

# Non-Aqueous Phase Liquid

- Georgia State Rules  
Chapter 391-3-15-.09 Release Response and  
Corrective Action for UST Systems  
Containing Petroleum
- Remediate free product that exceeds one-  
eighth inch (1/8") thickness or an alternate  
thickness, as approved by EPD

# Non-Aqueous Phase Liquid

- For soil and groundwater contamination can conduct a risk-assessment
- Conduct a receptor survey

Private and public water-supply wells

Surface water bodies

Public utilities

Basements

# Non-Aqueous Phase Liquid

- Conduct a fate and transport groundwater model
- Will evaluate if there is impact to the receptor (drinking water well or surface water)
- Can calculate alternate cleanup concentrations for soil and groundwater

# Non-Aqueous Phase Liquid

- Most common remediation
  - Air sparge and vacuum extraction
  - Pump and treat
  - Mobile vacuum units

# Tennessee

- Remove free product to the maximum extent possible
- Will be implementing RBCA soon
- Has had residual free product where a risk assessment was conducted for NFAR
- Most common free product remediation is by dual-phase extraction

# Mississippi

- Remediate free product that exceeds one-eighth inch (1/8") thickness
- No risk assessments or fate and transport modeling for dissolves
- Most common free product remediation is by dual-phase extraction

# South Carolina

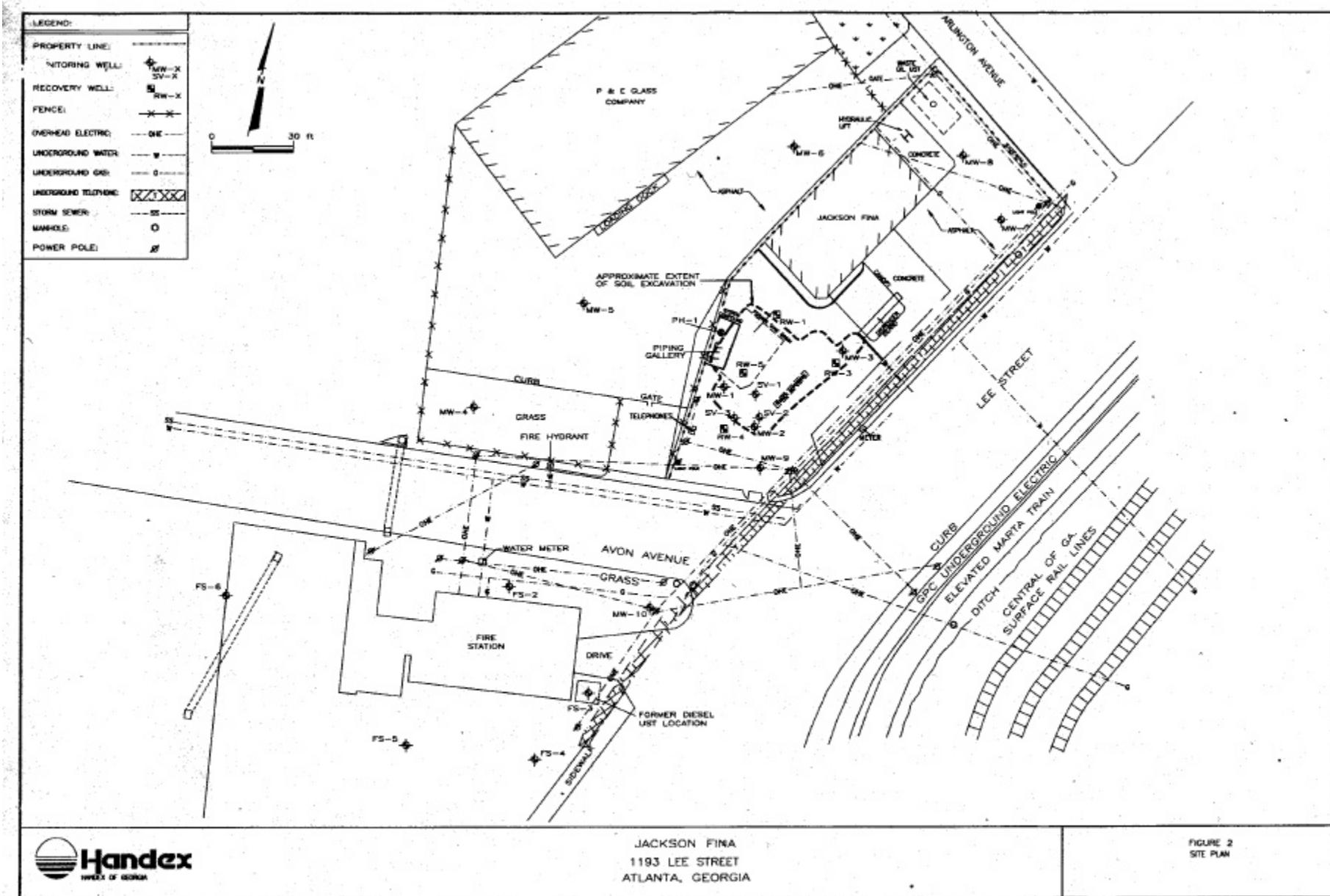
- Remediate free product that exceeds 0.01 feet
- Conduct risk assessment to evaluate receptor on each site
- Having good results with pay for performance on free product removal
- Using mobile vacuum units and SVE

