

643SERBSF10,637

643SERBSF10,637

Site Name (Subject): UNION OIL CO. SE TERM

Site ID (Document ID): NCD000609974

Document Name (DocType): Preliminary Assessment/Site Inspection (PA/SI)

Report Segment:
Description: Site Re-Assessment Report

Date of Document: 5/25/2000

Date Received:

Box: *Enter SF and # with no spaces* SF10,637

Access Level: PUBLIC

Division: WASTE MANAGEMENT

Section: SUPERFUND

Program (Document Group): SERB (SERB)

Document Category: FACILITY

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**NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT**



**MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR**

April 15, 2002

Ms. Jennifer Wendel
NC Site Management Section Chief
EPA Region IV Waste Division
61 Forsyth Street, SW 11th Floor
Atlanta, Georgia 30303

RE: Amended Site Re-Assessment Report
Union Oil Company, S.E. Terminal Site
NCD 000 609 974
Greensboro, Guilford County, North Carolina

Dear Ms. Wendel:

This letter is to amend the original Site Re-assessment Report dated May 25, 2000. On the basis of the original Site Re-assessment Report, the Union Oil S.E. Terminal site was recommended and tasked for an Expanded Site Inspection (ESI)(Reference 1) . However, based on information gathered for this ESI during an extensive on-site reconnaissance and off-site target search, the NC Superfund Section is recommending that the site now receive a No Further Remedial Action Planned status (NFRAP).

The Union Oil S.E. terminal is located on the western side of Greensboro, NC (Figure 1). The current owners of the property are British Petroleum Oil and TransMontaigne Inc. (Reference 2). The site is a bulk petroleum distribution center or tank farm consisting of seven above-ground tanks ranging from approximately 41,600 to 81,000 barrels in volume (Reference 3).

Since 1946 the site has been used as a bulk petroleum distribution terminal (Reference 2). No records of waste disposal exist for operations prior to 1980. On-site disposal of tank sludges and leaded tank bottoms are suspected to have occurred between 1946 and 1980. Since 1980, no on-site waste disposal has occurred (Reference 4). The wastes generated are American Petroleum Institutes (API) slop oil solids, API separator sludge, and leaded tank bottoms (Reference 4).

Previous investigations for the site include a Preliminary Assessment conducted in January 1985 in which the site was recommended for further investigation on a low priority basis (Reference 5). In 1990, a Phase I SSI was conducted and numerous drinking water wells, one within 100 feet from the facility, were observed (Reference 6). The report also made reference to targets along the site's surface water pathway and identified the potential to release to a surface water intake (Reference 6). The site was then recommended for a Phase II SSI on a medium priority basis. In 1992, a Phase II investigation was conducted by the NC Superfund Section (Reference 4). On-site soil samples were collected during the Phase II SSI. Toluene, ethylbenzene, xylene, barium, calcium, cobalt, copper, manganese, nickel, and zinc were detected at significant levels above background. On-site monitoring wells were sampled and significant levels of acetone, benzene, toluene, ethylbenzene, xylene, naphthalene, and 2-methylnaphthalene were detected. This investigation also referred to the groundwater and surface water pathways as areas of concern, although no surface water pathway samples were collected. The site was recommended for further action (Reference 4).

Based on information collected for the original Site Re-assessment, the Environmental Health Division of the Guilford County Health Department stated that there was one well within the North Market Street and Highway 421 area (Reference 7). This well had served a mobile home park but is currently unused and the community is supplied municipal water. The well was sampled in 1998 and no contaminants were detected. The Guilford County Health Department works under a Memorandum Of Agreement (MOA) with the NC Division of Water Quality to conduct the Greensboro tank farm investigations (Reference 7). Therefore, the groundwater pathway is no longer a concern for this investigation.

In May 2000, the NC Superfund Section recommended in a Site Re-Assessment that the Union Oil S.E. Terminal site proceed with an Expanded Site Inspection (Reference 1). This recommendation was based on the lack of data collected within the surface water pathway during the previous investigations as well as the number of targets downstream within the 15-mile surface water pathway. As stated in the Site Re-assessment, the City of High Point serves approximately 78,000 people from the intake on High Point Lake (or City Lake) approximately 6 miles downstream of the site (Reference 8). The Cities of Jamestown and Archdale both purchase water from the City of High Point. The City of Jamestown serves approximately 4,400 people and the City of Archdale serves another 10,000 people (Reference 8). Portions of the 15-

mile pathway are also fisheries; however, the unnamed tributary that drains the site is not. During information gathering for the ESI reconnaissance, a potential wetland was discovered along the surface water pathway using the Department of Interior National Wetland Inventory Map (Figure 2). On the map, this wetland is located approximately 0.5 mile from the Probable Point of Entry (PPE) of the site.

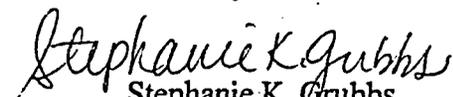
On February 26, 2002, the NC Superfund Section conducted an extensive on-site reconnaissance and off-site target search of the Union Oil S.E. Terminal site to determine sampling locations for the pending ESI investigation (Reference 9). During this reconnaissance, the NC Superfund Section concluded that it would be difficult to adequately demonstrate attribution from the site to the surface water pathway and to any downstream targets. Runoff from numerous other properties near the site with similar contamination issues may significantly influence this pathway of concern.

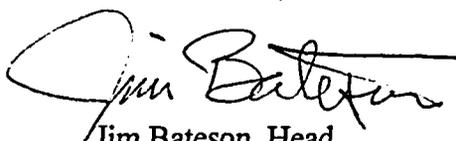
The entire Union Oil S.E. Terminal facility discharges to a location (intermittent drainage ditch) via several stormwater drains. This is also the discharge location for the groundwater remediation system currently under a NPDES permit. Several feet downgradient of this discharge location is the discharge point for the adjacent property owned by High Rise Service, Inc. (HRS Inc.). HRS Inc. is also a bulk distribution center consisting of approximately 8 above-ground tanks. Further downgradient along the drainage path, the ditch becomes perennial (location of the site PPE) at a major roadway, Burnt Poplar Road. The drainage from Burnt Poplar, as well as, the major roadway east of the site, is diverted to this location at the site's PPE. After the unnamed tributary crosses under Burnt Poplar via a culvert, another drainage ditch that parallels the road enters the tributary. Several feet downstream from this convergence is another branch entering the pathway. This branch flows into the tributary via a culvert and drains the former Ashland Tank farm. This facility is now abandoned but the tanks are still in place. Downstream of the Ashland attribution location, the petroleum bulk distribution plant of Plantation Pipeline, Inc. (formerly Shell Oil) discharges into the unnamed tributary. Plantation Pipeline is the bulk distribution facility west of Union Oil S.E. Terminal. After this convergence, the tributary flows directly adjacent to a parking lot that allows parking for city/county school buses and cars in need of repair. This parking lot also drains into the tributary via a ditch which is highly discolored. The pathway continues down the tributary to the approximate location of the potential downstream wetland. However, a newly developed road has been constructed at this location, and the wetland is no longer an issue in the investigation. Once the surface water pathway crosses under this newly developed road, it flows south under Interstate 40 via a culvert, and then past Colonial Pipeline Inc. Colonial Pipeline Inc. is another bulk petroleum distribution facility consisting of at least 54 above-ground storage tanks (Figure 1). The surface water pathway then flows for approximately 4.5 miles to enter High Point Lake or City Lake (the location of the surface water intake). Please see Figure 3 for a detailed sketch of the surface water pathway adjacent to the site and Figure 2 for a map of the remaining 6-mile surface water pathway to the surface water intake location at High Point Lake (or City Lake) (Reference 9).

Ms. Wendel
April 15, 2002
Page 4

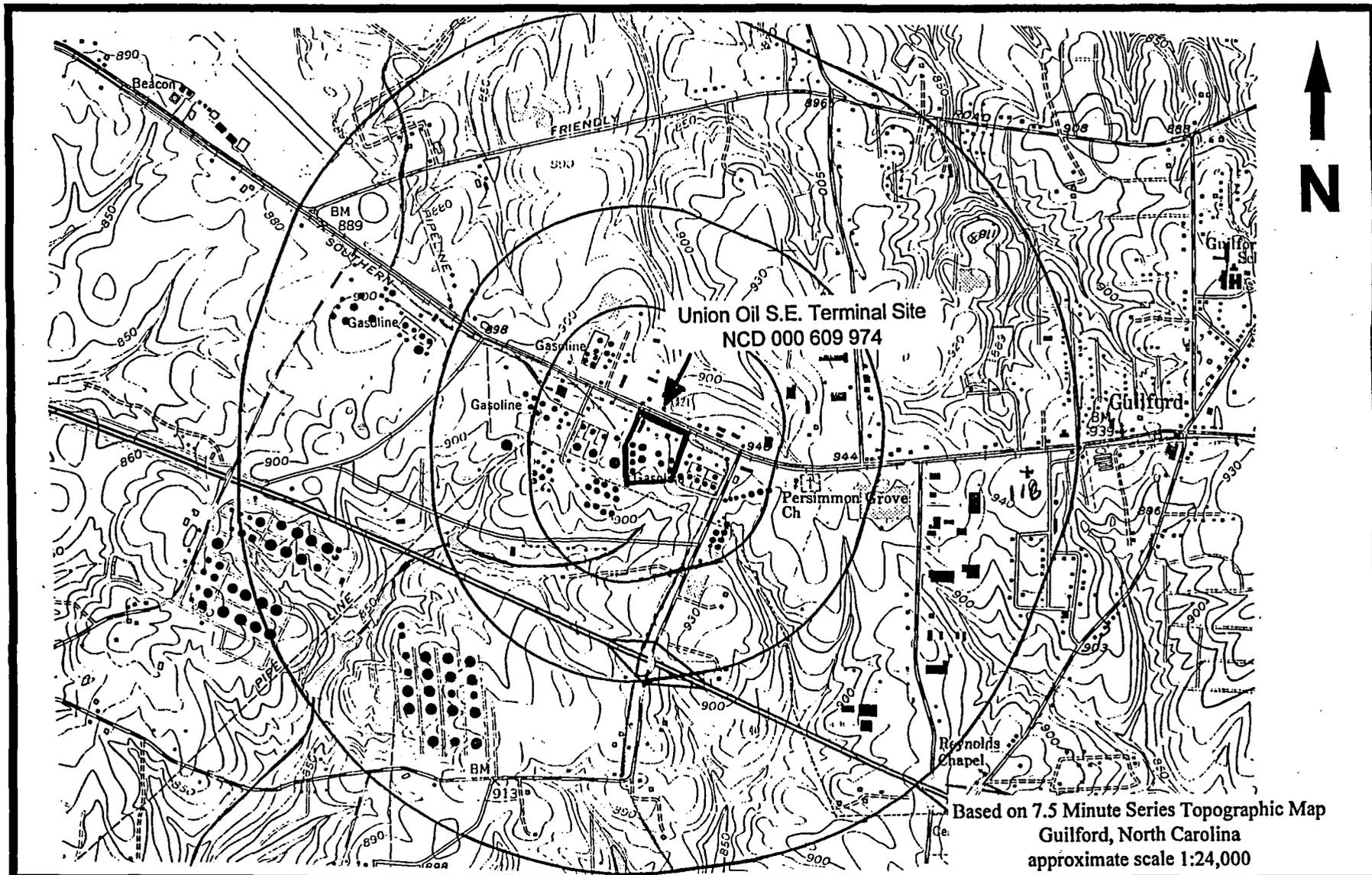
This site was initially recommended for further action based on the downstream fishery and surface water intakes for the Cities of High Point and Jamestown located 6 miles downstream. If any site contaminants are detected within the sediments or aqueous samples of the unnamed tributary at the PPE, the site will yield a score greater than 28.5 based on *potential* to release to a surface water intake that serves approximately 90,000 people. However, based on the location of the surface water intake 6 miles downstream and on all the site attribution issues gathered during the recent site reconnaissance, the NC Superfund Section is recommending that the site be reconsidered for a No Further Remedial Action Planned status (NFRAP). If you have any questions regarding this amended report, please contact Stephanie Grubbs at (919) 733-2801 ext. 315.

