**PA Evaluation and Scoring Exercise**
**ABC Vacuum Site Information**

## General Site Overview for Part 2

- This 13-acre site is located in Atlas Parish, Louisiana. It is currently inactive and abandoned. The Latitude is 30° 30' 18" North and the Longitude is 91° 19' 16" West.
- The site was operated as a storage tank vacuum service and petroleum drilling fluids manufacturer from 1975 to 1985. The prior history is unknown.
- Wastewater was extracted from reserve pits created during petroleum exploration and production facilities.
- The facility is believed to have transported hazardous wastes that may have been discharged into an on-site lagoon.
- The facility manufactured oil-based drilling fluids.
- The perimeter of the site is unfenced. Trespassing infrequently occurs.
- Five homes in a small subdivision are situated between 100 and 200 feet to the northwest of the site.
- The mean annual precipitation is 57 inches.

**Part 2**
**Waste Management Inspection Report**

| |
|---|
| **Date:** June 10, 1999 |
| |
| **Facility:** ABC Vacuum: EPA ID No. XYZ-123456789 |
| |
| **Location:** Atlas Parish, Louisiana |
| |
| **Owner/Operator:** ABC Vacuum Service |
| |
| **Facility Type:** Vacuum service and drilling fluids manufacturer (water and oil-based |
| |
| **Years of Operation:** 1975 to present |
| |
| **Facility Size:** Property total = 13 acres |
| |
| **Waste Management Units:** 750 sq' oxidation pond; drum storage pad with 200 |
| drums; 2 mixing tanks of 1,000 gallons each, above ground; lagoon; debris pile |
| (rubbish). |
| |
| **Waste Types:** Petroleum exploration wastewaters. Drilling fluids waste from |
| manufacturer. |
| |
| **RCRA Waste Codes:** F-wastes (non-specific hazardous wastes that are toxic, |
| ignitable, and reactive). |
| |
| **Waste Handling:** Unknown wastes reported to have been deposited in on-site |
| lagoon. |
| |
| **Noncompliance:** Drums not labeled. No records of wastes deposited in on-site |
| lagoon. |
| |
| |
| **Comments:** Allegations of hazardous wastes transported to site and discharged |
| into on-site lagoon could not be confirmed or denied. Lagoon contained an |
| undetermined volume of aqueous material. |
| |
| |
| **Inspector:** *GW Smith 1630 hours* |
| George W. Smith, Solid Waste Inspector 6/10/99 |

## Part 2
## Logbook Excerpts from Site Reconnaissance

1-2-99 by Lisa A. Lillis

0845 Perform on-site reconnaissance. Site is currently inactive. Enter site from warehouse complex road.

0850 Proceeding north/northwest from road. Observe rubbish pile due west of railroad tracks which traverses the site. The rubbish pile consists of assorted debris and is estimated to be 500 square feet in area. Continue walking east from rubbish pile.

0855 Observe area of standing rainwater east of shed and metal structure. Shed covers two-1,000 gallon mixing tanks. The tanks and metal structure are situated on one concrete pad. The metal structure is inaccessible. Adjacent to the north of this pad is a smaller, second concrete pad on which 200, 55-gallon drums are stored. Contents of the tanks and drums are not indicated.

0915 Walked north/northwest of drum pad to a lagoon. A concrete pad, shed and a series of weirs are located on the southern edge of the lagoon. A drainage ditch borders the west and south of the lagoon; flow appears to be north and east, respectively. North drainage flows into a culvert pipe. The lagoon is estimated to be 3,000 square feet, volume unknown.

0940 Walk west over railroad tracks to site warehouse building. Doors are located on the south and north facades. The facility septic tank is located to the west, outside of the warehouse. Two small concrete pads are located on the northeast and northwest corners of the north façade. An oxidation pond is observed north/northwest of the warehouse. The pond is estimated to be 750 square feet. Volume unknown. Some debris is observed in the pond.

