



Florida Department of Environmental Protection Petroleum Restoration Program

SITE ASSESSMENT

June 13, 2017





Pre-Assessment

Following should be included in Task 1 on new site assessment (no previous assessment, or new ATC on site)

- **1-1. File Review**
- 1-2. Site Health & Safety Plan
- 2-1. Site Reconnaissance/Field Measurement Visit
- 8-7. Water Level or Free Product Gauging
- (**Coming Soon**) 20-2. & 20-4. Project Manager & Geologist, 1 hour for Assessment Planning Meeting
- (**Coming Soon**) 19-20. Letter Report to summarize Assessment Planning Meeting



Pre-Assessment (File Review)

- When completing File Review, please do not rely on only the most recent report. Instead review STCM, OCULUS, & files at Local Program office (if applicable).
 - Review all site layouts
 - Well numbers and locations may have changed over time
 - Review all Well Completion Reports
 - Identify well number, diameter and total depth
 - Identify lithology
 - Review all old laboratory analytical reports
 - Many analytical results are not included in summary tables
 - Review historic depths-to-water.



Pre-Assessment (File Review Deliverable)

Historical Summary		
<i>Submit with Proposal and include appropriate Tables and Figures</i>		
Discharge History		
FDEP FAC ID #: _____	Site Name: _____	
Site Score: _____	Facility Type: _____	
List Active Tanks (ASTs/USTs & contents): _____		
First Discharge		
Discharge Date: _____	Discharge Summary <i>location/quantity etc.</i>	
Discharged Product: _____		
Eligibility Program: _____		
CAP Remaining: _____		
Second Discharge		
Discharge Date: _____	Discharge Summary <i>location/quantity etc.</i>	
Discharged Product: _____		
Eligibility Program: _____		
CAP Remaining: _____		
Third Discharge		
Discharge Date: _____	Discharge Summary <i>location/quantity etc.</i>	
Discharged Product: _____		
Eligibility Program: _____		
CAP Remaining: _____		
Assessment History		
SA Approval Date: _____	Groundwater Contaminants	Soil Contaminants
Average DTW: _____	BTEX	BTEX
1st Lithology (USCS): _____	PAHs	PAHs
2nd Lithology (USCS): _____	TRPHs	TRPHs
Land Use (plume area): _____	MTBE	MTBE
Zoning (plume area): _____	Pb	Pb
Groundwater Flow: _____	Other	Other
Private Wells: _____	Assessment Summary <i>complex lithology, free product etc.</i>	
Last Sampled: _____		
Petroleum Contamination: _____		
Public Supply Wells: _____		
Last Sampled: _____	Remedial Action History	
Petroleum Contamination: _____	Remedial Action Summary	
Remedial Action History		
RAP Order Date: _____		
RA Technology: _____		
2nd RA Technology: _____		
RA Start Date: _____		
RA End Date: _____		

- The Historical Summary worksheet (located on [LSSI/SCS Information](#) page of PRP website) serves as the deliverable for Pay Item 1-1 (File Review)



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Pre- Assessment (Site Reconnaissance)