Sincerely,


Stephanie K. Grubbs
Hydrogeologist
NC Superfund Section


Jim Bateson, Head
Site Evaluation and Removal Branch
NC Superfund Section

cc: file
enclosures



TITLE: 1-Mile Radius Site Map

SITE NAME: Union Oil S.E. Terminal
LOCATION: Greensboro, Guilford County, NC
US EPA ID #: NCD 000 609 974

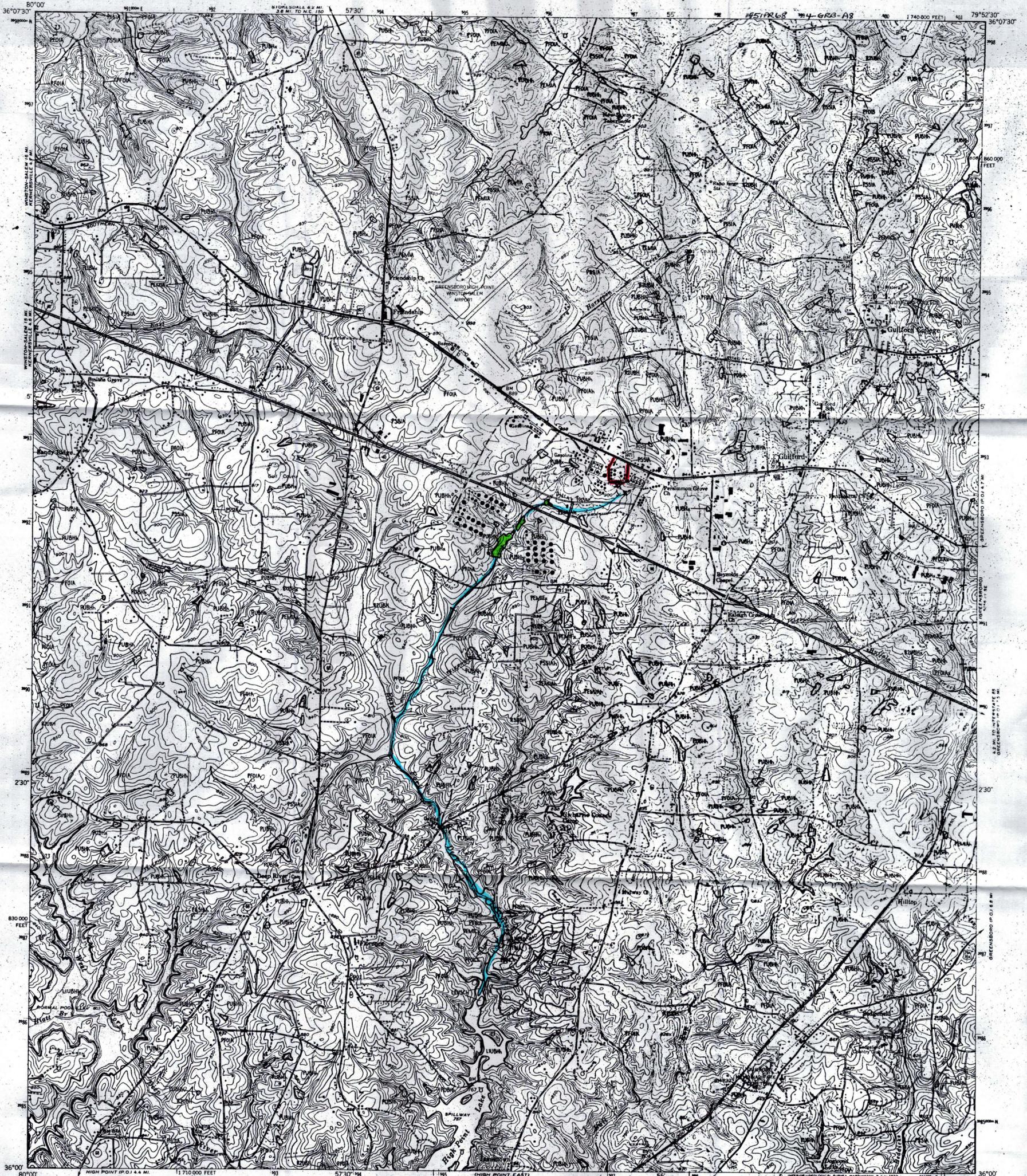
DRAWN BY: S. Grubbs
SCALE: not to scale
DATE: 04/4/02

FIGURE
1

NATIONAL WETLANDS INVENTORY

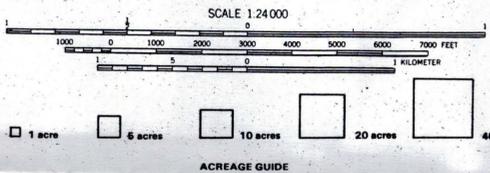
UNITED STATES DEPARTMENT OF THE INTERIOR

GUILFORD, N.C.



GREENSBORO SW
GREENSBORO

GUILFORD, N.C.



For information on availability of NWI maps, call 1-800-USA-MAPS.

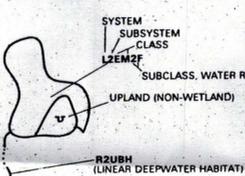
Regional Director (ARDE) Region IV
U.S. Fish and Wildlife Service
1875 Century Blvd.
Room 240
Atlanta, GA 30345

SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deepwater Habitats of the United States (FWS/OBS - 79/31 December 1979). The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

SYMBOLY EXAMPLE



NOTES TO THE USER

- Subsystems, Classes, Subclasses, and Water Regimes in italics were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE



Prepared by National Wetlands Inventory
Base map provided by the United States Geological Survey.

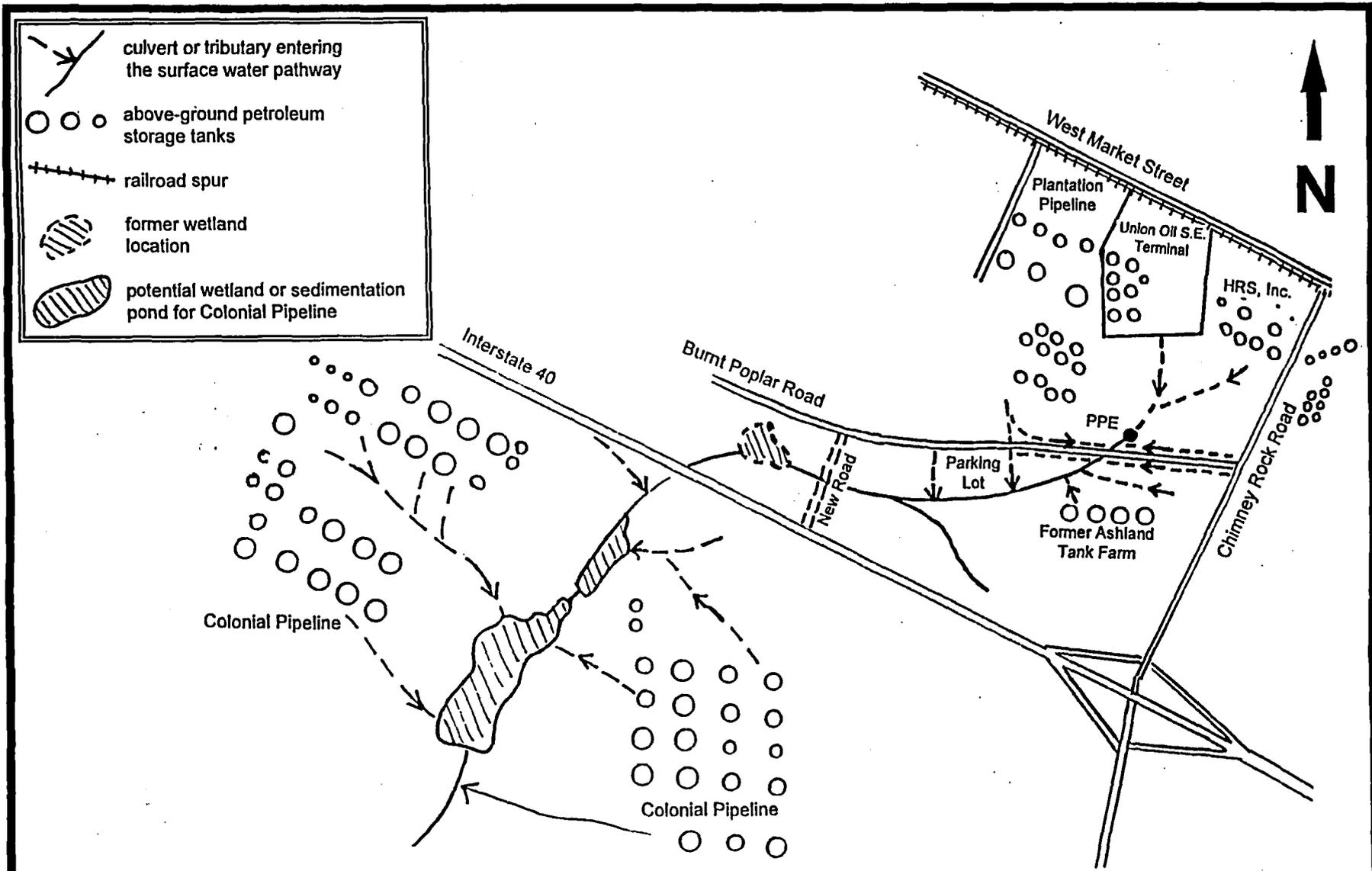
AERIAL PHOTOGRAPHY

DATE: 4/82
SCALE: 1:58,000
TYPE: CIR

1995

SYSTEM	M - MARINE	E - ESTUARINE	R - RIVERINE	L - LACUSTRINE	P - PALUSTRINE
SYSTEM	1 - SUBTIDAL	2 - INTERTIDAL	1 - SUBTIDAL	2 - INTERTIDAL	1 - TIDAL
SUBSYSTEM	US - UNCONSOLIDATED BOTTOM	AB - AQUATIC BED	US - UNCONSOLIDATED BOTTOM	AB - AQUATIC BED	US - UNCONSOLIDATED BOTTOM
CLASS	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated
CLASS	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated
CLASS	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated
CLASS	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated
CLASS	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Bedrock, 2 Rubble, 3 Mud, 4 Organic	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated	1 Algal, 2 Rooted Vascular, 3 Floating Vascular, 4 Unknown Submerged, 5 Vegetated

MODIFIERS			
WATER REGIME		WATER CHEMISTRY	
1 Temporarily Flooded	2 Permanently Flooded	1 Salinity	2 Inland Salinity
3 Seasonally Flooded	4 Intermittently Flooded	3 pH	4 pH
5 Seasonally Flooded/Exposed	6 Intermittently Flooded/Exposed	5 Conductivity	6 Conductivity
7 Seasonally Flooded/Exposed	8 Intermittently Flooded/Exposed	7 Sulfate	8 Sulfate
9 Seasonally Flooded/Exposed	10 Intermittently Flooded/Exposed	9 Chloride	10 Chloride
11 Seasonally Flooded/Exposed	12 Intermittently Flooded/Exposed	11 Nitrate	12 Nitrate
13 Seasonally Flooded/Exposed	14 Intermittently Flooded/Exposed	13 Ammonium	14 Ammonium
15 Seasonally Flooded/Exposed	16 Intermittently Flooded/Exposed	15 Other	16 Other
17 Seasonally Flooded/Exposed	18 Intermittently Flooded/Exposed	17 Other	18 Other
19 Seasonally Flooded/Exposed	20 Intermittently Flooded/Exposed	19 Other	20 Other
21 Seasonally Flooded/Exposed	22 Intermittently Flooded/Exposed	21 Other	22 Other
23 Seasonally Flooded/Exposed	24 Intermittently Flooded/Exposed	23 Other	24 Other
25 Seasonally Flooded/Exposed	26 Intermittently Flooded/Exposed	25 Other	26 Other
27 Seasonally Flooded/Exposed	28 Intermittently Flooded/Exposed	27 Other	28 Other
29 Seasonally Flooded/Exposed	30 Intermittently Flooded/Exposed	29 Other	30 Other
31 Seasonally Flooded/Exposed	32 Intermittently Flooded/Exposed	31 Other	32 Other
33 Seasonally Flooded/Exposed	34 Intermittently Flooded/Exposed	33 Other	34 Other
35 Seasonally Flooded/Exposed	36 Intermittently Flooded/Exposed	35 Other	36 Other
37 Seasonally Flooded/Exposed	38 Intermittently Flooded/Exposed	37 Other	38 Other
39 Seasonally Flooded/Exposed	40 Intermittently Flooded/Exposed	39 Other	40 Other
41 Seasonally Flooded/Exposed	42 Intermittently Flooded/Exposed	41 Other	42 Other
43 Seasonally Flooded/Exposed	44 Intermittently Flooded/Exposed	43 Other	44 Other
45 Seasonally Flooded/Exposed	46 Intermittently Flooded/Exposed	45 Other	46 Other
47 Seasonally Flooded/Exposed	48 Intermittently Flooded/Exposed	47 Other	48 Other
49 Seasonally Flooded/Exposed	50 Intermittently Flooded/Exposed	49 Other	50 Other
51 Seasonally Flooded/Exposed	52 Intermittently Flooded/Exposed	51 Other	52 Other
53 Seasonally Flooded/Exposed	54 Intermittently Flooded/Exposed	53 Other	54 Other
55 Seasonally Flooded/Exposed	56 Intermittently Flooded/Exposed	55 Other	56 Other
57 Seasonally Flooded/Exposed	58 Intermittently Flooded/Exposed	57 Other	58 Other
59 Seasonally Flooded/Exposed	60 Intermittently Flooded/Exposed	59 Other	60 Other
61 Seasonally Flooded/Exposed	62 Intermittently Flooded/Exposed	61 Other	62 Other
63 Seasonally Flooded/Exposed	64 Intermittently Flooded/Exposed	63 Other	64 Other
65 Seasonally Flooded/Exposed	66 Intermittently Flooded/Exposed	65 Other	66 Other
67 Seasonally Flooded/Exposed	68 Intermittently Flooded/Exposed	67 Other	68 Other
69 Seasonally Flooded/Exposed	70 Intermittently Flooded/Exposed	69 Other	70 Other
71 Seasonally Flooded/Exposed	72 Intermittently Flooded/Exposed	71 Other	72 Other
73 Seasonally Flooded/Exposed	74 Intermittently Flooded/Exposed	73 Other	74 Other
75 Seasonally Flooded/Exposed	76 Intermittently Flooded/Exposed	75 Other	76 Other
77 Seasonally Flooded/Exposed	78 Intermittently Flooded/Exposed	77 Other	78 Other
79 Seasonally Flooded/Exposed	80 Intermittently Flooded/Exposed	79 Other	80 Other
81 Seasonally Flooded/Exposed	82 Intermittently Flooded/Exposed	81 Other	82 Other
83 Seasonally Flooded/Exposed	84 Intermittently Flooded/Exposed	83 Other	84 Other
85 Seasonally Flooded/Exposed	86 Intermittently Flooded/Exposed	85 Other	86 Other
87 Seasonally Flooded/Exposed	88 Intermittently Flooded/Exposed	87 Other	88 Other
89 Seasonally Flooded/Exposed	90 Intermittently Flooded/Exposed	89 Other	90 Other
91 Seasonally Flooded/Exposed	92 Intermittently Flooded/Exposed	91 Other	92 Other
93 Seasonally Flooded/Exposed	94 Intermittently Flooded/Exposed	93 Other	94 Other
95 Seasonally Flooded/Exposed	96 Intermittently Flooded/Exposed	95 Other	96 Other
97 Seasonally Flooded/Exposed	98 Intermittently Flooded/Exposed	97 Other	98 Other
99 Seasonally Flooded/Exposed	100 Intermittently Flooded/Exposed	99 Other	100 Other



