah. There are no known underground storage tanks; fuel is managed in an aboveground tank with separator (Photos 2 & 3).

McKenzie Tank Lines first came to the attention of the CERCLA program as a result of a spill report to EPD's Emergency Response Team in 1992. A spill of diesel fuel and black liquor occurred into the stormwater drainage system at and adjacent to the site. The City stormwater ditch was dammed and approximately 40,000 gallons of spilled material was collected with vacuum equipment. Some sixty cubic yards of the most heavily contaminated soils were excavated and manifested offsite as hazardous waste.

However, upon further examination, elevated levels of tetrachloroethylene, trichloroethylene, and formaldehyde were detected in the soils forming the drainage ditch; these are not typically components of either black liquor or diesel fuel. Subsequent investigation disclosed three further areas of concern:

- buried drums in two locations on the site (Photos 4, 5, 9, 10, & 11)
- contaminated sediments in the drainage ditch
- contaminated groundwater from the former wash rack location (Photo 6)

A 1993 report indicated that "significant quantities" of ten organic constituents were detected in monitoring wells at and around the site. Four of these ten can be attributed to petroleum products (benzene, toluene, ethylbenzene, and xylene) and six to the Detrex system previously operated (vinyl chloride, 1,1-dichloroethane, 1,1-dichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, and trichloroethylene) (Reference 6). These results were confirmed and expanded in a 1994 addendum which showed levels of the chlorinated constituents in the range of tens of parts per million in groundwater, with four of eleven wells contaminated. In addition, soil contamination near the former wash rack was demonstrated at similar levels (Reference 7). Further vertical delineation of the groundwater plume, with four additional wells, confirm the presence of chlorinated solvents to at least sixty feet below land surface (Reference 8).

3. GROUNDWATER PATHWAY

3.1 Hydrogeologic Setting

The McKenzie site lies in the Barrier Island Sequences District of the Coastal Plain Province of Georgia. The Coastal Plain is relatively flat topographically and is dissected by streams. The Barrier Island Sequences District is characterized by a series of marine terraces, parallel to the present shoreline, which decrease in altitude, stepwise, towards the sea. Marshes may occupy poorly drained low areas. The area is underlain by a sequence of Cretaceous and younger sedimentary rocks resting on a basement of much older igneous, metamorphic and/or sedimentary rocks (Reference 9) (Reference 10).

The thick sequence of clastic and carbonate sediments of the Coastal Plain can be subdivided into numerous aquifers (Figure 2). Groundwater is the sole source for drinking water in this area, and most industrial and municipal ground water supplies originate from the Floridan Aquifer System (Reference 11).

Post-Miocene sands compose the shallow surficial aquifer. These sediments are unconsolidated and well-sorted, with locally occurring interlayers of poorly-sorted sand, clayey, sandy silt, and argillaceous limestone. Thicknesses for this aquifer range between 10 feet to 120 feet thick (Reference 12). At the McKenzie site, this aquifer is

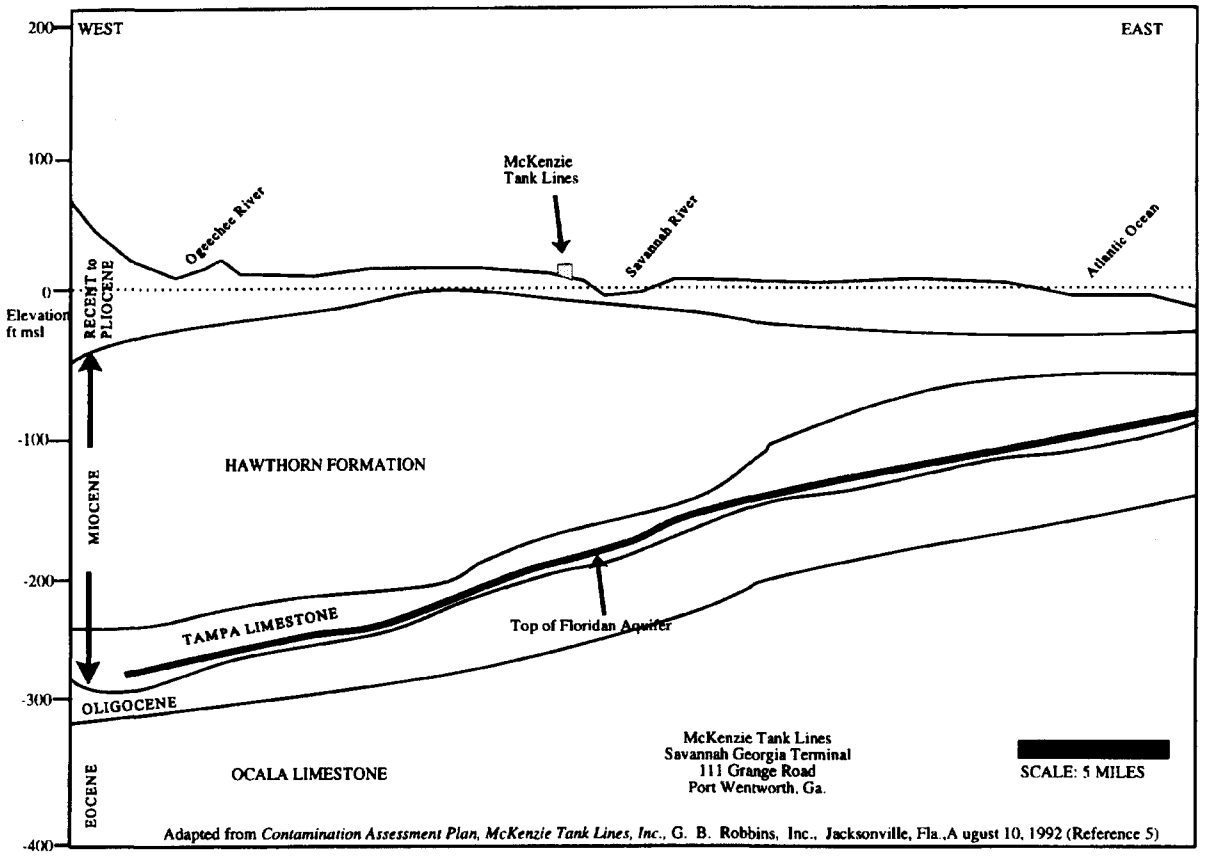

Figure 2

25 to 30 feet thick and consists of clayey sands and silts and sandy clays (Reference 8). Water in the surficial aquifer is under water table conditions, and depth to the water table at the site is shallow (ranging from approximately 2.5 to 6.5 feet) (Reference 7). The surficial aquifer could potentially recharge the underlying Floridan aquifer in areas where the hydraulic gradient is downward (Reference 12).

The surficial aquifer is underlain by the Miocene-age Hawthorn Formation. The Hawthorn is composed of marl, sandy clay, and clayey sand, and ranges in thickness from 50 to 600 feet. This unit acts as an upper confining unit for the Floridan aquifer. The vertical hydraulic conductivity of the Hawthorn is apparently controlled by the thickness of the unit: hydraulic conductivity decreases with increasing thickness (Reference 12). The Hawthorn in the vicinity of Savannah is approximately 200 feet thick (Reference 8).

The uppermost laterally continuous aquifer in this area is the Floridan aquifer system. The Floridan is the most important source of water supply in the coastal area of Georgia. It is composed of a vertically continuous sequence of several limestones

ranging in age from Miocene to Upper Eocene, but the two primary units are the Oligocene-age Suwannee Limestone and the Upper Eocene-age Ocala Limestone (Reference 12). The Floridan at the site is approximately 600 feet in thickness (Reference 8).

3.2 Groundwater Targets

The Port Wentworth Water Department is the agency responsible for providing water to the city of Port Wentworth. There are similar agencies managing water systems for Garden City and Savannah. Port Wentworth operates two wells and provides water to 1,300 service connections, an estimated 3,380 people (Reference 13). Garden City purchases water from the City of Savannah under a reciprocal supply agreement. Savannah's city Water & Sewer Revenue Department operates 22 wells permitted by the EPD for twenty-five to thirty million gallons per day withdrawal, serving 59,800 connections, an estimated 155,480 individuals (Reference 14). These estimates are based on an estimated 2.6 persons per household according to the 1990 U. S. Census (Reference 15). The closest municipal wells to the site are the two Port Wentworth wells, 1.3 miles north; two Savannah wells, 1.5 miles south-southeast; and two further Savannah wells 3.5 miles southeast. Few private household drinking water wells are known to exist within the city limits of Port Wentworth, Garden City, and Savannah; all households within these cities, which have access to city water, are required to connect to the system (Reference 14).

The data supplied from CENTRACTS indicate there is an estimated population of 638 within the four-mile target area, and three within a ½-mile radius, which uses water from private wells (Reference 16). This information is not supported by physical survey.

3.3 Groundwater Conclusions

A substantial release to the groundwater has been demonstrated by chemical analysis. No offsite wells have been documented to be contaminated by releases from the site. Because municipal wells supply water to all downgradient residences and businesses, no primary targets have been identified. However, the underlying Floridan aquifer is a sole source of drinking water for the region and merits extraordinary efforts to prevent its contamination.

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

Surface drainage in the Savannah area, because of the low relief, is sparse. Precipitation either infiltrates the ground, or enters depression storage in low-lying areas. The

majority of precipitation filters downward, into the soil. Precipitation in excess of the infiltration rate is managed in man-made ditches draining to the Savannah River. Because of the use of ditches for storm-water management, the surface water pathway, as customarily derived from surface topography, is not reliable. Surface discharge in the immediate area of McKenzie is via drainage ditch to Pipe-Maker's Canal, west and south of the property, which discharges to the Savannah River three-quarters of a mile southeast (Figure 3)(References 1 and 2).

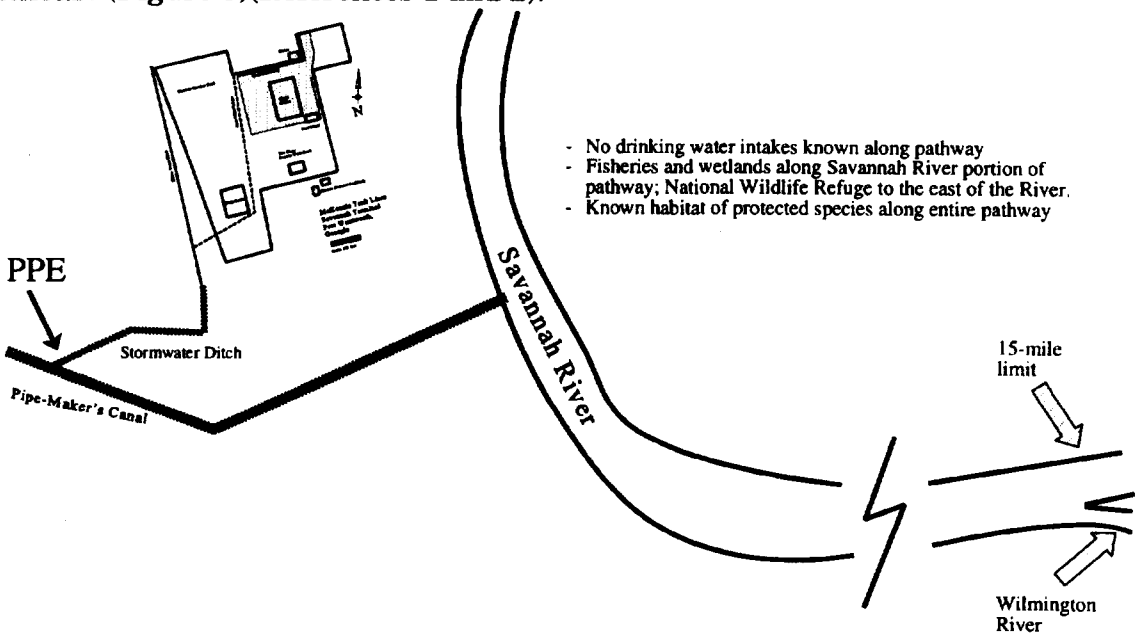

Figure 3

According to Federal Emergency Management Agency Flood Hazard Boundary Map/Flood Insurance Rate Map for the City of Port Wentworth, the site is located in an area classified as A14, indicating special flood hazards, and a base flood elevation in excess of two feet above land surface. There is no physical evidence on the property of historical flooding (Reference 17).

4.2 Surface Water Targets

There have been numerous sampling events to document a release to surface water. There are, however, no water intakes of any sort within 15 miles downstream of the site; indeed, the only surface water intakes within the remaining twenty-five river miles of the Savannah River are for noncontact industrial use (Reference 14). The residents in the area of the site are supplied with potable water by the municipal systems of Port Wentworth, Garden City, and Savannah (References 13 and 14).

The Savannah River is a heavily utilized recreational and subsistence fishery; evidence of fishing activity was directly observed during the site visit. Evidence of fishing is

ambiguous for Pipe-Maker's Canal. Neither the Canal nor the Savannah River is considered a primary fishery since there is no documented contamination release to surface water.

Chatham County is included in the range of a number of species of concern. Animals listed as threatened or endangered include the American alligator, the eastern indigo snake, the eastern brown pelican, the shortfin sturgeon, the loggerhead turtle, the wood stork, the West Indian manatee, and the southern bald eagle (Reference 18). Protected plants include the pondberry, the hooded pitcher-plant, the cutleaf beardtongue, the climbing buckthorn, and the silky camellia (Reference 19). None of these species was noted as present on the McKenzie site, but there are suitable habitats for all of these species within the fifteen-mile downstream target distance.

No permanent or seasonal wetlands were observed on the McKenzie site. There was no standing water of any sort on the property and none of the indicator species for wetlands were present. A variety of sensitive environments is known to exist along the 15 miles downstream of the site. These include riverine, lacustrine, palustrine, and estuarine wetlands, and the Savannah National Wildlife Refuge (Reference 20).

4.3 Surface Water Conclusions

There are demonstrated releases to surface water from the site. No drinking water intakes exist within 15 miles downstream of the site. No wetlands exist on the property, but wetlands are in evidence along the entire length of the Pipe-Maker's Canal and the Savannah River downstream of the site. Other sensitive environments, including the Savannah National Wildlife Refuge, were identified within the 15-mile downstream limit.

5. SOIL EXPOSURE AND AIR PATHWAY

5.1 Physical Conditions

The McKenzie Tank Lines site is located in a generally developed suburban-industrial setting in the southeasternmost corner of the city limits of Port Wentworth. Land use within one mile ranges from residential and commercial to heavy industrial. Northwest are primarily residential and commercial properties, including the entire City of Port Wentworth. Northeast are a paper mill, a wood treater, an electric utility generating plant, and a sugar refinery. Properties to the south include the extensive Georgia Ports Authority Garden City Containerport and its support businesses (References 1 and 2).

Surface and subsurface soils at the McKenzie site are Pleistocene to Recent, fluvial and marine deposits of silt, sand, gravel and argillaceous marl. These clayey sands and silts and sandy clays range from 25 to 30 feet in thickness. However, the surface soil is best

described as urban. Boring logs from the site have disclosed road gravel and ballast stones at depths up to five feet. Underlying the recent soils is the Hawthorn group, a generally clayey layer roughly 200 feet thick in the vicinity of the site (References 5, 7, and 8).

As described in the waste description section above, significant contamination of the soil has been demonstrated by chemical analysis and direct observation. Remediation at the site has been begun, but has not been completed.

There are no point sources of air emissions at McKenzie. The maintenance shop uses mineral spirits in parts washers to degrease equipment. Potential emissions are small, and the solvent is not subject to regulation under Georgia's Air Toxics Strategy. Because the wash rack uses high-pressure hot water to clean the tankers, there is potential for volatilization of light components of the residual material in the tankers. No metals or carcinogens are known to be emitted from any source.

5.2 Soil and Air Targets

The population within a 4-mile radius was determined using 1990 Census Bureau information (Reference 16). The total population within this area is 15,304 people. There are residences immediately adjacent to the property, within 200 feet of the most contaminated areas of the site. The site is fenced, and has locked gates preventing free access. During the on-site reconnaissance, no tracks or other evidence of wildlife population was observed.

5.3 Soil Exposure and Air Pathway Conclusions

There is clear evidence of contaminated soil and subsoil by chemical analysis and direct observation. Air releases are limited in scope and hazard.

6. SUMMARY AND CONCLUSIONS

McKenzie Tank Lines, Inc., in Port Wentworth, Georgia, was evaluated under the CERCLA Preliminary Assessment process. Evidence was found of extensive releases to groundwater and soil, and of releases to surface water. Chemical constituents discovered include suspected human carcinogens. The site is located above a sole-source aquifer for the region.

It is recommended that the McKenzie Tank Lines site be considered for further investigation under CERCLA.

R:\BILLY\PAS\MCKENZIE\MCKENZIE.PA

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17. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map H-01-02/Flood Insurance Rate Map I-01-02, City of Port Wentworth, GA, Community No. 135162A, December 26, 1975.

18. *Georgia's Protected Wildlife,* Georgia Department of Natural Resources, 1992.

19. *Protected Plants of Georgia,* Georgia Department of Natural Resources, 1995.

20. U. S. Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Maps, Port Wentworth, Savannah, and Fort Pulaski, Georgia.

Appendix A

Photographs

UNSCANNABLE

MEDIA

(PHOTOGRAPHS)

Appendix B

References

McKenzie Tank Lines PA
5/13/97 Explorer 4337 - Fred Rowe

Joe Wier - Corp. Environmental Mgr.

- Houses on E. side all on Ft. Wentworth water system

Buster Schwarz - Area manager

no product storage incidental to transport
not a safe haven

photo 3. oil - water separator from fuel island sump

stockpile from remediation on SE corner of site -
TCLP has been done - no hit. Will provide analyses

current wash rack uses High pressure water -

Wash waters collected in floor sump, pumped to est 5000 gal. wastewater tank -
through CETCO clay filter plate + frame press -
water goes to recycle tank -
clay is tested + dumped offsite

(8) 1350 wash rack sump

(9) 1355 new wash rack

fence open West of wash rack

Shop - 2 - 30 gal Safety Klean
1 - 10 gal portable breakpoint

Reference 1

OVERSIZED

DOCUMENT

Reference 3

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: McKenzie Tank Lines CERCLIS #: HSI 10406

AKA: SSID:

ADDRESS: 111 Grange Rd.

CITY Port Wentworth STATE: GA ZIP CODE: 31407

SITE REFERENCE POINT: Shop

USGS QUAD MAP NAME: Port Wentworth GA TOWNSHIP: ___ N/S RANGE: ___ E/W

SCALE: 1:24,000 MAP DATE: 1980 SECTION: ___ 1/4 ___ 1/4 ___ 1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN:

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 81 ° 07 ' 30 " LATITUDE: 32 ° 07 ' 30 "

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 81 ° 07 ' 30 " LATITUDE: 32 ° 07 ' 30 "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 145

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 47.91 "

C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): 0 ' 47 . 91 "

D) ADD TO STARTING LATITUDE: 32 ° 07 ' 30 . ___ " + 0 ' 47 . 91 = 32°07'77.91"

SITE LATITUDE: 32 ° 08 ' 17 . 91 "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 303

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 100 . 11 "

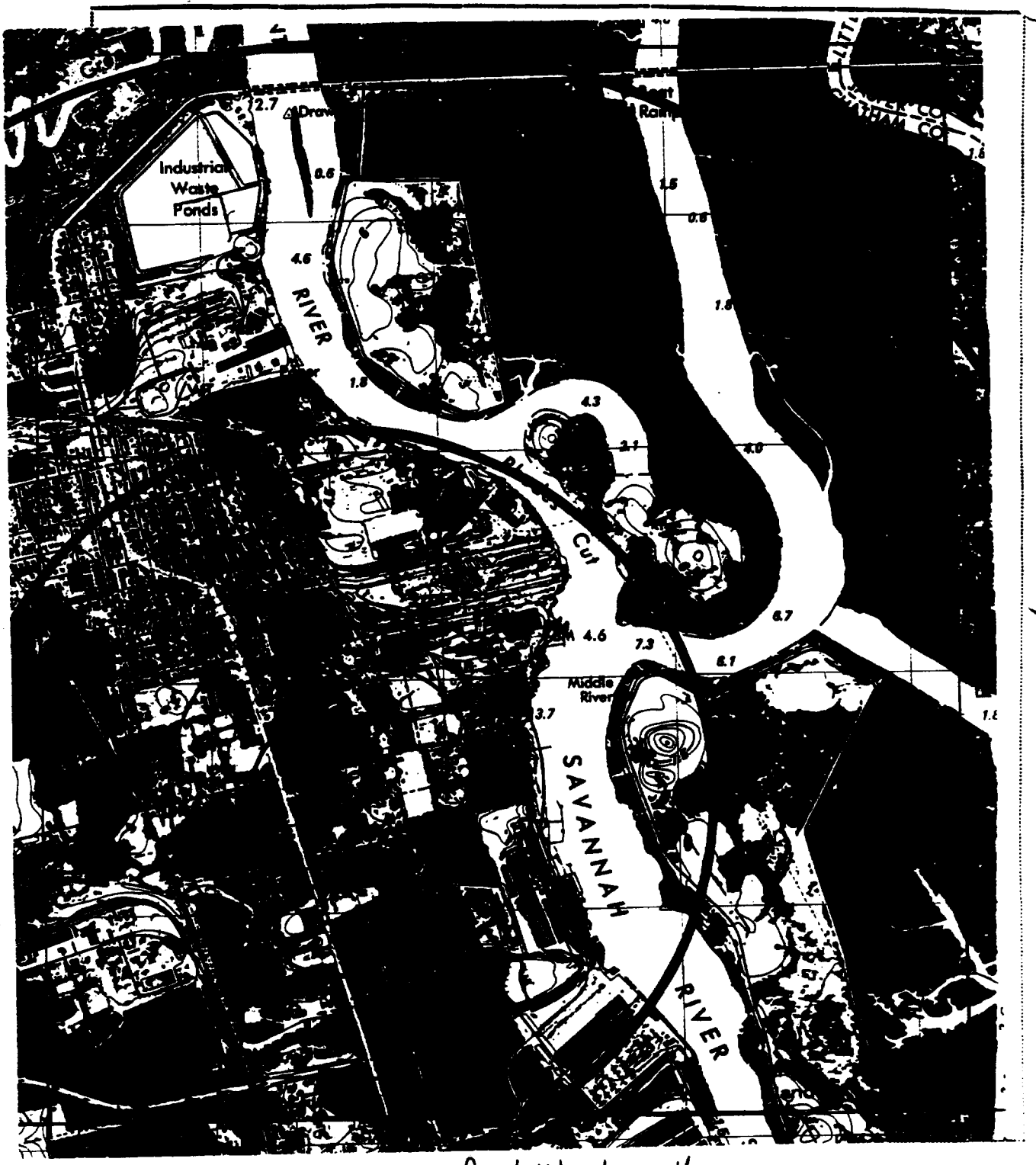
C) EXPRESS IN MINUTES AND SECONDS (1' = 60"): 1 ' 40 . 11 "

D) ADD TO STARTING LONGITUDE: 81 ° 07 ' 30 . 00 " + 1 ' 40 . 11 = 81°08'70.11"

SITE LONGITUDE: 81 ° 09 ' 10 . 11 "

INVESTIGATOR: Billy Hendricks DATE: 5/9/97

SITE NAME: McKenzie Tank Lines NUMBER: _____



TOPOGRAPHIC MAP QUADRANGLE NAME: Port Wentworth SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

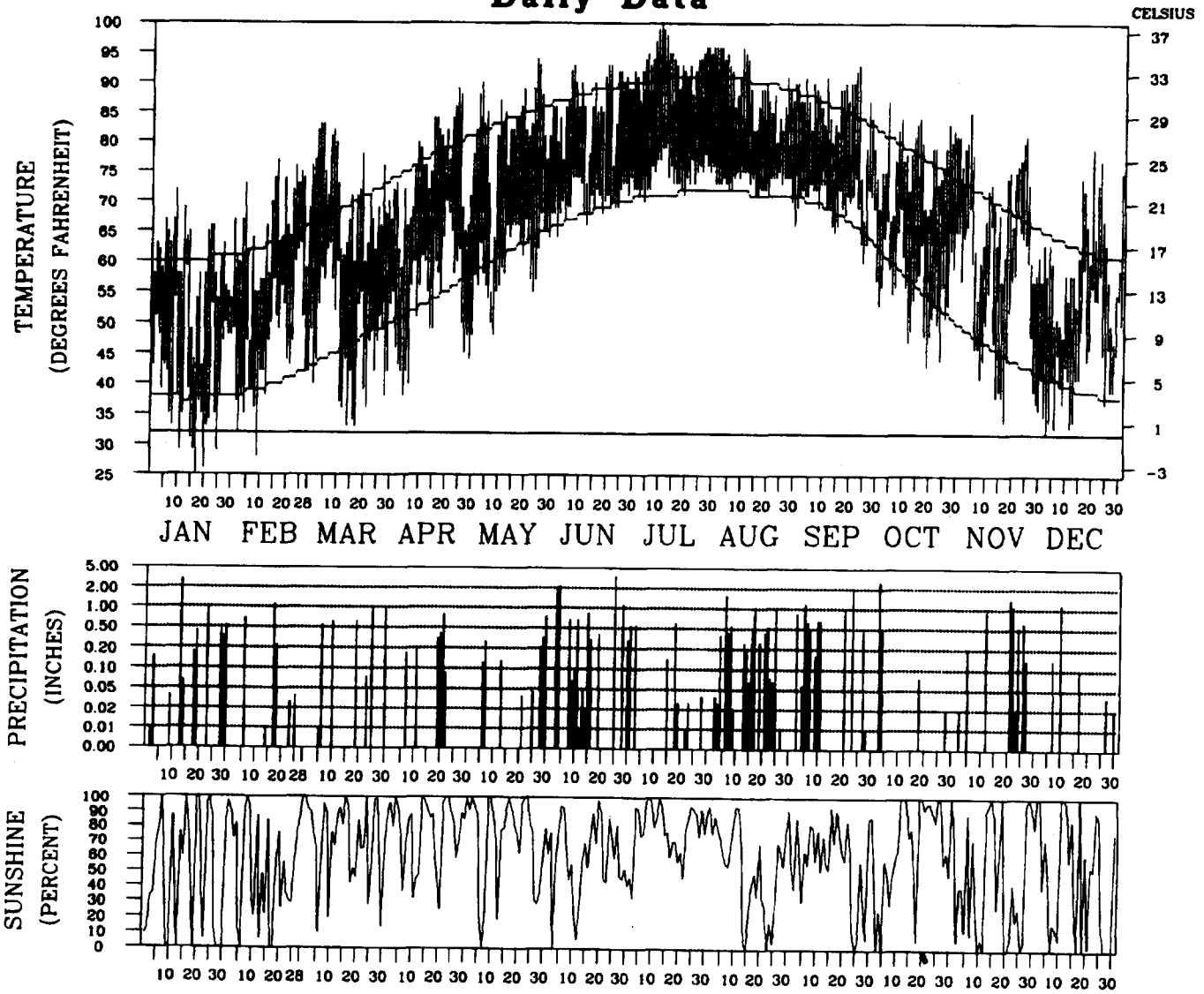
LATITUDE: 32° 07' 30" LONGITUDE: 81° 07' 30"

Reference 4

ISSN 0198-1668

1992 LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA
SAVANNAH, GEORGIA

Daily Data



TEMPERATURE DEPICTS NORMAL MAXIMUM, NORMAL MINIMUM AND ACTUAL DAILY HIGH AND LOW VALUES (FAHRENHEIT)
PRECIPITATION IS MEASURED IN INCHES, SCALE IS NON-LINEAR
SUNSHINE IS PERCENT OF THE POSSIBLE SUNSHINE

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA, 28801

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Kenneth D. Wadleu
DIRECTOR
NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 1992

SAVANNAH, GEORGIA

LATITUDE: 32°08' N LONGITUDE: 81°12' W ELEVATION: FT. GRND 46 BARO 52 TIME ZONE: EASTERN WBAN: 03822

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:													
Averages													
-Daily Maximum	60.0	65.8	71.1	75.6	82.6	86.8	94.1	89.1	85.1	77.1	69.4	60.6	76.4
-Daily Minimum	39.8	45.5	47.2	53.4	60.7	70.3	74.4	72.8	69.0	56.0	51.7	43.4	57.0
-Monthly	49.9	55.7	59.2	64.5	71.7	78.6	84.3	81.0	77.1	66.6	60.6	52.0	66.8
-Monthly Dewpt.	39.1	44.9	43.4	51.1	58.2	70.1	72.7	72.5	69.0	56.4	52.3	42.8	56.0
Extremes													
-Highest	72	77	83	89	94	93	100	96	93	87	85	79	100
-Date	9	16	4	24	24	21	10	10	23	4	4	20	JUL 10
-Lowest	25	28	33	38	48	64	70	66	57	43	34	32	25
-Date	17	9	17	4	8	1	4	30	30	19	17	3	JAN 17
DEGREE DAYS BASE 65 °F:													
Heating	461	274	204	101	22	0	0	0	1	45	194	401	1703
Cooling	0	11	29	94	234	414	603	504	370	101	69	7	2436
% OF POSSIBLE SUNSHINE	48	54	70	77	72	60	77	54	57	67	44	48	62
AVG. SKY COVER (tenths)													
Sunrise - Sunset	6.7	7.1	5.5	5.4	5.2	7.1	4.7	7.1	6.5	5.0	6.8	6.8	6.2
Midnight - Midnight	6.1	6.6	5.0	4.7	4.7	6.8	4.7	6.7	5.8	4.7	6.5	6.7	5.8
NUMBER OF DAYS:													
Sunrise to Sunset													
-Clear	7	6	11	10	12	4	13	2	6	13	8	8	100
-Partly Cloudy	7	6	9	12	8	10	12	12	12	5	3	6	102
-Cloudy	17	17	11	8	11	16	6	17	12	13	19	17	164
Precipitation .01 inches or more	11	6	7	6	8	15	8	19	12	4	9	5	110
Snow, Ice pellets, hail 1.0 inches or more	0	0	0	0	0	0	0	0	0	0	0	0	0
Thunderstorms	2	1	2	3	4	14	13	18	8	1	4	0	70
Heavy Fog, visibility 1/4 mile or less	0	5	2	2	2	4	0	4	6	4	1	5	35
Temperature °F													
-Maximum													
90° and above	0	0	0	0	3	13	28	14	8	0	0	0	66
32° and below	0	0	0	0	0	0	0	0	0	0	0	0	0
-Minimum													
32° and below	6	2	0	0	0	0	0	0	0	0	0	1	9
0° and below	0	0	0	0	0	0	0	0	0	0	0	0	0
AVG. STATION PRESS. (mb)	1016.6	1015.2	1014.9	1015.2	1014.6	1010.8	1015.9	1016.3	1016.6	1016.4	1018.0	1020.3	1015.9
RELATIVE HUMIDITY (%)													
Hour 01	78	83	74	81	83	91	86	92	92	86	85	80	84
Hour 07	83	84	81	87	85	91	88	93	94	89	86	83	87
Hour 13 (Local Time)	54	54	42	48	47	62	54	62	63	53	64	61	55
Hour 19	65	67	55	58	61	78	72	82	79	73	77	74	70
PRECIPITATION (inches):													
Water Equivalent													
-Total	6.60	2.24	3.97	2.08	2.04	13.01	2.03	7.69	8.42	3.60	5.15	1.53	58.36
-Greatest (24 hrs)	3.34	1.18	1.02	1.12	0.81	3.82	0.79	2.03	2.04	3.50	2.28	1.22	3.82
-Date	13-14	17-18	25	20-21	29-30	25	PM- 1	6- 7	23	3- 4	21-22	10	JUN 25
Snow, Ice pellets, hail													
-Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Greatest (24 hrs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Date													
WIND:													
Resultant													
-Direction (!!!)	306	308	266	251	086	162	252	217	054	032	030	354	304
-Speed (mph)	2.9	2.0	3.3	1.0	0.6	1.6	5.4	1.6	4.4	1.7	0.7	3.2	0.9
Average Speed (mph)	8.9	8.5	8.7	8.1	8.3	7.7	7.8	6.7	7.5	7.6	8.6	8.3	8.1
Fastest Obs. 1 Min.													
-Direction (!!!)	31	29	31	27	21	29	27	25	35	01	25	32	27
-Speed (mph)	28	25	29	22	25	28	35	17	18	18	23	21	35
-Date	24	26	27	4	30	30	1	28	23	5	24	11	JUL 1
Peak Gust													
-Direction (!!!)	NW	W	NW	W			W	SE	E	W	NW	NW	
-Speed (mph)	38	36	45	33			52	26	35	30	48	36	
-Date	24	26	27	4			1	5	2	4	24	11	