0955 A drainage ditch is observed along the perimeter of the property. The drainage ditch is walked. The ditch appears to be intermittent, although areas of the ditch were observed to be overflowing during the reconnaissance. The ditch appears to receive all site runoff and borders the site to the north and west and south. Eventual flow is to the south into a perennial ditch approximately 6,000 feet from the site. Three areas of overflow and stained soils are observed along the northwest corner of the property. Each area is approximately 10 feet wide and are estimated at 50 feet, 20 feet, and 30 feet in length, respectively, for a total of 1,000 square feet of observed stained soils.

1030 The site perimeter is unfenced, but no evidence of trespassing was observed. Total site area is approximated to be 13 acres.

1040 Leave ABC property to complete survey of nearby targets (environs).

1050 A small subdivision of 5 houses is located between 100 and 200 feet to the north and west of the site. No schools or daycare facilities are observed within ¼ mile of the site.

1130 Environs survey completed.

**Part 2**
**Typical Chemicals Found in Petroleum Exploration and Production Wastes**

Benzene

Phenol

Benzo(a)pyrene

Arsenic

Barium

Cadmium

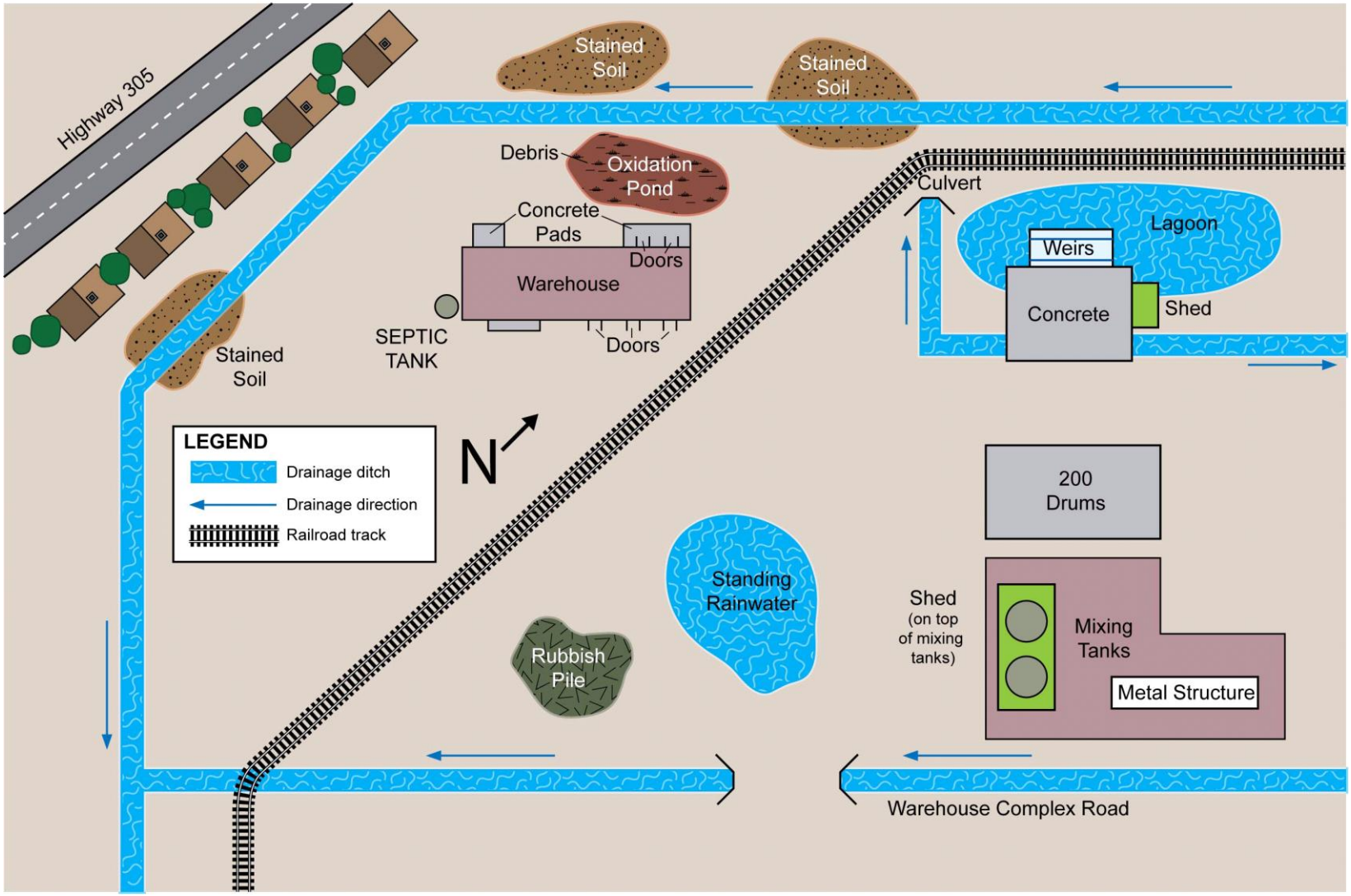
Chromium

Lead

Selenium

Trichloroethene (TCE)