TITLE: Detailed surface water pathway map

SITE NAME: Union Oil S.E. Terminal
 LOCATION: Greensboro, Guilford County, NC
 US EPA ID #: NCD 000 609 974

DRAWN BY: S. Grubbs
 SCALE: not to scale
 DATE: 04/4/02

FIGURE
 3



Reference 1



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF WASTE MANAGEMENT

May 25, 2000

JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

WILLIAM L. MEYER
DIRECTOR

Ms. Jennifer Wendel
NC Site Management Section Chief
EPA Region IV Waste Division
61 Forsyth Street, SW 11th Floor
Atlanta, Georgia 30303

RE: Site Re-Assessment Report
Union Oil Company, S.E. Terminal Site
NCD 000 609 974
Greensboro, Guilford County, North Carolina

Dear Ms. Wendel:

The Union Oil S.E. terminal is located on the western side of Greensboro, NC (Figure 1). The site was purchased by Gulf Oil Company in 1980 and in 1985 purchased by Standard Oil of Ohio. The current owner, as of the 1992 Site Inspection (SI), is British Petroleum Oil (Reference 1). The site is a tank farm consisting of four tanks with a combined capacity of 185,000 barrels inside one bermed area and seven tanks with a combined capacity of 331,000 barrels in the second bermed area. The wastes generated are American Petroleum Institutes (API) slop oil solids, API separator sludge, and leaded tank bottoms.

According to the Site Inspection, Union Oil Company first entered the North Carolina RCRA program on August 14, 1980 (Reference 1). The facility filed a Part A application for a Hazardous Waste Permit on November 7, 1980. Union Oil Co. was deleted as a treater, storer, and disposer under RCRA on March 4, 1982. Union Oil Co. was in full compliance with generator standards during an inspection on March 23, 1982. On March 30, 1984, the facility's interim status was terminated. The site was again found in compliance during a generator inspection in October 1987. The facility is currently listed as a generator under RCRA and was granted a National Pollutant Discharge Elimination System (NPDES) permit, which expired June 30, 1981.

A Preliminary Assessment conducted in January 1985 recommended the site proceeded to a Phase I Screening Site Inspection (SSI) on a low priority basis (Reference 2). In 1990, a Phase I SSI was conducted and numerous drinking water



1646 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1646
401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
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wells, one within 100 feet from the facility, were observed (Reference 3). The report also made comments regarding the site's surface water pathway, stating that the site drains 1,000 feet southwest into an unnamed tributary which flows for 0.25 miles to Long Branch (Figure 1). Long Branch flows for another 2.75 miles and empties into the Deep River. The Deep River then flows for 1.5 miles into High Point Lake, which discharges back into the Deep River. The City of High Point obtains its water supply from an intake located in the Deep River, 6.8 miles downstream of the facility. The Jamestown Water Department obtains its water from the treatment facility on the Deep River 10.1 miles downstream from the facility. The City of Greensboro obtains its water from Lake Townsend, Lake Higgins, and Lake Brandt, all of which are located upstream of the site. Based on the information collected, the site was then recommended for a Phase II SSI on a medium priority basis.

The Phase II investigation was conducted by the NC Superfund Section in 1992 (Reference 1). This investigation also referred to the surface water pathway as of concern due to the fact that two surface water intakes are located along the 15-mile pathway. During the Phase II, groundwater monitoring wells were sampled at the site. These wells contained acetone, benzene, toluene, xylenes_(total), naphthalene, 2-methylnaphthalene, several BNA TIC's and two VOA TIC's, as well as calcium, lead, manganese, and sodium. The site lies within the Carolina Slate Belt which consists of fractured metamorphic bedrock, granite, gabbro, and diorite, overlain by an interconnected saprolite layer.

As of October 1999, Gene Moa with the Environmental Health Division of the Guilford County Health Department stated that there was one well within the North Market Street and Highway 421 area and that the well had served a mobile home park (Reference 4). This well is now unused and the community is supplied municipal water. The well was sampled in 1998 and no contaminants were detected. The Guilford County Health Department works under a Memorandum Of Agreement (MOA) with the Division of Water Quality to conduct the Greenboro tank farm investigations.

The surface water pathway, as described previously, had not been sampled during either of the Phase I or Phase II investigations. According to the SI, no wetlands, sensitive environments or habitats occur along the 15-mile surface water pathway (Reference 1).

Although, the surface water pathway is of concern based on the surface water intake and the fisheries located within the 15-mile target distance limit. The City of High Point serves approximately 78,000 people from the intake on High Point Lake

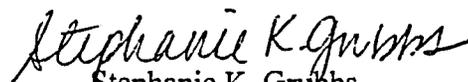
Ms. Wendel
May 31, 2000
Page 3

(or City Lake) approximately 6 miles downstream of the site (Reference 5). The Cities of Jamestown and Archdale both purchase water from the City of High Point. The City of Jamestown serves approximately 4,400 people and the City of Archdale serves another 10,000 people (Reference 5). During the 1992 SI investigation, the City of Jamestown also had a surface water intake on the Deep River but has subsequently discontinued the use and the city currently purchases water from High Point and Greensboro.

Portions of the 15-mile pathway are also fisheries. The unnamed tributary that drains the site is not a fishery. The SI stated that downstream of the tributary, the Long Branch and the Deep River are lightly fished and High Point Lake is heavily fished (Reference 1). High Point Lake is approximately 4.5 miles downstream of the site.

Previously the site was recommended for no further action (Reference 6). Although upon further review of the surface water pathway the site requires additional investigation. Therefore, for purposes of site prioritization relative to other sites, the surface water pathway appears to be of great enough concern to consider further effort under CERCLA. If you have any questions, please contact me at (919) 733-2801 ext. 315.

Sincerely,



Stephanie K. Grubbs
Hydrogeologist
Special Remediation Branch
NC Superfund Section

enclosure

Reference 2



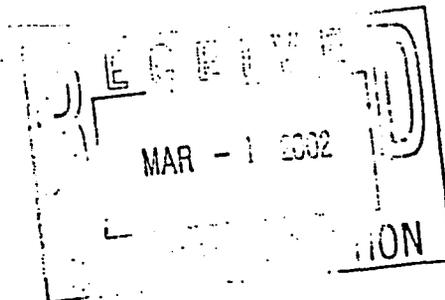
PIEDMONT GEOLOGIC, P.C.

Environmental Consultants

6003 Chapel Hill Rd., Suite 109 • Raleigh, NC 27607 • Tel: (919) 854-9700 • Fax: (919) 854-9532

February 27, 2002

Ms. Stephanie K. Grubbs
Hydrogeologist
Superfund Section
Division of Waste Management
North Carolina Department of Environment
and Natural Resources
401 Oberlin Rd., Suite 150
Raleigh, NC 27605



RE: Southeast Terminals – Greensboro
6801 W. Market St., Greensboro, North Carolina

Dear Ms. Grubbs:

This letter is in response to our meeting with Transmontaigne/BP personnel at the Southeast Terminals – Greensboro, North Carolina facility on February 26, 2002. As we discussed during the meeting, enclosed is historical property ownership information for the site property parcels, and a surface water drainage basin map for the site and surrounding area.

If you have any questions or would like any additional information, please do not hesitate to call.

PIEDMONT GEOLOGIC, P.C.

Peter J. Dressel

Peter J. Dressel, P.G.
Project Manager

Cc: Doug Hall, Transmontaigne
Jim Sligh, Transmontaigne
Don Griffin, Transmontaigne
Rebecca Kulas, BP
Ray Jarrett, BP

CHAIN OF TITLE SEARCH

SITE : Southeast Terminal
ADDRESS: 6801 W. Market Street
CITY/COUNTY/STATE: Greensboro, Guilford County, North Carolina

Property: Southeast Terminal **Property Address:** 6801 W. Market St.
Tax Map: ACL94-7029 **Block:** 960 **Subdivision:** not applicable **Lot:** 1

DATE	TYPE OF DOC.	BOOK / PAGE	GRANTOR (seller/lessor)	GRANTEE (buyer/lessee)
10/98			Louis Dreyfus Energy Corp.	Transmontaigne Product Services. Inc.
1993	deed	3976 / 1762	Union Oil of California	Louis Dreyfus Energy Corp.
1971	deed	Change of Name	Pure Oil Co.	Union Oil of California
4/6/50	deed	1332 - 600	Atlantic Refining	Pure Oil Co.
10/10/46	deed	1143 - 498	Martha Spainhour	Atlantic Refining

Property: Southeast Terminal **Property Address:** 6801 W. Market St.
Tax Map: ACL94-7029 **Block:** 960 **Subdivision:** not applicable **Lot:** 3

DATE	TYPE OF DOC.	BOOK & PAGE #	GRANTOR (seller/lessor)	GRANTEE (buyer/lessee)
1986	deed	3427 - 1976	Gulf Oil Corp.	BP Oil Inc.
4/6/50	deed	1321 - 375	Atlantic Refining	Gulf Oil Corp.
10/10/46	deed	1143 - 498	Martha Spainhour	Atlantic Refining

Property: Southeast Terminal **Property Address:** 6801 W. Market St.
Tax Map: ACL94-7029 **Block:** 960 **Subdivision:** not applicable **Lot:** 5

DATE	TYPE OF DOC.	BOOK & PAGE #	GRANTOR (seller/lessor)	GRANTEE (buyer/lessee)
1986	deed	3427 - 1976	Pure Oil Co.	BP Oil Inc.
1963	deed	1553 - 653		Pure Oil Co.
12/4/53	deed	1521 - 393	Texas Co.	Gulf & Pure Oil Co.
5/15/51	deed	1392 - 106	Trustee of Martha Spainhour	Texas Co.

CHAIN OF TITLE SEARCH

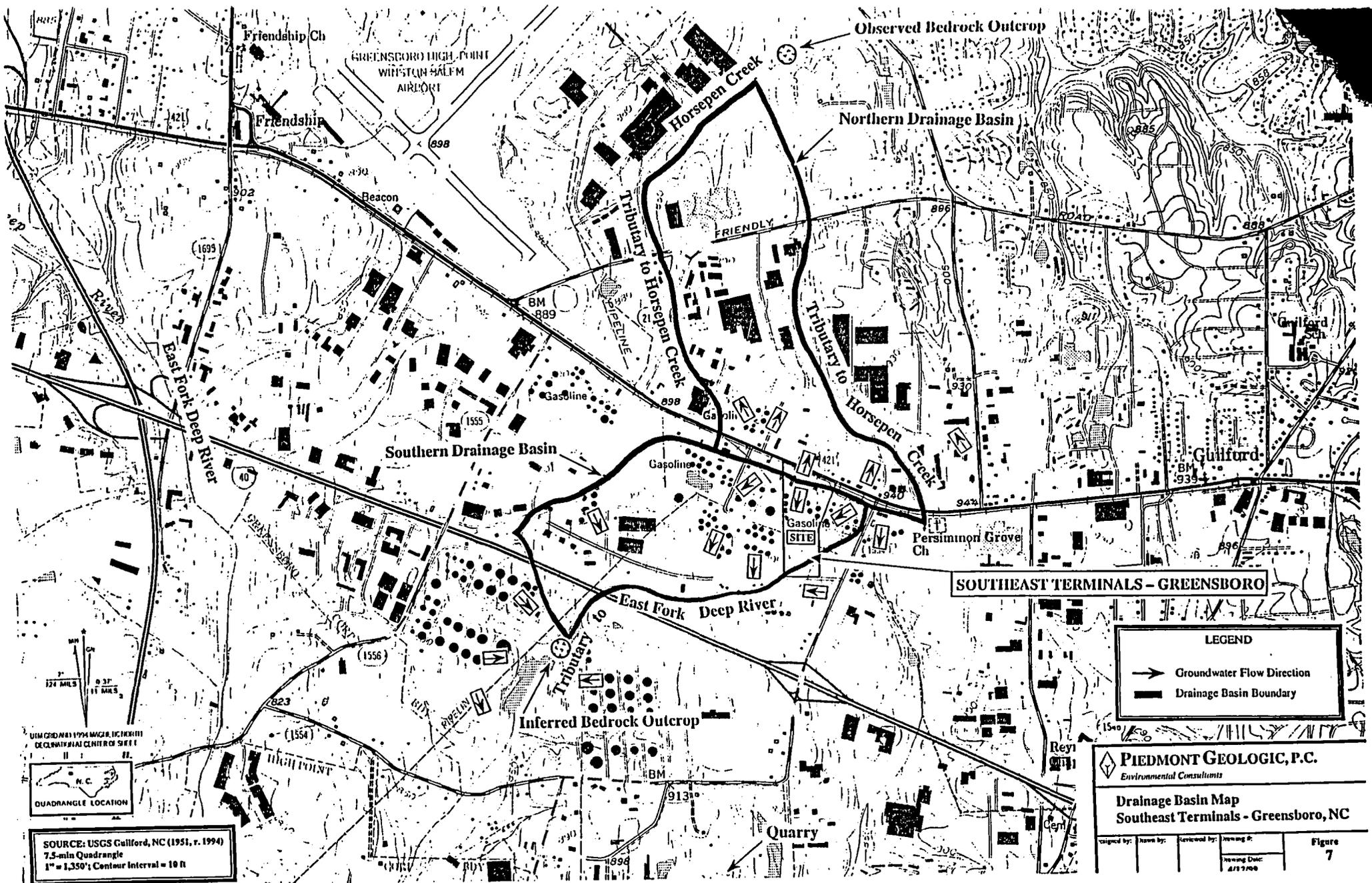
SITE : Southeast Terminal
ADDRESS: 6801 W. Market Street
CITY/COUNTY/STATE: Greensboro, Guilford County, North Carolina

Property: Southeast Terminal **Property Address:** 6801 W. Market St.
Tax Map: ACL94-7029 **Block:** 960 **Subdivision:** not applicable **Lot:** 6

DATE	TYPE OF DOC.	BOOK / PAGE	GRANTOR (seller/lessor)	GRANTEE (buyer/lessee)
10/98			Louis Dreyfus Energy Corp.	Transmontaigne Product Services, Inc.
1993	deed	3976 - 1762	Union Oil of California	Louis Dreyfus Energy
1971	deed	Change of Name	Pure Oil Co	Union Oil of California
1963	deed	1553 - 653	Gulf & Pure Oil Co.	Pure Oil Co.
12/4/53	deed	1521 - 393	Texas Co.	Gulf & Pure Oil Co.
5/15/51	deed	1392 - 106	Trustee of Martha Spainhour	Texas Co.