(!!!) See Reference Notes on Page 6B

NORMALS, MEANS, AND EXTREMES

SAVANNAH, GEORGIA

LATITUDE: 32°08'N LONGITUDE: 81°12' W ELEVATION: FT. GRND 46 BARO 52 TIME ZONE: EASTERN WBAN: 03822

	(a)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F:														
Normals														
-Daily Maximum		60.3	63.1	69.9	77.8	84.2	88.6	90.8	90.1	85.6	77.8	69.5	62.5	76.7
-Daily Minimum		37.9	40.0	46.8	54.1	62.3	68.5	71.5	71.4	67.6	55.9	45.5	39.4	55.1
-Monthly		49.2	51.6	58.4	66.0	73.3	78.6	81.2	80.8	76.6	66.9	57.5	51.0	65.9
Extremes														
-Record Highest	42	84	86	91	95	100	104	105	104	98	97	89	83	105
-Year		1957	1989	1974	1986	1953	1985	1986	1954	1986	1986	1961	1971	JUL 1986
-Record Lowest	42	3	14	20	32	39	51	61	57	43	28	15	9	3
-Year		1985	1958	1980	1987	1963	1984	1972	1986	1967	1952	1970	1983	JAN 1985
NORMAL DEGREE DAYS:														
Heating (base 65°F)		507	387	243	42	0	0	0	0	0	58	240	444	1921
Cooling (base 65°F)		17	12	38	72	261	408	502	490	348	117	15	10	2290
% OF POSSIBLE SUNSHINE	42	55	58	62	70	68	65	63	62	58	64	62	55	62
MEAN SKY COVER (tenths)														
Sunrise - Sunset	42	6.2	6.1	6.0	5.4	5.8	6.1	6.4	6.2	6.2	5.1	5.4	6.0	5.9
MEAN NUMBER OF DAYS:														
Sunrise to Sunset														
-Clear	42	9.3	8.5	9.0	10.6	9.2	6.8	5.2	5.7	6.9	12.2	11.1	9.3	103.8
-Partly Cloudy	42	6.1	6.4	8.5	8.5	10.0	11.1	13.7	13.6	10.6	7.9	6.9	7.0	110.2
-Cloudy	42	15.6	13.4	13.5	10.8	11.8	12.0	12.1	11.7	12.6	11.0	12.0	14.7	151.3
Precipitation .01 inches or more	42	9.4	8.7	9.1	7.0	8.8	11.1	13.7	12.9	9.9	5.9	6.4	8.1	110.9
Snow, Ice pellets, hail 1.0 inches or more	42	0.*	0.1	0.*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.*	0.2
Thunderstorms	42	0.9	1.2	2.9	3.8	7.3	10.1	14.9	12.6	5.5	1.5	0.5	0.6	62.0
Heavy Fog Visibility 1/4 mile or less	42	4.7	3.1	3.2	2.7	3.1	2.4	1.2	2.0	3.7	3.3	4.9	4.6	39.0
Temperature °F														
-Maximum														
90° and above	28	0.0	0.0	0.1	1.5	5.0	14.2	21.6	18.0	7.7	0.7	0.0	0.0	68.8
32° and below	28	0.2	0.0	0.*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
-Minimum														
32° and below	28	10.3	7.1	1.9	0.*	0.0	0.0	0.0	0.0	0.0	0.*	2.3	7.5	29.1
0° and below	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG. STATION PRESS. (mb)	20	1018.9	1018.0	1016.1	1015.4	1014.5	1014.7	1015.8	1015.9	1015.7	1017.3	1018.4	1019.6	1016.7
RELATIVE HUMIDITY (%)														
Hour 01	28	78	76	77	79	84	86	87	89	88	85	83	79	83
Hour 07 (Local Time)	28	81	80	83	83	85	87	89	91	91	88	86	82	86
Hour 13	28	54	50	48	46	51	55	57	61	60	53	52	54	53
Hour 19	28	66	60	60	58	63	68	72	76	75	72	72	69	68
PRECIPITATION (inches):														
Water Equivalent														
-Normal		3.09	3.17	3.83	3.16	4.62	5.69	7.37	6.65	5.19	2.27	1.89	2.77	49.70
-Maximum Monthly	42	8.98	7.92	9.57	10.57	10.08	14.39	20.10	14.94	13.47	12.50	5.15	5.80	20.10
-Year		1991	1964	1959	1991	1957	1963	1964	1971	1953	1990	1992	1977	JUL 1964
-Minimum Monthly	42	0.45	0.26	0.18	0.38	0.51	0.84	1.35	1.02	0.35	0.02	0.15	0.12	0.02
-Year		1989	1991	1955	1986	1953	1954	1972	1980	1991	1963	1966	1984	OCT 1963
-Maximum in 24 hrs	42	3.58	3.46	4.65	5.62	5.67	4.06	6.36	7.04	6.80	5.79	5.02	3.47	7.04
-Year		1984	1964	1959	1976	1976	1963	1957	1971	1979	1990	1969	1964	AUG 1971
Snow, Ice pellets, hail														
-Maximum Monthly	42	2.0	3.6	1.1	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	3.6	3.6
-Year		1977	1968	1986			1989						1989	DEC 1989
-Maximum in 24 hrs	42	1.3	3.6	1.1	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	3.4	3.6
-Year		1977	1968	1986			1989						1989	FEB 1968
WIND:														
Mean Speed (mph)	42	8.5	9.2	9.2	8.7	7.7	7.5	7.1	6.6	7.3	7.5	7.5	7.9	7.9
Prevailing Direction through 1963		WNW	NE	WNW	SSE	SW	SW	SW	SW	NE	NNE	NNE	NE	SW
Fastest Obs. 1 Min.														
-Direction (!!!)	12	31	29	32	23	22	27	35	25	29	31	23	30	32
-Speed (MPH)	12	30	30	46	35	44	31	37	29	35	35	40	29	46
-Year		1989	1981	1981	1991	1984	1989	1986	1986	1989	1990	1985	1982	MAR 1981
Peak Gust														
-Direction (!!!)	9	NW	NW	W	NE	SW	NW	N	W	W	NW	S	SW	SW
-Speed (mph)	9	51	49	63	53	68	66	63	58	54	61	62	39	68
-Date		1989	1991	1991	1991	1984	1991	1986	1990	1989	1990	1985	1991	MAY 1984

(!!!) See Reference Notes on Page 6B.

PRECIPITATION (inches)

SAVANNAH, GEORGIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1963	3.32	5.06	1.68	4.55	3.85	14.39	7.94	2.36	3.61	0.02	2.28	1.77	50.83
1964	6.29	7.92	2.71	2.64	4.66	2.55	20.10	8.37	3.93	6.94	2.90	4.16	73.17
1965	0.83	4.34	7.75	1.39	2.62	5.63	7.46	4.56	4.82	1.33	2.09	2.99	45.81
1966	6.05	3.66	3.79	1.88	6.73	6.61	7.89	3.73	1.78	1.19	0.15	1.93	45.39
1967	7.18	2.80	0.50	1.38	2.94	4.38	6.23	8.57	2.12	1.36	0.84	2.97	41.27
1968	1.79	1.16	0.89	2.09	4.80	5.86	6.35	3.83	0.48	3.53	2.59	3.97	37.34
1969	1.77	1.59	5.11	0.71	8.74	9.99	7.57	10.33	3.74	4.04	3.82	3.43	60.84
1970	3.11	2.32	8.51	0.95	5.41	5.21	5.76	10.61	5.88	2.29	0.42	3.37	53.84
1971	3.40	2.60	2.63	3.53	3.56	6.98	9.07	14.94	1.67	8.01	1.26	3.69	61.34
1972	3.99	4.61	3.84	1.20	5.84	6.54	1.35	12.62	0.36	0.54	4.91	2.77	48.57
1973	3.61	4.46	5.36	4.43	1.23	9.19	2.89	6.45	3.65	0.19	0.68	3.26	45.40
1974	1.37	2.79	1.87	2.75	7.25	6.00	6.48	7.90	2.61	0.10	0.96	1.85	41.93
1975	3.17	3.01	3.99	4.71	6.00	2.08	11.55	3.13	8.01	1.25	1.09	3.19	51.18
1976	2.19	1.24	2.51	5.62	6.33	7.49	7.56	7.28	10.07	4.75	4.83	3.87	63.74
1977	3.14	1.83	2.72	1.94	1.03	2.00	5.62	8.01	6.52	1.16	2.07	5.80	41.84
1978	4.02	3.14	1.93	3.68	4.50	2.19	3.61	4.43	2.61	0.60	1.85	2.85	35.41
1979	3.96	4.14	2.42	3.83	8.49	7.37	10.78	2.65	12.20	0.70	2.70	2.68	61.92
1980	2.95	1.29	7.75	3.68	4.50	3.47	2.38	1.02	5.81	1.62	2.04	1.33	37.84
1981	1.03	2.94	3.91	1.75	2.10	3.01	5.42	10.91	2.88	1.29	1.65	3.17	40.06
1982	3.47	2.94	1.64	6.25	4.18	9.15	6.70	9.18	2.98	1.74	0.40	3.63	52.26
1983	5.90	5.23	9.01	5.15	1.07	5.81	5.30	3.67	3.39	1.03	4.18	4.77	54.51
1984	8.87	3.21	5.13	3.41	5.29	1.48	7.88	3.46	7.43	1.23	3.15	0.12	50.66
1985	0.51	1.37	1.65	1.37	2.18	6.72	5.00	9.42	0.76	3.37	4.28	2.01	38.64
1986	2.03	5.28	2.85	0.38	2.06	2.98	5.49	12.31	0.49	1.99	4.40	5.07	45.33
1987	8.62	4.39	5.33	0.50	3.82	8.03	4.37	9.46	8.16	0.33	2.06	1.41	56.48
1988	3.44	4.09	2.11	5.05	3.52	2.63	1.80	10.68	9.62	2.81	1.43	0.99	48.17
1989	0.45	0.67	1.41	3.59	3.10	7.30	4.91	6.29	7.98	4.71	1.26	5.20	46.87
1990	3.91	3.08	3.79	1.75	2.07	0.97	1.92	7.25	1.26	12.50	2.48	2.10	43.08
1991	8.98	0.26	5.48	10.57	7.13	5.12	15.41	10.51	0.35	1.60	1.26	1.75	68.42
1992	6.60	2.24	3.97	2.08	2.04	13.01	2.03	7.69	8.42	3.60	5.15	1.53	58.36
Record Mean	2.96	3.13	3.57	2.94	3.42	5.56	6.67	7.12	5.57	2.77	2.04	2.80	48.55

See Reference Notes on Page 6B.

AVERAGE TEMPERATURE (deg. F)

SAVANNAH, GEORGIA

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1963	46.8	47.1	61.2	66.9	72.6	79.1	80.1	81.7	74.3	66.7	57.3	43.7	64.8
#1964	48.2	47.8	58.4	66.8	73.2	81.4	79.1	79.6	74.7	63.1	60.1	53.7	65.5
1965	49.9	52.4	56.8	66.4	74.8	76.4	79.8	80.6	76.7	66.2	58.0	50.1	65.7
1966	44.9	51.2	55.6	64.7	71.6	74.6	80.9	79.6	76.4	67.3	57.1	49.5	64.4
1967	51.4	49.6	61.7	69.0	73.2	77.2	79.9	79.4	71.6	64.4	56.4	55.3	65.7
1968	45.7	44.6	57.0	68.0	72.5	79.1	81.6	82.1	76.5	68.7	54.8	47.6	64.8
1969	47.4	47.1	52.4	66.1	71.0	79.7	82.2	78.9	75.4	69.9	53.9	47.7	64.3
1970	42.4	49.2	59.2	68.3	73.0	78.2	81.6	81.8	78.9	70.2	54.8	54.1	66.0
1971	50.1	52.4	54.5	64.6	71.1	80.5	80.9	80.8	78.6	72.4	58.0	60.6	67.0
1972	57.5	51.3	59.3	66.7	71.6	75.7	81.0	81.0	77.3	68.1	58.1	57.1	67.1
1973	49.8	49.6	63.6	64.0	73.5	79.3	82.2	80.0	79.0	68.9	61.6	51.2	66.9
1974	62.9	53.0	63.8	65.6	74.5	76.8	79.2	79.6	76.3	64.6	57.7	53.1	67.3
1975	55.3	57.7	59.5	65.4	76.7	79.5	78.4	81.7	76.5	70.0	59.3	50.5	67.5
1976	45.9	56.4	62.6	64.3	69.7	75.8	81.7	78.2	74.9	62.5	51.5	49.0	64.4
1977	39.9	49.2	62.1	67.6	74.0	82.0	83.3	81.1	78.9	64.1	61.2	50.0	66.1
1978	43.9	43.6	56.3	68.0	73.7	80.0	82.2	82.3	78.2	67.0	64.7	53.4	66.1
1979	45.4	49.0	59.8	67.7	73.9	76.8	82.1	81.4	77.4	67.5	60.4	50.7	66.0
1980	50.7	48.5	57.1	66.2	73.3	79.7	84.4	83.4	80.4	65.4	56.7	48.1	66.1
1981	43.5	52.6	56.8	69.0	71.6	84.5	84.4	79.2	75.2	65.4	57.7	48.3	65.7
1982	48.7	55.9	62.1	64.8	74.3	80.2	81.3	81.0	75.5	67.6	61.8	57.4	67.5
1983	46.1	50.8	58.0	62.8	73.0	78.2	84.1	82.9	75.7	69.7	57.7	48.5	65.6
1984	47.7	53.7	59.3	65.7	72.9	79.2	80.6	81.5	75.0	73.2	55.7	59.5	67.0
1985	45.3	53.0	61.5	66.9	74.6	81.3	82.7	80.7	76.6	72.2	67.5	48.9	67.6
1986	47.6	56.9	59.1	66.8	75.0	82.5	85.7	81.6	79.7	70.0	65.0	53.9	68.7
1987	49.0	50.4	58.2	63.9	74.1	80.6	83.6	84.5	77.8	61.5	60.4	54.7	66.6
1988	45.0	50.2	58.2	66.1	72.4	77.7	82.7	82.5	77.4	64.2	61.3	51.1	65.7
1989	56.6	56.1	60.6	65.6	72.3	81.0	82.9	80.7	76.8	68.6	59.5	43.7	67.0
1990	55.7	60.0	62.6	65.0	74.3	81.5	84.4	82.4	78.9	70.7	60.8	56.5	69.4
1991	52.2	56.2	62.4	70.0	77.5	79.4	83.2	82.2	77.9	68.4	56.6	55.6	68.5
1992	49.9	55.7	59.2	64.5	71.7	78.6	84.3	81.0	77.1	66.6	60.6	52.0	66.8
Record Mean	51.3	53.3	59.4	66.2	73.6	79.4	81.7	81.0	77.0	67.8	58.8	52.3	66.8
Max	60.8	63.1	69.3	76.2	83.1	88.4	90.4	89.4	85.1	77.1	68.8	62.0	76.1
Min	41.7	43.6	49.5	56.1	64.0	70.3	72.9	72.6	68.8	58.6	48.8	42.6	57.5

See Reference Notes on Page 6B.

SAVANNAH, GEORGIA

Savannah is surrounded by flat terrain, low and marshy to the north and east, and rising to several feet above sea level to the west and south. About half the land to the west and south is cleared and the other half is wooded and swampy.

The area has a temperate climate, with a seasonal low temperature of 51 degrees in winter, 66 degrees in spring, 80 degrees in summer, and 66 degrees in autumn. The lowest temperatures are below 10 degrees and the highest temperatures are about 100 degrees.

The normal annual rainfall is about 49 inches. About half falls in the thunderstorm season of June 15 through September 15. The remainder, produced principally by squall-line and frontal showers, is spread over the other nine months with a minor peak in March. Considerable periods of fair, mild weather are experienced in October, November, April, and to a less extent, in May. Snow is a rarity and even a trace does not occur on an average of once a year. The heaviest snowfalls are under 5 inches. Severe tropical storms affect this area about once in ten years. Rainfall from these storms constitute the heaviest sustained precipitation. Accumulations exceeding 22 inches have occurred.

The present exposure of the thermometers gives readings more nearly commensurate with those of suburban street levels of Savannah than was the case of previous locations atop various buildings. During that time, especially on still, clear nights, temperatures near the ground and in lower inland areas were as much as 15 degrees lower than the official low temperature. Present differences on comparable nights range from 3 - 8 degrees.

Sunshine is adequate at all seasons and seldom are there two or more days in succession without it. Sea- and land-breeze effect is usually not felt in Savannah, though it is a daily feature on the nearby islands. Dry, continental air masses reach this area in summer mostly by sliding down the Atlantic coast and giving cooler northeast winds. Such masses reaching this area from the northwest or west in summer bring mostly clear skies and high temperatures.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is November 15 and the average last occurrence in the spring is March 10.

Reference 7

FARLEY-JONES AND ASSOCIATES

HYDROGEOLOGY • ENVIRONMENTAL STUDIES • PERMITTING

DAN FARLEY, P.G.
FLORIDA REGISTERED
PROFESSIONAL GEOLOGIST NO. 606

HC 01, BOX 2995
TALLAHASSEE, FL 32310
904/575-2177

CONTAMINATION ASSESSMENT REPORT ADDENDUM

McKenzie Tank Lines, Inc.
111 Grange Road
Port Wentworth, Georgia

RECEIVED
APR 8 1994
ENVIRONMENTAL PROTECTION DIVISION
S.E. REGION

Prepared for:

McKenzie Tank Lines, Inc.
P.O. Box 1200
Tallahassee, Florida

Submitted to:

Georgia Environmental Protection Division
1 Conservation Way
Brunswick, Georgia 31523-8602

Prepared by:

Farley-Jones & Associates
HC 01 Box 2995
Tallahassee, Florida 32310

April 6, 1994

THIS REPORT WAS PRINTED ON RECYCLED PAPER

FARLEY-JONES AND ASSOCIATES

HYDROGEOLOGY • ENVIRONMENTAL STUDIES • PERMITTING

DAN FARLEY, P.G.
FLORIDA REGISTERED
PROFESSIONAL GEOLOGIST NO. 606

HC 01, BOX 2995
TALLAHASSEE, FL 32310
904/575-2177

March 31, 1994

Mr. Bruce M. Foisy
Environmental Specialist, Southeast Regional Office
Georgia Environmental Protection Division
1 Conservation Way
Brunswick, Georgia 31523-8602

Re: McKenzie Tank Lines, Inc.
Contamination Assessment Report Addendum
Port Wentworth, Georgia Terminal
Consent Order EPD-WQ-1896

Dear Mr. Foisy:

Farley-Jones & Associates, as authorized by McKenzie Tank Lines, Inc., has submitted this Contamination Assessment Report Addendum in compliance with Consent Order EPD-WQ-1896.

This Contamination Assessment Report Addendum provides information of additional assessment and interim remedial activities completed since the submittal of the December 8, 1993 Contamination Assessment Report for the McKenzie Tank Lines, Inc. Port Wentworth, Georgia Terminal. Included are details of the addition of 6 groundwater monitoring wells, results of additional soil and groundwater sampling, details of the soil venting pilot study and plans for remediation of soils in the Port Wentworth storm water drainage ditch just west of the McKenzie property. Also included are conclusions based upon hydrogeological and analytical data and recommendations for remedial work which we feel are appropriate at this time.

Should you have any questions regarding this report, please do not hesitate to contact me.

Sincerely,

Dan Farley, P.G.
Florida Registered
Professional Geologist No. 606

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SOIL BORING LOGS
Farley-Jones & Associates (Attachment 2)

INTRODUCTION/PURPOSE

Farley-Jones & Associates, as authorized by McKenzie Tank Lines, Inc., is submitting this Contamination Assessment Report Addendum for the McKenzie Tank Lines, Inc. Port Wentworth, Georgia Terminal in compliance with the Consent Order EPD-WQ-1896 entered into between the Georgia Environmental Protection Division (GEPD) and McKenzie Tank Lines, Inc. This Addendum provides information on additional assessment and interim remedial activities completed since the submittal of the December 8, 1993 Contamination Assessment Report for the above mentioned facility. Included are details of the addition of 6 groundwater monitoring wells, results of additional soil and groundwater sampling, details on the soil venting pilot study, and recommendations for remedial work.

GROUNDWATER ASSESSMENT

Well Installation

Six additional wells and one replacement well have been installed since the submittal of the December 8, 1993 Report. One well, MW-2S, was installed to replace an already existing well, MW-2. One well, MW-2D, was installed to investigate a deeper zone in the surficial aquifer (water table aquifer). The remaining wells, MW-6 through MW-10 were installed to delineate the horizontal extent of the chlorinated hydrocarbon (TCE and PCE) plume reported in the December 8, 1993 Report (see Figure 1 for the Well Locations). In general, the wells were installed about 10-15 feet into the surficial aquifer and screened across the water table. Well construction details are found in Table 1 and Figure 2.

Groundwater Levels and Flow Direction

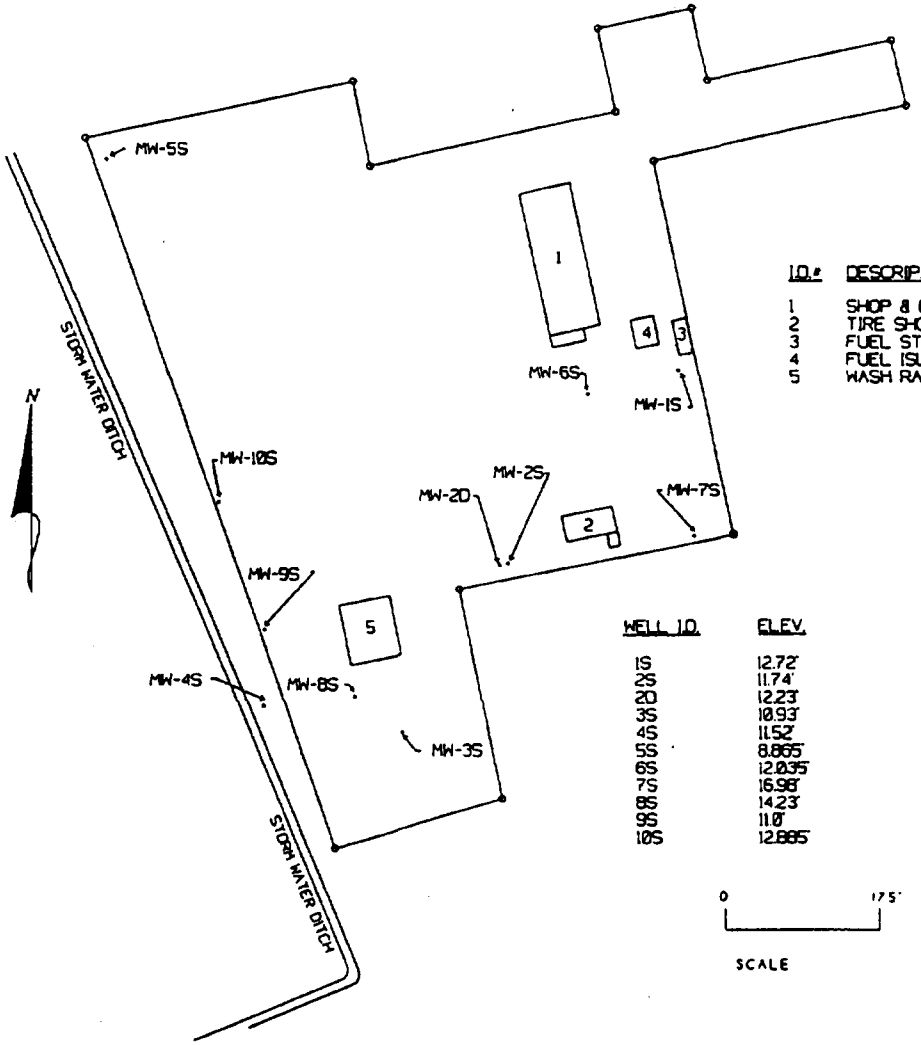
On March 3, 1994, water level readings were taken in all site monitoring wells (see Table 2 for the Elevation Data). Using data collected, a water table elevation contour map was constructed (Figure 3). One of the readings, from MW-9, was anomalous and was ignored in map construction. Farley-Jones believes this anomaly may be the result of misreading the measuring tape. The reading is anomalously high by one foot in comparison to the other readings. If one foot is subtracted from the elevation, the reading would correspond with surrounding readings. It is not known if the level is correct or misread. Farley-Jones feels it is fair to ignore this specific reading because it has a minor

TABLE 1
Well Construction Details

Component	MW-6	MW-7	MW-8	MW-9	MW-10
Size	2-inch	2-inch	2-inch	2-inch	2-inch
Casing	2′	5'	6'	3.5′	4′
Screen/10slot	8′	8'	15′	7'	8'
Total Depth (from surface)	10′	10′	19′	10.5'	10′
Screen Sand Pack	16/30	16/30	16/30	16/30	16/30
Open hole	no	no	no	no	no
Bentonite Seal	0.5'	0.5'	0.5	0.5	0.5
Grout to Surface	1'	1'	1'	1'	1'

TABLE 2
Elevation Data

WELL #	TOC ELEVATION	DEPTH to WATER	GW ELEVATION
MW-1	12.72	2.75	9.97
MW-2S	11.74	2.48	9.26
MW-2D	12.23	3.58	8.65
MW-3	10.93	3.15	7.78
MW-4	11.52	4.37	7.15
MW-5	8.865	2.695	6.17
MW-6	12.035	2.72	9.315
MW-7	16.98	6.34	10.64
MW-8	14.23	6.715	7.515
MW-9	11	2.9	8.1
MW-10	12.885	5.73	7.155