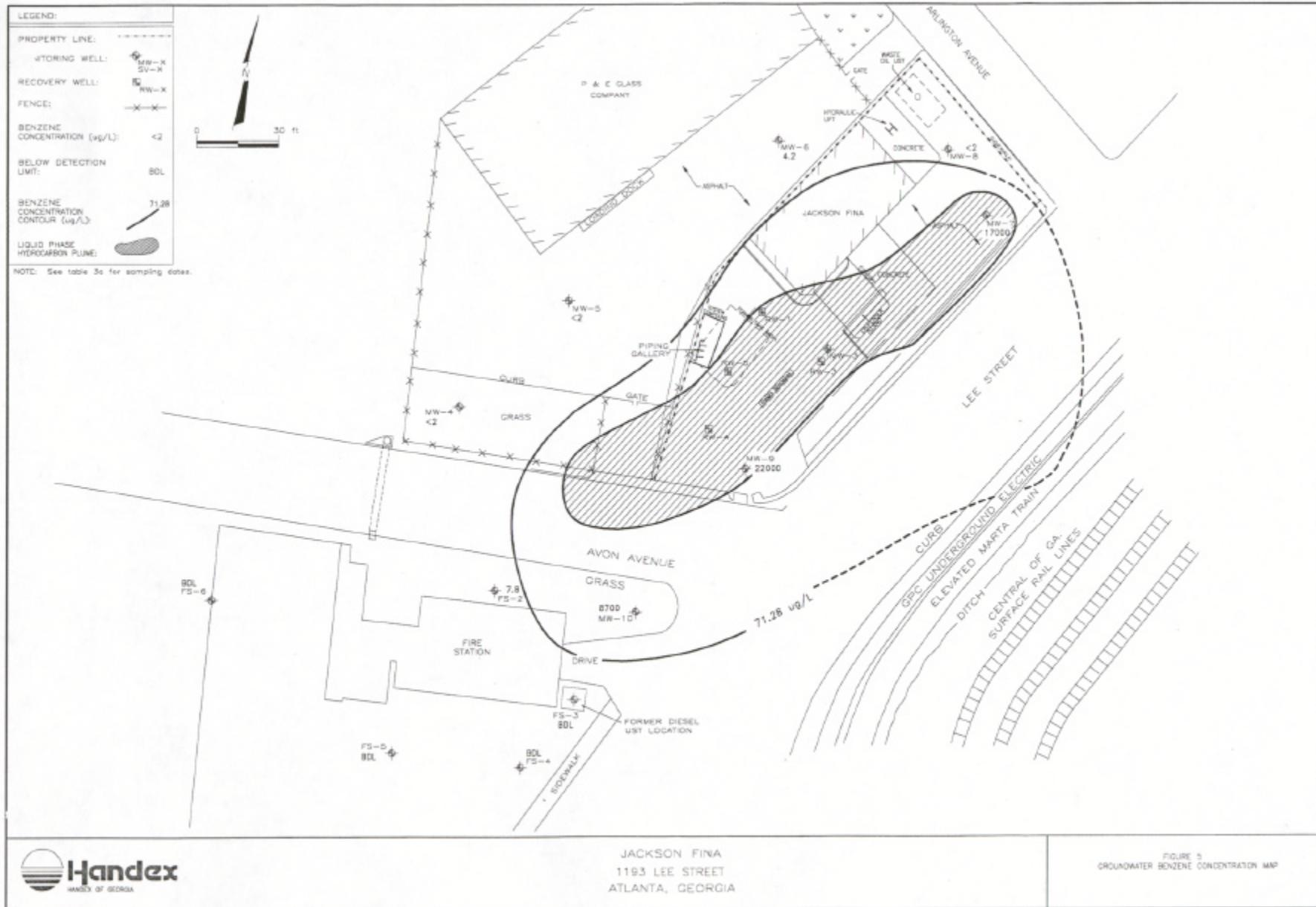
# Refineries, Pipelines, Tank Farms

- Georgia – Georgia Geological Survey
  - Default to UST regulations or Clean Water Act
- Tennessee – Solid Waste Hazardous Unit
  - Default to UST or Water Quality Act
- Mississippi – Uncontrolled Site Haz. Waste
- Kentucky – Superfund
  - Can use a risk-based cleanup