Property: Southeast Terminal **Property Address:** 6801 W. Market St.
Tax Map: ACL94-7029 **Block:** 960 **Subdivision:** not applicable **Lot:** 8

DATE	TYPE OF DOC.	BOOK & PAGE #	GRANTOR (seller/lessor)	GRANTEE (buyer/lessee)
10/98			Louis Dreyfus Energy Corp.	Transmontaigne Product Services, Inc.
1993	deed	3976 - 1762	Union Oil Co. of California	Louis Dreyfus Energy
1971	deed	Change of Name	Pure Oil Co.	Union Oil Co. of California
4/6/50	deed	1332 - 600	Atlantic Refining	Pure Oil Co.
10/10/46	deed	1143 - 498	Martha Spainhour	Atlantic Refining



SOURCE: USGS Cullford, NC (1951, r. 1994)
 7.5-min Quadrangle
 1" = 1,250'; Contour Interval = 10 ft

LEGEND

- Groundwater Flow Direction
- ▬ Drainage Basin Boundary

Piedmont Geologic, P.C.
 Environmental Consultants

Drainage Basin Map
 Southeast Terminals - Greensboro, NC

Designed by:	Drawn by:	Reviewed by:	Drawing #:
Drawing Date:			Figure
2/11/2006			7

Reference 3

MEMORANDUM

Date: April 2, 2002

From: Stephanie K. Grubbs *Stephanie Grubbs*
Hydrogeologist
NC Superfund Section

To: File

RE: Tanks On Site and Adjacent Properties Owners/Operators
Union Oil, S.E. Terminal, Guilford County, Greensboro

Today I spoke with Mr. Jim Sleigh with TransMontaigne Inc. regarding the capacity and number of tanks on the Union Oil property as well as to gather information about the owners/operators of the adjacent properties. He stated that there are 8 main tanks with capacities ranging from 42,600 barrels to 81,000 barrels. He also stated that 1 tank was out of service and it help approximately 3000 gallons. Mr. Sleigh stated that the property to the east was owned by High Rise Service, Inc. or HRS Inc. He stated that they had approximately 8 large above-ground petroleum storage tanks. The property to the west of the Union Oil facility was owned and operated by Plantation Pipeline, Inc., formerly the Shell Oil distribution facility.

Reference 4



State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

September 29, 1992

Mr. Craig Benedikt
EPA NC CERCLA Project Officer
EPA Region IV Waste Division
345 Courtland Street, NE
Atlanta, Georgia 30365

RE: Phase II, Screening Site Investigation
Union Oil Company, S.E. Terminal
Greensboro, Guilford County, North Carolina
NCD 000 609 974

Dear Mr. Benedikt:

Enclosed herewith is the Phase II, Screening Site Investigation (SSI) by the North Carolina Superfund Section for Union Oil Company, S.E. Terminal, (NCD 000 609 974).

The North Carolina Superfund Section is recommending that the site proceed to the Expanded Site Investigation stage on a medium priority basis.

If you have any questions, please contact me at 919-733-2801.

Sincerely,

A handwritten signature in cursive script, appearing to read "Harry Zinn".

Harry Zinn
Environmental Engineer
Contracts Management Branch
NC Superfund Section

HZ\gj

Enclosure

cc: Dexter Matthews
file

EXECUTIVE SUMMARY

Union Oil Company, S.E. Terminal began operations in 1929. It was purchased by Gulf Oil Company in 1980. In 1985 the facility was purchased by Standard Oil of Ohio. In 1990 British Petroleum Oil became the current owner. The site is a tank farm consisting of four tanks with a combined capacity of 185,000 barrels inside one bermed area and seven tanks with a combined capacity of 331,000 barrels in a second bermed area. The Union Oil Company, S.E. Terminal entered the North Carolina RCRA system on August 14, 1980. Union Oil Company was deleted as a treater, storer, and disposer under RCRA in 1982 and is currently listed as a generator. The hazardous wastes currently generated are, American Petroleum Institutes (API) slop oil solids, API separator sludge, and leaded tank bottoms.

The site lies within the Carolina Slate Belt of the Piedmont Physiographic Province, which is characterized by gently rolling topography with moderately steep slopes along the drainage ways. The slate belt consists of folded and fractured metamorphic bedrock, granite, gabbro and diorite, overlain by residual material termed saprolite. The groundwater used by some of the residents in the area is obtained from the saprolite/bedrock hydrologic system. The rest of the people obtain their drinking water from surface water intakes located both upstream and downstream from the site.

A Preliminary Assessment performed by the North Carolina Department of Environment, Health, and Natural Resources, Superfund Section recommended the site proceed on a low priority basis. Consequently, on June 13, 1992 the North Carolina Superfund Section along with NUS Corporation conducted a Phase II Site Screening Investigation.

A total of twenty six (26) environmental samples were collected at the site. Results of the sampling event indicate surface soils are contaminated with metals, soil borings are contaminated with metals and volatile organic compounds, and the shallow groundwater is contaminated with metals, volatile organic compounds, and base neutral extractable compounds. No drinking water wells were tested, however, contamination of the drinking water is suspected. No sampling of the surface water was performed, however, fisheries, surface water intakes and a recreational area located downstream from the site are suspected of being contaminated. Therefore, the North Carolina Superfund Section is recommending that the site proceed to the Expanded Site Investigation stage on a medium priority basis.

Date: 29 September 1992

Prepared by: Harry Zinn
NC Superfund Section
NC Department of Environment, Health, and Natural Resources

Site: Union Oil Company, SE Terminal
6801 West Market Street
Greensboro, NC

EPA ID No.: NCD 000 609 974

1.0 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), and in accordance with a cooperative agreement under Section 104 of CERCLA between the US EPA and the NC Department of Environment, Health, and Natural Resources, the NC Superfund Section conducted a Site Investigation (SI) of the Union Oil Company, SE Terminal in Greensboro, Guilford County, NC. The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA or other authority, and, if appropriate, support site evaluation using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL). The investigation included reviewing previous information, sampling waste and environmental media to test preliminary assessment (PA) hypotheses and to evaluate and document HRS factors, collecting additional non-sampling information, and interviewing nearby residents. The actual sampling of the site was conducted by NUS Corporation, a Field Investigation Team (FIT) contractor for the US EPA, Region IV.

2.0 SITE DESCRIPTION AND REGULATORY HISTORY

2.1 LOCATION

Union Oil Company, S.E. Terminal is located at 6801 West Market Street in Greensboro, North Carolina. The coordinates of the site are 36° 04' 43.5" latitude and 79° 55' 24.0" longitude.

2.2 SITE LAYOUT

Union Oil Company, S.E. Terminal is located on the western side of Greensboro. The site is bordered on the north by Market Street and is surrounded on the other three sides by other Bulk Petroleum Distribution Terminals. The site is surrounded by a six foot fence topped with barbed wire. Access is via a guarded gate (Ref. 3). The site has been used as a Bulk Petroleum Distribution Terminal since 1929.

2.3 TOPOGRAPHY AND LAND USE

Union Oil Company is located west of Greensboro within the Carolina Slate Belt of the Piedmont Physiographic Province, which is characterized by gently rolling topography with moderately steep slopes along the drainage ways.

The site is located in a heavily industrialized area. It is surrounded on three sides by other Bulk Petroleum Distribution Terminals and on the fourth side by a railroad and a major road (Ref.3).

2.4 PERMIT AND REGULATORY HISTORY

Union Oil Company, S.E. Terminal first entered the North Carolina RCRA program on August 14, 1980 (Ref. 7). The facility filed a Part A application for a Hazardous Waste Permit on November 7, 1980 (Ref. 6). Union Oil Company was deleted as a treater, storer, and disposer under RCRA on March 4, 1982 (Ref. 8). Union Oil Company was in full compliance with generator standards during an inspection on March 23, 1982 (Ref. 9). On March 30, 1984 the facility's interim status was terminated (Ref. 10). The site was again found in compliance during a generator inspection on October 11, 1987 (Ref. 11). The facility is currently listed as a generator under RCRA (Ref. 7). The facility was granted a National Pollutant Discharge Elimination System permit, which expired June 30, 1981 (Ref. 6).

2.5 DESCRIPTION OF EARLIER INVESTIGATIONS

The Preliminary Assessment dated 1/22/85 recommended the site proceed to a Phase I Screening Site Inspection (SSI) on a low priority basis. The Phase I SSI recommended the site proceed to a Phase II SSI on 7/5/90.

3.0 OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

3.1 OWNERSHIP HISTORY

Union Oil Company, S.E. Terminal began operations in 1929. In 1980 the site was purchased by Gulf Oil Company. Standard Oil of Ohio became the owner in 1985 and sold the site to British Petroleum Oil in 1989. They are the present owners of the facility (Ref. 3,4).

3.2 SITE USE HISTORY

Since its formation in 1929 the site has been used as a Bulk Petroleum Distribution Terminal. The Union Oil Company receives oil from the Colonial Pipelines and distributes it to trucks and tank cars (Ref. 5).

3.3 PROCESS AND WASTE DISPOSAL HISTORY

No records exist of the waste disposal practices prior to 1980. On-site disposal of tank sludges and petroleum additives are suspected to have occurred from 1929 to 1980.

Since 1980 no on-site waste disposal has occurred. The current waste generated consist of; American Petroleum Institute (API) separator sludge, API separator slop oil, and leaded tank bottoms.

3.4 REMEDIAL ACTIONS TO DATE

No known releases or remedial actions have occurred at the site to date.

4.0 GROUNDWATER

4.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

The site lies within the Carolina Slate Belt of the Piedmont Physiographic Province, which is characterized by gently rolling topography with moderately steep slopes along the drainage ways. The slate belt consists of folded and fractured metamorphic bedrock, granite, gabbro and diorite, overlain by residual material termed saprolite.

The groundwater used by some of the residents in the area is obtained from the saprolite/bedrock hydrologic system. The rest of the people obtain their drinking water from surface water intakes located both upstream and downstream from the site. In the saprolite, groundwater occurs within intergranular pore spaces (Ref. 16, pg 4). In the bedrock, groundwater occurs within joints, fractures, and other secondary openings (Ref. 12, plate 1). The frequency, size and interconnection of both joints and fractures diminishes with depth (Ref. 16, pg 4). There are few openings at depths greater than 400 feet (Ref. 15, pg 12). The saprolite has a hydraulic conductivity of less than 1×10^{-7} cm/sec (Ref. 12). The depth to the groundwater in the site area is about 15 feet below land surface (Ref. 15).