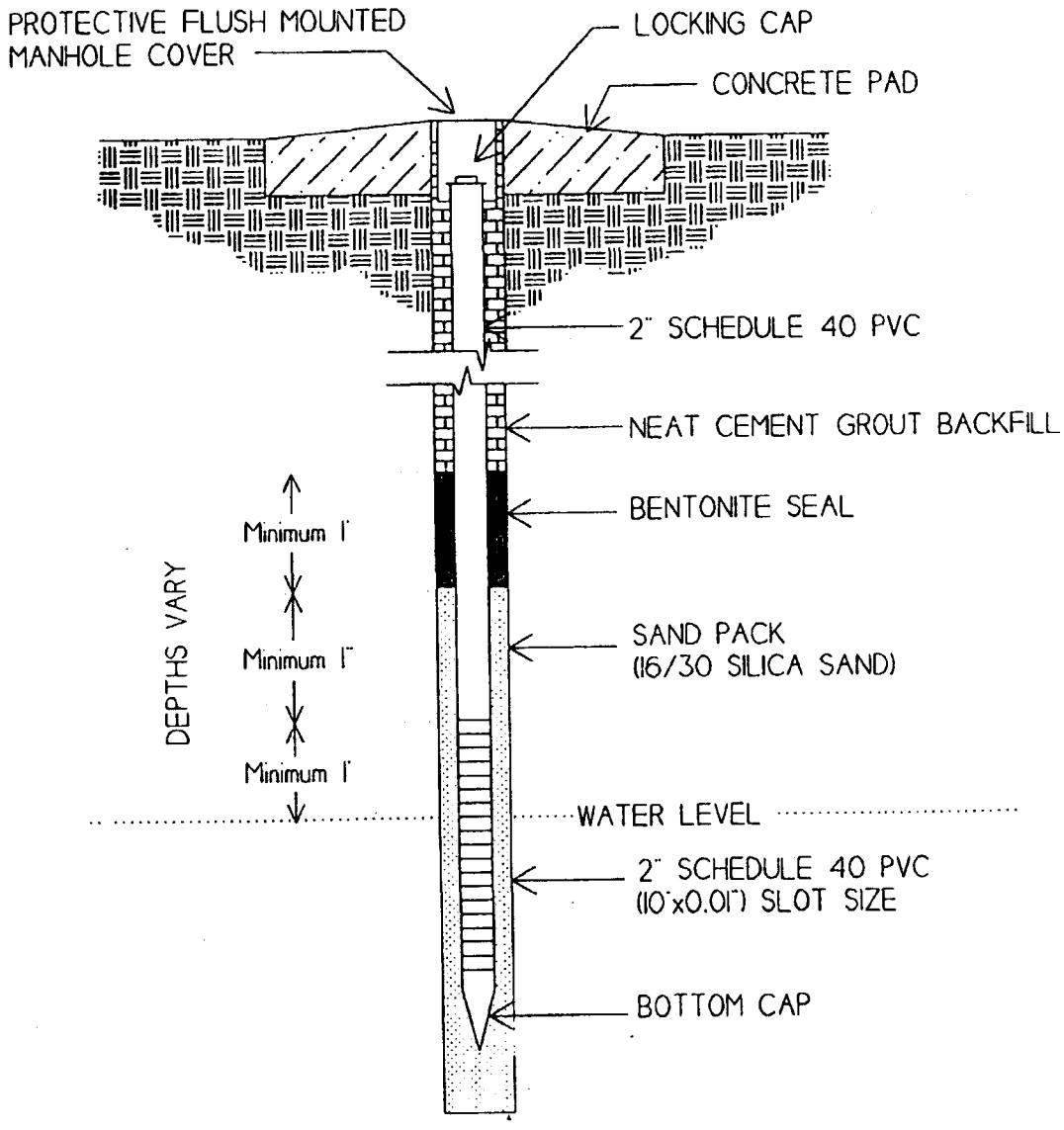


SITE MAP/ MONITORING WELL LOCATIONS

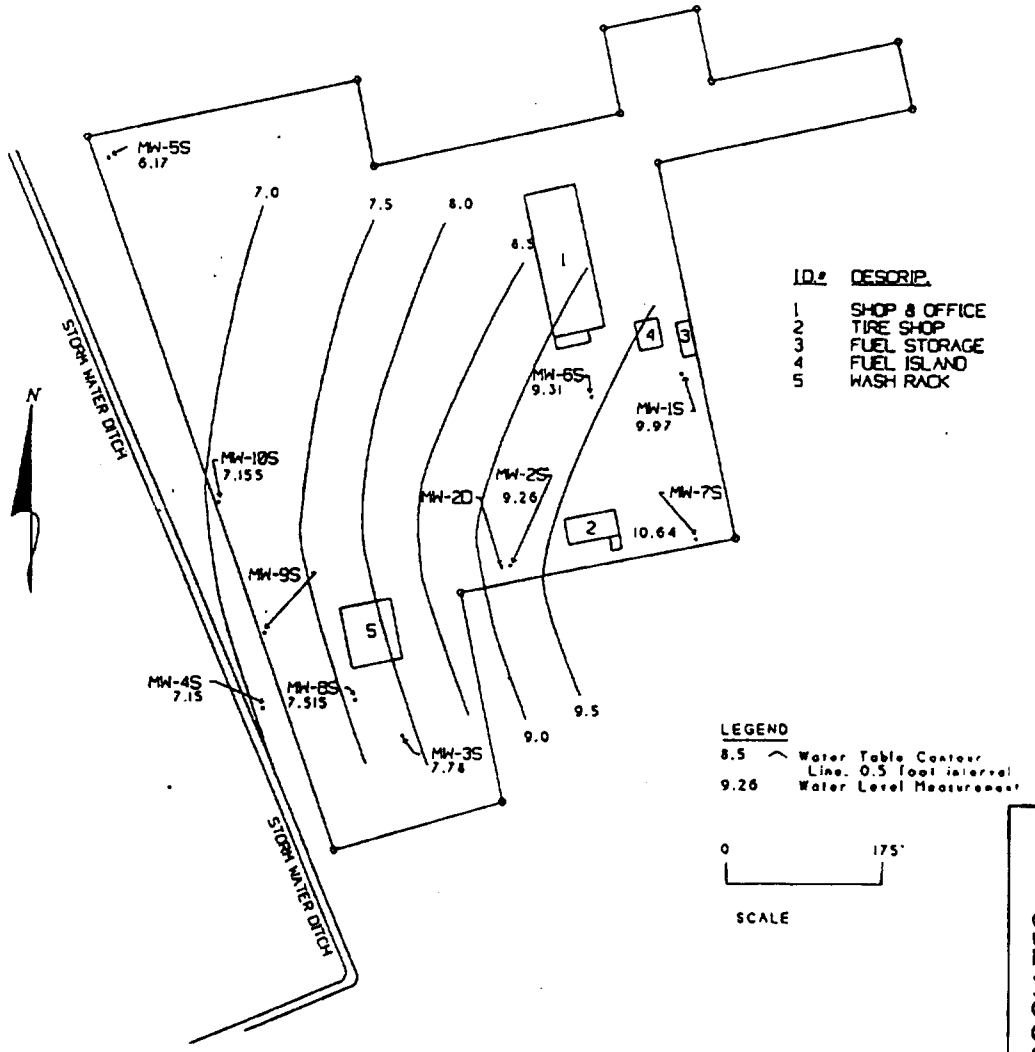
FIGURE 1

FARLEY-JONES & ASSOCIATES

McKENZIE TANK LINES, INC-SAVANNAH



FARLEY-JONES & ASSOCIATES		
McKENZIE TANK LINES, INC-SAVANNAH	FIGURE 2	TYPICAL WELL CONSTRUCTION



GROUNDWATER CONTOUR MAP

FIGURE 3

FARLEY-JONES & ASSOCIATES

McKENZIE TANK LINES, INC-SAVANNAH

impact on the overall groundwater flow for the site. The general groundwater flow pattern is from east to west. It is not known whether the groundwater discharges into the storm water drainage ditch. It is recommended that a stream gauge be installed in the ditch in order to ascertain whether the ditch is a discharge or recharge point for the surficial aquifer. Water elevations in MW-2S and MW-2D (9.26 and 8.65 feet NGVD respectively) indicate a downward vertical hydraulic gradient and potential downward movement of groundwater.

Groundwater Sampling and Analytical Results

On March 3, 1994, Farley-Jones & Associates supervised the sampling of all eleven monitoring wells by Savannah Laboratories of Savannah, Georgia. Using dedicated bailers, all wells were hand bailed three times or until dry and then allowed to recover in order to obtain representative groundwater samples. The samples were analyzed for volatile organic compounds (VOC's) using EPA methods 601 and 602. Summary results of analysis are presented in Table 3. The Savannah Laboratory Reports are included as Attachment 1.

TABLE 3
Summary Analytical Results

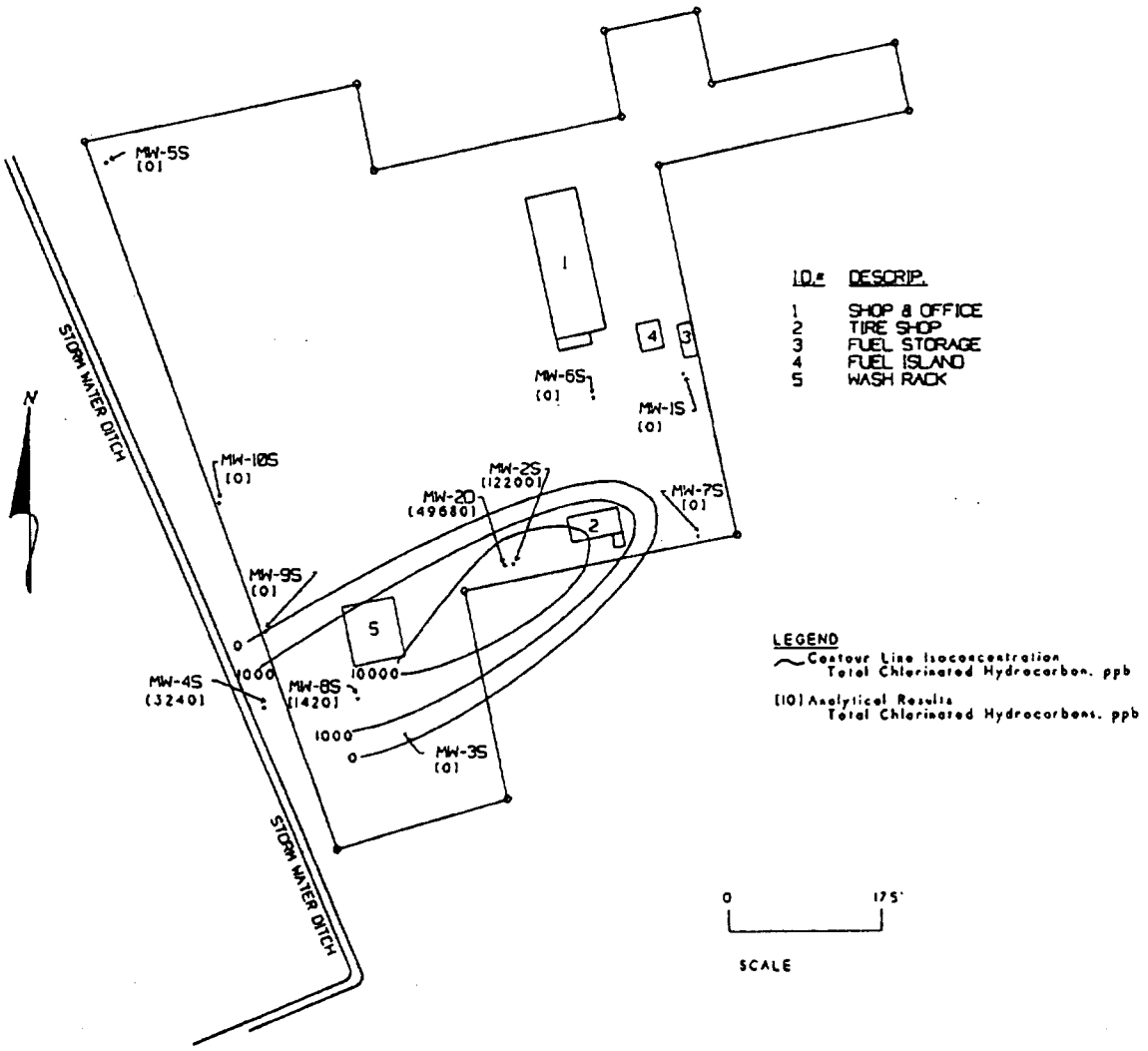
WELL #	PCE	TCE	DCE	VC	pH	SPECIFIC CONDUCTANCE	TOTAL CHLORINATED VOC
MW-1	---	---	---	---	6.73	3100	0
MW-2S	---	---	11000	1200	6.22	2800	12200
MW-2D	49000	680	---	---	6.71	240	49680
MW-3	---	---	---	---	5.44	600	0
MW-4	2900	340	---	---	6.2	1200	3240
MW-5	---	---	---	---	6.45	1200	0
MW-6	---	---	---	---	5.91	500	0
MW-7	---	---	---	---	7.06	100	0
MW-8	530	410	480	---	6.33	550	1420
MW-9	---	---	---	---	6.68	2500	0
MW-10	---	---	---	---	6.82	1500	0

[redacted]
(0 and 12,200 ppb total chlorinated hydrocarbons respectively). This area corresponds to former tanker washing rack area. [redacted]). The plume is detected in monitoring wells MW-4 (3,240 ppb) and MW-8 (1420 ppb) where the values indicate they are near the edge of the plume. The plume is defined by MW-3, MW-9, MW-7, and MW-6 where it is not detected. Chlorinated hydrocarbon compounds are detected in MW-2D (49,680) indicating the vertical migration of contamination. MW-6 was installed to detect any possible environmental concerns as a result of activities related to the fuel island area. None were detected. MW-8 was installed to aid in determining if the contamination in MW-4 was from the tire shop area or a result of VOC contaminated water or sediments collecting in a small pool by the McKenzie storm water drainage ditch outfall into the City of Port Wentworth storm water drainage ditch. The detection of VOC's in MW-8 and the non-detection of VOC's in the ditch outfall sediments (see below) [redacted]

SOIL SAMPLING AND ANALYTICAL RESULTS

Six soil samples were collected from the site by Savannah Laboratories under the supervision of Farley-Jones (Figure 5) on March 3, 1994 (see Attachment 1 for Analytical Results). Samples MB-1 and MB-2 were taken near the tire shop. This is the former tanker washing rack area where the Detrex system was used. The Detrex system used chlorinated solvents to wash the inside of tankers. Ideally, all the solvent was recycled in the system. The samples , MB-1 and MB-2, were taken to assess the presence of any of these chlorinated solvents. The samples were taken from a depth 1 to 1.5 feet below the surface (BLS). Analytical results indicate that no VOC's were detected in MB-1, however, [redacted]

Samples MB-3 and MB-4 were taken at a depth of 1 to 1.5 BLS from an area west of the tire shop and adjacent to the area that has been excavated as part of the soil venting pilot study. The samples were taken to assess the effectiveness of the excavation. The samples were taken from a depth 1 to 1.5 feet below the surface. Analyses for both samples did not detect any VOC's.

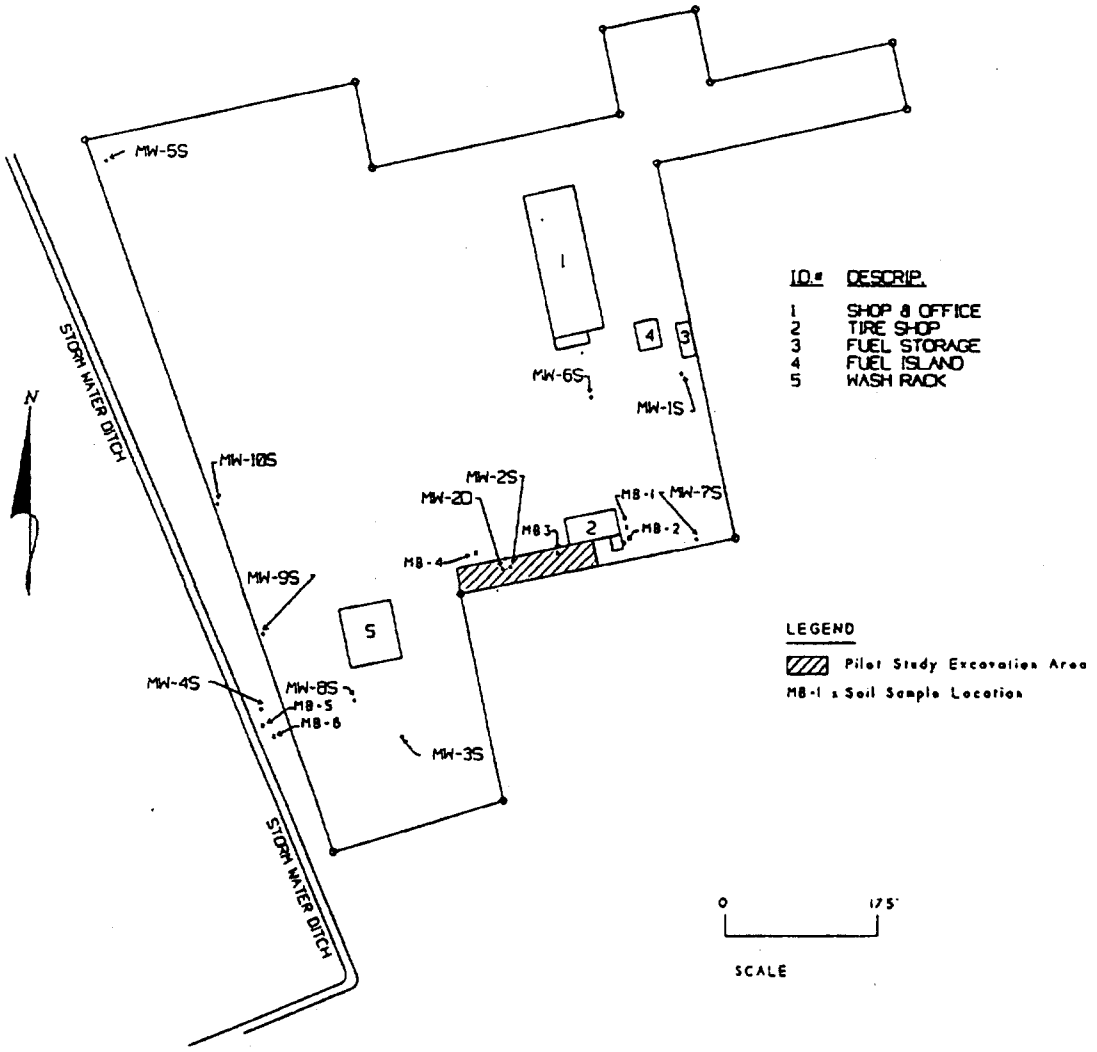


ISOCONCENTRATION MAP

FIGURE 4

FARLEY-JONES & ASSOCIATES

McKENZIE TANK LINES, INC-SAVANNAH



SOIL SAMPLE & EXCAVATION LOCATION MAP

FIGURE 5

FARLEY-JONES & ASSOCIATES

McKENZIE TANK LINES, INC-SAVANNAH

Samples MB-5 and MB-6 were taken from an area where the McKenzie storm water drainage ditch discharges into the City of Port Wentworth drainage ditch. The samples were taken to assess the presence of VOC's in the sediments as a result of runoff of VOC contaminated water or sediments. This also would aid in the assessment of VOC's detected in well MW-4, i.e. if contamination in MW-4 was from the tire shop area or had a local source. Analytical results indicate that no VOC's were detected . [redacted]

SOIL VENTING PILOT STUDY

what soils?

Since the submittal of the December 8, 1993, Contamination Assessment Report, McKenzie Tank Lines, Inc., has been conducting a soil venting pilot study at the McKenzie Port Wentworth facility to assess the feasibility of soil venting to remediate contaminated soils present there. Approximately 1,000 cubic yards of soils were excavated (Figure 5). The excavated soils were laid on an impermeable surface consisting of black plastic sheeting. Simultaneously, slotted pvc piping was layed down horizontally. This resulted in a framework of slotted pvc piping layered horizontally at various levels throughout the soil pile. A shed with a fiberglass roof was constructed over and around the soils to keep them controlled and protected from rainwater. The piping was manifolded into three groups. Each group was connected to a separate vacuum pump. Before entering the pumps, the vapors evacuated from the soils are passed through two in-line carbon canisters per pump. The soils will be analyzed periodically to assess the effectiveness of the soil venting technique.

EXCAVATION OF CITY OF PORT WENTWORTH STORM WATER DRAINAGE DITCH

The December 8, 1993, Contamination Assessment Report identified chlorinated hydrocarbon and volatile organic aromatic compounds contaminating soils in the City of Port Wentworth storm water drainage ditch just west of the McKenzie Tank Lines, Inc., Terminal. The report recommended the removal and remediation of these contaminated soils. McKenzie Tank Lines will accomplish this task during seasonally low water in order to take advantage of reduced stream flow, to reduce groundwater seepage into the excavation, and to allow excavating equipment to have a firmer operating surface. The drainage ditch will be dammed at its northern end near Grange Road. The water north of the dam flowing towards the ditch, if any, will be diverted around the area of the ditch

to be excavated. The diversion of the flow will be accomplished by using pumps and hoses. It is felt that this approach will have less environmental impact, be more efficient, and less costly than digging a new storm water drainage ditch to divert water away from the present drainage ditch.

CONCLUSIONS AND RECOMMENDATIONS

Based upon hydrogeological and analytical data a groundwater chlorinated hydrocarbon (TCE and PCE) contaminant plume originates in the area of the tire shop at the McKenzie Tank Lines, Inc., Terminal in Port Wentworth, Georgia. This plume, following groundwater flow direction, travels in a westerly direction towards the City of Port Wentworth storm water drainage ditch. Contaminated soils (TCE), probably associated with the groundwater plume, are located near the southeastern corner of the tire shop. Additional contaminated soils are located in the City of Port Wentworth storm water drainage ditch located to the west of the facility. It is recommended that groundwater remediation be commenced as soon as possible. Based upon the shallow depth of groundwater and the clayey nature of the soils onsite, an interceptor trench (or series of trenches) would be more effective in obtaining hydraulic control of the groundwater plume than a series of recovery wells. Technologies, such as air sparging and soil venting, should be investigated as to their feasibility in speeding up the remedial process. Additional contaminated soils near the tire shop should be excavated to remove a continual source of contamination to groundwater. This soil could be added to the soil venting pilot study. The contaminated soils in the City of Port Wentworth storm water drainage ditch should be remediated as discussed above.

Remedial to what?

ATTACHMENT 1

ANALYTICAL RESULTS

Savannah Laboratories, Inc.

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S4-41165

Received: 04 MAR 94

Mr. Dan Farley
Farley Jones & Associates
HCRI, BOX 2995
Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
41165-1	MW-1	03-04-94
41165-2	MW-2S	03-04-94
41165-3	MW-2D	03-04-94
41165-4	MW-3	03-04-94
41165-5	MW-4	03-04-94

PARAMETER	41165-1	41165-2	41165-3	41165-4	41165-5
Purgeables					
Bromodichloromethane, ug/l	<1.0	<200	<500	<1.0	<25
Bromoform, ug/l	<5.0	<1000	<2500	<5.0	<120
Bromomethane, ug/l	<1.0	<200	<500	<1.0	<25
Carbon Tetrachloride, ug/l	<1.0	<200	<500	<1.0	<25
Chlorobenzene, ug/l	<1.0	<200	<500	<1.0	<25
Chloroethane, ug/l	<1.0	<200	<500	<1.0	<25
2-Chloroethylvinyl Ether, ug/l	<10	<2000	<5000	<10	<250
Chloroform, ug/l	<1.0	<200	<500	<1.0	<25
Chloromethane, ug/l	<1.0	<200	<500	<1.0	<25
Dibromochloromethane, ug/l	<1.0	<200	<500	<1.0	<25
1,2-Dichlorobenzene, ug/l	<1.0	<200	<500	<1.0	<25
1,3-Dichlorobenzene, ug/l	<1.0	<200	<500	<1.0	<25
1,4-Dichlorobenzene, ug/l	<1.0	<200	<500	<1.0	<25
Dichlorodifluoromethane, ug/l	<1.0	<200	<500	<1.0	<25
1,1-Dichloroethane, ug/l	<1.0	<200	<500	<1.0	<25
1,2-Dichloroethane, ug/l	<1.0	<200	<500	<1.0	<25
1,1-Dichloroethene, ug/l	<1.0	<200	<500	<1.0	<25
Cis/Trans-1,2-Dichloroethene, ug/l	<1.0	11000	<500	<1.0	<25
1,2-Dichloropropane, ug/l	<1.0	<200	<500	<1.0	<25
Cis-1,3-Dichloropropene, ug/l	<1.0	<200	<500	<1.0	<25
Trans-1,3-Dichloropropene, ug/l	<1.0	<200	<500	<1.0	<25

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41165-2	MW-2S	03-04-94
41165-3	MW-2D	03-04-94
41165-4	MW-3	03-04-94
41165-5	MW-4	03-04-94

PARAMETER	41165-1	41165-2	41165-3	41165-4	41165-5
Methylene Chloride (Dichloromethane), ug/l	<1.0	<200	<500	<1.0	<25
1,1,2,2-Tetrachloroethane, ug/l	<1.0	<200	<500	<1.0	<25
Tetrachloroethene, ug/l	<1.0	<200	49000	<1.0	2900
1,1,1-Trichloroethane, ug/l	<1.0	<200	<500	<1.0	<25
1,1,2-Trichloroethane, ug/l	<1.0	<200	<500	<1.0	<25
Trichloroethylene, ug/l	<1.0	<200	680	<1.0	340
Trichlorofluoromethane, ug/l	<1.0	<200	<500	<1.0	<25
Vinyl Chloride, ug/l	<1.0	1200	<500	<1.0	<25
Benzene, ug/l	<1.0	<200	<500	<1.0	<25
Ethylbenzene, ug/l	<1.0	<200	<500	<1.0	<25
Toluene, ug/l	<1.0	<200	<500	<1.0	<25
Xylenes, ug/l	<1.0	<200	<500	<1.0	<25
Water Level (casing top) ft.	2.75	2.48	3.58	3.15	4.37
Well Depth, ft.	14.85	7.17	27.35	15.70	17.32
pH (Taken in Field), units	6.73	6.22	6.71	5.44	6.20
Specific Conductance (Taken in Field), umhos/cm	3100	2800	240	600	1200

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41165-6	MW-5	03-04-94
41165-7	MW-6	03-04-94
41165-8	MW-7	03-04-94
41165-9	MW-8	03-04-94
41165-10	MW-9	03-04-94

PARAMETER	41165-6	41165-7	41165-8	41165-9	41165-10
Purgeables					
Bromodichloromethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Bromoform, ug/l	<5.0	<5.0	<5.0	<50	<5.0
Bromomethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Carbon Tetrachloride, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Chloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
2-Chloroethylvinyl Ether, ug/l	<10	<10	<10	<100	<10
Chloroform, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Chloromethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Dibromochloromethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Dichlorodifluoromethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,1-Dichloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,2-Dichloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,1-Dichloroethene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Cis/Trans-1,2-Dichloroethene, ug/l	<1.0	<1.0	<1.0	480	<1.0
1,2-Dichloropropane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Cis-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Trans-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0	<10	<1.0

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41165-6	MW-5	03-04-94
41165-7	MW-6	03-04-94
41165-8	MW-7	03-04-94
41165-9	MW-8	03-04-94
41165-10	MW-9	03-04-94

PARAMETER	41165-6	41165-7	41165-8	41165-9	41165-10
Methylene Chloride (Dichloromethane), ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,1,2,2-Tetrachloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Tetrachloroethene, ug/l	<1.0	<1.0	<1.0	530	<1.0
1,1,1-Trichloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
1,1,2-Trichloroethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Trichloroethylene, ug/l	<1.0	<1.0	<1.0	410	<1.0
Trichlorofluoromethane, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Vinyl Chloride, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Benzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Toluene, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Xylenes, ug/l	<1.0	<1.0	<1.0	<10	<1.0
Water Level (casing top) ft.	2.695	7.02	6.34	6.715	2.90
Well Depth, ft.	14.85	9.59	12.75	21.82	10.36
pH (Taken in Field), units	6.45	5.91	7.06	6.33	6.68
Specific Conductance (Taken in Field), umhos/cm	1200	500	100	550	2500

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
41165-11	MW-10	03-04-94

PARAMETER	41165-11
Purgeables	
Bromodichloromethane, ug/l	<1.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<1.0
Carbon Tetrachloride, ug/l	<1.0
Chlorobenzene, ug/l	<1.0
Chloroethane, ug/l	<1.0
2-Chloroethylvinyl Ether, ug/l	<10
Chloroform, ug/l	<1.0
Chloromethane, ug/l	<1.0
Dibromochloromethane, ug/l	<1.0
1,2-Dichlorobenzene, ug/l	<1.0
1,3-Dichlorobenzene, ug/l	<1.0
1,4-Dichlorobenzene, ug/l	<1.0
Dichlorodifluoromethane, ug/l	<1.0
1,1-Dichloroethane, ug/l	<1.0
1,2-Dichloroethane, ug/l	<1.0
1,1-Dichloroethene, ug/l	<1.0
Cis/Trans-1,2-Dichloroethene, ug/l	<1.0
1,2-Dichloropropane, ug/l	<1.0
Cis-1,3-Dichloropropene, ug/l	<1.0
Trans-1,3-Dichloropropene, ug/l	<1.0
Methylene Chloride (Dichloromethane), ug/l	<1.0
1,1,2,2-Tetrachloroethane, ug/l	<1.0
Tetrachloroethene, ug/l	<1.0
1,1,1-Trichloroethane, ug/l	<1.0

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
41165-11	MW-10	03-04-94

PARAMETER	41165-11
1,1,2-Trichloroethane, ug/l	<1.0
Trichloroethylene, ug/l	<1.0
Trichlorofluoromethane, ug/l	<1.0
Vinyl Chloride, ug/l	<1.0
Benzene, ug/l	<1.0
Ethylbenzene, ug/l	<1.0
Toluene, ug/l	<1.0
Xylenes, ug/l	<1.0
Water Level (casing top) ft.	5.73
Well Depth, ft.	12.05
pH (Taken in Field), units	6.82
Specific Conductance (Taken in Field), umhos/cm	1500

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S4-41165

Received: 04 MAR 94

Mr. Dan Farley
Farley Jones & Associates
HCRI, BOX 2995
Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
41165-12	Method Blank
41165-13	Lab Control Standard (LCS) % Recovery/Duplicate
41165-14	Precision (LCS % RPD)
41165-15	Date Analyzed

PARAMETER	41165-12	41165-13	41165-14	41165-15
Purgeables				
Bromodichloromethane, ug/l	<1.0	---	---	03.14.94
Bromoform, ug/l	<5.0	---	---	03.14.94
Bromomethane, ug/l	<1.0	---	---	03.14.94
Carbon Tetrachloride, ug/l	<1.0	---	---	03.14.94
Chlorobenzene, ug/l	<1.0	95/97 %	2.1 %	03.14.94
Chloroethane, ug/l	<1.0	---	---	03.14.94
2-Chloroethylvinyl Ether, ug/l	<10	---	---	03.14.94
Chloroform, ug/l	<1.0	---	---	03.14.94
Chloromethane, ug/l	<1.0	---	---	03.14.94
Dibromochloromethane, ug/l	<1.0	---	---	03.14.94
1,2-Dichlorobenzene, ug/l	<1.0	---	---	03.14.94
1,3-Dichlorobenzene, ug/l	<1.0	---	---	03.14.94
1,4-Dichlorobenzene, ug/l	<1.0	---	---	03.14.94
Dichlorodifluoromethane, ug/l	<1.0	---	---	03.14.94
1,1-Dichloroethane, ug/l	<1.0	---	---	03.14.94
1,2-Dichloroethane, ug/l	<1.0	---	---	03.14.94
1,1-Dichloroethene, ug/l	<1.0	88/91 %	3.3 %	03.14.94
Cis/Trans-1,2-Dichloroethene, ug/l	<1.0	---	---	03.14.94
1,2-Dichloropropane, ug/l	<1.0	---	---	03.14.94
Cis-1,3-Dichloropropene, ug/l	<1.0	---	---	03.14.94
Trans-1,3-Dichloropropene, ug/l	<1.0	---	---	03.14.94
Methylene Chloride (Dichloromethane), ug/l	<1.0	---	---	03.14.94

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
41165-12	Method Blank
41165-13	Lab Control Standard (LCS) % Recovery/Duplicate
41165-14	Precision (LCS % RPD)
41165-15	Date Analyzed

PARAMETER	41165-12	41165-13	41165-14	41165-15
1,1,2,2-Tetrachloroethane, ug/l	<1.0	---	---	03.14.94
Tetrachloroethene, ug/l	<1.0	---	---	03.14.94
1,1,1-Trichloroethane, ug/l	<1.0	---	---	03.14.94
1,1,2-Trichloroethane, ug/l	<1.0	---	---	03.14.94
Trichloroethylene, ug/l	<1.0	88/90 %	2.2 %	03.14.94
Trichlorofluoromethane, ug/l	<1.0	---	---	03.14.94
Vinyl Chloride, ug/l	<1.0	---	---	03.14.94
Benzene, ug/l	<1.0	104/105 %	0.95 %	03.14.94
Ethylbenzene, ug/l	<1.0	---	---	03.14.94
Toluene, ug/l	<1.0	108/108 %	0 %	03.14.94
Xylenes, ug/l	<1.0	---	---	03.14.94

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Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
41165-16	MB-1	03-04-94
41165-17	MB-2	03-04-94
41165-18	MB-3	03-04-94
41165-19	MB-4	03-04-94
41165-20	MB-5	03-04-94