# ABC Vacuum Service - Site Characterization and Sources



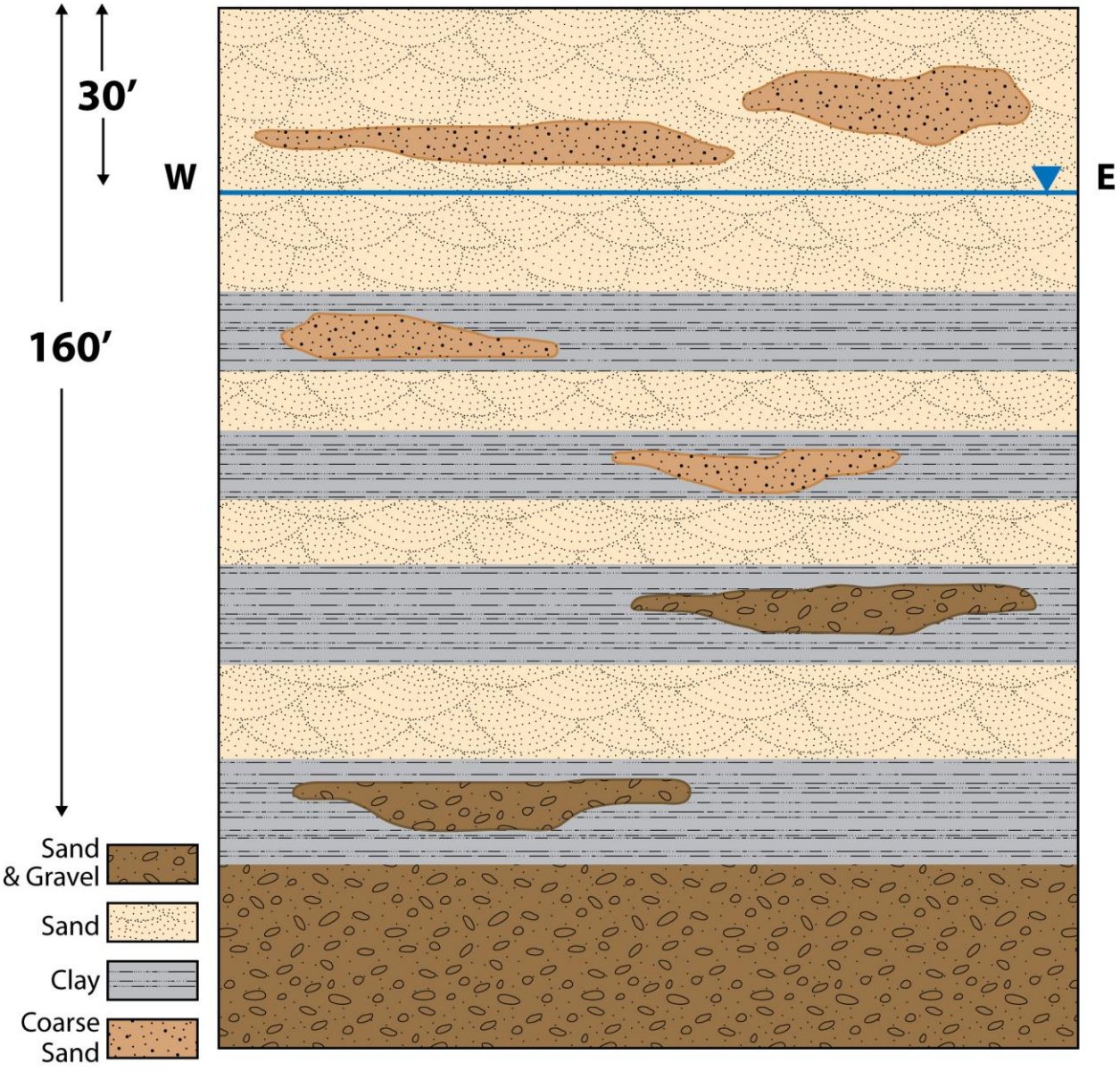
## ABC Vacuum Sources

- Drums
- Tanks
- Lagoon
- Oxidation pond
- Rubbish pile
- Ditches and contaminated soil

**ABC Site Ground Water Pathway Information**

- There are two aquifers of concern:
    - A shallow, water table aquifer (depth to water = 30 ft) that consist mainly of fine to course-grained sands and gravel
    - A deeper aquifer (depth to water = 160 ft) that consists mainly of fine to coarse-grained sands and gravel
- Five nearby residences use private wells that tap the shallow aquifer.
- No other private wells exist within 4 miles of the site.