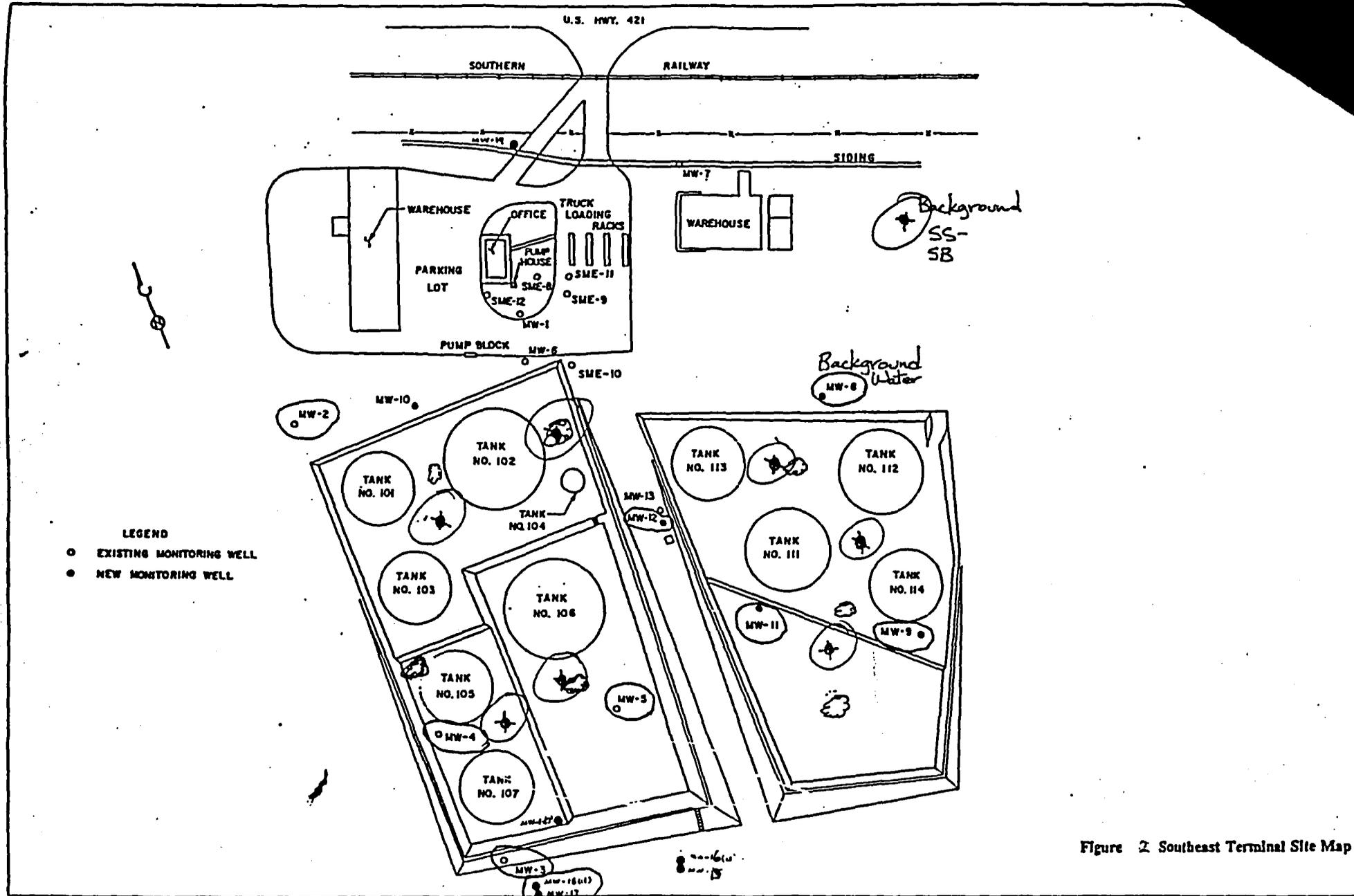
4.2 GROUNDWATER SUPPLY AND GROUNDWATER USERS

Groundwater from private wells and three community water well systems is the only source of drinking water for 3017 residents within four miles of the site (Ref. 33).

The total population using groundwater within 4 miles of the site is estimated as follows:

<u>Radius</u>	<u>Population (cum.)</u>
0-1/4 MILE	34
1/4-1/2 MILE	58
1/2-1 MILE	315
1-2 MILES	691
2-3 MILES	1738
3-4 MILES	3017

These numbers were obtained by (1) counting the houses not served by municipal systems, (2) multiply the number of houses by 2.44 (the number of residents per house for Guilford County in 1990), and, (3) adding the population served by community water systems on wells (Ref. 33). The closest well is located at the Airport Mobile Home Park, located across Market Street, approximately 200 feet, and serves 17 residents (Ref. 3).



- LEGEND**
- EXISTING MONITORING WELL
 - NEW MONITORING WELL

Figure 2 Southeast Terminal Site Map

4.3 GROUNDWATER SAMPLING AND SAMPLING RESULTS

Nine (9) groundwater samples (MW02, MW03, MW04, MW05, MW09, MW12, MW13, MW17, MW18) were obtained by NUS personnel. The groundwater samples were collected from some new and some existing monitoring wells as shown on Figure 2. There are no records of the construction of the wells or the depths. All the samples collected on the site were contained, preserved, and held in accordance with the Standard Operating Procedures (SOP).

Upon completion of the sampling event, the NUS samples were divided and the Organics were sent to Recra Environmental Inc., 8320 Guilford Rd. Building F, Columbia, MD, 21046, and the Inorganics were sent to Skinner and Sherman, 300 Second Ave., Waltham, MA, 02254. The results listed in this report reflect data validation.

MW08

This sample was collected from a well located north of Tank 112 outside of the berm, and upgradient of the areas of contamination. No VOC's or BNA's were detected in any significant concentrations. Chromium (98ppb) was the only inorganic compound detected in any concentration exceeding the U.S. EPA Maximum Contaminant Level (MCL) which is 50ppb for chromium. Since no other groundwater sample had any concentration of chromium near the MCL this will be used as a clean background sample.

MW02

This sample was collected from a well located north of Tank 101 outside the berm. No VOC's or BNA's were detected in any significant concentrations. Calcium (1500ppb) was the only inorganic compound detected in any significant concentration.

MW03

This sample was collected from a well located south of Tank 107 on the outside portion of the berm. Benzene (28ppb) was the only VOC detected in a significant concentration. No BNA's were detected in any significant concentrations. Calcium (720ppb) was the only inorganic compound detected in a significant concentration.

MW04

This sample was collected from a well located southwest of Tank 105 inside of the berm. No VOC's, BNA's or inorganic compounds were detected in any significant concentrations.

MW05

This sample was collected from a well located south of Tank 106 inside the berm. No VOC's or BNA's were detected in any significant concentrations, however two BNA TIC's were detected. Calcium (980ppb) and sodium (6100ppb) were detected in significant concentrations.

MW09

This sample was collected from a well located south of Tank 114 inside the berm. No VOC's or BNA's were detected in any significant concentrations, however one BNA TIC was detected. Manganese (960ppb) and mercury (0.74ppb) were detected in significant concentrations.

MW12

This sample was collected from a well located between the berms of the two tank areas. Acetone (68000ppb), benzene (17000ppb), toluene (32000ppb), ethylbenzene (2600ppb) and xylene_(total) (12000ppb) were the VOC's detected in significant concentrations. Two TIC's were also detected. Naphthalene (490ppb), and 2-methylnaphthalene (150ppb) were the BNA's detected in significant concentrations. Seven BNA TIC's were also detected. Calcium (400ppb) and lead (140ppb) were the inorganic compounds detected in significant concentrations.

MW13

This sample was collected from a well located between the berms and north of MW12. No VOC's, BNA's or inorganic compounds were detected in any significant concentrations.

MW17

This sample was collected from a well located south of Tank 107 outside the berm. No VOC's or BNA's were detected in any significant concentrations. Calcium (36000ppb) and sodium (7400ppb) were the inorganic compounds detected in significant concentrations.

MW18

This sample was collected from a well located in the vicinity and just north of MW17. Benzene (40ppb), toluene (110ppb) and xylene_(total) (28ppb) were the VOC's detected in significant concentrations. No BNA's were detected in any significant concentrations. Calcium (23000ppb) and sodium (8600ppb) were the inorganic compounds detected in significant concentrations.

4.4 SUMMARY OF GROUNDWATER PATHWAY CONCERN

The groundwater both inside and outside the bermed areas around the tanks have been contaminated with acetone, benzene, toluene, xylenes_(total), two VOC TIC's, naphthalene, 2-methylnaphthalene, several BNA TIC's, and calcium, lead, manganese, and sodium. The single detection of mercury is within concentration levels normally found in soils in the Eastern United States or cannot be attributed to the site. Groundwater contamination has occurred on-site. Several homes in the area utilizing the saprolite/bedrock aquifer as their source of drinking water. Drinking water contamination may have occurred. Therefore, the groundwater pathway is a pathway of concern.

5.0 SURFACE WATER

5.1 SURFACE WATER PATHWAY

Based on the USGS 7.5 minute series topographic maps (Figure 1) and on-site reconnaissance, the drainage pathway from the site has been identified. Surface water drains 1,000 feet south-southwest into a pond. No observable surface pathway connects this pond to a second pond approximately 200 feet southwest of the first pond, however, some form of connection is suspected. The second pond drains west into an unnamed tributary which flows 3.4 miles to the East Fork Deep River. The East Fork Deep River flows 1.1 miles until it enters High Point Lake. After traveling 2.3 miles through High Point Lake, it exits as Deep River and flows as such for the remainder of the 15-mile migration pathway.

5.2 CLIMATE AND METEOROLOGY

In the area of Greensboro, the mean annual precipitation is 44 inches and the mean annual evaporation is 40 inches resulting in a net annual precipitation of 4 inches (Ref. 17). The 2-year 24-hour rainfall in this area is approximately 3.75 inches (Ref. 18).

5.3 SURFACE WATER SUPPLIES AND SURFACE WATER USERS

The city of High Point obtains its water supply from an intake located on the Deep River, just below the High Point Lake dam 6.8 miles downstream from the site (Ref. 22). High Point services 32,500 connections (Ref. 32).

The Jamestown Water Department obtains its water from the Oakdale treatment facility on the Deep River, approximately 3.3 miles below the High Point Lake dam 10.1 miles downstream from the site. This system serves 1,000 residences and 150 businesses (Ref. 23).

The majority of the people in the Greensboro area are served by the Greensboro Water Department (GWD). The GWD obtains its water from Lake Townsend, Lake Higgins, and Lake Brandt, all of which are located upstream of the site (Ref. 26).

5.4 CRITICAL, SENSITIVE ENVIRONMENTS, AND FISHERIES

No wetlands, sensitive environments, or habitats for threatened or endangered species occur along the surface water pathway or within target distances of the site (Ref. 38). No wetlands occur within 15 miles downstream of the site (Ref. 37).

The unnamed tributary is not fished. East Fork Deep River and Deep River are

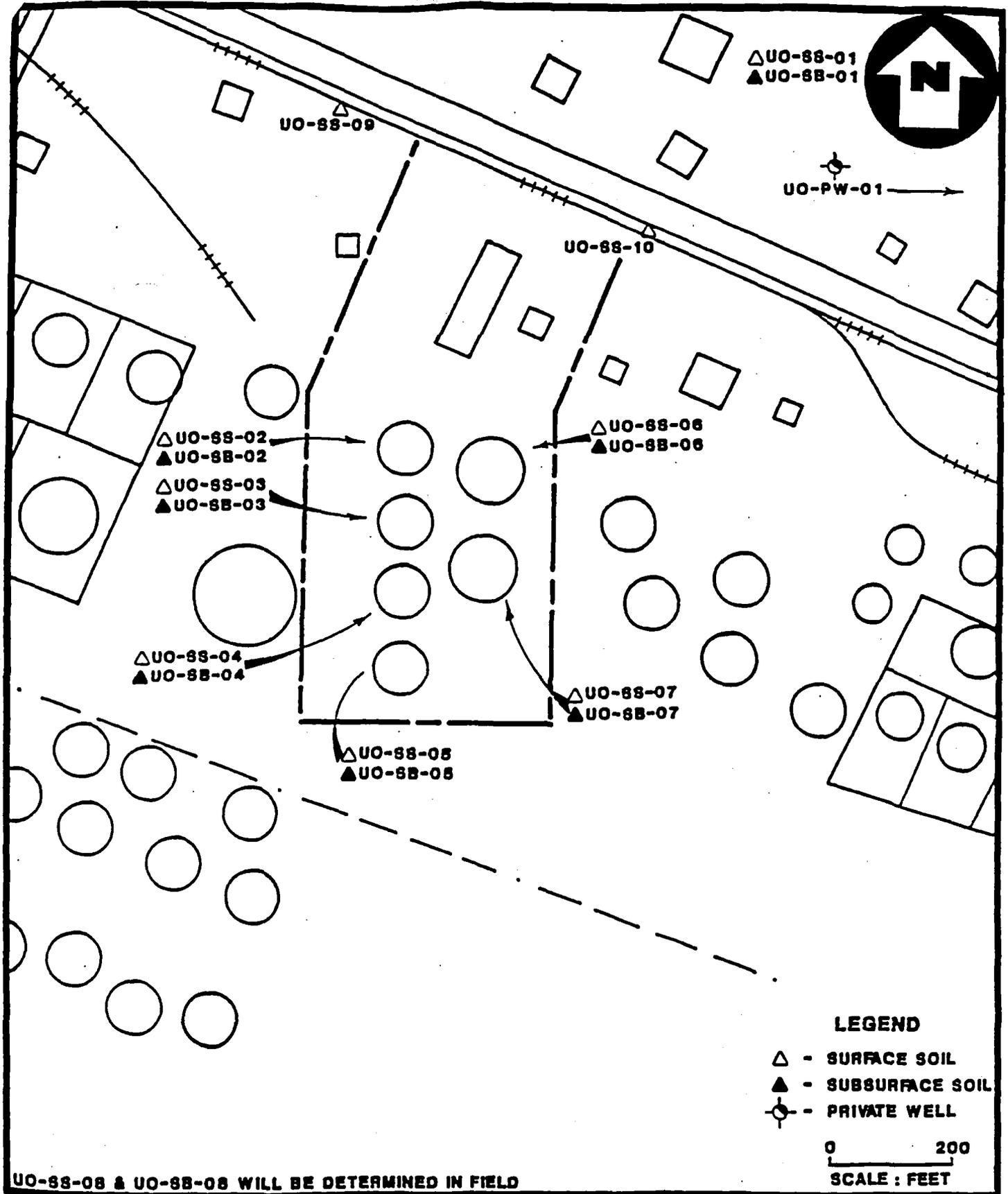
lightly fished, and High Point Lake is heavily fished for striped bass, largemouth bass, and crappie and is considered a major recreational area (Ref. 34). The site is not located in any flood plain (Ref. 25).