PARAMETER	41165-16	41165-17	41165-18	41165-19	41165-20
Volatile Organics (8010/8020)					
Bromobenzene, ug/kg dw	<57	<2400	<58	<59	<64
Bromodichloromethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Benzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Bromoform, ug/kg dw	<29	<1200	<29	<29	<32
Bromomethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Carbon Tetrachloride, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Chlorobenzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Chloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Chloroform, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1-Chlorohexane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
2-Chloroethylvinyl Ether, ug/kg dw	<57	<2400	<58	<59	<64
Chloromethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Chlorotoluene, ug/kg dw	<57	<2400	<58	<59	<64
Dibromochloromethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Dibromomethane, ug/kg dw	<29	<1200	<29	<29	<32
1,2-Dichlorobenzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,3-Dichlorobenzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,4-Dichlorobenzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Dichlorodifluoromethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,1-Dichloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,2-Dichloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4

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LOG NO: S4-41165

Received: 04 MAR 94

Mr. Dan Farley
Farley Jones & Associates
HCRI, BOX 2995
Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
41165-16	MB-1	03-04-94
41165-17	MB-2	03-04-94
41165-18	MB-3	03-04-94
41165-19	MB-4	03-04-94
41165-20	MB-5	03-04-94

PARAMETER	41165-16	41165-17	41165-18	41165-19	41165-20
1,1-Dichloroethene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,2-Dichloropropane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,3-Dichloropropylene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Ethylbenzene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,1,2,2-Tetrachloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,1,1,2-Tetrachloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Tetrachloroethene, ug/kg dw	<5.7	11000	<5.8	<5.9	<6.4
Toluene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,1,1-Trichloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,1,2-Trichloroethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Trichloroethylene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Trichlorofluoromethane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
1,2,3-Trichloropropane, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Vinyl Chloride, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Xylenes, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Cis/Trans-1,2-Dichloroethene, ug/kg dw	<5.7	<240	<5.8	<5.9	<6.4
Methylene Chloride (Dichloromethane), ug/kg dw	13	<240	<5.8	<5.9	<6.4
Percent Solids, %	87	82	86	85	78

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Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
41165-21	MB-6	03-04-94

PARAMETER	41165-21
Volatile Organics (8010/8020)	
Bromobenzene, ug/kg dw	<71
Bromodichloromethane, ug/kg dw	<7.1
Benzene, ug/kg dw	<7.1
Bromoform, ug/kg dw	<35
Bromomethane, ug/kg dw	<7.1
Carbon Tetrachloride, ug/kg dw	<7.1
Chlorobenzene, ug/kg dw	<7.1
Chloroethane, ug/kg dw	<7.1
Chloroform, ug/kg dw	<7.1
1-Chlorohexane, ug/kg dw	<7.1
2-Chloroethylvinyl Ether, ug/kg dw	<71
Chloromethane, ug/kg dw	<7.1
Chlorotoluene, ug/kg dw	<71
Dibromochloromethane, ug/kg dw	<7.1
Dibromomethane, ug/kg dw	<35
1,2-Dichlorobenzene, ug/kg dw	<7.1
1,3-Dichlorobenzene, ug/kg dw	<7.1
1,4-Dichlorobenzene, ug/kg dw	<7.1
Dichlorodifluoromethane, ug/kg dw	<7.1
1,1-Dichloroethane, ug/kg dw	<7.1
1,2-Dichloroethane, ug/kg dw	<7.1
1,1-Dichloroethene, ug/kg dw	<7.1
1,2-Dichloropropane, ug/kg dw	<7.1
1,3-Dichloropropylene, ug/kg dw	<7.1
Ethylbenzene, ug/kg dw	<7.1

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
41165-21	MB-6	03-04-94

PARAMETER	41165-21
1,1,2,2-Tetrachloroethane, ug/kg dw	<7.1
1,1,1,2-Tetrachloroethane, ug/kg dw	<7.1
Tetrachloroethene, ug/kg dw	<7.1
Toluene, ug/kg dw	<7.1
1,1,1-Trichloroethane, ug/kg dw	<7.1
1,1,2-Trichloroethane, ug/kg dw	<7.1
Trichloroethylene, ug/kg dw	<7.1
Trichlorofluoromethane, ug/kg dw	<7.1
1,2,3-Trichloropropane, ug/kg dw	<7.1
Vinyl Chloride, ug/kg dw	<7.1
Xylenes, ug/kg dw	<7.1
Cis/Trans-1,2-Dichloroethene, ug/kg dw	<7.1
Methylene Chloride (Dichloromethane), ug/kg dw	<7.1
Percent Solids, %	70

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Tallahassee, Florida 32310

Project: McKenzie Tank Lines
Sampled By: Savannah Laboratories

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
41165-22	Method Blank
41165-23	Lab Control Standard (LCS) % Recovery/Duplicate
41165-24	Precision (LCS % RPD)
41165-25	Date Analyzed

PARAMETER	41165-22	41165-23	41165-24	41165-25
Volatile Organics (8010/8020)				
Bromobenzene, ug/kg dw	<50	---	---	03.09.94
Bromodichloromethane, ug/kg dw	<5.0	---	---	03.09.94
Benzene, ug/kg dw	<5.0	108/95 %	13 %	03.09.94
Bromoform, ug/kg dw	<25	---	---	03.09.94
Bromomethane, ug/kg dw	<5.0	---	---	03.09.94
Carbon Tetrachloride, ug/kg dw	<5.0	---	---	03.09.94
Chlorobenzene, ug/kg dw	<5.0	116/101 %	14 %	03.09.94
Chloroethane, ug/kg dw	<5.0	---	---	03.09.94
Chloroform, ug/kg dw	<5.0	---	---	03.09.94
1-Chlorohexane, ug/kg dw	<5.0	---	---	03.09.94
2-Chloroethylvinyl Ether, ug/kg dw	<50	---	---	03.09.94
Chloromethane, ug/kg dw	<5.0	---	---	03.09.94
Chlorotoluene, ug/kg dw	<50	---	---	03.09.94
Dibromochloromethane, ug/kg dw	<5.0	---	---	03.09.94
Dibromomethane, ug/kg dw	<25	---	---	03.09.94
1,2-Dichlorobenzene, ug/kg dw	<5.0	---	---	03.09.94
1,3-Dichlorobenzene, ug/kg dw	<5.0	---	---	03.09.94
1,4-Dichlorobenzene, ug/kg dw	<5.0	---	---	03.09.94
Dichlorodifluoromethane, ug/kg dw	<5.0	---	---	03.09.94
1,1-Dichloroethane, ug/kg dw	<5.0	---	---	03.09.94
1,2-Dichloroethane, ug/kg dw	<5.0	---	---	03.09.94
1,1-Dichloroethene, ug/kg dw	<5.0	122/120 %	1.6 %	03.09.94

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
41165-22	Method Blank
41165-23	Lab Control Standard (LCS) % Recovery/Duplicate
41165-24	Precision (LCS % RPD)
41165-25	Date Analyzed

PARAMETER	41165-22	41165-23	41165-24	41165-25
1,2-Dichloropropane, ug/kg dw	<5.0	---	---	03.09.94
1,3-Dichloropropylene, ug/kg dw	<5.0	---	---	03.09.94
Ethylbenzene, ug/kg dw	<5.0	---	---	03.09.94
1,1,2,2-Tetrachloroethane, ug/kg dw	<5.0	---	---	03.09.94
1,1,1,2-Tetrachloroethane, ug/kg dw	<5.0	---	---	03.09.94
Tetrachloroethene, ug/kg dw	<5.0	---	---	03.09.94
Toluene, ug/kg dw	<5.0	108/96 %	12 %	03.09.94
1,1,1-Trichloroethane, ug/kg dw	<5.0	---	---	03.09.94
1,1,2-Trichloroethane, ug/kg dw	<5.0	---	---	03.09.94
Trichloroethylene, ug/kg dw	<5.0	99/84 %	16 %	03.09.94
Trichlorofluoromethane, ug/kg dw	<5.0	---	---	03.09.94
1,2,3-Trichloropropane, ug/kg dw	<5.0	---	---	03.09.94
Vinyl Chloride, ug/kg dw	<5.0	---	---	03.09.94
Xylenes, ug/kg dw	<5.0	---	---	03.09.94
Cis/Trans-1,2-Dichloroethene, ug/kg dw	<5.0	---	---	03.09.94
Methylene Chloride (Dichloromethane), ug/kg dw	<5.0	---	---	03.09.94

Methods: EPA 40 CFR Part 136
Methods: EPA SW-846

Steven J. White

Steven J. White

Final Page Of Report

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

02630

[ ] 112 LaRoche Avenue, Savannah, GA 31904 — Phone: (912) 354-7858 — Fax (912) 352-0165
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[ ] 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
[ ] 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
[ ] 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

P.O. NUMBER	PROJECT NUMBER	PROJECT NAME	PAGE	OF
		McKenzie tank lines	2	2

CLIENT NAME: Farley-Jones and Assoc
TELEPHONE/FAX NO.:
CLIENT ADDRESS:
CITY, STATE, ZIP CODE:
SAMPLER(S) NAME(S): M. Sharpe, Brian Baldwin, Mike Lightner
CLIENT PROJECT MANAGER:

[ ] STANDARD TAT
[ ] EXPEDITED TAT *
REPORT DUE DATE _____
* SUBJECT TO RUSH FEES

MATRIX TYPE: AQUEOUS MATRIX, NONAQUEOUS MATRIX, OIL MATRIX, AIR MATRIX

REQUIRED ANALYSES: 125 ml glass amber VOA

NUMBER OF CONTAINERS SUBMITTED

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	125 ml glass amber VOA
4.94	0929	MB-1		2			1
4.94	0943	MB-2		2			1
4.94	1057	MB-3		2			1
4.94	1105	MB-4		2			1
4.94	1012	MB-5		2			1
4.94	1019	MB-6		2			1

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Brian Baldwin	3.4.94	1417						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
L Baker	3/4/94	2317	[x] YES [ ] NO		41165	

ORIGINAL

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC. 02334

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ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

...D. NUMBER	PROJECT NUMBER	PROJECT NAME
		McKenzie Tank Lines

...IENT NAME	TELEPHONE/FAX NO.
Carley-Jones and Assoc.	

...IENT ADDRESS	CITY, STATE, ZIP CODE

...MPLER(S) NAME(S)	CLIENT PROJECT MANAGER
Baisden m. Shoppe m. Kirkhlighter	

MATRIX TYPE: AQUEOUS MATRIX / NONAQUEOUS MATRIX / OIL MATRIX / AIR MATRIX

REQUIRED ANALYSES: 40-mL-VOC (601-602) / 125-amber

PAGE 1 OF 2

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE _____
* SUBJECT TO RUSH FEES

NUMBER OF CONTAINERS SUBMITTED

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	40-mL-VOC (601-602)	125-amber									
4.94	0902	MW-1	✓				3										
4.94	1230	MW-2S	✓				3										
4.94	1235	MW-2D	✓				3										
4.94	1305	MW-3	✓				3										
4.94	1049	MW-4	✓				2										
4.94	1210	MW-5	✓				2										
4.94	1248	MW-6	✓				3										
.94	0930	MW-7	✓				3										
4.94	1318	MW-8	✓				3										
.94	1340	MW-9	✓				3										
4.94	1328	MW-10	✓				2										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Baisden	3.4.94	1417						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

...LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
J. Baker	3/4/94	2:17	☑ YES ☐ NO		41165	

ORIGINAL

ATTACHMENT 2

SOIL BORING LOGS

Farley-Jones & Associates

TEST BORING LOG

BORING NO.: MW-6
DATE: March 3, 1994

LOCATION: McKenzie Tank, Port Wentworth, GA
GEOLOGIST(S): F. Kocher

INTERVAL (ft) {spoon #}	DESCRIPTION	PID READINGS (ppm)
0-1.5	Road GRAVEL (ballast)	
1.5-3'	Charcoal gray CLAY	
3-5'	gray silty CLAY, moist	
5-12	Brown CLAY	
12'	end of boring	

TEST BORING LOG

BORING NO.: MW-7
DATE: March 3, 1994

LOCATION: McKenzie Tank, Port Wentworth, GA
GEOLOGIST(S): F. Kocher

INTERVAL (ft) {spoon #}	DESCRIPTION	PID READINGS (ppm)
0-0.5'	Road GRAVEL (ballast)	
0.5-6'	Brown, well sorted, Very Fine SAND. Water at 3.5'	
6-12'	Light orange, medium to fine quartz SAND with clayey matrix	
12'	End of boring	

TEST BORING LOG

BORING NO.: MW-9
DATE: March 3, 1994

LOCATION: McKenzie Tank, Port Wentworth, GA
GEOLOGIST(S): F. Kocher

INTERVAL (ft) {spoon #}	DESCRIPTION	PID READINGS (ppm)
0-0.5'	Olive brwn, LOAM soil	
0.5-2.5'	Olive brown, silty, micaceous CLAY	
10'	Gray medium SAND	
	end of boring	

TEST BORING LOG

BORING NO.: MW-10
DATE: March 3, 1994

LOCATION: McKenzie Tank, Port Wentworth, GA
GEOLOGIST(S): F. Kocher

INTERVAL (ft) {spoon #}	DESCRIPTION	PID READINGS (ppm)
0-0.5'	LOAM	
0.5-10'	Charcoal gray,silty,clayey, micaceous, Very Fine SAND. Grades to brown Fine SAND with depth	
10'	End of boring	

Reference 8

FARLEY-JONES AND ASSOCIATES

HYDROGEOLOGY • ENVIRONMENTAL STUDIES • PERMITTING

DAN FARLEY, P.G.
FLORIDA REGISTERED
PROFESSIONAL GEOLOGIST NO. 606

HC 01, BOX 2995
TALLAHASSEE, FL 32310
904/575-2177

REMEDIAL ACTION PLAN

McKenzie Tank Lines, Inc.
111 Grange Road
Port Wentworth, Georgia 31407

RECEIVED
JUL 14 1995
ENVIRONMENTAL PROTECTION DIV.
SOUTHEAST REGION
BRUNSWICK OFFICE

Prepared For:

McKenzie Tank Lines, Inc.
Post Office Box 1200
Tallahassee, Florida 32302

Submitted To:

Georgia Environmental Protection Division
1 Conservation Way
Brunswick, Georgia 31523-8600

RECEIVED
JUL 18 1995
ENVIRONMENTAL PROTECTION DIV
SOUTHEAST REGION
SAVANNAH OFFICE

Prepared By:

Farley-Jones and Associates
HC 01, Box 2995
Tallahassee, Florida 32310

July 10, 1995

THIS REPORT WAS PRINTED ON RECYCLED PAPER

FARLEY-JONES AND ASSOCIATES

HYDROGEOLOGY • ENVIRONMENTAL STUDIES • PERMITTING

DAN FARLEY, P.G.
FLORIDA REGISTERED
PROFESSIONAL GEOLOGIST NO. 606

HC 01, BOX 2995
TALLAHASSEE, FL 32310
904/575-2177

July 10, 1995

Mr. Bruce M. Foisy
Environmental Specialist
Southeast Regional Office
Georgia Environmental Protection Division
1 Conservation Way
Brunswick, Georgia 31523-8602

Re: McKenzie Tank Lines, Inc.
Remedial Action Plan
Port Wentworth, Georgia Terminal
Consent Order EPD-WQ-1896

Dear Mr. Foisy:

Farley-Jones and Associates, as authorized by McKenzie Tank Lines Inc., is submitting this Remedial Action Plan in compliance with Consent Order EPD-WQ-1896.

This Remedial Action Plan provides the proposed remedial activities for contamination previously described in the Contamination Assessment Report and the Contamination Assessment Report Addendum. The objectives of the remediation plan are to prevent contaminant migration to adjacent groundwaters and surface waters; to reduce groundwater contaminant concentrations within the area of the plume; to reduce contamination in soils; and, to do this in a cost-effective manner within a reasonable time frame. Also included in this plan is information on additional contamination assessment work completed since submittal of the April 6, 1994 Contamination Assessment Report Addendum.

Should you have any questions regarding this plan, please do not hesitate to contact me.

Sincerely,

Dan Farley, P.G.
Florida Registered
Professional Geologist No. 606

cc: W. Guy McKenzie, Jr.
Wilton Dice

C:\FARLEY\OMCKENZIE\SAVANNAH\RAP.RPT

CERTIFICATION BY
FLORIDA REGISTERED PROFESSIONAL ENGINEER

In accordance with the provisions of Chapter 471, Florida Statues, this Remedial Action Plan for the McKenzie Tank Lines, Inc. facility located at 111 Grange Road, Port Wentworth, Georgia has been prepared under my responsible charge, and supervision.

This Remedial Action Plan is based on the observations, calculations, analyses, and evaluations performed by Farley-Jones and Associates. Information developed and presented by others was used by Farley-Jones and Associates in good faith as representative of the site conditions. Data collected by Farley-Jones and Associates did not contradict the information previously gathered. The work performed by Farley-Jones and Associates is in conformance with the current standards of practice as performed by similar firms under similar project conditions.

Doug Jones, P.E. 7/11/95
Florida Registered
Professional Engineer, No. 44003

Date

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INTRODUCTION/PURPOSE

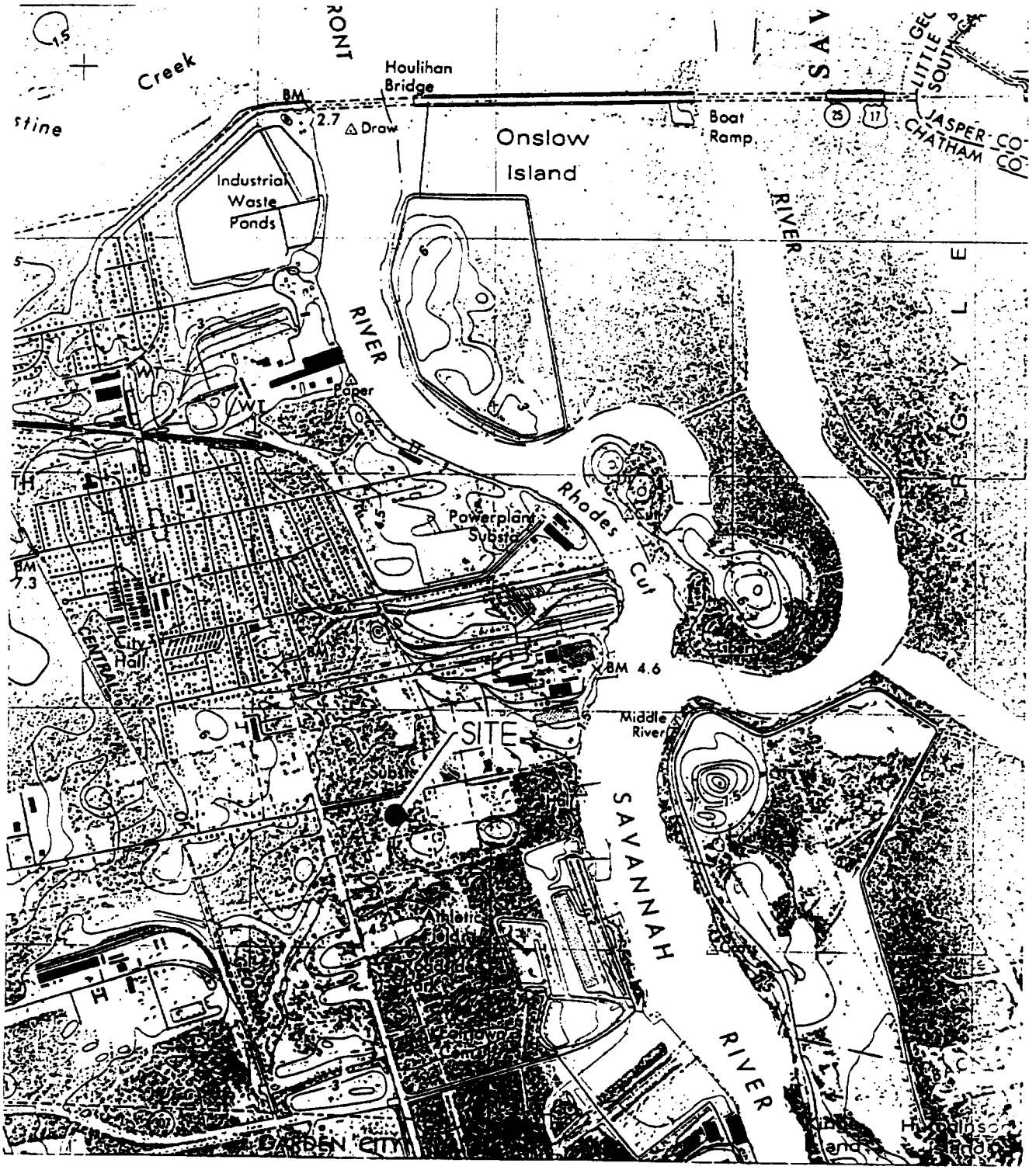
Farley-Jones and Associates, as authorized by McKenzie Tank Lines, Inc., is submitting this Remedial Action Plan (RAP) for the McKenzie Tank Lines, Inc. Port Wentworth, Georgia Terminal (See **Figure 1** for the Site Location Map) in compliance with the Consent Order EPD-WQ-1896 entered into between the Georgia Environmental Protection Division (GEPD) and McKenzie Tank Lines, Inc. This Plan provides the proposed remedial activities for the contamination previously described in the Contamination Assessment Report, the Contamination Assessment Report Addendum, and the information on additional assessment and interim remedial activities completed since the submittal of the March 1994 Contamination Assessment Report Addendum. Included are details of the installation of four additional groundwater monitoring wells; results of additional soil and groundwater sampling; details on the soil venting pilot study; and, recommendations for remedial work.

SITE HISTORY

Discovery of diesel fuel in the City of Port Wentworth storm water drainage ditch by the Georgia Environmental Protection Division initiated a contamination assessment of the McKenzie Tank Lines, Inc., Port Wentworth Terminal under Consent Order EPD-WQ-1896 (See **Figure 2** for the Site Map). The initial assessment work was conducted primarily by G.B. Robbins, Inc., and D.L. Smith & Associates. It included the sampling of soils, the sampling of surface water, and the installation and sampling of five groundwater monitoring wells. The results were presented in the December 8, 1993 Contamination Assessment Report (CAR) prepared by Farley-Jones and Associates. That report outlined two primary environmental concerns: One, the soils in the City of Port Wentworth storm water drainage ditch; and, Two, the groundwater underlying the site. The soils in the drainage ditch area contained elevated levels of chlorinated volatile organic compounds, aromatic volatile organic compounds, and polynuclear aromatic hydrocarbon compounds. The groundwater contained Chlorinated organic volatile compounds, PCE and TCE, in two of the original five site monitoring wells, MW-2 and MW-4.

At the request of the GEPD, Farley-Jones and Associates completed additional assessment work to further define the areas of concern. This work included the installation and sampling of six additional groundwater monitoring wells and the sampling of six soil borings. The analysis shows that the plume originates by the present tire shop, which was formerly the old wash rack. Following groundwater flow, the plume heads west towards the Port Wentworth storm water ditch into which groundwater discharges (**Figure 3**). A single soil sample indicated chlorinated VOC contamination in soils at the southeastern portion of the tire shop. This work was presented in a CAR addendum dated April 6, 1994 prepared by Farley-Jones and Associates.

Since the submittal of the CAR Addendum, additional vertical delineation of the groundwater plume has been conducted with the installation and sampling of four deeper groundwater monitoring wells **Figure 3** shows the location of all fifteen monitoring wells. The vertical declination was necessary to design an effective RAP. The results are presented in the Groundwater Monitoring Well Installation and Sampling Results section of this report.



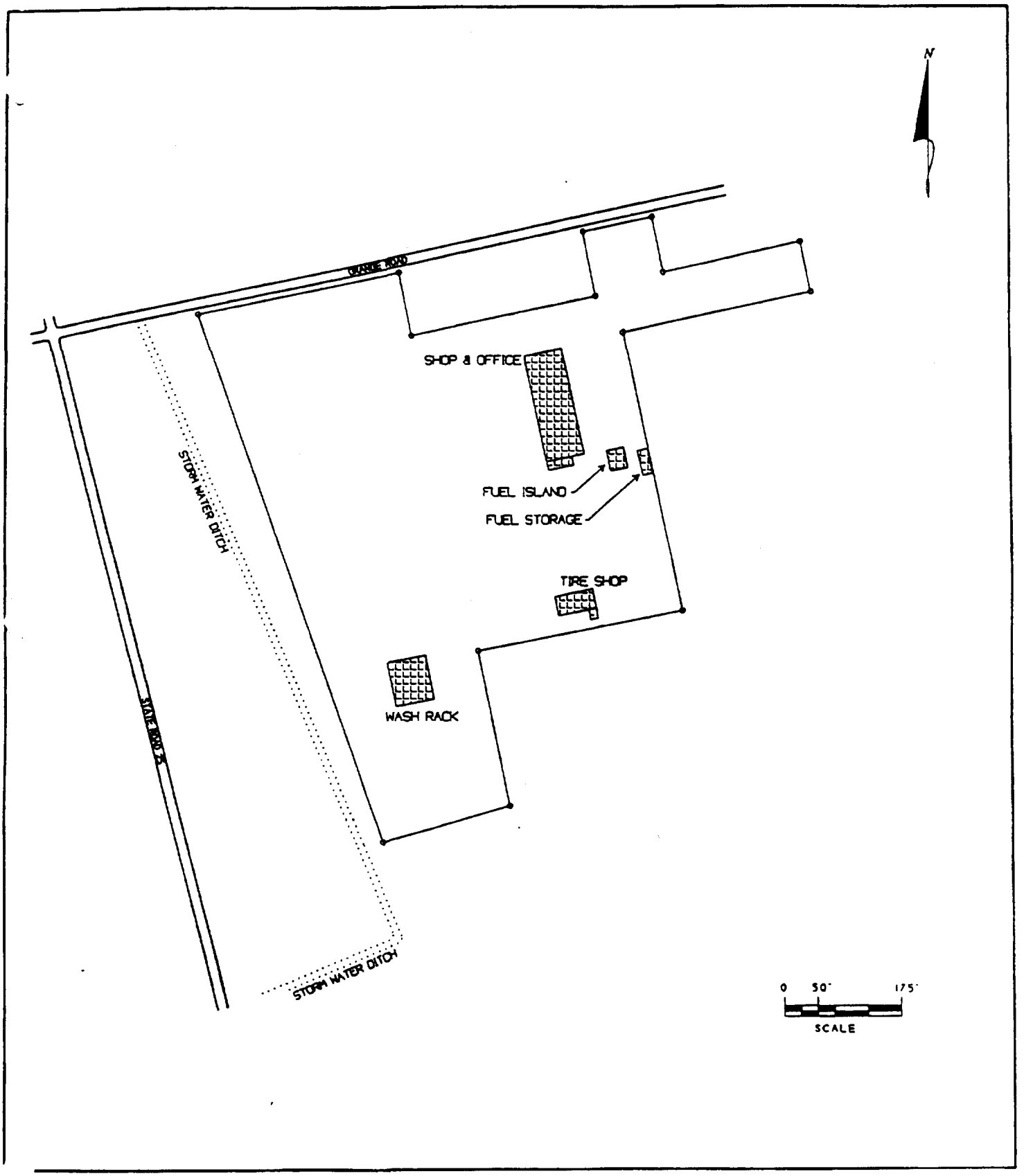
PORT WENTWORTH QUANDRANGLE

0 2000' 4000'
SCALE

FARLEY–JONES & ASSOCIATES

MCKENZIE TANK LINES, INC.

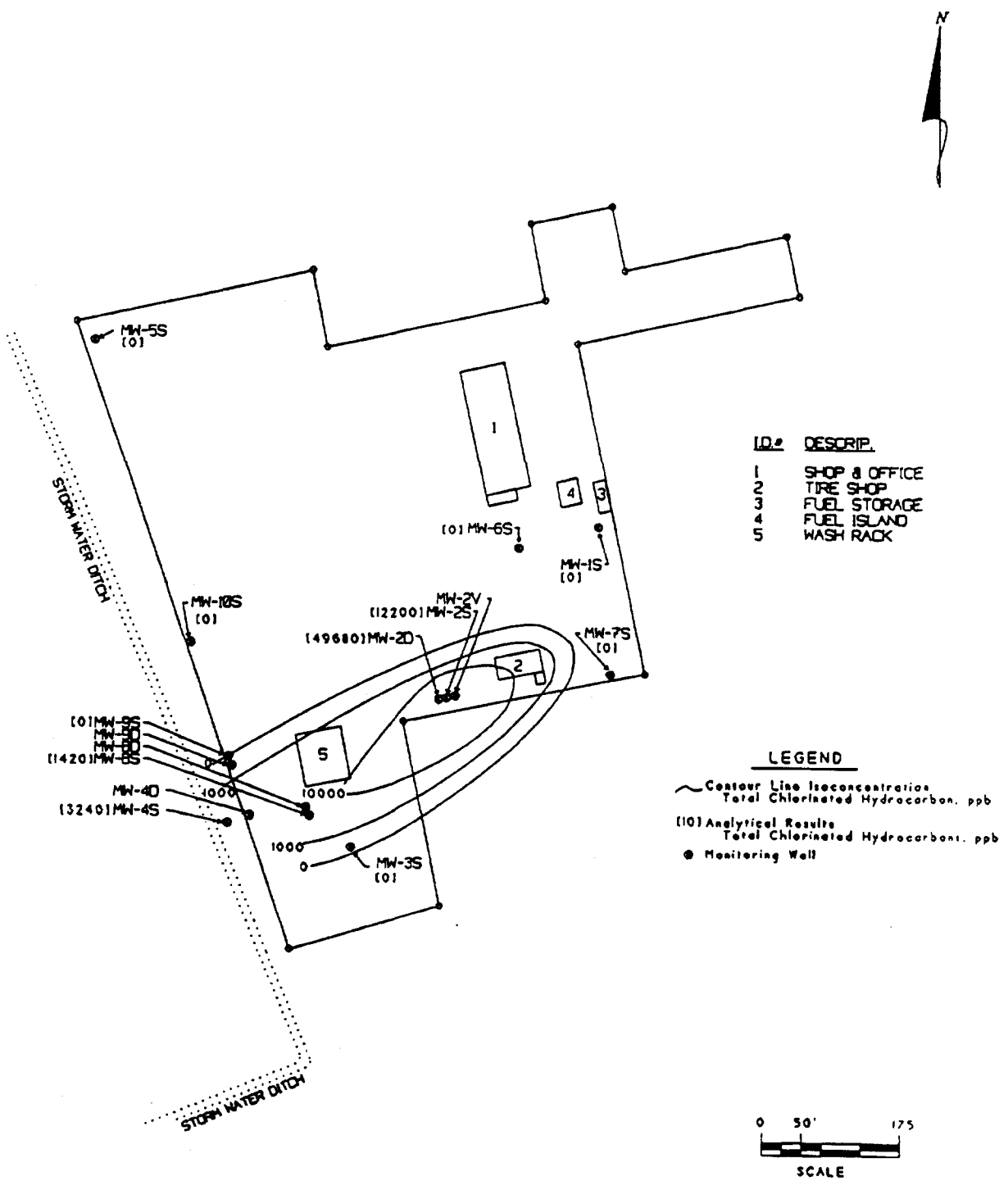
SAVANNAH, GA TERMINAL - SITE LOCATION MAP



FARLEY-JONES & ASSOCIATES

FIGURE 2

MCKENZIE TANK LINES, INC.
SAVANNAH, GA TERMINAL - SITE MAP



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MCKENZIE TANK LINES, INC.