- A blended municipal well system is present within 1 mile of the site:
    - The total population served is 8,900
    - The wells tap the deeper aquifer and are screened at approximately 195 ft
- Ground water is also used in commercial crayfish ponds.
- No wellhead protection area is located within 4 miles of the site.
- The site is not located in an area of karst terrain.
- Based on 2000 U.S. Census data, there is an average of 3.8 persons per household in Atlas Parish, Louisiana.

**Geologic Cross Section Beneath Site**



Geology of Atlas Parish, Louisiana

By Mary Clarke

U.S. Geological Survey
U.S. Department of the Interior

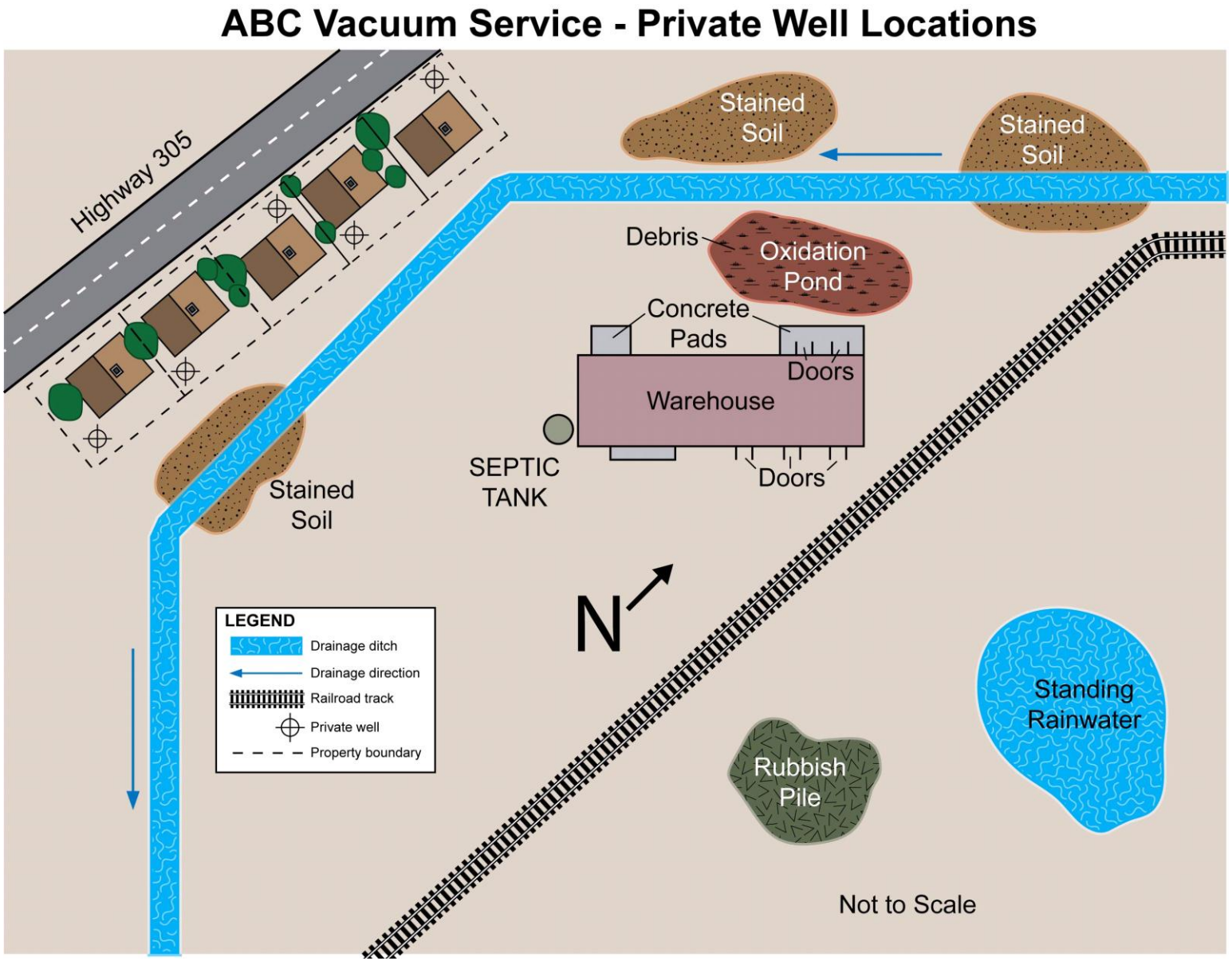
United States Government Printing Office: 1989