5.5 SURFACE WATER SAMPLING AND SAMPLING RESULTS

No surface water samples were collected during the sampling event.

5.6 SUMMARY OF SURFACE WATER PATHWAY CONCERNS

The possibility of overland runoff and/or groundwater to surface water interface leads to the suspicion of contaminated surface water and the contamination of fisheries, surface water intakes and a major recreational area downstream of the site. Therefore, the surface water pathway is a pathway of concern.



△UO-SS-01
▲UO-SB-01



UO-PW-01 →

UO-SS-09

UO-SS-10

△UO-SS-02
▲UO-SB-02
△UO-SS-03
▲UO-SB-03

△UO-SS-06
▲UO-SB-06

△UO-SS-04
▲UO-SB-04

△UO-SS-07
▲UO-SB-07

△UO-SS-05
▲UO-SB-05

LEGEND

- △ - SURFACE SOIL
- ▲ - SUBSURFACE SOIL
- ⊕ - PRIVATE WELL

0 200
SCALE : FEET

UO-SS-08 & UO-SB-08 WILL BE DETERMINED IN FIELD

BASE MAP IS AN ENLARGED PORTION OF THE U.S.G.S. 7.5 MINUTE QUADRANGLE MAP GUILFORD, NORTH CAROLINA, 1968.

**SAMPLE LOCATION MAP
UNION OIL S.E. TERMINAL
GREENSBORO, GUILFORD COUNTY,
NORTH CAROLINA**

FIGURE -3



6.0 SOIL EXPOSURE

6.1 ON-SITE POPULATION

There are currently three (3) full time employees working at the site (Ref. 28).

6.2 OFF-SITE POPULATION

The site is situated between the two high population areas of Greensboro and High Point. The population within the 1/4, 1/2, 1, 2, 3, and 4 mile radius of the site was obtained from the North Carolina Center for Geographic Information and Analysis Utilizing the 1990 U.S. Census data.

<u>Radius</u>	<u>Population (cum.)</u>
0-1/4 Mile	.36
1/4-1/2 Mile	226
1/2-1 Mile	1652
1-2 Miles	12,421
2-3 Miles	22,964
3-4 Miles	44,632

6.3 SCHOOLS AND DAY-CARE FACILITIES

No day-care facilities are near the site. The nearest school is located 1.5 miles away (Ref. 3). The nearest residence is located across Market Street 200 feet from the site in the Airport Mobil Home Park.

6.4 TERRESTRIAL SENSITIVE ENVIRONMENTS AND RESOURCES

No terrestrial sensitive environments or resource usage occurs within the area of observed contamination (Ref. 38).

6.5 SOIL SAMPLING AND SAMPLING RESULTS

Eight (8) surface soil samples (SS01-SS08), one (1) sediment sample (SD01), and eight (8) soil boring samples (SB01-SB08) were collected to characterize the site. All the samples collected on the site were contained, preserved, and held in accordance with the Standard Operating Procedures (SOP). The location of the soil sample points is shown on Figure 3, except SSO8, SB08, and SD01. There are no records of the locations that these samples were collected at.

Upon completion of the sampling event, the NUS samples were divided and the Organics were sent to Recra Environmental Inc., 8320 Guilford Rd. Building F, Columbia, MD, 21046, and the Inorganics were sent to Skinner and Sherman,

300 Second Ave., Waltham, MA, 02254. The results listed in this report reflect data validation.

SS01

This sample was taken from an area upgradient from areas of possible contamination east of the warehouse. No Volatile Organic Compounds (VOC's), Base Neutral Acid Extractables (BNA's), or Inorganic Compounds were found in any significant concentrations.

SB01

This sample was collected from the same point as SS01. No VOC's, BNA's, or Inorganic Compounds were detected in any significant concentrations.

SS02

This sample was collected from a point west of Tank 101 inside the berm. No VOC's or BNA's were detected in any significant concentrations. Nickel (40ppm) was the only inorganic compound found in a significant concentration.

SB02

This sample was collected from the same point as SS02. No VOC's or BNA's were detected in any significant concentrations. Barium (32ppm), magnesium (400ppm), and nickel (40ppm) were the only inorganic compounds found in significant concentrations.

SS03

This sample was collected from a point southwest of Tank 103 inside the berm. No VOC's, BNA's or Inorganic Compounds were detected in any significant concentrations.

SB03

This sample was collected from the same point as SS03. No VOC's or BNA's were detected in any significant concentrations. Zinc (22ppm) was the only inorganic compound found in a significant concentration.

SS04

This sample was collected from a point southwest of Tank 105. No VOC's or BNA's were detected in any significant concentrations. Arsenic (3.1Jppm), chromium (110ppm), lead (63ppm), nickel (15ppm) and zinc (46ppm) were the only inorganic compounds found in significant concentrations. The pesticide dieldrin (5.9ppb) was detected in a significant concentration.

SB04

This sample was collected from the same point as SS04. No VOC's or BNA's were detected in any significant concentrations. Barium (33ppm), and calcium

(580ppm) were the only inorganic compounds found in significant concentrations.

SS05

This sample was collected from a point west of Tank 107 inside the berm. No VOC's, BNA's or Inorganic Compounds were detected in any significant concentrations.

SB05

This sample was collected from the same point as SS05. Toluene (98ppb), ethylbenzene (140ppb), and xylenes_(total)(1500ppb) were the VOC's detected in significant concentrations. No BNA's were detected in any significant concentrations. Barium (56ppm), cobalt (16ppm), magnesium (490ppm) and nickel (8.6ppm) were the inorganic compounds detected in significant concentrations.

SS06

This sample was collected from a point east of Tank 102 inside the berm. No VOC's or BNA's were detected in any significant concentrations. Beryllium (1.2ppm), calcium (3400ppm), lead (500ppm), nickel (18ppm), potassium (1800ppm), sodium (380ppm), and zinc (370ppm) were the inorganic compounds detected in significant concentrations.

SB06

This sample was collected from the same point as SS06. No VOC's or BNA's were detected in any significant concentrations. Barium (55ppm), cobalt (21ppm), copper (110ppm), and magnesium (420ppm) were the inorganic compounds detected in significant concentrations.

SS07

This sample was collected from a point southeast of Tank 106 inside the berm. No VOC's or BNA's were detected in any significant concentrations. Lead (230ppm), potassium (690ppm), and zinc (150ppm) were the inorganic compounds detected in significant concentrations.

SB07

This sample was collected from the same point as SS07. No VOC's, BNA's or Inorganic Compounds were detected in any significant concentrations.

6.6 SUMMARY OF SOIL PATHWAY CONCERNS

Surface soils inside the bermed areas around the tanks have been contaminated with lead, nickel, and zinc. The single detections of arsenic, beryllium, calcium, chromium, sodium, and dieldrin are within concentration levels normally found in soils in the Eastern United States or cannot be attributed to the site.

Soil borings inside the bermed areas around the tanks have been contaminated with toluene, ethylbenzene, xylenes_(total), several BNA TIC's and barium, calcium, cobalt, copper, manganese, nickel, and zinc.

Because of the limited access to the site and the lack of day-care, school facilities, or residences in the area the soil pathway is not the pathway of most concern.

7.0 AIR

7.1 SURROUNDING POPULATION AND NEAREST INDIVIDUAL

The site is situated between the two high population areas of Greensboro and High Point. The population within the 1/4, 1/2, 1, 2, 3, and 4 mile radius of the site was obtained from the North Carolina Center for Geographic Information and Analysis Utilizing the 1990 U.S. Census data.

<u>Radius</u>	<u>Population (cum.)</u>
0-1/4 Mile	36
1/4-1/2 Mile	226
1/2-1 Mile	1652
1-2 Miles	12,421
2-3 Miles	22,964
3-4 Miles	44,632

The nearest residence is located across Market Street 200 feet from the site in the Airport Mobil Home Park.

7.2 SENSITIVE ENVIRONMENTS

No sensitive environments located within the four (4) mile radius have been contaminated.

7.3 AIR SAMPLING AND SAMPLING RESULTS

No air sampling was performed during the sampling event. At this time there are no known unpermitted air releases from the site.

7.4 SUMMARY OF AIR PATHWAY CONCERNS

No releases of contaminants to the air are suspected, therefore, the air pathway is not a pathway of concern.

8.0 SUMMARY AND CONCLUSIONS

Based on the analytical results of the sampling event at Union Oil Company, S.E. Terminal, the following areas have had environmental releases of hazardous contaminants that may be associated with the site:

- The groundwater both inside and outside the bermed areas around the tanks have been contaminated with acetone, benzene, toluene, xylenes_(total), two VOC TIC's, naphthalene, 2-methylnaphthalene, several BNA TIC's, and calcium, lead, manganese, and sodium.
- Surface soils inside the bermed areas around the tanks have been contaminated with lead, nickel, and zinc.
- Soil borings inside the bermed areas around the tanks have been contaminated with toluene, ethylbenzene, xylenes_(total), several BNA TIC's and barium, calcium, cobalt, copper, manganese, nickel, and zinc.

No air releases have been documented, therefore, the air pathway is not the pathway of most concern. Groundwater contamination has occurred on-site and with several homes in the area utilizing the saprolite/bedrock aquifer as their source of drinking water, therefore, drinking water contamination may have occurred. The possibility of overland runoff and/or groundwater to surface water interface leads to the suspicion of contaminated surface water and the contamination of fisheries, surface water intakes and a major recreational area downstream of the site. Therefore, the groundwater and the surface water pathways are the pathways of most concern. The North Carolina Superfund Section recommends that Union Oil Company, S.E. Terminal proceed to the Expanded Site Investigation (ESI) phase on a medium priority basis.

REFERENCES
Union Oil Company SE Terminal
NCD 000 609 974

1. U.S. Environmental Protection Agency, 1990. Hazard Ranking System; Final Rule. 55 FR 51532, December 14, 1990.
2. U.S. Environmental Protection Agency, 1991. Superfund Chemical Data Matrix (SCDM). Office of Solid Waste and Emergency Response. Directive 9345.1-13. Revised semi-annually.
3. NUS Corporation Field Logbook No. F4-1878 for Union Oil Corporation, S.E. Terminal, TDD No. F4-8911-76. Documentation of facility reconnaissance, December 11, 1989.
4. EPA General Information (EPA Form 3510-1) and Hazardous Waste Permit Application (EPA Form 3510-3) for Union Oil Corporation, S.E. Terminal, Greensboro, North Carolina. Filed by R.E. Wohlgemuth, Vice-President, Northern Region, November 7, 1980.
5. RCRA Inspection Report for Union Oil Corporation, S.E. Terminal, Greensboro, North Carolina. Filed by J.H. Deakins, District Sanitarian, August 25, 1982.
6. Potential Hazardous Waste Site Preliminary Assessment (EPA Form 2070-12) and attachments for Union Oil Corporation, S.E. Terminal. Filed by Lee Crosby and D. Mark Durway, North Carolina Department of Human Resources, January 22, 1985.
7. Jim Edwards, Compliance Officer telephone conversation with Joan Dupont, NUS Corporation, March 14, 1990. Subject: RCRA information.
8. O.W. Strickland, Head, Solid and Hazardous Waste Management Branch, Environmental Health Section, letter to B.L. Swinney of the Gulf Oil Corporation, March 4, 1982. Subject: RCRA information.
9. J.H. Deakins, Waste Management Inspector, memorandum to O.W. Strickland, Head, Solid and Hazardous Waste Management Branch, March 23, 1984. Subject: RCRA information for Union Oil Corporation, S.E. Terminal.
10. O.W. Strickland, Head, Solid and Hazardous Waste Management Branch, Environmental Section. Letter to John T. Ross of Union Oil Corporation, S.E. Terminal, March 13, 1984. Subject: Permit information.
11. Generator Inspection Form Park 262, Union Oil Corporation, S.E. Terminal, Greensboro, North Carolina. Inspection date: October 17, 1989; obtained from state files.
12. The North Carolina Geological Survey and John M. Parker, III in accordance with the State Geologic Map Advisory Committee, Geologic Map of North Carolina, (1985).

13. M.J. Mundorff, Geology and Groundwater in the Greensboro Area, North Carolina, Bulletin Number 55, (Raleigh: USGS. 1948),pp. 23, 76-78, plate 1.
14. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Guilford County, North Carolina, December 1977), p.1.
15. Charles C. Daniel, III and N. Bonar Sharpless, Groundwater Supply Potential and Procedures for Well Site Selection, Upper Cape Fear River Basin, (USGS, 1983), pp. 7, 11-12, 38, 59.
16. Edwin O. Floyd and Richard R. Peach, An Appraisal of the Groundwater Resources of the Upper Cape Fear River Basin North Carolina, Groundwater Bulletin Number 20, (USGS and the North Carolina Office of Water and Air Resources, 1974), pp. 3-4, 6, 17).
17. U.S. Department of Commerce, Climatic Atlas of the United States (Washington, D.C.: GPO, June 1968) Reprint: 1983, National Oceanic and Atmospheric Administration, p.63.
18. U.S. Department of Commerce, Rainfall Frequency Atlas of the United States, Technical Paper No. 40 (Washington, D.C.: GPO, 1961).
19. Charles C. Daniel, III, Statistical Analysis Relating Well Yield in Construction Practices and Siting of Wells in the Piedmont and Blue Ridge Provinces of North Carolina, Water Resources Investigations Report 86-4132, (Washington, D.C.: GPO, 1987),pp.9-10.
20. U.S. Environmental Protection Agency, Uncontrolled Hazardous Waste Site Ranking System: A Users Manual (HW-10), originally published in the July 16, 1982, Federal Register (Washington, D.C.: GPO, 1984) p.15.
21. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of North Carolina: Greensboro, North Carolina 1951 (Photorevised 1968), Summerfield, North Carolina 1969, Guilford, North Carolina 1951 (PR 1968), scale 1:24,000.
22. Wayne Slayton, Water and Sewer Supervisor, Telephone conversation with Michael Profit, NUS Corporation, May 3, 1988. Subject: Water and intakes in the High Point area.
23. John Frezell, Town Manager, telephone conversation with Eric Corbin, NUS Corporation, May 18, 1989. Subject: Water and intakes in the High Point area.
24. Fishing information for North Carolina City Lake Fishing in the Central Piedmont, North Carolina Wildlife Resources Commission, Revised September 1985.
25. Federal Emergency Management Agency, Flood Insurance Rate Map City of Greensboro, North Carolina, Community-Panel Number 375351 0009C, revised September 30, 1988.