January 26, 2013



January 17, 2014

Side by side photos from Broward County Property Appraisers office



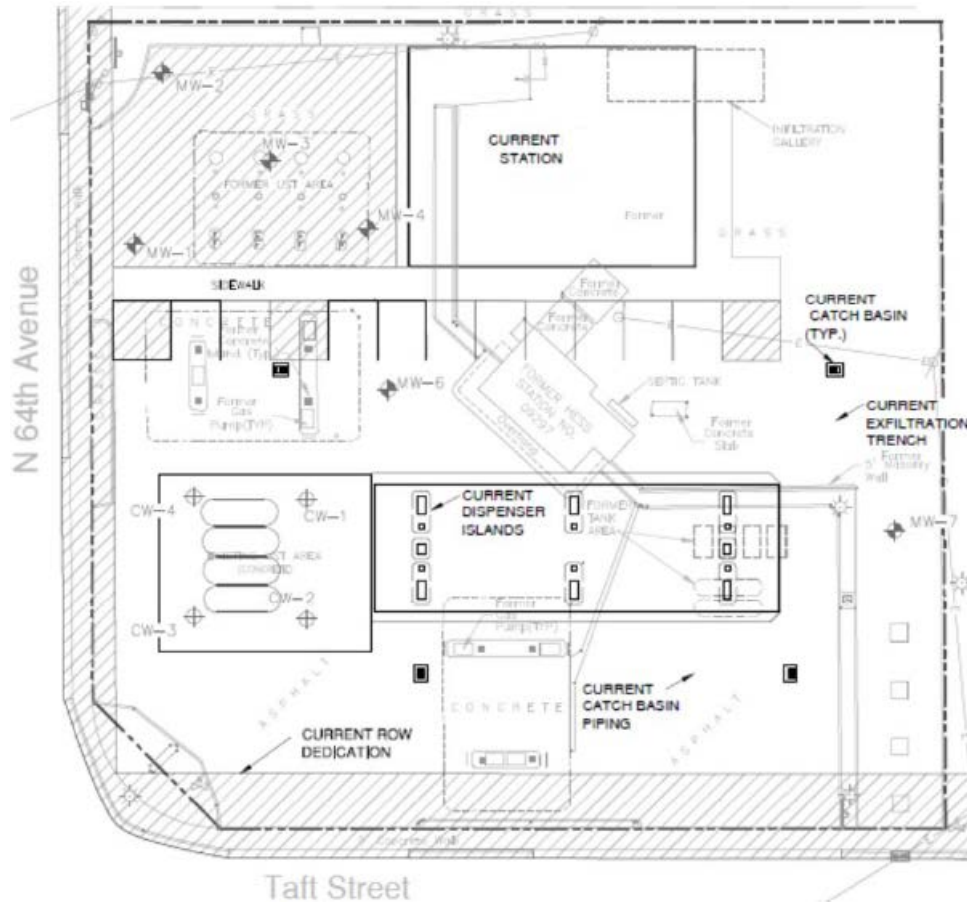
Pre- Assessment (Site Reconnaissance)

Site Reconnaissance should include the following:

- Verify site layout compared to ALL site maps if previous assessment has been performed (location of existing and any former fuel system, building, etc.).
- Verify historic monitoring wells are present and confirm that wells are viable. Consider scoping monitor well gauging pay items.
- Make note of site access for drill rigs. Overhead utilities, swales/drainage ditches, traffic, etc.
- Take numerous photos to document site conditions.



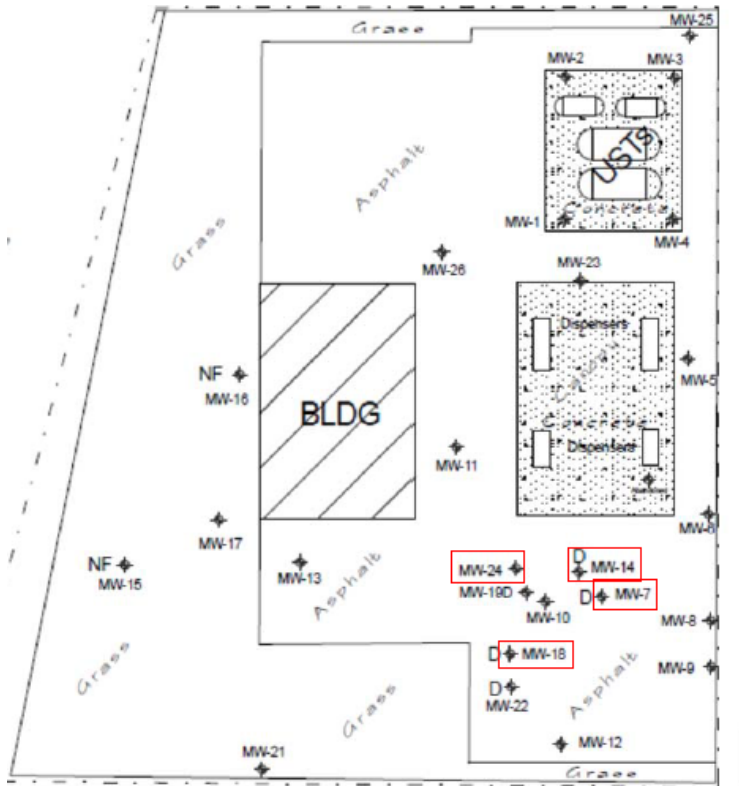
Pre- Assessment (Site Reconnaissance)