## HYDROGEOLOGIC SETTING

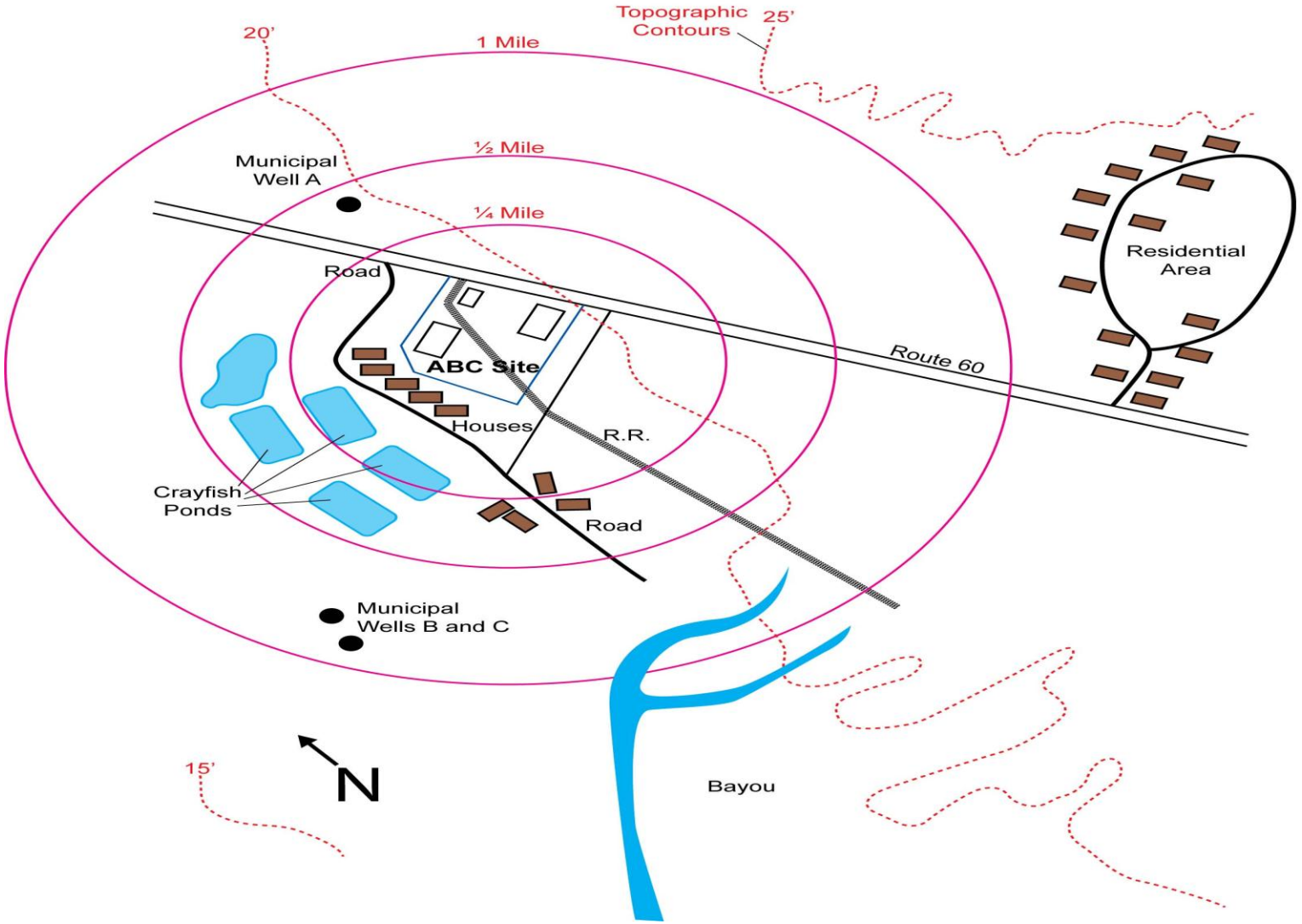
Atlas Parish is situated in the subtropical zone along the borders of the Mississippi River. Annual precipitation for this region averages 57 inches and is the major source of recharge for the aquifers of the area.