26. Don Grubbs, Guilford County Water Department, Greensboro, North Carolina, telephone conversation with Joan Dupont, NUS Corporation, May 9, 1988. Subject: Water information.
27. North Carolina Center for Geographic Information and Analysis (CGIA). Population Table for site.
28. Memo to File from Harry Zinn on October 16, 1992. Present number of employees at Union Oil SE Terminal.
29. North Carolina Natural Heritage Program Element List for Guilford County, June 21, 1989.
30. Memo to File from Harry Zinn on October 16, 1992. Child Day Care Facilities in Vicinity of Union Oil Camp.
31. Memo to File from Harry Zinn on October 14, 1992. Current Coverage of the Greensboro Water Supply System.
32. Memo to file from Harry Zinn on October 15, 1992. Greensboro and High Point Water System's Sources.
33. North Carolina Dept. of Public Health, Public Water Supply Section. Print out of public water systems in the vicinity of Union Oil Company, SE Terminal.
34. Memo to File from Harry Zinn on October 15, 1992. Fisheries on the Deep River.
35. US Geological Survey Water Data Report NC-88-1. Water Resources Data, North Carolina, Water Year 1988.
36. US Dept. of Agriculture, Soil Conservation Service, October 1989, Hydric Soils of North Carolina.
37. US Department of Agriculture, Soil Conservation Services, December 1977, Soil Survey of Guilford County, NC.
38. Memo to File from Harry Zinn on October 14, 1992. Sensitive Environments in the Vicinity of Union Oil SE Terminal.
39. Memo to Superfund Section from Hal Bryson, August 17, 1992. Update on status of Well Head Protection Programs in North Carolina.

Reference 5

PRELIMINARY ASSESSMENT

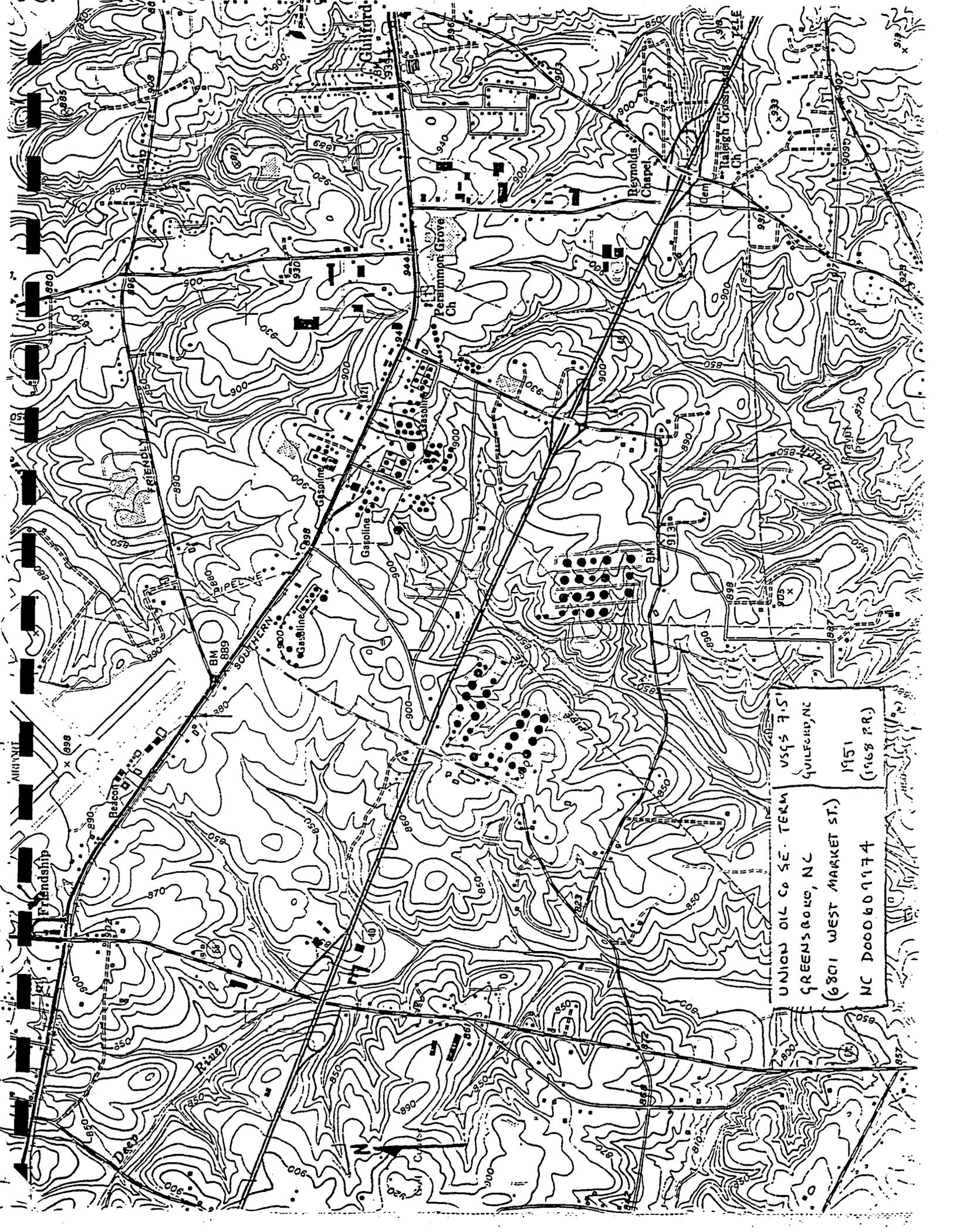
Union Oil Company, SE Terminal

Greensboro, Guilford County, North Carolina

NCD 000 609 974

CERCLA

January 1985



USGS 7.5'
 GUILFORD, NC
 1951
 (1958 PR.)

UNION OIL CO SE. TERM
 GREENSBORO, NC
 (6801 WEST MARKET ST.)
 NC D00060774

Reference 6



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

C-586-7-0-2

July 5, 1990

RCRA

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

Date: _____
Site Disposition: _____
EPA Project Manager: _____

Subject: Screening Site Inspection, Phase I
Union Oil Company, S.E. Terminal
Greensboro, Guilford County, North Carolina
EPA ID No. NCD000609974
TDD No. F4-8911-76

Dear Mr. Hanke:

FIT 4 conducted a Phase I Screening Site Inspection at Union Oil Company, S.E. Terminal in Greensboro, Guilford County, North Carolina. The inspection included a review of EPA and state file material, completion of a target survey, and a drive-by reconnaissance of the facility and surrounding area.

Union Oil Company, S.E. Terminal, is located at 6801 West market Street in Greensboro, North Carolina. The facility is in a heavy industrial area; a trailer park is located across the street (Ref. 1).

Union Oil Company, S.E. Terminal, began operations in 1929, and in 1980 was purchased by Gulf Oil Company (Ref. 2). In 1985, the facility was purchased by Standard Oil of Ohio (Ref. 2). Prior to 1989, Standard Oil of Ohio sold the facility to its current owner, British Petroleum Oil (Refs. 1, 2).

Union Oil Company has four tanks with a 185,000-barrel capacity, and Gulf Oil has seven tanks with a 331,000-barrel capacity. The Union Oil Company receives oil from Colonial Pipelines and distributes it to truck and tank cars (Ref. 3).

Union Oil Company, S.E. Terminal, has maintained onsite, underground storage tanks for American Petroleum Institute (API) separator sludge (Ref. 2). The waste produced included API separator sludge, API separator slop oil, and leaded tank bottoms (Refs. 2, 4). Onsite disposal of tank sludges and petroleum additives probably occurred from 1929 to 1980 (Ref. 2). In 1982, Troy C. Griffin Oil, Inc. of Jefferson, Georgia, handled the cleanup of the tank bottoms, which were hazardous based on their ignitability (Ref. 3).

The Union Oil Company, S.E. Terminal, first entered the North Carolina RCRA system on August 14, 1980 (Ref. 5). The facility filed a Part A application for a Hazardous Waste Permit on November 7, 1980 (Ref. 4). Union Oil Company was deleted as a treater, storer, and disposer under RCRA on March 4, 1982 (Ref. 6). The facility withdrew from interim status (Ref. 5). Union Oil Company was in

Mr. A.R. Hanke
Environmental Protection Agency
TDD No. F4-8911-76
July 5, 1990 - page two

full compliance with generator standards during a compliance inspection on March 23, 1982 (Ref. 7). A Part B was not filed (Ref. 8). On March 30, 1984, the facility's interim status was terminated (Ref. 8). A generator inspection revealed no waste at the facility and no violation as of October 11, 1987 (Ref. 9). The facility is currently listed as a generator under RCRA (Ref. 5). The facility also was granted a National Pollutant Discharge Elimination System permit, which expired June 30, 1981 (Ref. 4).

Union Oil Company, S.E. Terminal, is located within the Carolina State Belt of the Piedmont Physiographic Province (Refs. 10; 11, p. 76). The area is characterized by gently rolling topography with moderately steep slopes along the drainage ways (Ref. 12). This region has a temperate climate (Ref. 13, pp. 7, 11). Total annual precipitation averages about 45 inches with a net annual precipitation of 4 inches (Refs. 14, pp. 3, 17; 15). The 1-year, 24-hour rainfall is 3 inches (Ref. 16).

The geology of the slate belt consists of folded and fractured metamorphic bedrock overlain nearly everywhere by residual material termed saprolite (Refs. 10, pp. 77, plate 1, 14, p. 3; 17). The saprolite ranges in thickness from a few feet near rock outcrops to more than 100 feet in interstream areas with an average thickness of 30 feet on most hills and ridges (Refs. 13, p. 38; 14, p. 3). Metamorphic rock types in the area include highly altered granite, gabbro, and diorite (Refs. 9; 10, p. 77, plate 1).

The saprolite and bedrock act as a single hydrologic system and there is no confining layer present between them. In the saprolite, groundwater occurs within intergranular pore spaces (Ref. 14, p. 4). In the bedrock, groundwater occurs primarily within joints, fractures, and other secondary openings (Ref. 10, plate 1). The frequency, size, and interconnection of both joints and fractures diminishes with depth (Ref. 14, p. 4). There are few open fractures at depths greater than 400 feet (Ref. 13, p. 12).

The saprolite has a hydraulic conductivity of less than 10^{-7} cm/sec and acts as a reservoir which slowly feeds water into the underlying bedrock (Refs. 14, pp. 3, 6; 18). It is also the unit from which most domestic water supplies in the region are obtained (Ref. 10, pp. 23, 77-78). The water is supplied to both dug and bored wells that are completed within the saprolite at, and just below, the water table (Ref. 10, pp. 77-78). The depth to the water table in the site area is about 15 feet below land surface (Ref. 13, pp. 7, 59).

Surface water drains 1,000 feet southwest into a pond. Although there is no surface water pathway continuing from the pond, there may be an outlet which drains into another pond. This pond is located 200 feet southwest of the first pond and drains west into an unnamed tributary. The tributary flows 2 miles to the East Fork Deep River, then it goes into the High Point Lake. It continues 6 miles to the Deep River to complete the 15-mile migration pathway (Ref. 19).

The city of High Point obtains its water supply from an intake located in the Deep River just below the High Point Lake dam (Ref. 20). High Point serves the population of 62,000 (300,000 connections) within the city limits and is branching out to serve other areas between High Point and Greensboro (Ref. 19). The intake for this facility is 6 miles downstream from the facility (Ref. 18).

The Jamestown Water Department obtains its water from Oakdale treatment facility on the Deep River. This intake is located 5 miles downstream from the facility and serves 1,000 residents and 150 businesses (Ref. 21). Lake Brant and High Point Lake are known for the fishing and recreation (Ref. 22). There is no flood plain near the facility (Ref. 23).

Mr. A.R. Hanke
Environmental Protection Agency
TDD No. F4-8911-76
July 5, 1990 - page three

The city of Greensboro and nearby areas receive municipal water from the Guilford County Water Department (GCWD). GCWD serves about 66,000 accounts. The water is obtained from Lake Townsend, Lake Higgins, and Lake Brandt. Guilford County has two raw water lines. Water from Lakes Brandt and Higgins is treated at Mitchell, and water from Lake Townsend is treated at Townsend. After the treatment, the different water lines are connected (Ref. 24). These lakes are not affected by the facility's surface water drainage. Residents not served by municipal water receive water from private wells. A house count on a topographic map of the study area revealed about 139 homes that use private wells within 3 miles of the facility. There are an additional 90 homes between 3 and 4 miles that utilize private wells. The actual house count may be larger considering the ages of the topographic maps (Ref. 19). Most wells in the Greensboro area are approximately 150 feet deep (Ref. 24). The nearest well is located approximately 100 feet from the facility in a trailer park on West Market Street. The nearest resident is 50 feet from the facility. There are about seven trailers in the park that use the community well (Ref. 1).