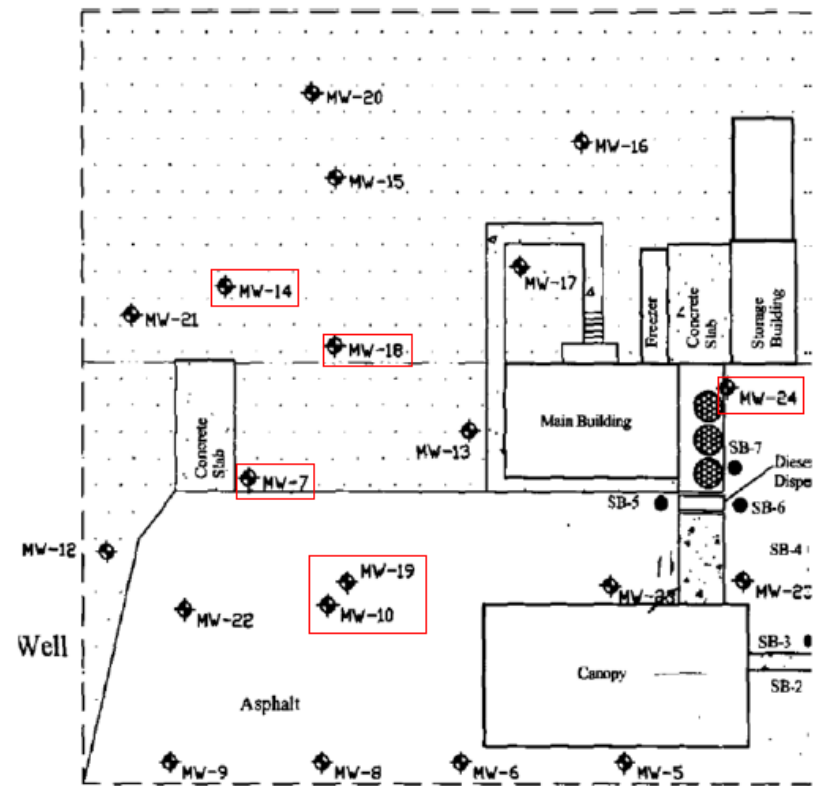
- View of one of three current or former UST locations.



Pre- Assessment (Site Reconnaissance)



Site Map from June 2013 SCSR



Site Map from May 2005 SAR

Example of well locations and numbers changing over time



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Pre-Assessment (Planning Meeting)

Coming Soon:

After file review & recon, ATC will set up a telecon/dialog with owner/operator, DEP/LP, & driller to discuss ATC's recommendations & initial Conceptual Site Model (CSM):

- General assessment plan going forward:
 - Site Assessment End Point (SAR vs LSA)
 - Locations of concern, approximate number of borings/wells, etc.
- Access issues:
 - Owner/operator requests
 - DTW/lithology/access to determine appropriate rig
- Closure Options:
 - SRCO/NFA
 - Conditional closure
 - LSSI closure (if score < 30)



Pre-Assessment (Planning Meeting)

Involving all parties in initial planning will:

- Reduce unexpected change orders during assessment
- Allow early CSM to design most efficient pathway to closure



Recognize Different SA Endpoints

- Higher Priority Sites qualify for remediation funding
 - Scored ≥ 30
 - Special Categories (RA funding authorized for sites scored < 30):
 - SRFA
 - Springsheds
 - Voluntary LSSI Limited Remediation
 - Free Product Recovery Initiative (FPRI)
 - **Goal = Assess for extent of contamination & remedial design**
- Lower Priority Sites
 - Scored < 30 , and no special remediation funding priority
 - **Goal = Generally determine the horizontal and vertical extent of contamination, but **don't need the detail required for RA design****
 - Characterize the Risk
 - Less detail, wider spacing
 - Customize based on receptors
 - For example, more thorough evaluation if potable wells nearby



Site Assessment Scoping

Default Assessment Scope of Work (SOW)

- ATCs are to determine whether the Default SOW is sufficient
 - Default drilling SOWs = 16 SBs & 8 MWs
 - Default laboratory analysis = 8 soil, 8 GW samples
- This does **NOT** mean you are limited to only the default SOW; or that you must use them all
 - This was intended to build in “contingency” funds
 - Do not over-scope contingency work that may not be needed/performed



Site Assessment Scoping

- Based on File Review, Site Reconnaissance and soon the Planning Meeting, the ATC should submit proposal for a more appropriate and site-specific scope of work via a Request for Change (RFC)
 - Changing drilling technology and/or depths
 - Build in contingent work if needed to finish out a day or as follow-up field events (can add a second task for additional field work)
 - Additional costs such as Right-of-Way permitting, etc.
 - Additional RFCs can be submitted but must be addressed before recommended activities occur



Site Assessment Scoping

- Drilling –
 - Always use the correct rig for the job
 - Direct Push/Combo Rigs
 - If you are using a Combo Rig to advance a borehole with hollow stem augers (HSA), make sure it is noted in the SOW/Change Order tables or description.
 - If you are combining direct push and auger well installations in a single task, pay items should be the following:
 - If any portion of a day of work involves DPT, use the DPT daily rate. HSA work during that day is included in the daily rate.
 - If the work involves HSA only, you can use the DPT daily rate or HSA pay items, whichever is the best value to the State.
 - If using HSA, the ATC gets the Drill Rig Mobilization pay item.