## GEOLOGIC SETTING

The Atlas Parish aquifer system consists of two aquifers of similar composition. The shallow aquifer is composed of alluvial sediments, namely fine-to-coarse grained sands, and has a depth to water of approximately 30 feet. The deeper aquifer consists mainly of fine-to-coarse grained sand and gravel with silty clay layers, with depth to water being estimated at 160 feet. As a result of these compositions, permeabilities for both aquifers are high.

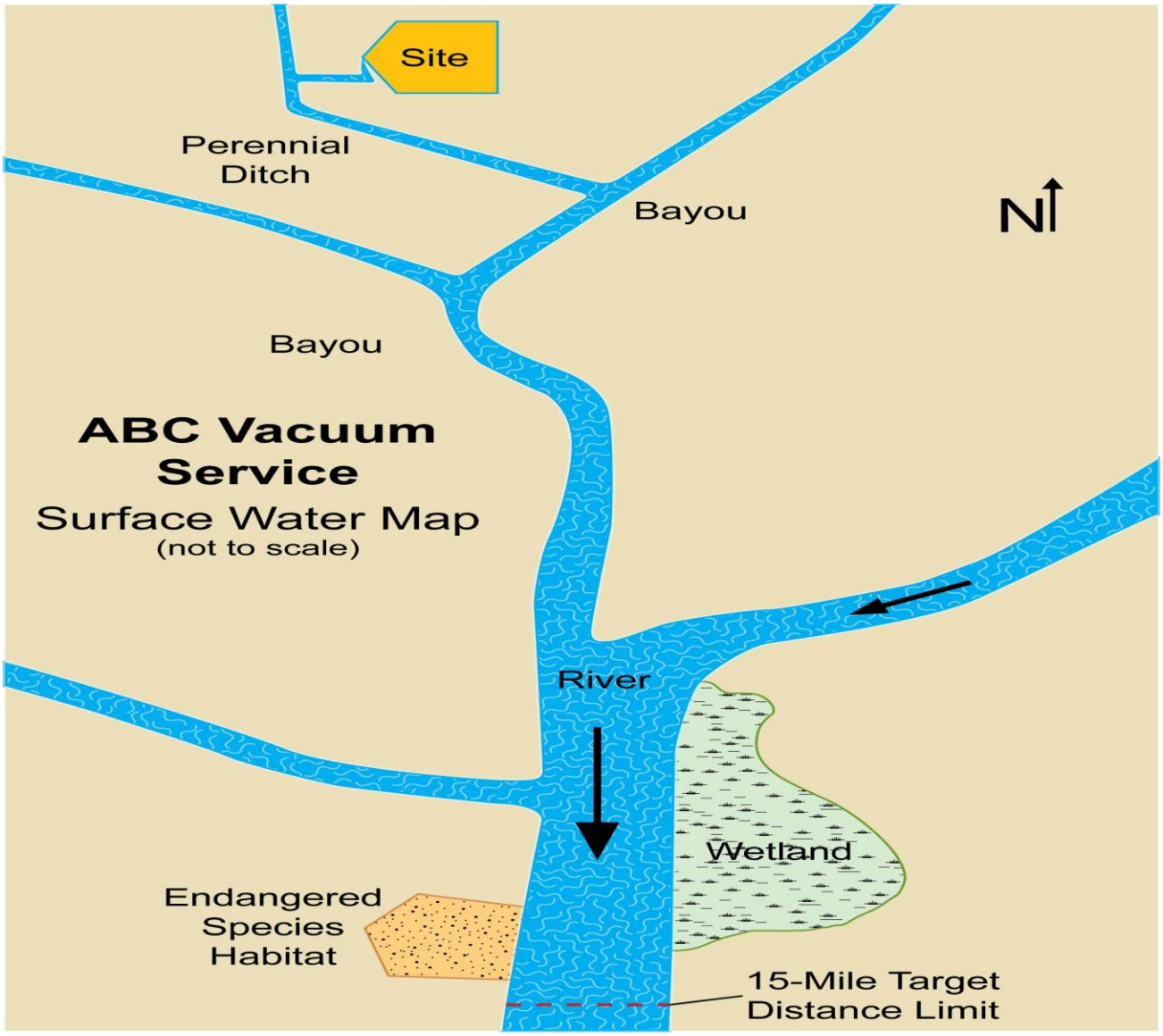

ABC Vacuum Service - Private Well Locations
Highway 305
Stained Soil
Stained Soil
Debris
Oxidation Pond
Concrete Pads
Doors
Warehouse
SEPTIC TANK
Doors
Stained Soil
N
LEGEND
Drainage ditch
Drainage direction
Railroad track
Private well
Property boundary
Standing Rainwater
Rubbish Pile
Not to Scale