SAVANNAH, GA TERMINAL - GROUNDWATER MONITORING WELL LOCATIONS & CONTAMINANT PLUME

FIGURE 3

SITE SPECIFIC GEOLOGY SUMMARY

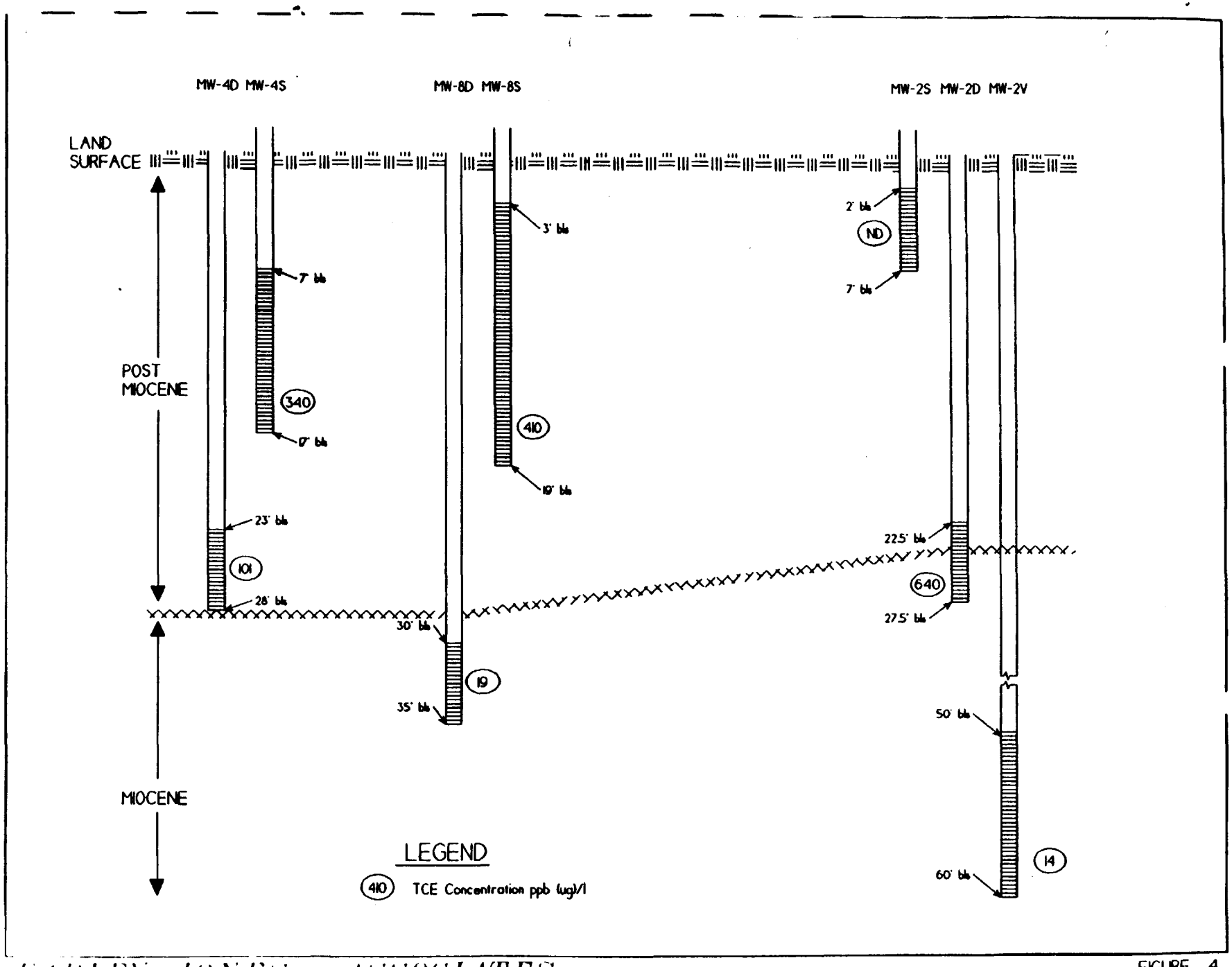
The McKenzie Tank Lines, Inc. Port Wentworth Terminal (McKenzie) site is underlain by several hydrogeologic units. These are in ascending order: the Floridan Aquifer, the Hawthorn Group, and the Pleistocene-Recent deposits. The Floridan Aquifer is comprised of undifferentiated limestones of Eocene to Miocene age in increasing age and is over 600 feet thick. The Hawthorn Group overlies the Floridan aquifer; it is Miocene in age and consists mostly of marl, sandy clay, and clayey sand. This unit is over 200 feet thick in the Savannah area and acts as an upper confining unit to the Floridan. The top of the Miocene Hawthorn lies about 25 to 30 feet below the land surface at the McKenzie site. Overlying the Hawthorn are Pleistocene to Recent sediments. At the McKenzie site, this unit is comprised of clayey sands and silts and sandy clays and ranges from 25 to 30 feet in thickness.

GROUNDWATER MONITORING WELL INSTALLATION AND SAMPLING RESULTS

Four additional groundwater monitoring wells were installed at the site to delineate the vertical extent of contaminants previously detected in groundwater. See **Figure 3** for the monitoring well locations and **Appendix A** for the Well Logs. Two wells were installed at the base of the Pleistocene-Recent deposits just above the Miocene Hawthorn deposits and two wells were installed in Miocene Hawthorn deposits. The wells MW-4D and MW-9D are screened from 23 to 28 feet below land surface (BLS) just above the Miocene deposits. Two wells, MW-8D and MW-2V, are screened in the Miocene. MW-8D is screened from 30 to 35 feet BLS, 5 feet into the Miocene deposits. MW-2V was screened from 50 to 60 feet BLS, about 25 feet into the Miocene deposits. The newly installed wells were developed, sampled and analyzed in the field using a Photovac 10S Plus portable gas chromatograph calibrated against the TCE standard. MW-2D was also sampled and analyzed in order to have a control to check the portable gas chromatograph results. Samples previously taken from MW-2D were analyzed in the laboratory. The TCE results for the new wells were compared to previous results from shallower wells already installed. The results indicate that TCE levels are attenuated in both the wells just above the Miocene deposits and in the Miocene deposits (see **Table 1** for the analysis and **Figure 4** for the cross section.)

The field test results for MW-2D were compared with past laboratory results for MW-2D. The field test results were somewhat higher at 840 ppb to 680 ppb but not significantly different.

The results for MW-9D were compared to previous results for its neighboring well MW-9S, which is screened across the water table. The results for both wells show no detectable contaminants. This indicates that there has been no greater lateral dispersion at depth than at the water table surface. The lateral extent of contamination is the same at the base of the Recent deposits above the Miocene confining unit as the lateral extent defined by the uncontaminated water table wells MW-3S, MW-6S. and MW-9S.



FARLEY JONES & ASSOCIATES

SAVANNAH TERMINAL - SITE SPECIFIC CROSS SECTION

FIGURE 4

TABLE 1
TCE Level Comparison
{Portable GC (field) vs. Laboratory Analysis}

FIELD		PREVIOUS SAMPLE	
MW-2D	840 ppm	MW-2D	680 ppm
MW-2V	14 ppm		
MW-9D	0 ppm	MW-9S	0 ppm
MW-4D	101 ppm	MW-4S	340 ppm
MW-8D	19 ppm	MW-8S	410 ppm

The results for MW-4D were compared with those for MW-4S. The levels for MW-4D are lower than those for MW-4S; although they both are the same order of magnitude, 101 ppb to 340 ppb, respectively. The results could indicate that contaminant levels are lower at depth than at the surface. This is plausible because of upward groundwater movement caused by the Port Wentworth storm water ditch which is a discharge point and drain for groundwater.

The results for MW-8D were compared with MW-8S results. The results for MW-8D are significantly lower than those for MW-8S, 19 ppb to 410 ppb, respectively. MW-8D is screened in the Miocene deposits. These deposits are significantly more dense than the overlying Recent deposits as indicated by the greater blow counts required for sampling, >50 blows for the Miocene deposits compared to <10 for the overlying deposits, and the slower drilling rate. This greater density results in a lower hydraulic conductivity for the Miocene deposits even though both units are silty, sandy clays and clayey, silty sands. Laboratory permeability tests indicate a hydraulic conductivity of 6×10^{-5} ft/day for a Miocene sample and slug tests indicate a hydraulic conductivity of 1.57 ft/day for the overlying deposits. The difference in contaminant levels between MW-8S and MW-8D are probably due to the lower hydraulic conductivity of the Miocene deposits which inhibits the downward migration of the contaminants relative to the overlying deposits.

Results from MW-2V were compared with those of MW-2D. The levels for MW-2V are significantly lower than levels for MW-2D, 14 ppb to 640 ppb respectively. This difference is due to MW-2V being installed in the low hydraulic conductivity Miocene deposits and MW-2D being partially screened in the post-Miocene deposits. With a low hydraulic conductivity in the Miocene Hawthorn unit, contaminated groundwater will require a significant amount of time to penetrate this unit which is over 200 feet in the Savannah area. These results had an impact upon the approach to groundwater remediation discussed below.

GROUNDWATER REMEDIATION PLAN

The objectives of the groundwater remediation plan are to prevent contaminant migration to adjacent groundwaters and/or surface waters; to reduce groundwater contaminant concentrations within the area of the plume; and, to do this in a cost-effective manner within a reasonable time frame.

As a result of the attenuated levels in the Miocene deposits and the low hydraulic conductivity of these deposits, it was determined that the most effective approach to groundwater remediation would be to concentrate on the Recent deposits overlying the Miocene deposits. The saturated thickness of the Recent deposits is about 27 feet. It is here where most of the contaminant mass is to be found as a result of this unit's ability to hold and transmit greater amounts of water than the underlying Miocene deposits. This ability to hold and transmit greater amounts of water also makes it more responsive to remediation. Conversely, the Miocene unit's low hydraulic conductivity allows it to hold less contaminant mass and makes it less responsive to remedial efforts, hence the decision to concentrate on the Recent unit.

The first necessary step to remediation is to obtain hydraulic control of the contaminant plume. With the use of computer modelling, the feasibility of this was analyzed. Using the hydraulic conductivity of 1.57 feet/day obtained through slug test data, a transmissivity of 317 gallons per day per foot was calculated for the 27 feet of saturated thickness of the Recent deposits. A coefficient of storage for the Recent unit was estimated at 0.1. As a result of the shallow water table and low hydraulic conductivity of the Recent sediments, it was determined that a recovery trench would be appropriate for the site. The trench construction details are found in **Appendix B**. The trench would be perpendicular to groundwater flow direction and about 100 feet long, spanning the width of the groundwater plume. The trench was simulated in the model by five wells spaced 25 feet apart. The pumping rate was estimated by calculating the flow rate of water flowing through a 100 foot cross section of the deposits under existing hydraulic gradient, using the following equation:

$$\text{Gallons per day (GPD)} = T \times L \times HG$$

where:

T = Transmissivity in Gallons per day per foot
L = Length of cross section
HG = Hydraulic gradient based upon water level measurements.

substituting...

$$317 \times 100 \times 0.0061 \approx 193 \text{ GPD or } 0.13 \text{ gallons per minute (gpm)}$$

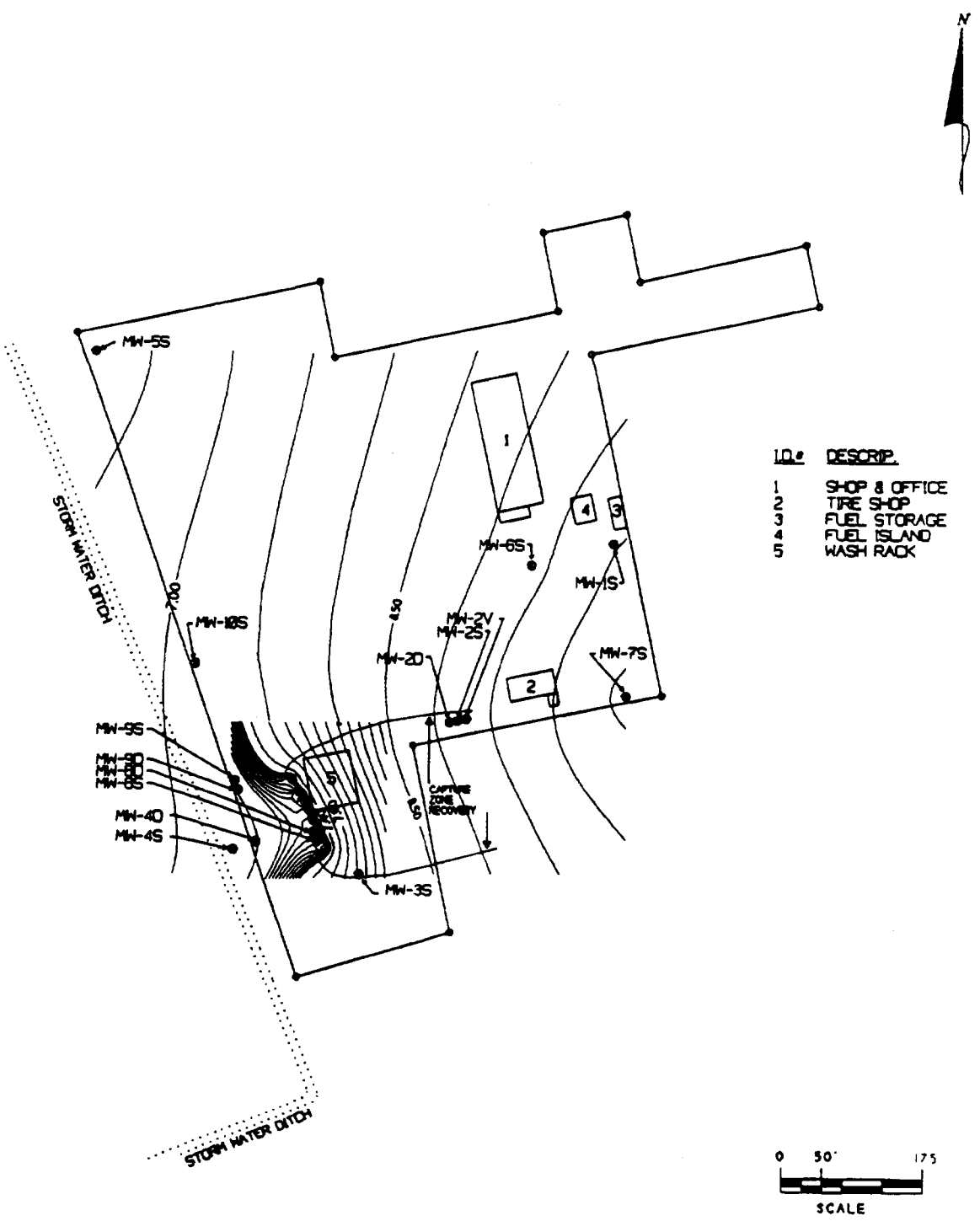
This was doubled to account for both walls of the trench and rounded to 0.3 gpm. This was divided into the five wells simulating the trench with each well contributing 0.06 gpm. The duration of pumping in the model was seven days.

The results of the model are seen in **Figure 5**. As can be seen, the plume can be captured with a relatively low pumping rate of 0.3 gpm. In practice, a slightly greater drawdown would probably be applied, requiring a greater pumping rate. The rate to maintain hydraulic control, however, would be lower than the initial rate to establish hydraulic control. Maintaining hydraulic control would require pumping less than 500 gallons per day.

In order to treat the pumped water, the McKenzie Groundwater Treatment System comprises a diffused aerator, which is composed of four equal-sized aeration chambers (**Figure 6**). Recovered ground water will be pumped directly into the first chamber and gravity flow successively into each subsequent chamber. Final aerated water will gravity flow into a tanker for transfer to a POTW. Total air flow will be 100 cfm (25 cfm in each chamber). Off-gas will be vented through the top of each chamber to the atmosphere. Both air and water will be distributed along the long axis near the bottom of each chamber. Internal water distribution piping will be 2-inch diameter. Internal air distributors will be 1-inch diameter. Air distributor holes will be ¼-inch diameter and spaced every six inches along the bottom of the air distributors. Horizontal sections of the water distributors will have three parallel rows of $^{3}/_{16}$-inch holes spaced every 2 inches on the top half of the pipes. Air distributor pipes will be placed 1 inch above the bottom horizontal water distributors.

McKenzie Tank Lines, Inc. has successfully applied this Florida DEP approved system at its Tallahassee, Florida, Terminal, where TCE from recovered groundwater is consistently removed to less than 2 ug/L. This system would not require permitting with the Division's Air Protection Branch (Branch). It was determined, after phone conversations with the Branch, that permitting is required if more than 15 lbs/day each of PCE or TCE is generated or a combined 1.5 tons/year. Assuming the highest concentration sampled, 49,000 ppb of PCE, 100% removal of PCE, and 500 gallons of pumped water per day, would result in 0.2 lbs of PCE being evolved. This is well below the permitting requirements and actual concentrations will likely be an order of magnitude, or more, lower. The remaining constituents are at much lower concentrations. Even though it is unnecessary to submit an application, we will still provide the air stripping process information to the Branch. After the water is treated, it will flow into a tanker for disposal in a similar manner as the site process wash water, which is transported to the local POTW for permitted disposal.

Establishing hydraulic control of the plume will allow several other remedial processes to be evaluated to determine their feasibility at the site. One process is the application of air sparging in conjunction with vacuum extraction to site groundwater. Although the soils at the site may prove to have permeability values too low, it is worth evaluating a technology, when applicable, that can greatly speed the remedial process. Another process is the utilization of iron particles to catalyze the dehalogenation of the chlorinated contaminants in groundwater either insitu or exsitu. Bench pilot studies would be conducted first to determine if this would be feasible at the site. Alternative technologies, such as bioremediation (which presently is not an effective remedy to halogenated compound contaminants), will be evaluated for present and/or future application to the site. It is felt, however, that until a more effective technology is chosen or developed, maintaining hydraulic control will effectively keep the contamination under control and on site.



FARLEY-JONES & ASSOCIATES

MCKENZIE TANK LINES, INC.

SAVANNAH, GA TERMINAL - RECOVERY TRENCH MODEL

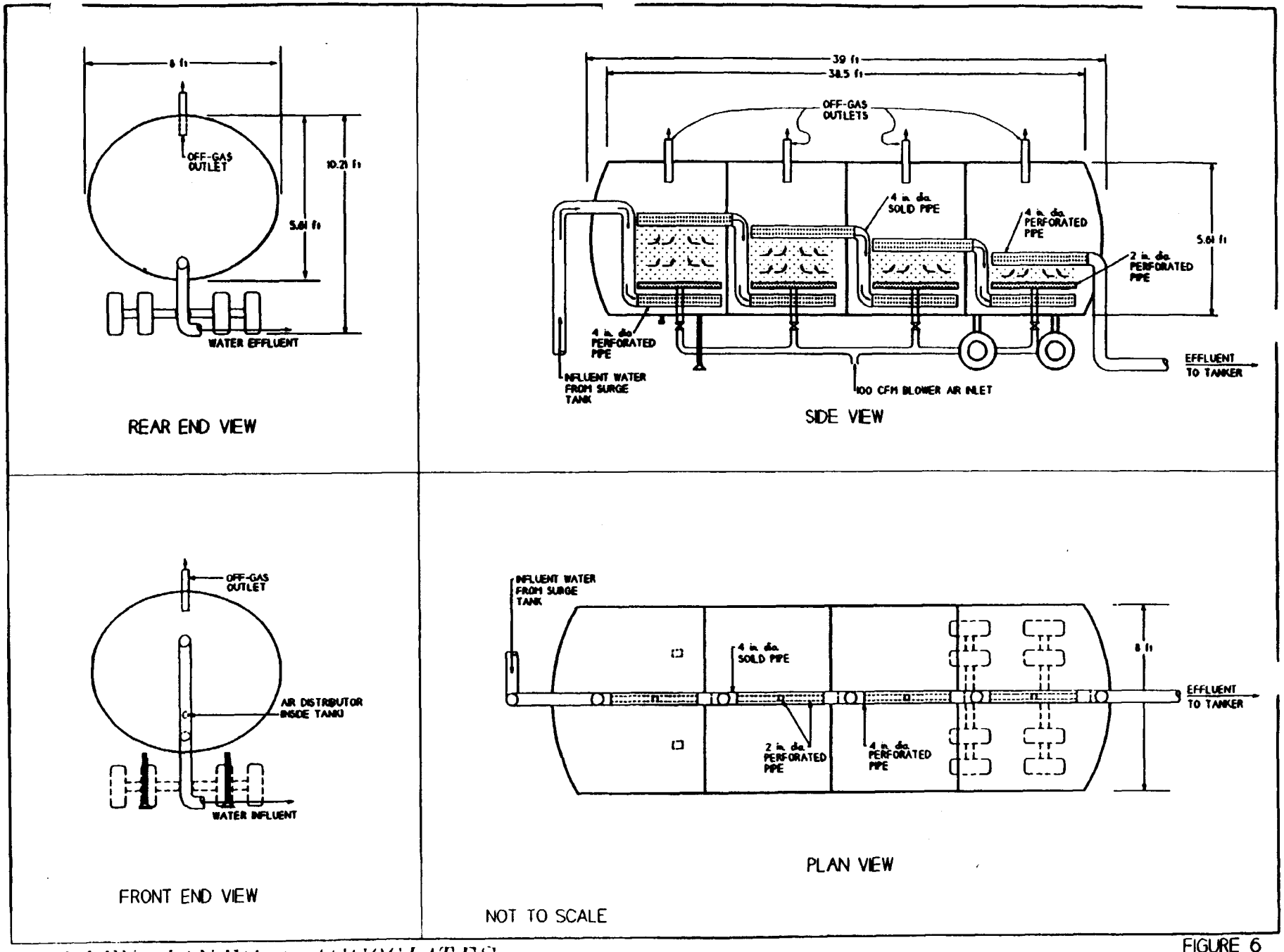


FIGURE 6

FARLEY-JONES & ASSOCIATES

SAVANNAH GA TERMINAL - PROPOSED DIFFUSED AREATOR SCHEMATIC

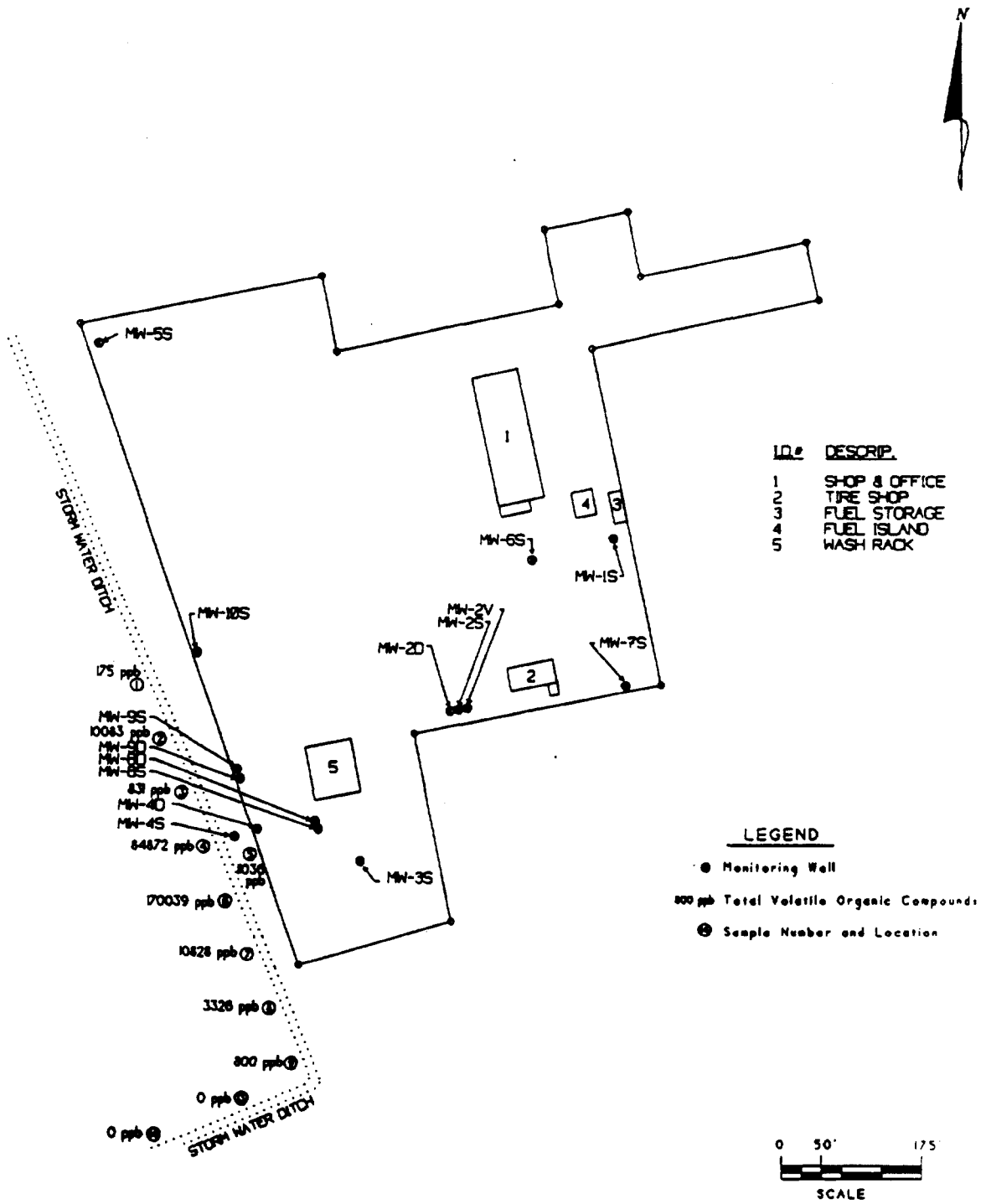
Farley-Jones and Associates is recommending that McKenzie pump and control the plume as described above for at least one year. During this period the groundwater from the recovery trench will be analyzed before and after treatment. This data will be used to assess the effectiveness of the system and determine if the results of pumping combined with risks associated with the presence of contamination warrants continued pumping and treatment of the groundwater

SOIL REMEDIATION PLAN

Soils Background

The initial contamination assessment considered two areas of soils to be of concern. The first area is the City of Port Wentworth storm water drainage ditch just west of the McKenzie property. Samples of soils in the ditch indicate the presence of halocarbons, BTEX volatile organics, and total naphthalenes. It was proposed to excavate this ditch. Upon further inspection of the data, however, the contamination detected in the ditch, especially the halocarbons, appear to be related to groundwater contamination. The ditch is a discharge point for groundwater. The analyses conducted on the soils do not distinguish between contamination adsorbed on soils, contamination in soil moisture, or gases in pore space. Therefore, one cannot determine if the detected compounds are adsorbed in soils or moisture from groundwater. The areal pattern of contaminant levels in soil samples (**Figure 7**) does, however, indicate the origin of contaminants found in the samples. The samples with highest detected levels are found at a point where the middle of the plume discharges into the ditch. In addition, samples taken just upstream of the groundwater plume discharge point do not indicate contamination. This strongly suggests that the contaminants detected in the soil samples are actually from groundwater discharging into the ditch. High organic content likely to be found in channel bottom sediments probably cause partitioning from groundwater to soils. The ultimate source, however is groundwater. As a result of contaminated groundwater discharging into the ditch, excavation of the ditch would be a futile attempt at remediation at this time. The source of contamination, groundwater, detected in the ditch needs to be controlled. This will be accomplished by implementing the groundwater remediation plan, as discussed above. After the groundwater treatment system is installed, soils already excavated and soils produced from trench excavation are treated, the soils in the storm water ditch will be re-examined and if necessary, excavated and treated in the same manner as the soils discussed below.

The second soils area of concern is the area southwest of the tire shop. This area overlies the groundwater plume. This area was identified by analyzing, with an OVA, the headspace of soil samples collected in a jar. This analysis does not distinguish between compounds adsorbed on soil, in soil moisture, or gas in pore space. As with the storm water ditch, one cannot determine if the soils are contaminated or if the results are due to the presence of contaminated groundwater. The depth to groundwater in this area is about 2 to 3 feet. Since sampling went to 6 feet, the majority of samples showing elevated levels are probably a result of being in contact with contaminated groundwater. In either case, about 1,100 cubic yards of soils in this area were excavated and a vapor



FARLEY-JONES & ASSOCIATES

MCKENZIE TANK LINES, INC.

SAVANNAH, GA TERMINAL - STORM WATER DITCH SEDIMENT SAMPLE LOCATIONS

extraction pilot study was conducted on the excavated soils. The results of the study indicated that the contaminants in the soil are conducive to vapor extraction; however, the soils settle and tend to become dense reducing the actual surface area/volume ratio, reducing soil surface exposed to the moving air. Farley-Jones and Associates is recommending that McKenzie Tank Lines, Inc. treat these excavated soils and the soils to be excavated during trench construction by aggressively landfarming the soils as outlined below.

Soil Landfarming

The amount of soils, including trench construction soils, to be landfarmed at the McKenzie Port Wentworth Terminal will be approximately 1300 yd^3. The soils will be laid upon an impermeable surface constructed of soil cement with an impermeable berm surrounding the surface. The soils will be laid to a thickness of about 1 foot. A network of pipes will be laid on top of the soils and the pipes will be connected to a blower. This will provide a constant air flow across the top of the soils and accelerate the drying, vapor extraction process time. The piping will be portable for easy removal in order to till the soil. The soils will be tilled on a weekly basis to increase their surface area/volume ratio. With the increase in surface area and the turning of soil, the volatile compounds of concern can readily diffuse from the soils. Sheets of black plastic will be laid over the soils and piping in order to use the sun's thermal energy to heat the soils and to keep the soils dry during rain events. The blower rate will be adjusted to keep air moving over the soils but at a rate that will not remove the plastic sheets.