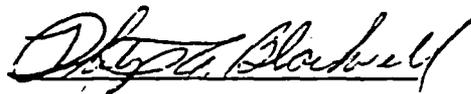
Union Oil Company, S.E. Terminal, is surrounded by many other oil companies. The facility's tanks are diked. The Union Oil Company is not accessible because it is surrounded by a 6-foot fence with barbed wire. There is a railroad track facing West market Street, a guarded gate, and posted warning signs (Ref. 1). The population within 1 and 4 miles of the facility is approximately 318 and 30,243, respectively (Refs. 25, 26). There are no day-care centers or schools near the area (Ref. 1). There are no sensitive environments within the 4-mile radius (Ref. 19). The plant Nestronia umbellula and the Greensboro burrowing crayfish (Cambarus cataquius) are state-designated threatened species found in Guilford County (Ref. 27).

Based on the results of this evaluation and the presence of two surface water intakes, FIT 4 recommends that a Phase II SSI be conducted at Union Oil Company, S.E. Terminal on a medium-priority basis. If you have any comments or questions about this Phase I SSI, please contact me at NUS Corporation.

Very truly yours,

Approved:

Simonia Delaine
Project Manager



SD/gwn

Enclosures

cc: Kelly Cain

Reference 7

MEMORANDUM

Date: October 8, 1999

From: Stephanie K. Grubbs *Stephanie K Grubbs*

To: File

RE: Drinking water within the immediate vicinity of the site
Union Oil, S.E. Terminal, Guilford County, Leland

Today I spoke with Gene Mao with the Environmental Health Division of the Guilford County Health Department (336-373-3771). The Guilford County Health Department works under a MOA with the Division of Water Quality to conduct the Greensboro tank farm investigations. Mr. Moa stated that there was one well within the North Market Street and Highway 421 area and that the well had served a mobile home park. This well is now unused and the community is supplied municipal water. The well was sampled last year and no contaminants were detected.

Reference 8

MEMORANDUM

Date: May 17, 2000

From: Stephanie K. Grubbs *Stephanie K Grubbs*

To: File

RE: Surface water intakes along the 15-mile surface water pathway
Union Oil S.E. Terminal, Guilford County, Greensboro

Today I spoke with Bill Frazier, Water Quality Management Laboratory Supervisor, of the City of High Point (336-883-3167). He stated that the intake for the City's water supply has not changed since 1992. The City of High Point has two surface water intakes. The primary intake is located off the East Fork Branch of the Deep River. The back-up intake, used in case of spills from the tank farms and other incidences, is located on the West Fork Branch of the Deep River. This intake is not affected by the site. Attached is a printout of an email Mr. Frazier sent to me regarding the exact location of the intakes. He also stated that approximately 78,000 people drink water from these intakes. Mr. Frazier also stated that the Cities of Jamestown and Archdale purchase water from the City of High Point.

Today I also contacted Mr. Wynne Underhill (336-454-1914) with the City of Jamestown. Mr. Underhill stated that 2,028 customers or 4,664 people drink the water obtained from City of High Point and from the City of Greensboro. He also stated that 95% of the people use the City of High Point water and 5% (mostly county residences) use the City of Greensboro water.

I also spoke with Mr. Jon Ogburn (336-431-9141) with the City of Archdale. Mr. Ogburn stated that approximately 4,000 customers or 10,000 people obtain water within the Archdale City limits.

Reference 9

MEMORANDUM

Date: February 27, 2002

From: Stephanie K. Grubbs
Hydrogeologist *Stephanie K Grubbs*
NC Superfund Section

To: File

RE: On-site Reconnaissance and Off-Site Target Search
Union Oil, S.E. Terminal, Guilford County, Greensboro

On February 26, 2002, the NC Superfund Section conducted an on-site reconnaissance (recon) of the Union Oil S.E. Terminal facility in Greensboro, NC. Harry Zinn, Kyle Hagen, and I arrived in Greensboro at the facility at 9:30 am. We met Jim Sleigh (TransMontaigne Inc.) Trey Rhodes (On-site Manager), and Pete Dressell (Piedmont Geologic). We discussed the ownership of the property since approximately 1953 and Mr. Sleigh and Mr. Dressell stated that they would send me a copy of the site history as they knew it. They also stated that they had no knowledge of any prior disposal practices at the property before BP or TransMontaigne purchased the property.

We then began the on-site tour at the location of the tanks where the samples were collected during the 1992 Phase II Site Screening Investigation. We noted all the previous sampling locations and decided to duplicate the sampling efforts of the past. They informed us of the cathodic protection system around the tanks and stated that they were located ~2 feet deep in a random configuration (no grid) around the tanks. They stated that there were 2 sets (old and new) to ground the tanks and prevent erosion. We then proceeded to investigate the drainage of the site and the overland flow pathway to the probable point of entry (PPE). The entire Union Oil S.E. Terminal facility discharges to a location (intermittent drainage ditch) via several stormwater drains. This is also the discharge location for the groundwater remediation system currently under a NPDES permit. Several feet downgradient of this discharge location is the discharge location for the adjacent property owned by High Rise Service, Inc. (HRS Inc.). Further downgradient along the drainage path the ditch becomes perennial (location of the site PPE) at a major roadway, Burnt Poplar Road. The drainage from Burnt Poplar as well as the major roadway east of the site, is diverted to this location at the site's PPE. After the unnamed tributary crosses under Burnt Poplar via a culvert, another drainage ditch that parallels the road enters the tributary. Several feet downstream from this convergence is another branch entering the pathway. This branch flows into the tributary via a culvert and drains the former Ashland Tank farm. This facility is now abandoned but the tanks are still in place. Downstream of the Ashland attribution location, the petroleum bulk distribution plant of Plantation Pipeline, Inc. (formerly Shell Oil) discharges into the unnamed tributary. Plantation Pipeline is the bulk distribution facility west of Union Oil S.E. Terminal.

At approximately 11 am we left the site to meet another property owner at a site being investigated by Kyle Hagen. We decided to meet back after lunch to finish the recon and find the downstream wetland and any other downstream targets of concern.

At 1:15 pm, we meet back at the location of the PPE off Burnt Poplar Road. We followed the tributary past the Ashland convergence and the tributary was flowing directly adjacent to a parking lot that allows parking for city/county school buses and cars in need of repair. This parking lot also drains into the tributary via a ditch which was highly discolored. The pathway continues down the tributary to the approximate location of the potential downstream wetland. However, a newly developed road has been constructed at this location and the wetland is no longer an issue in the investigation. We then reviewed with the topo map with Mr. Sleight and Mr. Dressell and noted that once the surface water pathway crosses under this newly developed road, it flows south under Interstate 40 via a culvert and then past Colonial Pipeline Inc. Colonial Pipeline is another bulk petroleum distribution facility consisting of at least 54 above-ground storage tanks. The surface water pathway then flows for approximately 4.5 miles to enter High Point Lake or City Lake (the location of the surface water intake).

At 2 pm we left the site after speaking with Mr. Sleight and Mr. Dressell about the possibility of not sampling and recommending the site for No Further Remedial Action Planned (NFRAP). This recommendation would be based on the numerous sampling locations required to delineate the surface water pathway and the attribution issues associated with the other tank farms discharging to the same PPE location as well as road and bridge run-off. Original target concerns for the site include a fishery and surface water intake 6 miles downstream and a wetland 0.5 miles downstream of the PPE. The possibility of site contaminants traveling 6 miles to the fishery and intake are small as well as to attribute the metals contamination to this site surrounded by the same type of facilities adjacent to and downstream of the Union Oil facility (such as Colonial Pipeline). As well as the nearest target, the wetland, which is no longer a viable concern.


TRANSMONTAIGNE INC.

James (Jim) E. Sligh
Environmental Specialist

200 Mansell Court East
Suite 600
Roswell, GA 30076-4853

Cellular: (770) 335-5902

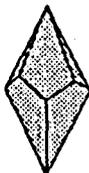
Phone: (770) 518-3500

Pager: (888) 653-3926

Fax: (770) 518-3510

Email: jsligh@atl.transmontaigne.com

Direct: (770) 518-3662



PIEDMONT GEOLOGIC, P.C.

Environmental Consultants

Peter J. Dressel, P.G.

Hydrogeologist

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(919) 854-9700 FAX: (919) 854-9532

e-mail: pjdressel@aol.com

homepage: www.citysearch.com/rdu/piedmontgeo

Union Oil SE Terminal

Feb. 26, 2002

Market Street

mostly cloudy 56°

Greensboro, NC

NCD 000 609 974

9:25 am Arrived onsite at former Union Oil Terminal currently a BP/Transmontaigne operated facility.

met with

Jim Sligh (TransMontaigne)

Pete Dressel (Piedmont Geologic)

Troy Rhodes (onsite manager)

Don Griffin

Discussed site ownership since ~1993. Mr. Sligh & Mr. Dressel said they would send me a copy of the site history and ownership.

They have no knowledge of prior disposal practices of tank bottoms on site.

Stephanie K. Gibbs 2/26/02

Stephanie K. Gibbs
 2/24/02

10 min Beach touring the tank area
 and observed the locations of
 the former samples during the 1992
 investigation.

Photo #1 (looking west) along side of
 tank area

Photo #2 (looking ~~west~~ ^{North}) along opposite
 side of tank area

Cathodic protection surrounding
 tanks @ ~ 2' depth, 2 sets
 old: new to ground the tank &
 present erosion cable that
 surrounds the tanks.

Gravel beds around perimeter of
 tanks, no grid system

Photo #3 Entire facility discharges
 to this location
 main storm H_2O from several
 drains on the property.

Stephanie K. Gibbs 2/24/02

also discharge for GW remediation system (MPDES permit)

Smaller discharge pipe to the (west) left of storm fl. pipe in the discharge for the bermed areas.

Photo #4 of ~~the~~ ^{site} BP discharge & HRS discharge converging to a culvert that drains both properties.

Photo #5 of intersection of site drainage & road run-off

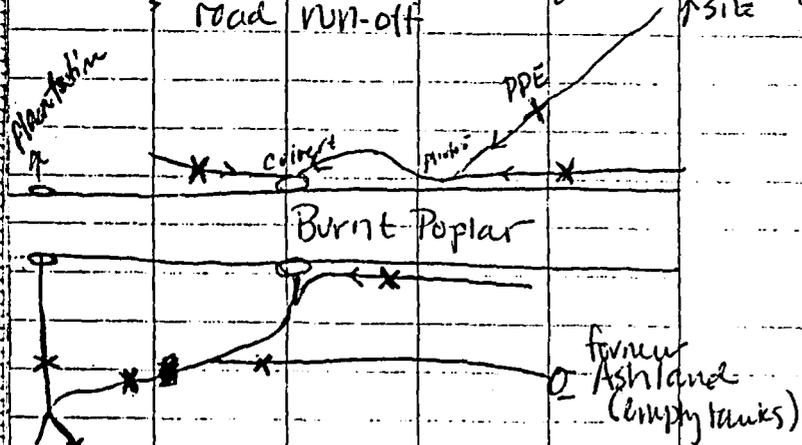


Photo #7 across Burnt Poplar

Photo #8 confluence where Ashland discharge



Stephanie Gibbs Kuper

Wells Stream

Photo #9 another convergence of storm fl. culverts from Plantation & Ashland.

11 AM Broke to meet PRPs at another site

1:15 pm met back with Pete Dressel & Jim Sligh to walk to the wetland downstream of site.

* Asked for a letter requesting sampling and for how we are representing

waded past Ashland down tributary. located another culvert plus a better one. waded past large picking led for cars - followed the tributary.

Stephanie K. Gibbs 2/24/02

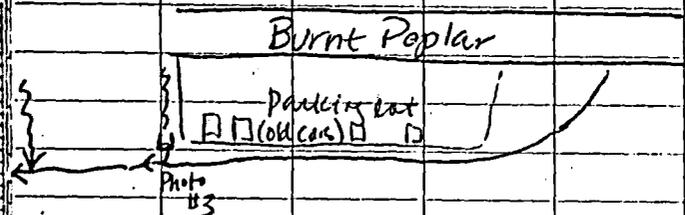


Photo #3 (roll #2) of ~~entire~~ attribution
stream past parking lot for tributary.

Attribution stream was highly discolored
orange & red.
↑ algae content in stream.

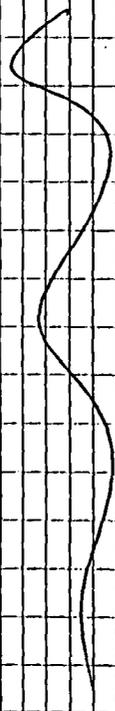
Walked to end where tributaries
converge past the wetland but no
as far as wetland on pathway.
A road was constructed between these
2 wetlands.

Spoke with PPL's consultants about site
and decided to finish recon and
decide what action to take.

Stephanie K. Gibbs 2/24/02

Wetland is gone, new road is
developed and attribution would
be a mess. Numerous (+30 samples)
would be needed to delineate ^{location}
the surface to pathway.

7:05
2 pm Left site



Stephanie K. Gibbs 2/24/02