# Free Product Remediation

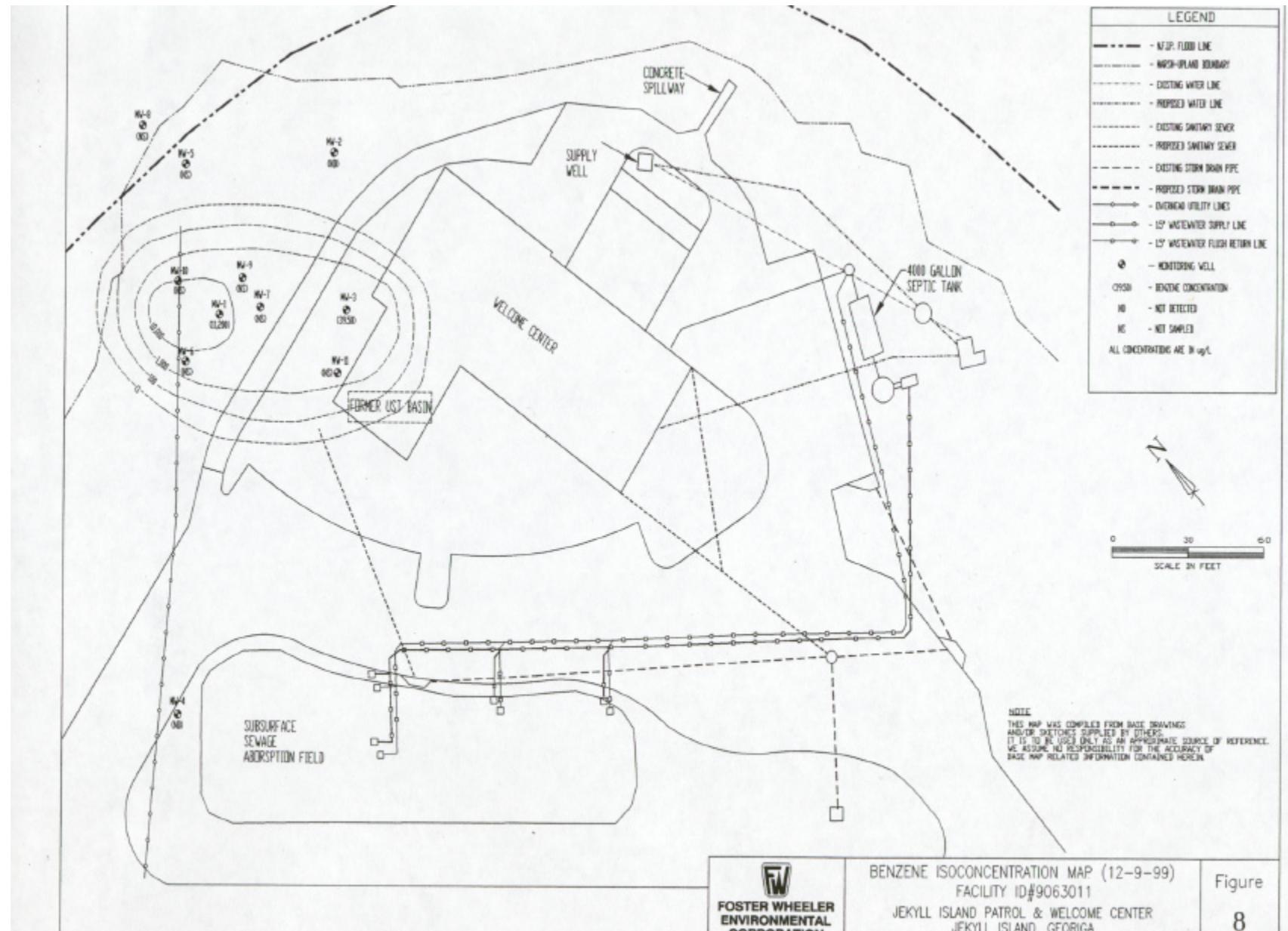
- A gasoline station from the 1930s to 1996
- February 1993 vapors migrated through the sanitary sewer into a nearby church and school
- September 1996 closure of 4 USTs
- Interim measure in 1996 and 1997, 15 EFRs
- Install 25 recovery wells and SVE





# Free Product Vapor Impact

- Reported USTs out of service for 20 years
- February 1998 closure of 3 USTs
- January 2000 free product in one well
- Vapor migration to the building crawl space
- Polyethylene sheeting and grout poured in the crawl space to act as an impermeable layer



**FW**  
FOSTER WHEELER  
ENVIRONMENTAL  
CORPORATION

BENZENE ISOCONCENTRATION MAP (12-9-99)  
FACILITY ID#9063011  
JEKYLL ISLAND PATROL & WELCOME CENTER  
JEKYLL ISLAND, GEORGIA

Figure  
8