An air permit will not be required for the landfarming process. The total amount of contaminant to be removed from the soils can be calculated. Assuming a wet density of 2 gms/cm^3 results in a total of 4.4×10^6 lbs of soil to be treated. PCE is the contaminant with the highest concentrations in soil samples. Assuming the highest concentration level for PCE in soil pile samples, 22 ppm, throughout the total soil pile results in $4.4 \times 10^6 \times 22/10^6 = 96.8$ lbs, the maximum weight of PCE in the soil pile. In actuality, the concentrations throughout the pile are less, therefore the total weight of PCE is less. If treatment took 90 days, this would result in evolving 1.08 lbs per day. This is below the permitting requirement threshold of 1.5 lbs/day for PCE. The maximum total of 96.8 lbs of PCE is well below the permitting threshold of 1.5 tons of PCE per year. The other contaminants present are at much lower concentrations with TCE at 4.1 ppm, DCE at 2.2 ppm, and VC at 1.6 ppm. Their total daily mass will be lower proportionately.

CONCLUSION

The greatest environmental concern at the McKenzie Tank Lines, Inc., Port Wentworth Terminal, is the presence of groundwater contamination underlying the site. As a result of the shallow depth to groundwater at the site, what appears to be soil contamination is largely due to the volatization of the compounds in the groundwater into the overlying soils. The greatest concern with the groundwater is it ability to migrate offsite and spread. Fortunately, the underlying Miocene Hawthorn

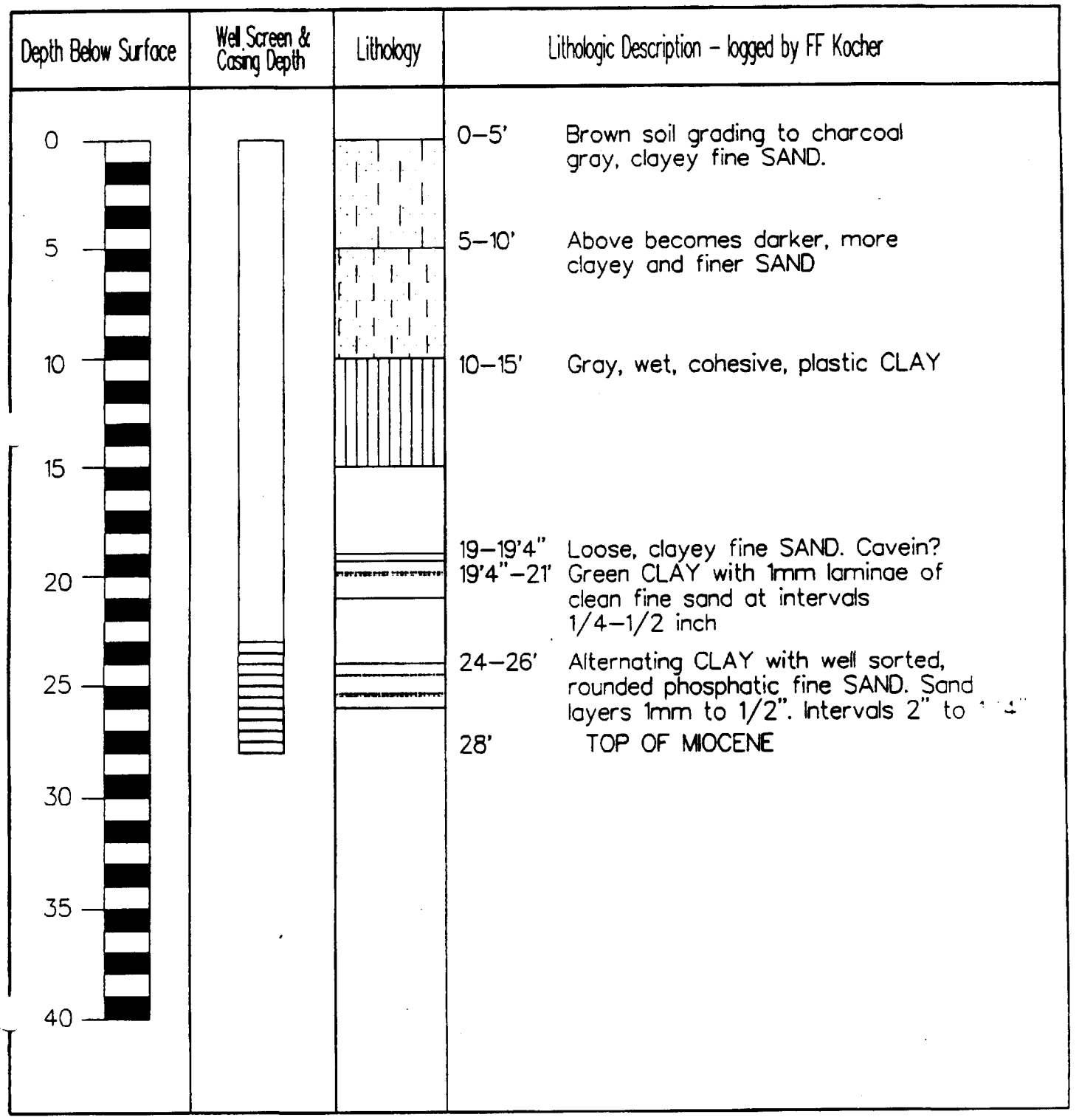
Group is approximately 200 feet thick; making it effective in preventing significant downward migration of groundwater. In addition, the surficial Pleistocene-Recent sediments in which the majority of contaminated groundwater is found is not an extensive source of groundwater in the site area. These sediments have poor hydraulic conductivity and produce little water and as a result, the migration of the plume is slow. Unfortunately, the compounds of concern, chlorinated hydrocarbons, do not lend themselves to a easily applied remedial solution with today's technology. It is felt, however, that control of the groundwater plume will prevent the migration of the plume, and will reduce contaminant levels at the site.

APPENDIX A

WELL LOGS
Farley-Jones and Associates

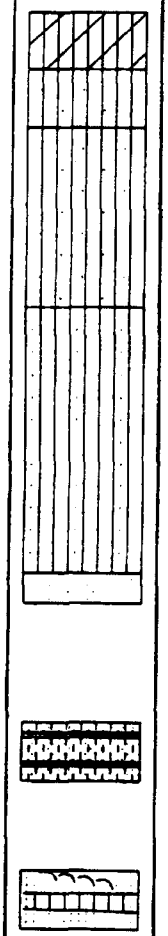
FARLEY-JONES AND ASSOCIATES

MCKENZIE TANK LINES, INC. - SAVANNAH, GA TERMINAL
Monitoring Well Log - MW-4D



FARLEY–JONES AND ASSOCIATES

MCKENZIE TANK LINES, INC. - SAVANNAH, GA TERMINAL
Monitoring Well Log - MW-8D

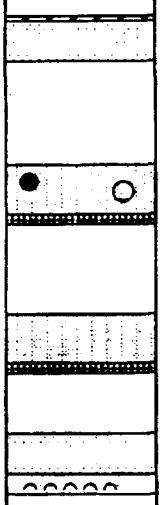
Depth Below Surface	Well Screen & Casing Depth	Lithology	Lithologic Description - logged by FF Kocher
			0–2' Brown, silty, sandy, CLAY 2–4' Black, fine sandy CLAY 4–10' Olive, fine sandy CLAY 10–19' Fine sandy CLAY, as above, changing to light gray color. 19–21' Recovery 0.5 feet, runny fine SAND. Well sorted, subangular, quartz sand with 2% black splintery specks. 24–26' Gray–green, clayey, well sorted, fine quartz SAND with some 2mm laminae of clean sand with phosphate 29–31' TOP OF MIOCENE Alternating shell–hash rich clayey fine SAND, CLAY, fine phosphatic quartz SAND

0
5
10
15
20
25
30
35
40

FARLEY-JONES AND ASSOCIATES

MCKENZIE TANK LINES, INC. - SAVANNAH, GA TERMINAL

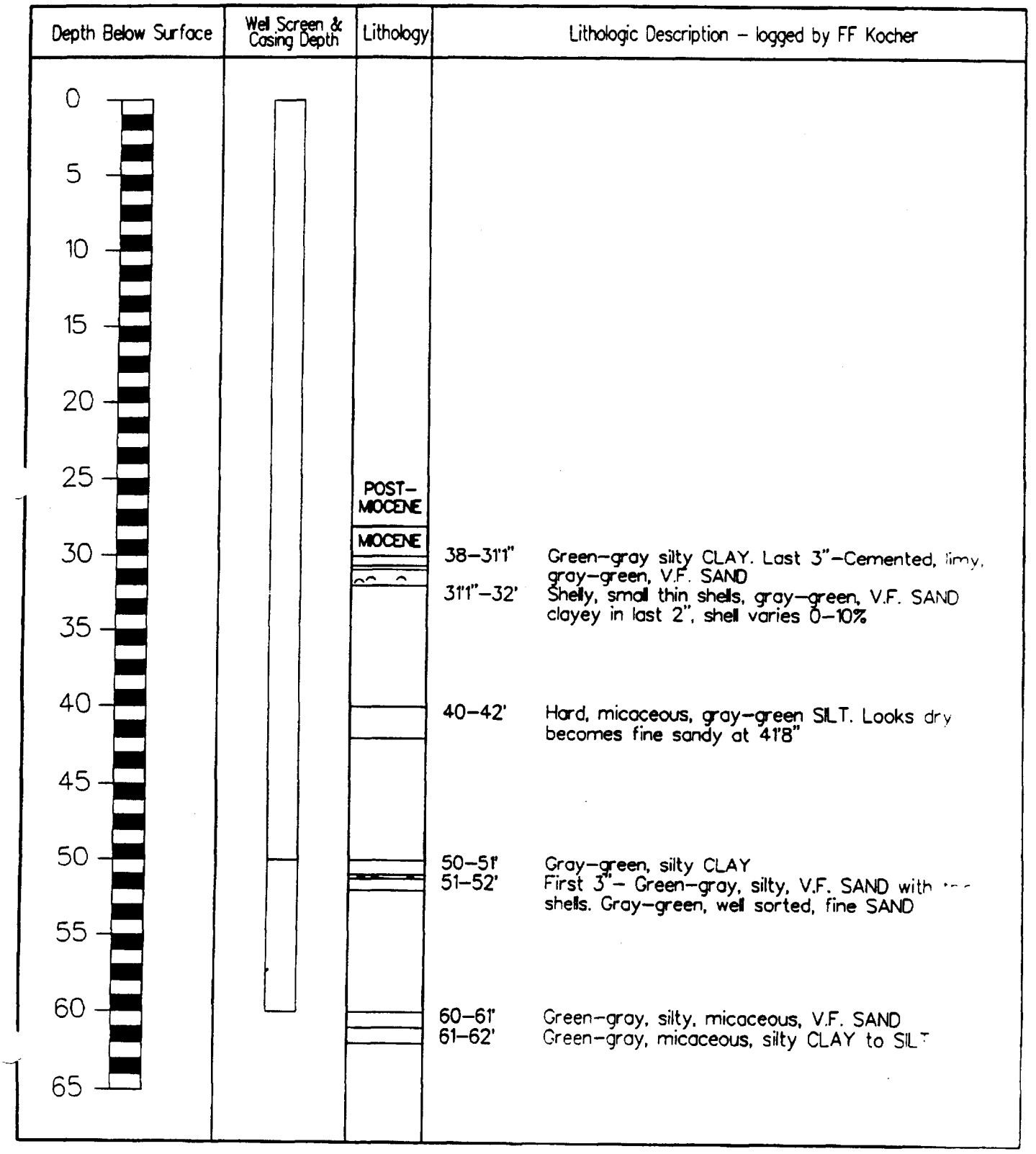
Monitoring Well Log - MW-9D

Depth Below Surface	Well Screen & Casing Depth	Lithology	Lithologic Description - logged by FF Kocher
			14–15'6" First 2 inches, peat Clayey, fine, well sorted, subrounded SAND 19–20'8" Blue green, mod to well sorted, F.SAND. Some of clasts are clay & Clayey sand (intraclasts). Some possible heavy minerals & phosphate. Some mica flakes 20'8"–21' Blue–green CLAY with some 2mm sand laminae or lenses 24–25'8" Light blue–green, very fine to fine SAND 25'8"–26' Blue–green CLAY with sand laminae 28'–29'4" Blue–green, well sorted, clean, phosphatic, rounded fine SAND with streak of blue–green clay. 29'4"–30' TOP OF MIOCENE Blue–green, highly fossiliferous, clayey, fine to very fine SAND

FARLEY–JONES AND ASSOCIATES

MCKENZIE TANK LINES, INC. - SAVANNAH, GA TERMINAL

Monitoring Well Log - MW-2V



APPENDIX B

TRENCH CONSTRUCTION DETAILS
Farley-Jones and Associates

GENERAL SUMMARY

There will be approximately 100 linear feet (bottom dimension) of recovery trench installed to a depth of 26 feet below land surface (bls) at the location shown on the drawing Recovery Trench Model (**Figure 5**). This recovery trench will be 1 to 3 feet wide and filled with washed river gravel from the bottom to the top and will have a horizontal 4 or 6 inch diameter perforated collection pipe wrapped with filter cloth or sock, laid near its bottom, covered with gravel. At each end the collection pipe will turn 90° and extend vertically to at least one foot above the land surface (see **Figure B-1**). This configuration will be sufficient to contain and prevent contaminated ground water from migrating off-site. Each vertical end pipe section will be equipped with a submersible pneumatic pump. Water recovered by the trench/pumping system will be piped to a McKenzie Ground Water Treatment System[1] (**Figure 6**), which will be set-up on site. Finally, the treated effluent, meeting standards, will be trucked to a local POTW, under proper permit.

CONSTRUCTION

(A) THE TRENCH AND TRENCHER

Due to the unstable nature of the shallow soils at this site it is required that trench construction, laying of collection pipe, and gravel backfilling be accomplished using a "single-pass" system. The permissible trench width will be from 1 foot to 3 feet, with the operational width to be dependent upon the specific trenching equipment utilized.

A B737 trencher, or its equivalent, shall be utilized. This trencher can excavate and backfill to a depth of 24 feet; therefore, a 2 foot (deep) by 35 foot by 100 foot subcut will be excavated along the trench alignment before trenching. This will allow the 26 foot depth to be achieved. This installation shall be constructed during a period of dry weather in order to assure that the floor of the subcut is sufficiently above the groundwater table to insure stability.

(B) COLLECTION SYSTEM

The collection system will be 1 to 3 feet wide and filled with washed river gravel from the bottom to the top and will have a horizontal 4 or 6 inch diameter perforated collection pipe wrapped with filter cloth or sock, laid near its bottom at 25 feet bls, and covered with gravel. The gravel and filter sand pack gradation specification is presented in **Figure B-2**. Pipe perforated size and filter-sand-pack particle size were selected to provide maximum permeability and to minimize the migration of fines into the collection system. At each end the collection pipe will turn 90° and extend vertically to at least one foot above the land surface (see **Figure B-1**). Each vertical end pipe section will be equipped with a submersible pneumatic pump.

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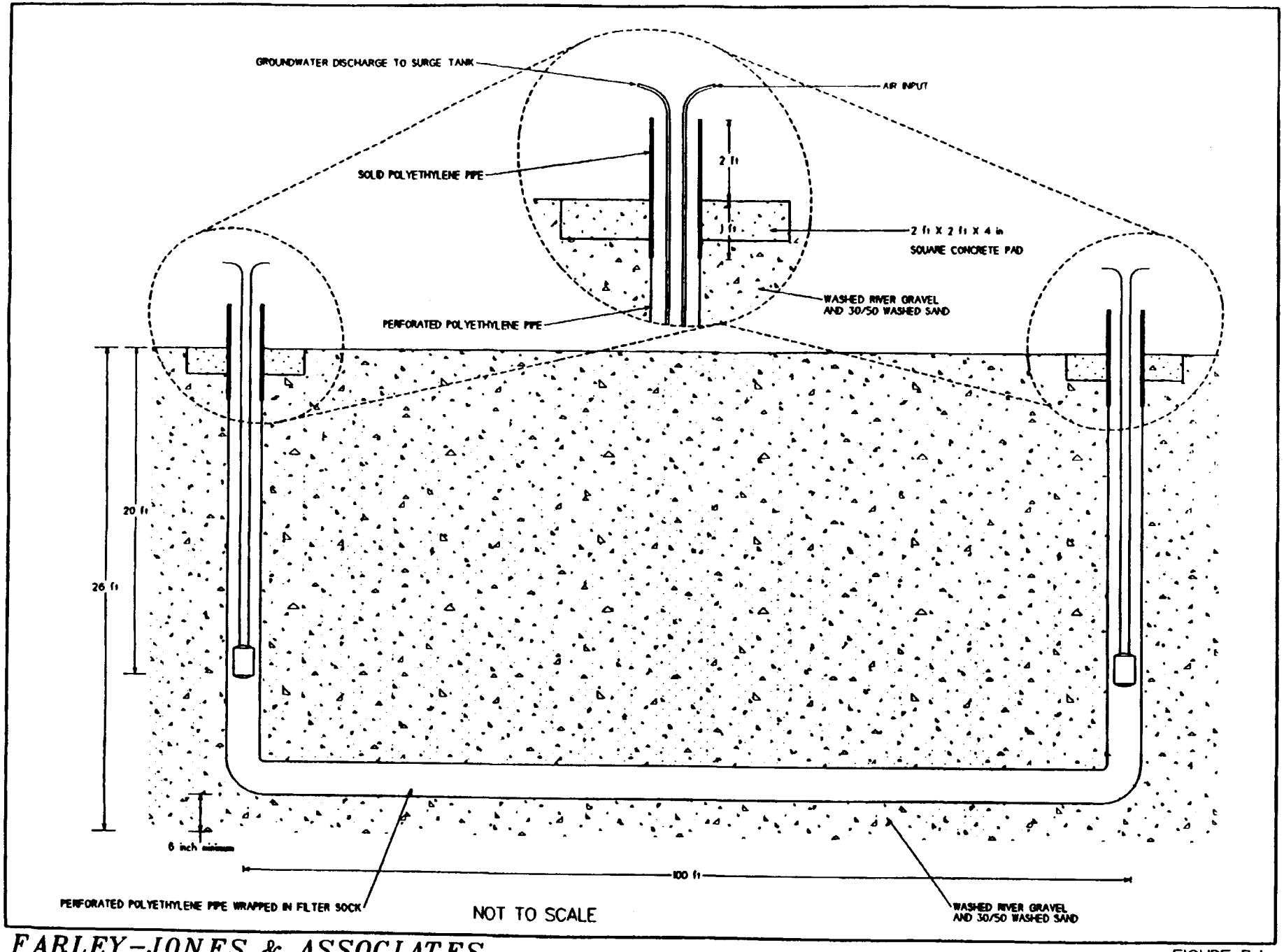
[1] This system has been approved in Florida for comparable operations.

The pneumatic pump will pump groundwater from the collection system to a surge tank. All pipes and conduits will be routed underground from the pump to the ground water treatment system. A typical recovery pumping system and discharge piping schematic is shown in **Figure B-1**. The ground water discharge pipe will have a check valve, totalizing flowmeter, gate valve, and a pressure gauge between each item (including the pump and the check valve). The pressure gauges will be liquid-filled and suitable for outdoor service, with an operating range of 0 to 50 psi and marked in increments of 1 psi, at a minimum.

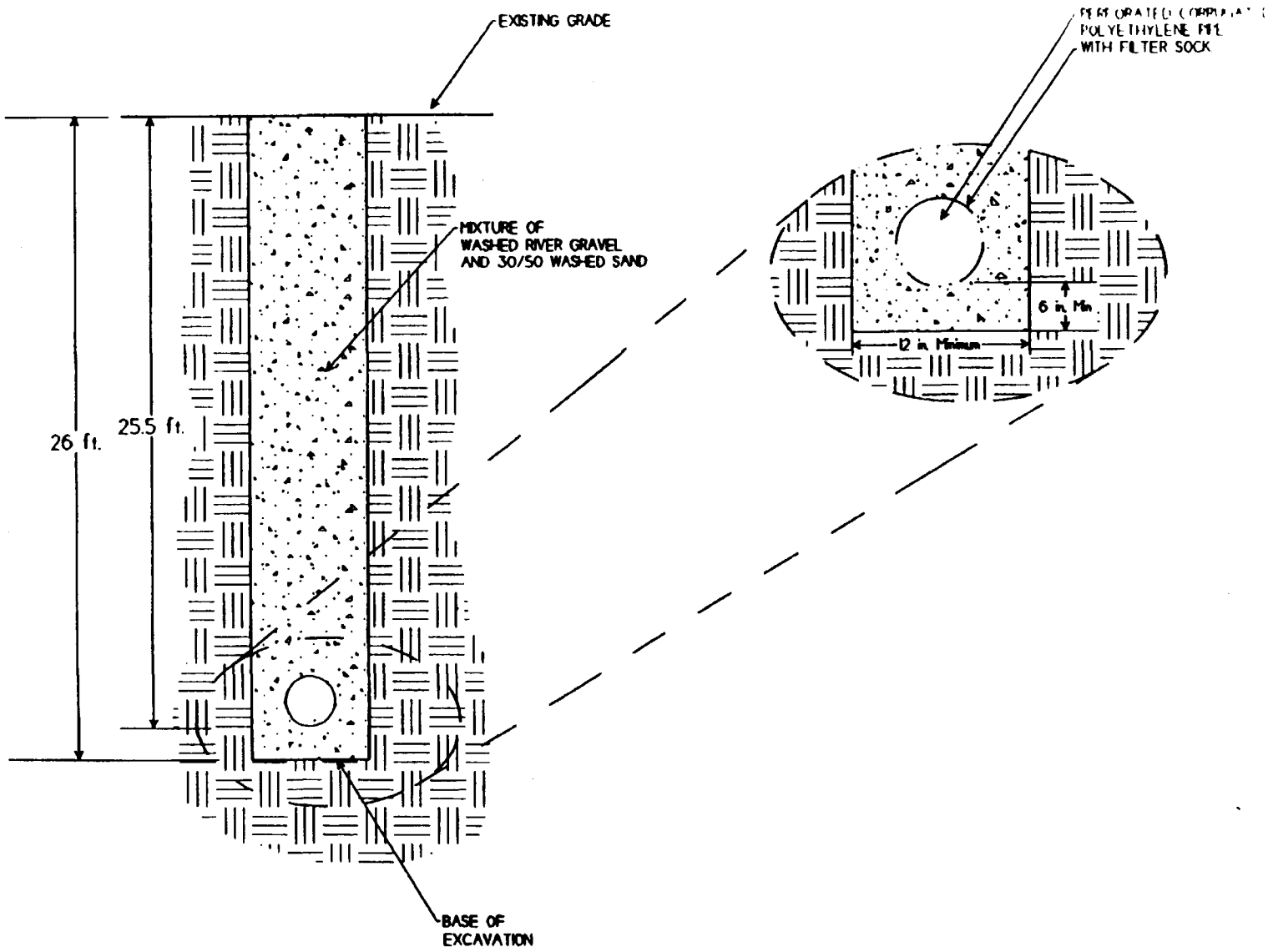
These components have been selected for this particular application and may be substituted if the alternates are chemically compatible and designed for the intended use. Pipe, tubing, fittings, and other appurtenances may be substituted for those specified if they are chemically compatible, of industrial quality, and designed for the intended use.



FARLEY-JONES & ASSOCIATES

MCKENZIE TANK LINES, INC.
SAVANNAH, GA TERMINAL - RECOVERY TRENCH PROFILE

FIGURE B-1



NOT TO SCALE

FARLEY–JONES & ASSOCIATES

MCKENZIE TANK LINES, INC.

SAVANNAH, GA TERMINAL - RECOVERY TRENCH CROSS SECTION

FIGURE B-2

Reference 15

REFERENCE 15

U.S. Department of Commerce, Proof Copy of table generated for 1990 CPH-1: Summary Population and Housing Characteristics, issued by Bureau of the Census (April 1991).

Table 6. Household, Family, and Group Quarters Characteristics: 1990

[For definitions of terms and meanings of symbols, see text]

State / County / Place and [In Selected States] County Subdivision	Persons in households	All households	Family households: Total	Family households: Married-couple family	Family households: Female-household, no-husband present	Nonfamily households: Total	Nonfamily households: Householder living alone: Total	Nonfamily households: Householder living alone: 65 years old and over: Total	Nonfamily households: Householder living alone: 65 years old and over: Female	Persons per— Household	Persons per— Family	Persons in group quarters: Total	Persons in group quarters: Institutionalized persons	Persons in group quarters: Other persons in group quarters
The State	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
COUNTY														
Appling County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Atkinson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bacon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baker County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baldwin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Banks County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Barrow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bartow County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ben Hill County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berrien County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bibb County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Evans County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Forsyth County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Fulton County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Glascock County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Glynn County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gordon County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grady County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Greene County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gwinnett County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Habersham County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hall County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hancock County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Haralson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Harris County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Hart County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Heard County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Henry County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Houston County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Irwin County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jackson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jasper County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jeff Davis County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jefferson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jenkins County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Johnson County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jones County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lamar County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lanier County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Laurens County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lee County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Liberty County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lincoln County	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991.

FROST ASSOCIATES

Reference 16

88 Founders Village Rd, Clinton, CT 06413
(860) 669-5859 FAX (203) 767-1971

May 14, 1997

To: Environmental Protection Division
205 Butler St., Floyd Towers East, Suite 1154
Atlanta, GA 30334

Attn: James Ussery

Fr: Frost Associates
P.O. Box 495
Essex, Conn 06426

Tel: (203) 767-1254
Fax: (203) 767-7069

Sub: McKenzie Tank Lines
Port Wentworth, GA

CERCLIS:

Job:

Site Longitude: 81-09-10.11 81.152809
Site Latitude : 32-08-17.91 32.138309

The CENTRACTS report below identifies the population, households, and private water wells of each Block Group that lies within, or partially within, the 4, 3, 2, 1, .5, and .25, mile "rings" of the latitude and longitude coordinates above. CENTRACTS may have up to ten radii of any length. 1000 block groups, and 15000 block group sides.

CENTRACTS uses the 1990 Block Group population and Block Group house count data found in the Census Bureau's 1990 STF-1A files. The sources of water supply data are from the Bureau's 1990 STF-3A files. The boundary line coordinates of the Block Groups were extracted from the Census Bureau's 1990 TIGER/Line Files.

CENTRACTS reports are created with programs written by Frost Associates, P.O. Box 495, Essex, Conn. The code was written using Microsoft's Quick-Basic Ver. 4.5.

Latitude and Longitude coordinates identifying a site are entered in degrees and decimal degrees. One or more county files holding Block Group boundary lines are selected for use by CENTRACTS by determining whether the site coordinates fall within the minimum and maximum Lat\Lon coordinates of each county in the state.

Each Block Group line segment has Lat\Lon coordinates representing the "From" and "To" ends of that line. All coordinates from the selected county files are read and converted from degrees, decimal degrees to X\Y miles from the site location. Each line segment is then examined whether it lies within or partially within the maximum ring from the site.

The unique Block Group ID numbers of each line segment that lie within the maximum ring are retained. All Block Group boundary lines matching the Block Group numbers are then extracted from the respective county files to obtain all sides of the included Block Groups. Boundary records are then sorted in adjacent side order to determine the shape and area of each Block Group polygon.

A method to solve for the area of a polygon is to take one-half the sum of the pro-

ducts obtained by multiplying each X-coordinate by the difference between the adjacent Y-coordinates. For a polygon with coordinates at adjacent angles A, B, C, D, and E. The formula can be expressed:

$$Area = 1/2\{Xa(Ye-Yb)+ Xb(Ya-Yb)+ Xc(Yb-Yd)+ Xd(Yc-Ye)+ Xe(Yd-Ya)\}$$

For each ring, the selected Block Groups will be inside, outside, or intersected by the ring. When a polygon is intersected, the partial Block Group area within that ring is calculated using the method described below.

When a ring intersects a Block Group, the intersect points are solved and plotted at the points where the ring enters and exits the shape. The chord line, a line within the circle connecting the intersect points is determined. This chord line is used to calculate the segment area, the half moon shape between the chord line and the ring, and the sub-polygon created by the chord line and the Block Group boundaries that lie outside the ring.

The segment area is subtracted from the sub-polygon area to determine the area of the sub-polygon outside the ring. The area outside the ring is then subtracted from the area of the entire polygon to arrive at the inside area. This inside area is then divided by the tract's total area to determine the percentage of area within the ring. This process is repeated for each block group that is intersected by one of the rings. The total area, partial area, and percentage of partial area of those block groups within, or partially within a ring, are held in memory for the report.

On occasion, the algorithm described above is unable to determine the area of the partial area. Within the report program is a "Paint" routine which allows an enclosed shape to be highlighted. Another routine calculates the percentage of highlighted screen pixels to the pixels within the polygon. A manual entry is allowed. Both the "paint" method and manual entry method over ride the calculated method.

CENTRACTS lists, starting on page 4, all Block Groups in State, County, Census Tract, and Block Group ID order that lie within, or partially within, the maximum ring. Each Block Group is identified by a City or Town name and by the Block Group's State, County, Tract and Block Group ID number. Following is the Block Group's 1990 populu tion and house count extracted from the Census Bureau's 1990 STF-1A files.

The next four columns display water source data from the 1990 STF-3A files. The first column is "Units with Public system or private company source of water", followed by "Units with individual well, Drilled, source of water"; "Units with individual well, Dug, source of water" and "Units with Other source of water".

For each ring, CENTRACTS then shows the Block Groups that are within that ring, the Block Group's total area in square miles, the partial area of the Block Group within that ring, and the partial percentage within the ring. The areas of the included Block Group and the partial areas are then totaled.