# ABC Vacuum Service - Groundwater Target Distance Limits



**Part 4 – Surface Water Pathway Data:**

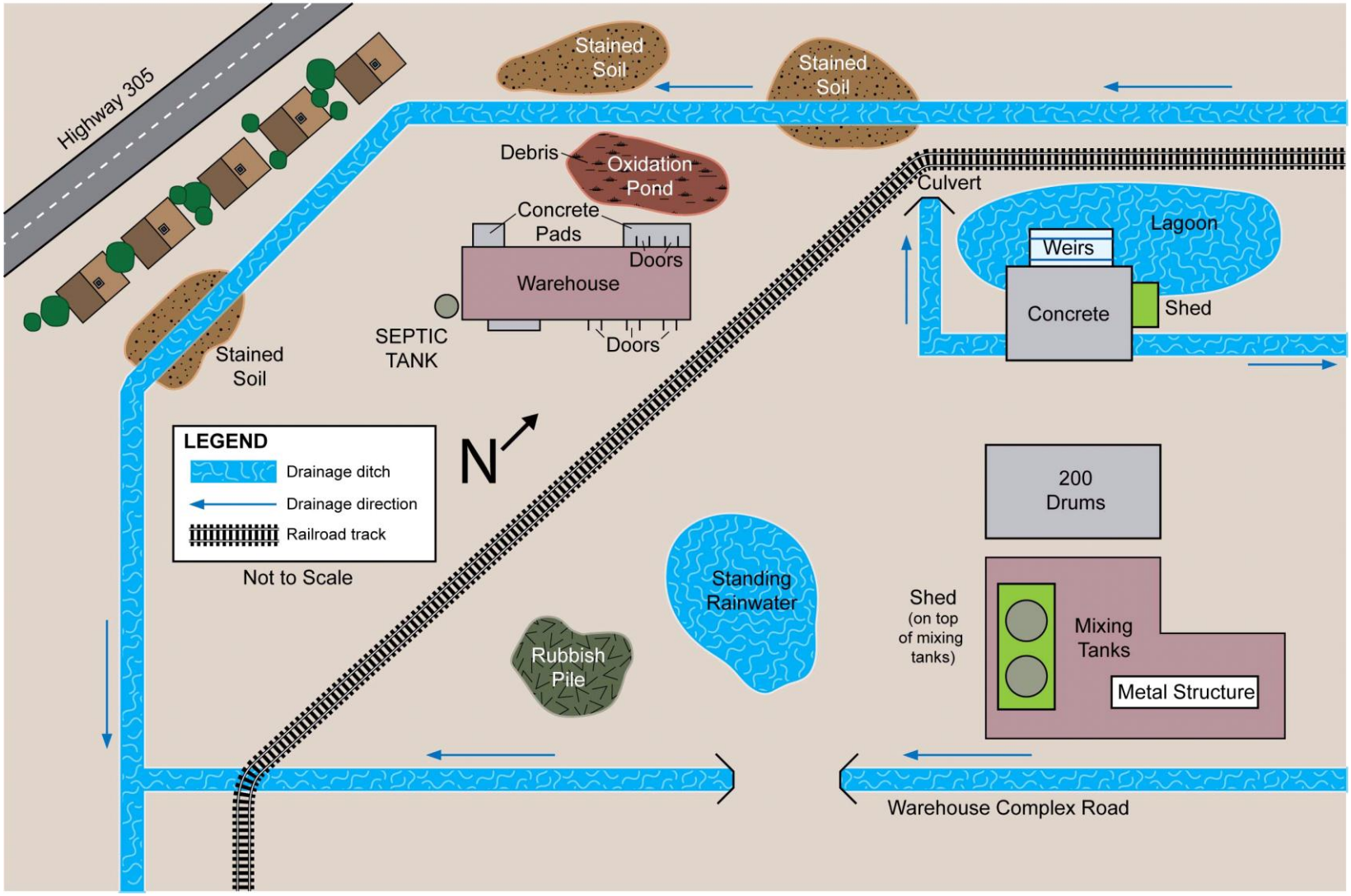
- Runoff is channeled into intermittent ditches along the perimeter of the facility.
- These drainage ditches flow 6,000 feet (1.1 miles) into the perennial ditch.
- The perennial ditch reaches the bayou 3 miles from the PPE.
- The distance between the bayou and the river is 10 miles.
- Estimated flow rates:
    - Bayou = 15 cubic feet per second (cfs)
    - River = 75 cfs
- Both the bayou and the river are used for fishing and swimming.
- There are no surface water intakes within the 15-mile target distance limit.
- The following sensitive environments are present:
    - A critical habitat for federally designated endangered species is located 14 miles downriver from the PPE.
    - A 5-acre wetland is located downriver from the site.
    - The wetland frontage equals 0.4 miles.
- The site lies within a 500-year floodplain.
- The drainage basin above the site covers about 165 acres.


Site
Perennial Ditch
Bayou
N
Bayou
ABC Vacuum Service
Surface Water Map
(not to scale)
River
Wetland
Endangered Species Habitat
15-Mile Target Distance Limit

## Soil Exposure Pathway Information

- Nineteen residents live within 200 feet of the site
- No schools or daycare facilities are within 200 feet of the site
- The site is inactive; therefore, no workers are present on-site
- Ten people are employed at the crayfish ponds
- One report indicated that the warehouse complex employs 65 people

# ABC Vacuum Service - Soil Exposure Pathway



# ABC Vacuum Service - Target Distance Limits