The last section tallies the demographic data within each ring. The percentage of area for each Block Group is multiplied times the census data for that Block Group and totaled for all Block Group's within the ring. Ring totals are then determined by subtracting the three mile data from the four mile, the two mile from the three mile, one from the two, etc... Population on private wells is calculated using the formula: ((Drilled + Dug Wells) / Households) * Population

McKenzie Tank Lines
Port Wentworth, GA

No.	City	Block Group ID	Blk Grp People	House Holds	Public Water	Drilled Wells	Dug Wells	Other
1	Savannah	13051 0032 1	577	264	269	0	0	0
2	Savannah	13051 0032 2	978	340	319	0	0	0
3	Savannah	13051 0006012	434	278	282	0	0	0
4	Savannah	13051 0006014	787	351	319	0	0	0
5	Savannah	13051 0006015	1007	395	385	0	0	0
6	Savannah	13051 0006016	753	309	282	0	0	8
7	Savannah	13051 0105011	758	345	180	145	0	0
8	Savannah	13051 0105012	650	251	174	50	0	0
9	Savannah	13051 0106011	736	362	380	0	0	0
10	Savannah	13051 0106012	943	387	350	0	0	0
11	Savannah	13051 0106013	597	269	289	0	0	0
12	Savannah	13051 0106014	1253	462	408	0	0	0
13	Savannah	13051 0106015	1103	448	442	0	0	0
14	Savannah	13051 0106016	1233	477	480	0	0	0
15	Savannah	13051 0106031	889	439	444	0	16	0
16	Savannah	13051 0106032	540	231	197	15	22	0
17	Savannah	13051 0106041	1272	518	554	0	0	0
18	Savannah	13051 0106051	0	0	0	0	0	0
19	Savannah	13051 0106991	5	0	0	0	0	0
20	Port Wentworth	13051 0107981	2156	490	167	281	16	0
21	Port Wentworth	13051 0107983	1118	408	364	0	0	0
22	Port Wentworth	13051 0107984	1146	556	595	13	0	0
23	Port Wentworth	13051 0107985	659	262	240	0	0	0
24	Pooler-Burroughs	13051 0108042	1025	416	329	83	11	0
	Totals:		20619	8258	7449	587	65	8

McKenzie Tank Lines
Port Wentworth, GA

City	Census Tract ID	Tract People	House Count	Public Water	Drilled Wells	Dug Wells	Other Sources
Pooler-Burroughs	13051 0108042	1025	416	329	83	11	0
	Sub Totals:	1025	416	329	83	11	0
Port Wentworth	13051 0107984	1146	556	595	13	0	0
Port Wentworth	13051 0107981	2156	490	167	281	16	0
Port Wentworth	13051 0107985	659	262	240	0	0	0
Port Wentworth	13051 0107983	1118	408	364	0	0	0
	Sub Totals:	5079	1716	1366	294	16	0
Savannah	13051 0032 1	577	264	269	0	0	0
Savannah	13051 0105011	758	345	180	145	0	0
Savannah	13051 0032 2	978	340	319	0	0	0
Savannah	13051 0006012	434	278	282	0	0	0
Savannah	13051 0006014	787	351	319	0	0	0
Savannah	13051 0006015	1007	395	385	0	0	0
Savannah	13051 0006016	753	309	282	0	0	8
Savannah	13051 0106015	1103	448	442	0	0	0
Savannah	13051 0106016	1233	477	480	0	0	0
Savannah	13051 0106031	889	439	444	0	16	0
Savannah	13051 0106032	540	231	197	15	22	0
Savannah	13051 0106041	1272	518	554	0	0	0
Savannah	13051 0106051	0	0	0	0	0	0
Savannah	13051 0106991	5	0	0	0	0	0
Savannah	13051 0105012	650	251	174	50	0	0
Savannah	13051 0106011	736	362	380	0	0	0
Savannah	13051 0106012	943	387	350	0	0	0
Savannah	13051 0106013	597	269	289	0	0	0
Savannah	13051 0106014	1253	462	408	0	0	0
	Sub Totals:	14515	6126	5754	210	38	8

McKenzie Tank Lines
Port Wentworth, GA

For Radius of 4 Mi., Circle Area = 50.265482

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
1	Savannah	13051 321	0.167424	0.109409	65.35
2	Savannah	13051 322	0.232953	0.232953	100.00
3	Savannah	13051 6012	0.054052	0.000422	0.78
4	Savannah	13051 6014	0.079002	0.055673	70.47
5	Savannah	13051 6015	0.195825	0.085332	43.58
6	Savannah	13051 6016	0.933866	0.004163	0.45
7	Savannah	13051 105011	1.053172	0.196542	18.66
8	Savannah	13051 105012	3.496723	0.925835	26.48
9	Savannah	13051 106011	0.352054	0.352054	100.00
10	Savannah	13051 106012	0.416605	0.416605	100.00
11	Savannah	13051 106013	0.454140	0.454140	100.00
12	Savannah	13051 106014	0.323804	0.323804	100.00
13	Savannah	13051 106015	0.089338	0.089338	100.00
14	Savannah	13051 106016	0.483872	0.483872	100.00
15	Savannah	13051 106031	2.810709	2.810709	100.00
16	Savannah	13051 106032	0.822551	0.820673	99.77
17	Savannah	13051 106041	0.919732	0.898558	97.70
18	Savannah	13051 106051	8.623408	5.306940	61.54
20	Port Wentworth	13051 107981	50.442142	21.143284	41.92
21	Port Wentworth	13051 107983	1.657987	1.657987	100.00
22	Port Wentworth	13051 107984	1.890638	1.890638	100.00
23	Pooler-Burroughs	13051 108042	4.502836	1.198551	26.62
24	Port Wentworth	13051 107985	1.688553	1.688553	100.00
	Totals:		81.691391	41.146030	

For Radius of 3 Mi., Circle Area = 28.274334

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
9	Savannah	13051 106011	0.352054	0.352054	100.00
10	Savannah	13051 106012	0.416605	0.416605	100.00
11	Savannah	13051 106013	0.454140	0.454140	100.00
12	Savannah	13051 106014	0.323804	0.323804	100.00
13	Savannah	13051 106015	0.089338	0.089338	100.00
14	Savannah	13051 106016	0.483872	0.392337	81.08
15	Savannah	13051 106031	2.810709	1.767105	62.87
17	Savannah	13051 106041	0.919732	0.029950	3.26
18	Savannah	13051 106051	8.623408	3.596022	41.70
20	Port Wentworth	13051 107981	50.442142	13.035223	25.84
21	Port Wentworth	13051 107983	1.657987	1.657987	100.00
22	Port Wentworth	13051 107984	1.890638	1.890638	100.00
24	Port Wentworth	13051 107985	1.688553	1.688553	100.00
	Totals:		70.152985	25.693756	

For Radius of 2 Mi., Circle Area = 12.566371

		Block	Total	Partial	% Within

McKenzie Tank Lines
Port Wentworth, GA

No.	City	Group ID	Area	Area	Radius
9	Savannah	13051 106011	0.352054	0.352054	100.00
10	Savannah	13051 106012	0.416605	0.416605	100.00
11	Savannah	13051 106013	0.454140	0.188594	41.53
12	Savannah	13051 106014	0.323804	0.075608	23.35
15	Savannah	13051 106031	2.810709	0.221405	7.88
18	Savannah	13051 106051	8.623408	1.302327	15.10
20	Port Wentworth	13051 107981	50.442142	5.172071	10.25
21	Port Wentworth	13051 107983	1.657987	1.562000	94.21
22	Port Wentworth	13051 107984	1.890638	1.890638	100.00
24	Port Wentworth	13051 107985	1.688553	1.688553	100.00
	Totals:		68.660042	12.869855	

For Radius of 1 Mi., Circle Area = 3.141593

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
20	Port Wentworth	13051 107981	50.442142	0.591461	1.17
21	Port Wentworth	13051 107983	1.657987	0.111057	6.70
22	Port Wentworth	13051 107984	1.890638	1.154029	61.04
24	Port Wentworth	13051 107985	1.688553	1.285046	76.10
	Totals:		55.679317	3.141593	

For Radius of .5 Mi., Circle Area = 0.785398

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
22	Port Wentworth	13051 107984	1.890638	0.220188	11.65
24	Port Wentworth	13051 107985	1.688553	0.565210	33.47
	Totals:		3.579191	0.785398	

For Radius of .25 Mi., Circle Area = 0.196350

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
22	Port Wentworth	13051 107984	1.890638	0.017959	0.95
24	Port Wentworth	13051 107985	1.688553	0.178390	10.56
	Totals:		3.579191	0.196350	

McKenzie Tank Lines
Port Wentworth, GA

========== Site Data ==========

Population:	15303.79
Households:	6189.05
Drilled Wells:	208.14
Dug Wells:	47.58
Other Water Sources:	0.04

========== Partial (RING) data ==========

---- Within Ring: 4 Mile(s) and 3 Mile(s) ----

Population:	5591.55
Households:	2228.79
Drilled Wells:	122.52
Dug Wells:	33.39
Other Water Sources:	0.04

** Population On Private Wells: 391.16

---- Within Ring: 3 Mile(s) and 2 Mile(s) ----

Population:	4343.38
Households:	1704.47
Drilled Wells:	43.80
Dug Wells:	11.29
Other Water Sources:	0.00

** Population On Private Wells: 140.40

---- Within Ring: 2 Mile(s) and 1 Mile(s) ----

Population:	4067.66
Households:	1683.94
Drilled Wells:	30.58
Dug Wells:	2.71
Other Water Sources:	0.00

** Population On Private Wells: 80.43

---- Within Ring: 1 Mile(s) and .5 Mile(s) ----

Population:	947.14
Households:	419.39
Drilled Wells:	9.72
Dug Wells:	0.19
Other Water Sources:	0.00

** Population On Private Wells: 22.37

McKenzie Tank Lines
.Port Wentworth, GA

---- Within Ring: .5 Mile(s) and .25 Mile(s) ----

Population:	273.55
Households:	119.49
Drilled Wells:	1.39
Dug Wells:	0.00
Other Water Sources:	0.00

** Population On Private Wells: 3.18

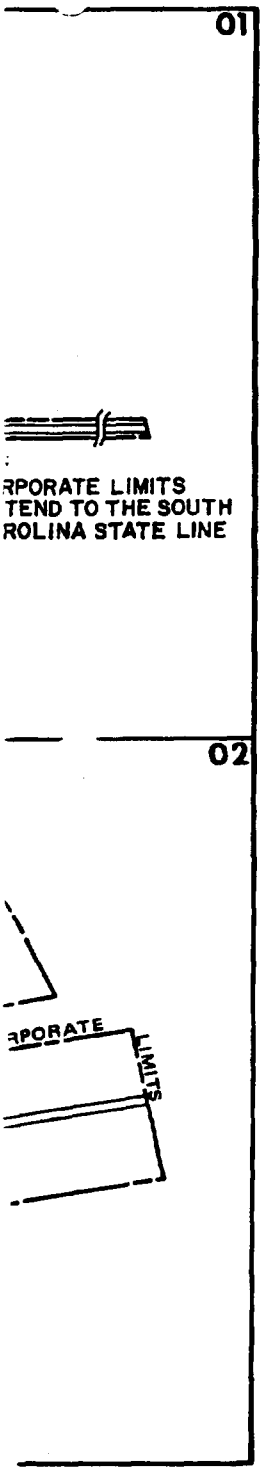
---- Within Ring: .25 Mile(s) and 0 Mile(s) ----

Population:	80.51
Households:	32.96
Drilled Wells:	0.12
Dug Wells:	0.00
Other Water Sources:	0.00

** Population On Private Wells: 0.30

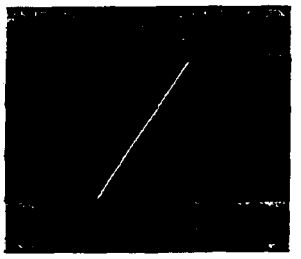
** Total Population On Private Wells: 637.83

Reference 17



KEY TO SYMBOLS

ZONE DESIGNATIONS* WITH DATE OF IDENTIFICATION
ie., 12/2/74



Base Flood Elevation Line	513
Base Flood Elevation	*(513' MSL)*
Elevation Reference Mark	RM7 ×
River Mile	· M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FIA are:

Zone Symbol	Category
A	Area of special flood hazards (SFH) and without base flood elevations determined.
A1 through A30	Area of special flood hazards (SFH) with base flood elevations. Zones are assigned according to flood hazard factors, and dates of SFH identification.
AO	Area of special flood hazards that have shallow flood depths (less than two feet) and/or unpredictable flow paths. Base flood elevations are not determined.
V	Area of special flood hazards, with velocity, that are inundated by tidal floods. Zones are assigned according to flood hazard factors and dates of SFH identification.
B	Area of moderate flood hazards.
C	Area of minimal flood hazards.
D	Area of undetermined, but possible, flood hazards.

CONSULT NFIA SERVICING COMPANY OR LOCAL INSURANCE AGENT OR BROKER TO DETERMINE IF PROPERTIES IN THIS COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.

INITIAL IDENTIFICATION DATE: MARCH 16, 1973

INTERIM MAP REVISION
EFFECTIVE JULY 1, 1974,
TO CHANGE ZONE DESIGNATIONS

MAP REVISED DECEMBER 26, 1975
TO REFLECT CURVILINEAR FLOOD BOUNDARY

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

FLOOD HAZARD BOUNDARY MAP H - 01-02
FLOOD INSURANCE RATE MAP I - 01-02

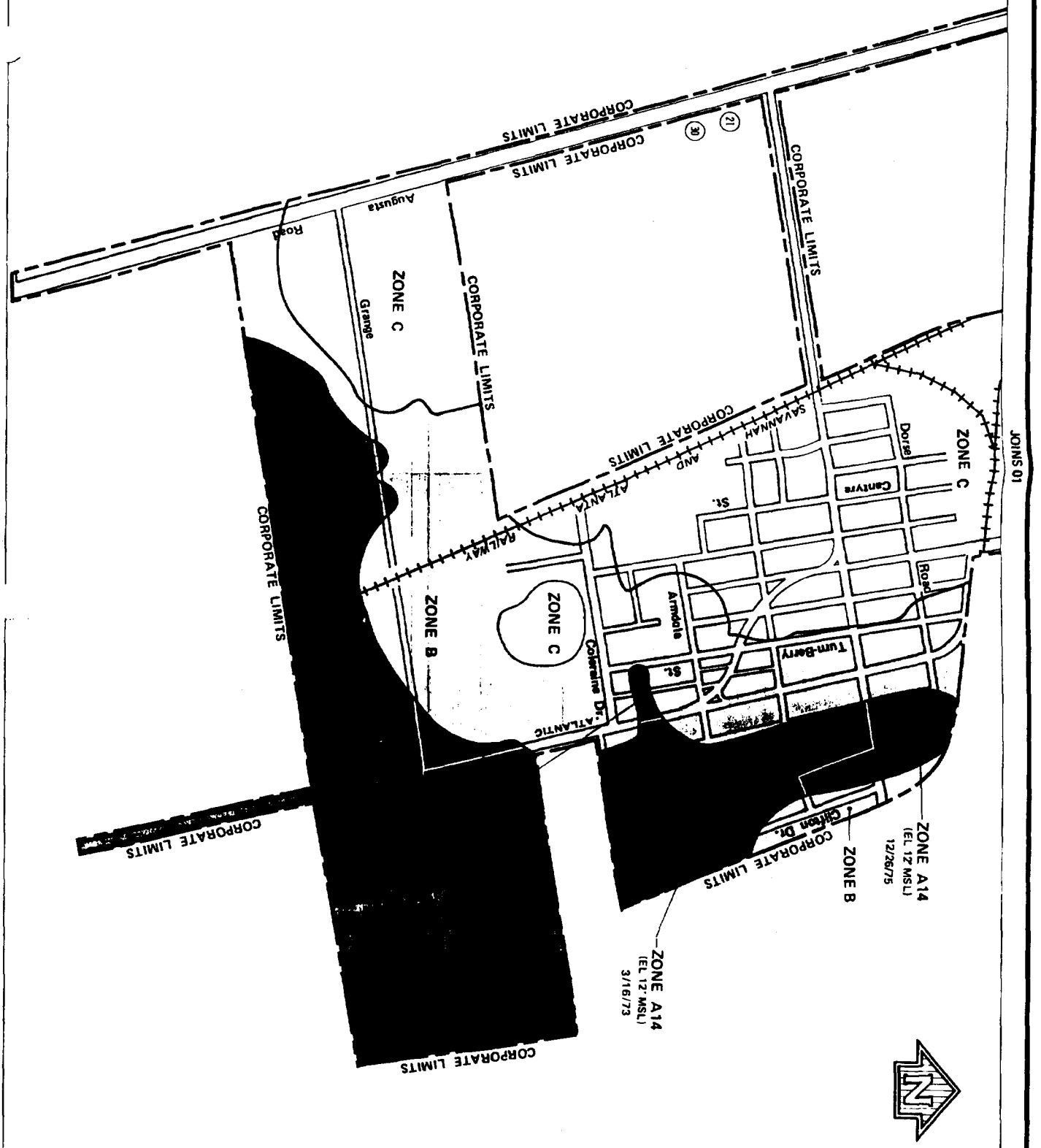
MAP INDEX

CITY OF PORT WENTWORTH, GA

(CHATHAM CO.)

COMMUNITY NO.135162A

Reference 17



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

CITY OF PORT WENTWORTH, GA
(CHATHAM CO.)

APPROXIMATE SCALE
1000 0 1000 2000 3000 FEET

FLOOD HAZARD BOUNDARY MAP H - 02
FLOOD INSURANCE RATE MAP I - 02

REVISED DATE
DECEMBER 26, 1975

H&I-02

Reference 18

RECEIVED
NOV 24 1992
Commercial Protection Div.
Fisheries Mgmt. Branch

GEORGIA'S PROTECTED WILDLIFE COUNTY CROSS-REFERENCE

	1 SHORTNOSE STURGEON E (Federal)	2 SPOTFIN CHUB T	3 YELLOWFIN MADTOM T	4 SOUTHERN CAVEFISH	5 AMBER DARTER E	6 CONASAUGA LOGPERCH E	7 SNAIL DARTER T	8 GEORGIA BLIND SALAMANDER	9 ATLANTIC GREEN TURTLE T	10 ATLANTIC HAWKSBILL	11 LOGGERHEAD T	12 ATLANTIC RIDLEY E	13 LEATHERBACK E	14 AMERICAN ALLIGATOR T	15 EASTERN INDIGO SNAKE T	16 EASTERN BROWN PELICAN	17 WOOD STORK E	18 SOUTHERN BALD EAGLE E	19 PEREGRINE FALCON E	20 PIPING PLOVER T	21 RED-COCKADED WOODPECKER E	22 IVORY-BILLED WOODPECKER E	23 BACHMAN'S WARBLER	24 KIRTLAND'S WARBLER E	25 GRAY BAT E	26 INDIANA BAT E	27 SHERMAN'S POCKET GOPHER	28 COUGAR E	29 SEI WHALE E	30 FIN WHALE E	31 HUMPBACK WHALE E	32 BLACK RIGHT WHALE E	33 SPERM WHALE E	34 WEST INDIAN MANATEE E
Appling	X													X	X						X													
Atkinson														X	X																			
Bacon														X	X																			
Baker														X	X						X													
Baldwin														X							X													
Banks																																		
Barrow																																		
Bartow																																		
Ben Hill	X													X	X																			
Berrien														X	X																			
Bibb														X	X						X													
Bleckley	X													X																				
Brantley														X	X						X													
Brooks														X	X																			
Bryan	X								O	O	X	O	O	X	X	X	X	X	M	W	X								O	O	O	O	O	S
Bulloch	X													X	X		X				X							X						
Burke	X													X			X																	
Butts																																		
Calhoun														X																				
Camden	X								O	O	X	O	O	X	X	X	X	X	M	W	X								O	O	O	O	O	S
Candler														X	X		X																	
Carroll																																		
Catoosa		H					X														X													
Charlton														X	X		X				X							X						
Chatham	X								O	O	X	O	O	X	X	X	X	X	M	W							H		O	O	O	O	O	S
Chattahoochee														X							X													
Chattooga																																		
Cherokee					H																													
Clarke																					X				M									
Clay														X																				
Clayton																																		
Clinch														X	X						X													
Cobb																																		
Coffee	X													X	X						X													
Colquitt														X	X																			
Columbia																					X							X						
Cook														X	X																			
Coweta																																		
Crawford														X																				
Crisp														X																				

X=General occurrence, see appendix; O=Occurs in offshore waters only; W=Winter occurrence only; S=Summer occurrence only; M=Occurs irregularly as a migrant; R=Release or potential release site; H=Historical occurrence

Reference 19

Protected Plants of Georgia

AN INFORMATION MANUAL ON PLANTS DESIGNATED BY THE STATE OF GEORGIA AS ENDANGERED, THREATENED, RARE, OR UNUSUAL

Thomas S. Patrick
James R. Allison
Gregory A. Krakow

1995

Georgia Department of Natural Resources
Lonice C. Barrett, Commissioner
Wildlife Resources Division
David Waller, Director
Georgia Natural Heritage Program
John R. Bozeman, Program Manager

OVERSIZED

DOCUMENT

OMB Approval Number: 2050-0095
Approved for Use Through: 1/92

EPA Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: GA | CERCLIS Number: GAD981244767

CERCLIS Discovery Date:

1. General Site Information

Name: McKenzie Tank Lines

Street Address: 111 Grange Rd.

City: Port Wentworth | State: GA | Zip Code: 31407 | County: Chatham | Co. Code: | Cong. Dist:

Latitude: 32° 08' 17.9" | Longitude: 81° 09' 10.1"

Approximate Area of Site: 10 Acres _____ Square Ft

Status of Site: [x] Active [ ] Inactive [ ] Not Specified [ ] NA (GW plume, etc.)

2. Owner/Operator Information

Owner: McKenzie Tank Lines

Street Address: 122 Appleyard Dr. P.O. Box 1200

City: Tallahassee

State: FL | Zip Code: 32302 | Telephone: (904) 576-1221

Operator: same

Street Address:

City:

State: | Zip Code: | Telephone: ( )

Type of Ownership:
- [x] Private
- [ ] Federal Agency Name _____
- [ ] State
- [ ] Indian
- [ ] County
- [ ] Municipal
- [ ] Not Specified
- [ ] Other _____

How Initially Identified:
- [ ] Citizen Complaint
- [ ] PA Petition
- [x] State/Local Program
- [ ] RCRA/CERCLA Notification
- [ ] Federal Program
- [ ] Incidental
- [ ] Not Specified
- [ ] Other _____

3. Site Evaluator Information

Name of Evaluator: Billy Hendricks

Agency/Organization: Georgia EPD

Date Prepared: June 17, 1997

Street Address: 205 Butler St. Suite 1162 | City: Atlanta | State: GA

Name of EPA or State Agency Contact: Jennifer Kaduck

Street Address: 205 Butler St. Suite 1154

City: Atlanta | State: GA | Telephone: (404) 656-7802

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation:
- [ ] Yes
- [ ] No

Date: _____

CERCLIS Recommendation:
- [ ] Higher Priority SI
- [ ] Lower Priority SI
- [ ] NFRAP
- [ ] RCRA
- [ ] Other _____

Date: _____

Signature:

Name (typed):

Position:

EPA

Potential Hazardous Waste Site
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- [x] Industrial
- [x] Commercial
- [x] Residential
- [ ] Forest/Fields
- [ ] Agriculture
- [ ] Mining
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility
- [ ] Other _____

Site Setting:

- [x] Urban
- [ ] Suburban
- [ ] Rural

Years of Operation:

Beginning Year 1982

Ending Year _____

[ ] Unknown

Type of Site Operations (check all that apply):

- [ ] Manufacturing (must check subcategory)
  - [ ] Lumber and Wood Products
  - [ ] Inorganic Chemicals
  - [ ] Plastic and/or Rubber Products
  - [ ] Paints, Varnishes
  - [ ] Industrial Organic Chemicals
  - [ ] Agricultural Chemicals (e.g., pesticides, fertilizers)
  - [ ] Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - [ ] Primary Metals
  - [ ] Metal Coating, Plating, Engraving
  - [ ] Metal Forging, Stamping
  - [ ] Fabricated Structural Metal Products
  - [ ] Electronic Equipment
  - [ ] Other Manufacturing
- [ ] Mining
  - [ ] Metals
  - [ ] Coal
  - [ ] Oil and Gas
  - [ ] Non-metallic Minerals
- [ ] Retail
- [ ] Recycling
- [ ] Junk/Salvage Yard
- [ ] Municipal Landfill
- [ ] Other Landfill
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility _____
- [x] RCRA
  - [ ] Treatment, Storage, or Disposal
  - [ ] Large Quantity Generator
  - [x] Small Quantity Generator
  - [ ] Subtitle D
    - [ ] Municipal
    - [ ] Industrial
  - [ ] "Converter"
  - [ ] "Protective Filer"
  - [ ] "Non- or Late Filer"
- [ ] Not Specified
- [x] Other Tank truck company

Waste Generated:

- [x] Onsite
- [ ] Offsite
- [ ] Onsite and Offsite

Waste Disposition Authorized By:

- [x] Present Owner
- [ ] Former Owner
- [ ] Present & Former Owner
- [ ] Unauthorized
- [ ] Unknown

Waste Accessible to the Public:

- [ ] Yes
- [x] No

Distance to Nearest Dwelling, School, or Workplace:

<10 Feet

6. Waste Characteristics Information

Source Type: (check all that apply)	Source Waste Quantity: (include units)	Tier*:
[ ] Landfill		
[ ] Surface Impoundment		
[ ] Drums		
[ ] Tanks and Non-Drum Containers		
[ ] Chemical Waste Pile		
[ ] Scrap Metal or Junk Pile		
[ ] Tailings Pile		
[ ] Trash Pile (open dump)		
[ ] Land Treatment		
[ ] Contaminated Ground Water Plume (unidentified source)		
[ ] Contaminated Surface Water/Sediment (unidentified source)		
[x] Contaminated Soil	1000 cy	V
[x] Other spills	270 lb	C
[ ] No Sources		

* C = Container, W = Wastestream, V = Volume, A = Area

General Types of Waste (check all that apply)

- [ ] Metals
- [x] Organics
- [ ] Inorganics
- [x] Solvents
- [ ] Paints/Pigments
- [ ] Laboratory/Hospital Waste
- [ ] Radioactive Waste
- [ ] Construction/Demolition Waste
- [ ] Pesticides/Herbicides
- [x] Acids/Bases
- [ ] Oily Waste
- [ ] Municipal Waste
- [ ] Mining Waste
- [ ] Explosives
- [ ] Other _____

Physical State of Waste as Deposited (check all that apply):

- [ ] Solid
- [x] Sludge
- [ ] Powder
- [x] Liquid
- [ ] Gas

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
- [x] Yes
- [ ] No

Type of Drinking Water Wells Within 4 Miles (check all that apply):
- [x] Municipal
- [x] Private
- [ ] None

Is There a Suspected Release to Ground Water:
- [x] Yes
- [ ] No

Have Primary Target Drinking Water Wells Been Identified:
- [ ] Yes
- [x] No

If Yes, Enter Primary Target Population:

_____ People

Depth to Shallowest Aquifer:

7 Feet

Karst Terrain/Aquifer Present:
- [ ] Yes
- [x] No

Nearest Designated Wellhead Protection Area:
- [x] Underlies Site
- [ ] >0 - 4 Miles
- [ ] None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile	0
>¼ - ½ Mile	3
>½ - 1 Mile	22
>1 - 2 Miles	19,008
>2 - 3 Miles	140
>3 - 4 Miles	15,939
Total Within 4 Miles	35,112

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):
- [ ] Stream
- [x] River
- [ ] Pond
- [ ] Lake
- [ ] Bay
- [ ] Ocean
- [x] Other Canal Estuary

Shortest Overland Distance From Any Source to Surface Water:

200 Feet

_____ Miles

Is There a Suspected Release to Surface Water:
- [x] Yes
- [ ] No

Site is Located in:
- [ ] Annual - 10 yr Floodplain
- [x] >10 yr - 100 yr Floodplain
- [ ] >100 yr - 500 yr Floodplain
- [ ] >500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:
- [ ] Yes
- [x] No

Have Primary Target Drinking Water Intakes Been Identified:
- [ ] Yes
- [x] No

If Yes, Enter Population Served by Primary Target Intakes:

N/A People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
	None		

Total within 15 Miles _____

Fisheries Located Along the Surface Water Migration Path:
- [x] Yes
- [ ] No

Have Primary Target Fisheries Been Identified:
- [ ] Yes
- [x] No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
Savannah River	710,000

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 4 of 4

CERCLIS Number:

8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:
- [x] Yes
- [ ] No

Have Primary Target Wetlands Been Identified:
- [ ] Yes
- [x] No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Savannah River	>10,000	est. 25

Other Sensitive Environments Located Along the Surface Water Migration Path:
- [x] Yes
- [ ] No

Have Primary Target Sensitive Environments Been Identified:
- [ ] Yes
- [x] No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination:
- [x] Yes
- [ ] No

If Yes, Enter Total Resident Population:
est. 20 People

Number of Workers Onsite:
- [ ] None
- [x] 1 - 100
- [ ] 101 - 1,000
- [ ] >1,000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:
- [ ] Yes
- [x] No

If Yes, List Each Terrestrial Sensitive Environment:

10. Air Pathway

Is There a Suspected Release to Air:
- [ ] Yes
- [x] No

Enter Total Population on or Within:

Onsite	50
0 - ¼ Mile	81
> ¼ - ½ Mile	274
> ½ - 1 Mile	947
> 1 - 2 Miles	4068
> 2 - 3 Miles	4343
> 3 - 4 Miles	5592
Total Within 4 Miles	15303

Wetlands Located Within 4 Miles of the Site:
- [x] Yes
- [ ] No

Other Sensitive Environments Located Within 4 Miles of the Site:
- [x] Yes
- [ ] No

List All Sensitive Environments Within ½ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	
0 - ¼ Mile	Savannah Nat'l Wildlife Refuge
> ¼ - ½ Mile	

APPENDIX A

OMB Approval Number: 2050-0095
Approved for Use Through: 1/92

PA Scoresheets

Site Name: McKenzie Tank Lines

CERCLIS ID No.: GAD 981244767

Street Address: 111 Grange Rd.

City/State/Zip: Port Wentworth GA 31407

Investigator: Billy Hendricks

Agency/Organization: Georgia EPD

Street Address: 205 Butler St. Suite 1162

City/State/Zip: Atlanta, GA 30334

Date: June 17, 1997

GENERAL INFORMATION

Site Description and Operational History:

McKenzie Tank Lines is an operating tanker trailer terminal and tanker cleaning facility. The site comprises approximately 9.5 acres in a rough square within the city limits of Port Wentworth, Georgia. McKenzie built the existing combination shop and office in 1982, along with a wash rack. This wash rack included a tanker cleaning system manufactured by Detrex. That system used vapors from solvents, such as tetrachloroethylene, for degreasing and cleaning the interiors of tankers previously containing organics such as black liquor and creosote. This system was discontinued in 1987, and in 1989 the new wash rack was built.

Hazardous waste generation at the site is currently limited to spent mineral spirits used in the degreasing and cleaning of truck and trailer parts, and maintenance and housekeeping waste. Used oil is accumulated in an approximately 1000-gallon tank, and picked up by Coastal Refining in Savannah. There are no known underground storage tanks; fuel is managed in an aboveground tank with separator.

Probable Substances of Concern:
(Previous investigations, analytical data)

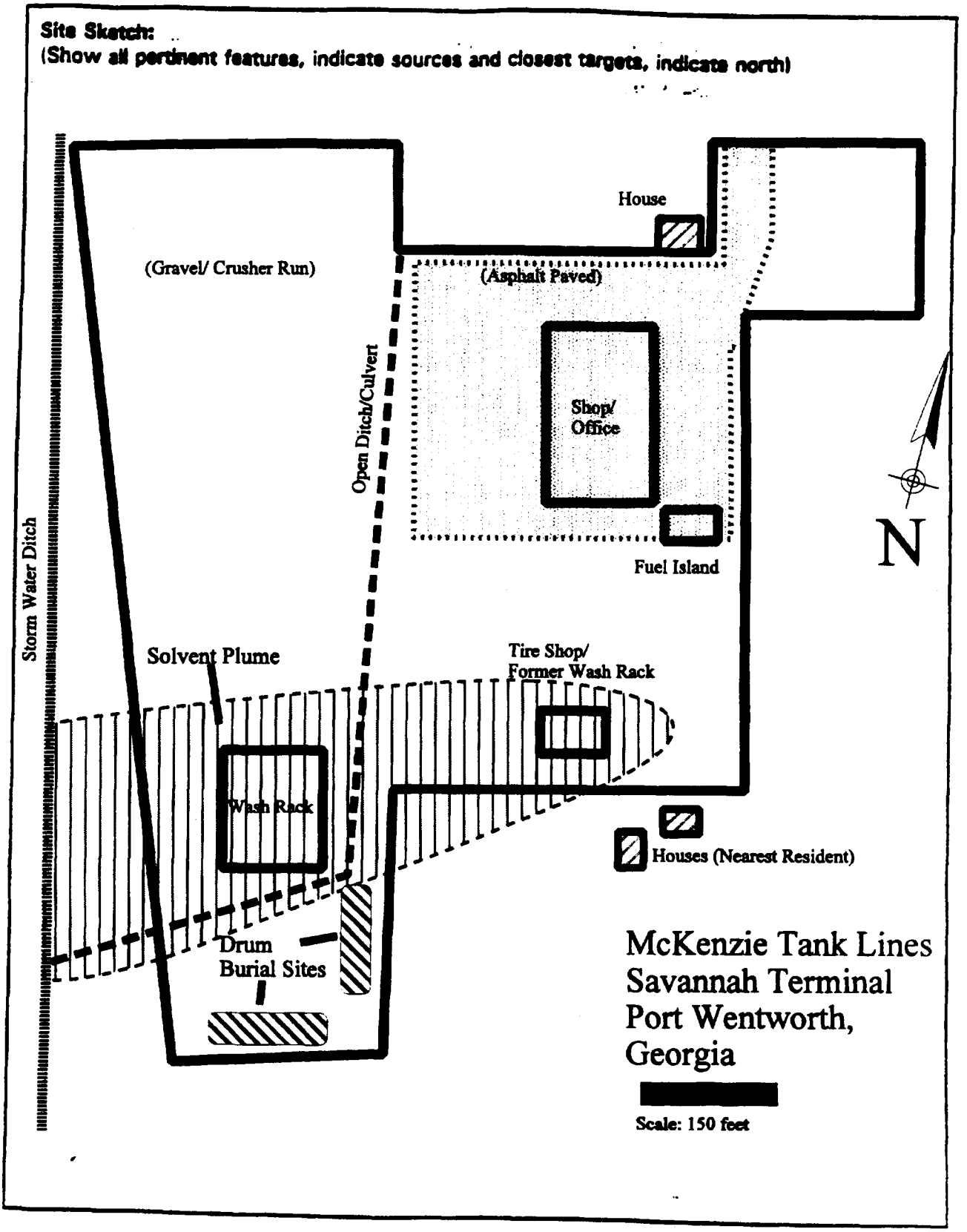
McKenzie Tank Lines first came to the attention of the CERCLA program as a result of a spill report to EPD's Emergency Response Team in 1992. A spill of diesel fuel and black liquor occurred into the stormwater drainage system at and adjacent to the site; approximately 40,000 gallons of spilled material was recovered. The most heavily contaminated soils were excavated and manifested offsite as hazardous waste. Upon further examination, elevated levels of chlorinated solvents were detected in the soils at the drainage ditch. Subsequent investigation disclosed buried drums in two locations on the site, contaminated sediments in the drainage ditch, and contaminated groundwater from the former wash rack location.

Significant quantities of ten organic constituents were detected in monitoring wells at and around the site. Four of these ten can be attributed to petroleum products (benzene, toluene, ethylbenzene, and xylene) and six to the Detrex system previously operated (vinyl chloride, 1,1-dichloroethane, 1,1-dichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, and trichloroethylene). These results were confirmed and expanded in a 1994 addendum which showed levels of the chlorinated constituents in the range of tens of parts per million in groundwater, with four of eleven wells contaminated. In addition, soil contamination near the former wash rack was demonstrated at similar levels. Further vertical delineation of the groundwater plume, with four additional wells, confirm the presence of chlorinated solvents to at least sixty feet below land surface.

Site name:
Date:

GENERAL INFORMATION (continued)

Site Sketch:
(Show all pertinent features, indicate sources and closest targets, indicate north)



Source No.: 1	Source Name: Old Wash Rack Plume	Source Waste Quantity (WQ) Calculations: Groundwater Plume, Constituent Tier, perchloroethylene: A. >10000ppb isocon: 25000ppb (est. mean) x 250' x 100' x 30' x 0.1 storativity x 101 lb/ft³ ≈ 190 lb B. 1000 - 10000ppb isocon: 5000ppb (est. mean) x [(500' x 150' x 30') - (250' x 100' x 30')] x 0.1 storativity x 101 lb/ft³ ≈ 75 lb C. 0 - 1000 ppb isocon: 500ppb (est. mean) x [(550' x 200' x 30') - (500' x 150' x 30')] x 0.1 storativity x 101 lb/ft³ ≈ 5 lb WQ = 190 + 75 + 5 = 270 lb ÷ 1 = 270
Source Description: Concrete pad with floor drain which was formerly used for cleaning the inside of tanker trailers Solvents used include perchloroethylene, trichloroethylene, and surfactants. There are demonstrated releases from spills and incompetent plumbing.		

Source No.: 2	Source Name: East Drum Area	Source Waste Quantity (WQ) Calculations: Contaminated soil, Volume Tier: WQ = 100' x 20' x 4' ÷ 27 = 300 cubic yards ÷ 2,500 = 0.1
Source Description: Burial Site of approximately 100 drums of liquid waste. Excavated in 1994. Some contaminated soil left in place.		

Source No.: 3	Source Name: South Drum Area	Source Waste Quantity (WQ) Calculations: Contaminated soil, Volume Tier: WQ = 100' x 20' x 4' ÷ 27 = 300 cubic yards ÷ 2,500 = 0.1
Source Description: Burial Site of approximately 100 drums of liquid waste. Excavated in 1994. Some contaminated soil left in place.		

Total WQ = 270

Site WC: 32

Site name:
Date:

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	WC = 32	WC = 100	Formula for Assigning Source WQ Values
CONSTituent	N/A	≤100 lb	>100 to 10,000 lb	>10,000 lb	lb ÷ 1
WASTESTREAM	N/A	≤500,000 lb	>500,000 to 60 million lb	>60 million lb	lb ÷ 5,000
VOLUME	Landfill	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Surface impoundment	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Drums	≤1,000 drums	>1,000 to 100,000 drums	>100,000 drums	drums ÷ 10
	Tanks and non-drum containers	≤60,000 gallons	>60,000 to 6 million gallons	>6 million gallons	gallons ÷ 500
	Contaminated soil	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Pile	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Other	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
AREA	Landfill	≤340,000 ft² ≤7.8 acres	>340,000 to 34 million ft² >7.8 to 780 acres	>34 million ft² >780 acres	ft² ÷ 3,400 acres ÷ 0.078
	Surface impoundment	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Contaminated soil	≤3.4 million ft² ≤78 acres	>3.4 million to 340 million ft² >78 to 7,800 acres	>340 million ft² >7,800 acres	ft² ÷ 34,000 acres ÷ 0.78
	Pile*	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Land treatment	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft² >0.62 to 62 acres	>2.7 million ft² >62 acres	ft² ÷ 270 acres ÷ 0.0062

1 ton = 2,000 lb = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WQ Total	WC Score
>0 to 100	18
>100 to 10,000	32
>10,000	100

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use Within 4-miles of the Site:
(Describe stratigraphy, information on aquifers, municipal and/or private wells)

The McKenzie site lies in the Barrier Island Sequences District of the Coastal Plain Province of Georgia. Groundwater is the sole source for drinking water in this area, and most industrial and municipal ground water supplies originate from the Floridan Aquifer System. Post-Miocene sands compose the shallow surficial aquifer. At the McKenzie site, this aquifer is 25 to 30 feet thick and consists of clayey sands and silts and sandy clay. Water in the surficial aquifer is under water table conditions, and depth to the water table at the site is shallow (ranging from approximately 2.5 to 6.5 feet). The surficial aquifer could potentially recharge the underlying Floridan aquifer in areas where the hydraulic gradient is downward.

The surficial aquifer is underlain by the Miocene-age Hawthorn Formation. The Hawthorn is composed of marl, sandy clay, and clayey sand, and ranges in thickness from 50 to 600 feet. This unit acts as an upper confining unit for the Floridan aquifer, and in the vicinity of Savannah is approximately 200 feet thick.

The uppermost laterally continuous aquifer in this area is the Floridan aquifer system. The Floridan is the most important source of water supply in the coastal area of Georgia. It is composed of a vertically continuous sequence of several limestones ranging in age from Miocene to Upper Eocene. The Floridan at the site is approximately 600 feet in thickness.

The municipal agencies managing water systems for Port Wentworth, Garden City and Savannah operate a total of approximately ten wells within a four-mile radius of the site, most pumping from the Floridan, and serving approximately 35,000 individuals. Census data indicate a small number of private wells within the target distance; this information is not supported by physical survey.
(References 5, 6, 7, 8, 9, 10, 11, 12)

Calculations for Drinking Water Populations Served by Ground Water:

0 - 0.25 mi:	Private wells: 0; total:0
0.25 - 0.50 mi:	Private wells: 3; total: 3
0.50 - 1.0 mi.:	Private wells: 22; total: 22
1.0 - 2.0 mi:	Private wells: 80; Port Wentworth system (both its wells): 3,380; Savannah system (2 of 22 wells): 15,548; total: 19,008
2.0 - 3.0 mi:	Private wells: 140; total 140
3.0 - 4.0 mi:	Private wells: 391; Savannah system (2 of 22 wells): 15,548; total: 15,939

Total within 4.0 miles: 35,112
(References 13, 14, 15, 16)

GA EPD

Site name:
Date:

GROUND WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☐	☐	☐	Are sources poorly contained?
☐	☐	☐	Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)?
☐	☒	☐	Is waste quantity particularly large?
☒	☐	☐	Is precipitation heavy?
☒	☐	☐	Is the infiltration rate high?
☐	☒		Is the site located in an area of karst terrain?
☒	☐	☐	Is the subsurface highly permeable or conductive?
☐	☒	☐	Is drinking water drawn from a shallow aquifer?
☐	☐	☐	Are suspected contaminants highly mobile in ground water?
☒	☐	☐	Does analytical or circumstantial evidence suggest ground water contamination?
☐	☐		Other criteria? _____
☐	☐		SUSPECTED RELEASE?

PRIMARY TARGETS

Yes	No	Unk	
☒	☐	☐	Is any drinking water well nearby?
☐	☐	☒	Has any nearby drinking water well been closed?
☐	☐	☒	Has any nearby drinking water user reported foul-tasting or foul-smelling water?
☒	☐	☐	Does any nearby well have a large drawdown or high production rate?
☐	☒	☐	Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance?
☐	☒	☐	Does analytical or circumstantial evidence suggest contamination at a drinking water well?
☐	☐	☒	Does any drinking water well warrant sampling?
☐	☐		Other criteria? _____
☐	☒		PRIMARY TARGET(S) IDENTIFIED?

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Analytical data from site and adjacent properties verify release to shallow aquifer

Summarize the rationale for Primary Targets (attach an additional page if necessary):

No known contaminated wells within target distance are used for drinking water.

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Ground Water Pathway Criteria List, page 71)?	Yes X No ___
Is the site located in karst terrain?	Yes ___ No X
Depth to aquifer:	<10 ft
Distance to the nearest drinking water well:	<1/2 mi ft

LIKELIHOOD OF RELEASE

	A Suspected Release	B No Suspected Release	References
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 71), assign a score of 550. Use only column A for this pathway.	550		7,8
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			___
LR =	550		

TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water wells that you suspect have been exposed to a hazardous substance from the site (see Ground Water Pathway Criteria List, page 71). ___0___ people x 10 =	0		___
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water wells that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes ___ No X. If yes, attach a page to show apportionment calculations.	429		13,14,15,16
5. NEAREST WELL: If you have identified a primary target population for ground water, assign a score of 50; otherwise, assign the Nearest Well score from PA Table 2. If no drinking water wells exist within 4 miles, assign a score of zero.	18		16
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA, or if you have identified any primary target well within a WHPA, assign a score of 20; assign 5 if neither condition holds but a WHPA is present within 4 miles; otherwise assign zero.	20		11
7. RESOURCES	5		11,12
T =	472		

WASTE CHARACTERISTICS

8. A. If you have identified any primary target for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any primary target for ground water, assign the waste characteristics score calculated on page 4.	32	
WC =	32	

GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ = 100 (subject to a maximum of 100)

Site name:
Date:

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	Population Value
0 to ¼ mile	0	20	1	2	6	16	52	163	521	1,633	5,214	16,326	
> ¼ to ½ mile	3	16	1	1	3	10	32	101	323	1,012	3,233	10,121	1
> ½ to 1 mile	22	8	1	1	2	5	17	52	167	522	1,668	5,224	1
> 1 to 2 miles	19008	5	1	1	1	3	9	28	94	294	938	2,938	294
> 2 to 3 miles	140	3	1	1	1	2	7	21	68	212	678	2,122	2
> 3 to 4 miles	15939	2	1	1	1	1	4	13	42	131	417	1,306	131
Nearest Well =		18										Score =	429

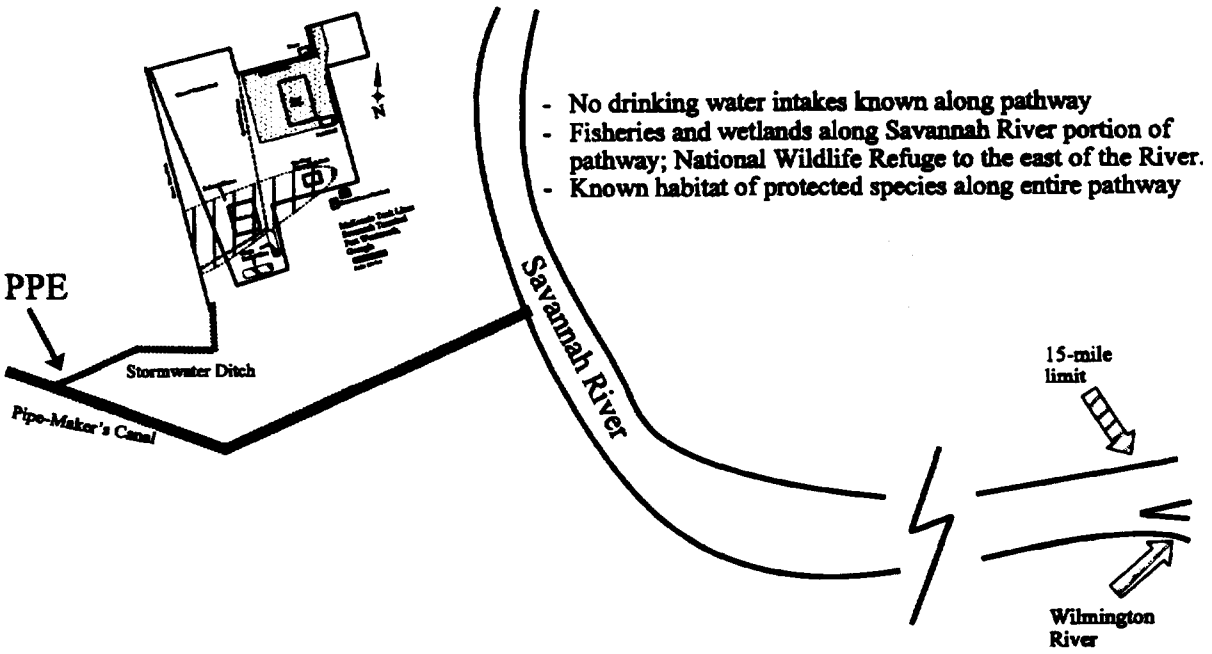
PA Table 2b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	Population Value
0 to ¼ mile		20	1	2	6	16	52	163	521	1,633	5,214	16,326	
> ¼ to ½ mile		20	1	1	3	10	32	101	323	1,012	3,233	10,121	
> ½ to 1 mile		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 1 to 2 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 2 to 3 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 3 to 4 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
Nearest Well =												Score =	

Date:

SURFACE WATER PATHWAY
MIGRATION ROUTE SKETCH

Suface Water Migration Route Sketch:
(include runoff route, probable point of entry, 15-mile target distance limit, intakes, fisheries, and sensitive environments)



- No drinking water intakes known along pathway
- Fisheries and wetlands along Savannah River portion of pathway; National Wildlife Refuge to the east of the River.
- Known habitat of protected species along entire pathway

Site name:
Date:

SURFACE WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☒	☐	☐	Is surface water nearby?
☐	☒	☐	Is waste quantity particularly large?
☐	☒	☐	Is the drainage area large?
☒	☐	☐	Is rainfall heavy?
☒	☐	☐	Is the infiltration rate low?
☐	☒	☐	Are sources poorly contained or prone to runoff or flooding?
☒	☐	☐	Is a runoff route well defined (e.g., ditch or channel leading to surface water)?
☐	☒	☐	Is vegetation stressed along the probable run-off route?
☒	☐	☐	Are sediments or water unnaturally discolored?
☐	☒	☐	Is wildlife unnaturally absent?
☒	☐	☐	Has deposition of waste into surface water been observed?
☒	☐	☐	Is ground water discharge to surface water likely?
☒	☐	☐	Does analytical or circumstantial evidence suggest surface water contamination?
☐	☐		Other criteria? _____
☒	☐		SUSPECTED RELEASE?

PRIMARY TARGETS

Yes	No	Unk	
☒	☐	☐	Is any target nearby? If yes:
			☐ Drinking water intake ☒ Fishery ☒ Sensitive environment
☐	☒	☐	Has any intake, fishery, or recreational area been closed?
☐	☒	☐	Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target?
☐	☒	☐	Does any target warrant sampling? If yes:
			☐ Drinking water intake ☐ Fishery ☐ Sensitive environment
☐	☐		Other criteria? _____
☐	☒		PRIMARY INTAKE(S) IDENTIFIED?
☐	☒		PRIMARY FISHERY(IES) IDENTIFIED?
☐	☒		PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED?

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Documented releases of black liquor + diesel fuel - analytical data + direct observation

Summarize the rationale for Primary Targets (attach an additional page if necessary):

1. No direct evidence of impact due to site.
2. Industrial stream setting

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics

Do you suspect a release (see Surface Water Pathway Criteria List, page 11)? Yes X No ___
Distance to surface water: ___ ft
Flood frequency: ___ yrs
What is the downstream distance to the nearest drinking water intake? N/A miles
Nearest fishery? 1 miles Nearest sensitive environment? 1 miles

LIKELIHOOD OF RELEASE	A Suspected Release	B No Suspected Release	Reference
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550. Use only column A for this pathway.	550		5
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, use the table below to assign a score based on distance to surface water and flood frequency. Use only column B for this pathway.			
LR =	550		

Distance to surface water ≤ 2,500 feet	500
Distance to surface water > 2,500 feet, and	
Site in annual or 10-year floodplain	500
Site in 100-year floodplain	400
Site in 500-year floodplain	300
Site outside 500-year floodplain	100

DRINKING WATER THREAT TARGETS			
3. Record the water body type, flow (if applicable), and number of people served by each drinking water intake within the target distance limit. If there is no drinking water intake within the target distance limit, factors 4, 5, and 6 each receive zero scores.			
4. PRIMARY TARGET POPULATION: If you suspect any drinking water intake listed above has been exposed to a hazardous substance from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the total population served. ___ people x 10 =	0		
5. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water intakes that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 3. Are any intakes part of a blended system? Yes ___ No ___ If yes, attach a page to show apportionment calculations.	0		
6. NEAREST INTAKE: If you have identified a primary target population for the drinking water threat (factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking water intake exists within the target distance limit, assign a score of zero.	0		
7. RESOURCES	0		
T =	0		

Intake Name	Water Body Type	Flow	People Served
None		cfs	
		cfs	
		cfs	

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	
< 10 cfs	0	20	2	6	18	52	163	521	1,633	5,214	16,325	52,136	163,340	
10 to 100 cfs	0	2	1	1	2	6	18	52	163	521	1,633	5,214	16,325	
> 100 to 1,000 cfs	0	1	0	0	1	1	2	6	18	52	163	521	1,633	
> 1,000 to 10,000 cfs	0	0	0	0	0	0	1	1	2	6	18	52	163	
> 10,000 cfs or Great Lakes	0	0	0	0	0	0	0	0	1	1	2	6	18	
3-mile Mixing Zone	0	10	1	3	8	26	82	261	818	2,607	8,162	26,068	81,663	

Nearest Intake = None

Score = 0

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body			Dilution Weight
Water Body Type	OR	Flow	
minimal stream		< 10 cfs	1
small to moderate stream		10 to 100 cfs	0.1
moderate to large stream		> 100 to 1,000 cfs	N/A
large stream to river		> 1,000 to 10,000 cfs	N/A
large river		> 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers		10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes		N/A	N/A

Site name:
Date:

Date:

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	Reference
Enter Surface Water Likelihood of Release score from page 12.	LR =	550		

HUMAN FOOD CHAIN THREAT TARGETS

8. Record the water body type and flow (if applicable) for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Fishery Name	Water Body Type	Flow
Savannah River	River	210000 cfs
		cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the primary fisheries:

None

0

10. SECONDARY FISHERIES

A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.

210 — 5

B. If you do not suspect a release, assign a Secondary Fisheries score from the table below using the lowest flow at any fishery within the target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

T = 210

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
Enter Surface Water Likelihood of Release score from page 12. LR =	550		
ENVIRONMENTAL THREAT TARGETS			
11. Record the water body type and flow (if applicable) for each surface water sensitive environment within the target distance limit (see PA Tables 4 and 5). If there is no sensitive environment within the target distance limit, assign a Targets score of 0 at the bottom of the page.			

Environment Name	Water Body Type	Flow
Savannah River	Estuary	> 10,000 cfs
		cfs
		cfs
		cfs
		cfs

	A	B	Reference
12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate factor 13. List the primary sensitive environments: _____, _____, _____, _____.	0		
13. SECONDARY SENSITIVE ENVIRONMENTS: If sensitive environments are present, but none is a primary sensitive environment, evaluate Secondary Sensitive Environments based on flow.			

A. For secondary sensitive environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight (PA Table 4)		Environment Type and Value (PA Tables 5 and 6)		Total
cfs		x		=	
cfs		x		=	
cfs		x		=	
cfs		x		=	
cfs		x		=	

Sum = N/A

	A	B	Reference
B. If all secondary sensitive environments are located on surface water bodies with flows > 100 cfs, assign a score of 10.	10		5
T =	10		

PA TABLE 5: SURFACE WATER AND AIR PATHWAY SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	*Assigned Value*
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument (air pathway only)	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized for breeding by large or dense aggregations of vertebrate animals (air pathway) or semi-aquatic foragers (surface water pathway)	
National river reach designated as Recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER PATHWAY WETLANDS FRONTAGE VALUES

Total Length of Wetlands	*Assigned Value*
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

GA EPD

Site name:
Date:

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	A Suspected Release	B No Suspected Release
14. A. If you have identified any primary target for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any primary target for surface water, assign the waste characteristics score calculated on page 4.	32	
WC =	32	

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score (from page 12)	Targets (T) Score (pages 12, 14, 15)	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score LR x T x WC / 82,500
Drinking Water	550	0	32	0
Human Food Chain	550	210	32	45
Environmental	550	10	32	2

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

47

Site name:
Date:

SOIL EXPOSURE PATHWAY CRITERIA LIST

SUSPECTED CONTAMINATION	RESIDENT POPULATION			
	Yes	No	Unk	
Surficial contamination can generally be assumed.	☒	☐	☐	Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination?
	☐	☐	☒	Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator?
	☒	☐	☐	Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities?
	☐	☒	☐	Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems?
	☐	☒	☐	Does any neighboring property warrant sampling?
	☐	☐		Other criteria? _____
	☒	☐		RESIDENT POPULATION IDENTIFIED?

Summarize the rationale for Resident Population (attach an additional page if necessary):

GA EPD

Site name:
Date:

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics	
Do any people live on or within 200 ft of areas of suspected contamination?	Yes X No ___
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination?	Yes ___ No X
Is the facility active? Yes X No ___ If yes, estimate the number of workers: 50	

LIKELIHOOD OF EXPOSURE	Suspected Contamination Score	Reference
1. SUSPECTED CONTAMINATION: Surficial contamination can generally be assumed, and a score of 550 assigned. Assign zero only if the absence of surficial contamination can be confidently demonstrated. LE =	550	5,6,7,8

RESIDENT POPULATION THREAT TARGETS		
2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or daycare on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). 20 people x 10 =	200	1
3. RESIDENT INDIVIDUAL: If you have identified a resident population (factor 2), assign a score of 50; otherwise, assign a score of 0.	50	1
4. WORKERS: Use the following table to assign a score based on the total number of workers at the facility and nearby facilities with suspected contamination:	5	1
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Use PA Table 7 to assign a value for each terrestrial sensitive environment on an area of suspected contamination: Sum =	0	___
6. RESOURCES	0	___
T =	255	

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value
___	___
___	___

WASTE CHARACTERISTICS	
7. Assign the waste characteristics score calculated on page 4. WC =	32

RESIDENT POPULATION THREAT SCORE: $\frac{LE \times T \times WC}{82,500}$ = 54

NEARBY POPULATION THREAT SCORE: 0 ___

SOIL EXPOSURE PATHWAY SCORE:
Resident Population Threat + Nearby Population Threat: 54

PA TABLE 7: SOIL EXPOSURE PATHWAY TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	*Assigned Value*
Terrestrial critical habitat for Federally designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federal designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

GA EPD

Site name:
Date:

AIR PATHWAY CRITERIA LIST

SUSPECTED RELEASE				PRIMARY TARGETS
Yes	No	Unk		
☐	☒	☐	Are odors currently reported?	If you suspect a release to air, evaluate all populations and sensitive environments within 1/4 mile (including those onsite) as primary targets.
☐	☒	☐	Has release of a hazardous substance to the air been directly observed?	
☐	☒	☐	Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?	
☐	☒	☐	Does analytical or circumstantial evidence suggest a release to the air?	
☐	☒		Other criteria? _____	
☐	☒		SUSPECTED RELEASE?	

Summarize the rationale for Suspected Release (attach an additional page if necessary):

No evidence, even anecdotal, of air releases.

GA EPD

Site name:
Date:

AIR PATHWAY SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes ___	No X
Distance to the nearest individual:		10 ft

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550. Use only column A for this pathway.			___
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500. Use only column B for this pathway.		500	1
LR =		500	
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a suspected release of hazardous substances to the air. ___ people x 10 =			___
4. SECONDARY TARGET POPULATION: Determine the number of people not suspected to be exposed to a release to air, and assign the total population score using PA Table 8.		13	15,16
5. NEAREST INDIVIDUAL: If you have identified any Primary Target Population for the air pathway, assign a score of 50; otherwise, assign the Nearest Individual score from PA Table 8.		20	1
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from a suspected release to the air.			
Sum =			___
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		0	___
8. RESOURCES		5	1,2
T =		38	
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4.		32	
WC =		32	

AIR PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ = 7

Site name:
Date:

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	Population Value
Onsite	50	20	1	2	6	16	52	163	521	1,633	5,214	16,325	52,136	163,246	5
>0 to ¼ mile	81	20	1	1	1	4	13	41	130	408	1,303	4,081	13,034	40,811	1
>¼ to ½ mile	274	2	0	0	1	1	3	9	28	88	282	882	2,815	8,815	1
>½ to 1 mile	947	1	0	0	0	1	1	3	8	26	83	261	834	2,612	1
>1 to 2 miles	4068	0	0	0	0	0	1	1	3	8	27	83	266	833	3
>2 to 3 miles	4343	0	0	0	0	0	1	1	1	4	12	38	120	376	1
>3 to 4 miles	5592	0	0	0	0	0	0	1	1	2	7	23	73	229	1

Nearest Individual = 20

Score = 13

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 5 or 9)	Product
Onsite	0.10	x None	
		x	
0-1/4 mi	0.025	x None	
		x	
		x	
1/4-1/2mi	0.0054	x None	
		x	
		x	
		x	

Total Environments Score = 0

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	100	10,000
SURFACE WATER PATHWAY SCORE (S_{sw}):	47	2,209
SOIL EXPOSURE PATHWAY SCORE (S_s):	54	2,916
AIR PATHWAY SCORE (S_a):	7	49
SITE SCORE: $\sqrt{\frac{S_{gw}^2+S_{sw}^2+S_s^2+S_a^2}{4}}$		62

SUMMARY

	YES	NO
1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water?	☒	☐
A. If yes, identify the well(s). Ten wells identified within one mile by CENTRACTS		
B. If yes, how many people are served by the threatened well(s)? 25		
2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water?		
A. Drinking water intake	☐	☒
B. Fishery	☒	☐
C. Sensitive environment (wetland, critical habitat, others)	☐	☒
D. If yes, identify the target(s). Savannah River Estuary		
3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility?	☒	☐
If yes, identify the property(ies) and estimate the associated population(s). Adjacent residences to north, east, south of property		
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain:	☐	☒

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
HAZARDOUS SITE INVENTORY
July 1, 1996

Site Number: 10406
SITE SUMMARY

SITE NAME:

McKenzie Tank Lines, Inc.

LOCATION:

111 Grange Rd.
Port Wentworth, Chatham County, GA 31407

Latitude: 32° 8' 16" N Longitude: 81° 9' 10" W

LAST KNOWN PROPERTY OWNER AND MAILING ADDRESS:

McKenzie Tank Lines, Inc.
P. O. Box 1200
Tallahassee, FL 32302

DESCRIPTION OF REGULATED SUBSTANCES RELEASED AT THE SITE, AND THREATS TO HUMAN HEALTH AND THE ENVIRONMENT POSED BY THE RELEASE:

This site has a known release of Vinyl chloride in groundwater at levels exceeding the reportable quantity. No human exposure via drinking water is suspected from this release. The nearest drinking water well is between 1 and 2 miles from the area affected by the release.

OTHER SUBSTANCES IN GROUNDWATER: Dichloroethylene, N.O.S.; Tetrachloroethylene; Trichloroethylene; trans-1,2-Dichloroethene.

STATUS OF CLEANUP ACTIVITIES: No HSRA cleanup or investigation has been initiated at this site.

CLEANUP PRIORITY: The Director has designated this site as Class II.

GA EPD DIRECTOR'S DETERMINATION REGARDING CORRECTIVE ACTION: Pending.