Site Assessment Scoping

- When planning and scheduling contingent work, try to limit the additional work to fill out the rest of a partial day of work or only add ½ to 1 day of work, rather than adding several additional days which may not be used and disrupt the driller's scheduling.
- Try to establish some guidelines on when to step out (OVA readings, PRP permission) and at what interval. If this language is included in the scope of work or documented, it can cut down on wait times.



Screening Workbook

Site Characterization Screening Information

FDEP FAC ID #: 0

Does Site Qualify for LTNAM: _____

Dominant Lithology Vadose Zone

First Lithology (USCS): _____

Second Lithology (USCS): _____

Dominant Lithology Saturated Zone

First Lithology (USCS): _____

Second Lithology (USCS): _____

Average Depth to Water: _____

Groundwater Flow Direction: _____

Recommended Technology for SRCO: _____

Combined Technology: _____

Consultant SRCO Cost Estimate: _____

Consultant NFAC Cost Estimate: _____

Are on-site buildings housing Sensitive Receptors _____

If yes, current use of the building _____

Site Name:

GW Contaminants one per constituent	≤ GCTLs	≤ NADC	> NADC	Not Analyzed
Benzene				
Ethylbenzene				
Toluene				
Total Xylenes				
MTBE				
Naphthalene				
1-Methylnaphthalene				
2-Methylnaphthalene				
TRPHs				
EDB				
As				
Pb				
Other				

Soil Contaminants (select one unless Leachability & Direct Exposure CTLs exceeded)	No Soil Exceedences*	Exceeds Leachability	Exceeds Direct Exposure	Not Analyzed
Benzene				
Ethylbenzene				
Toluene				
Total Xylenes				
MTBE				
Naphthalene				
1-Methylnaphthalene				
2-Methylnaphthalene				
Other PAHs				
TRPHs				
As				
Pb				
Other				

* Below direct exposure and leachability (or alternative SCTLs established through SPLP or fractionation)

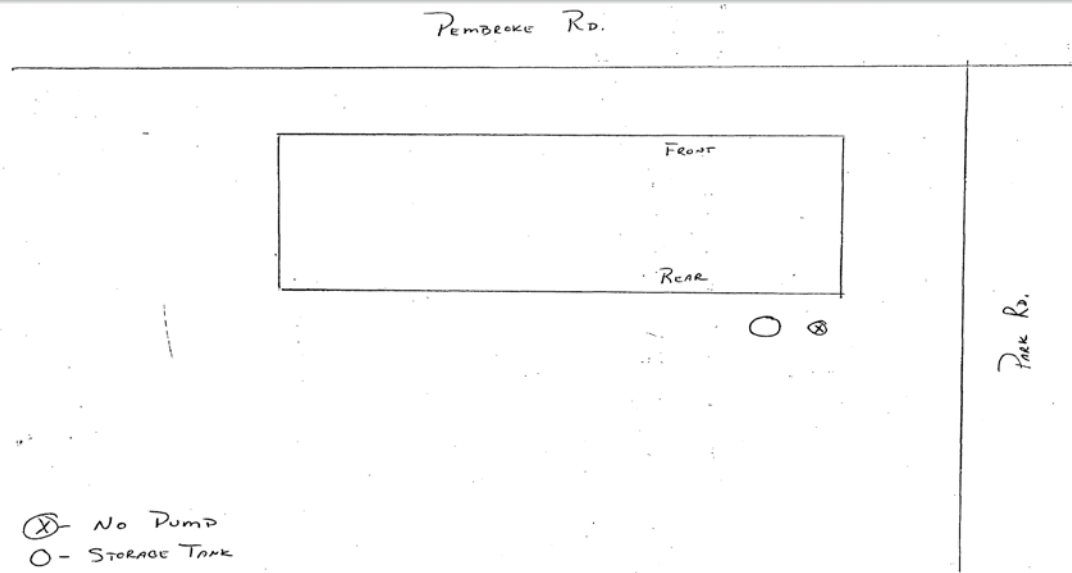
Plume Characteristics	Groundwater	Soil
Shrinking or Stable		
On-site only		
Plume <1/4 acre		
Exclusion Zone Only		
In FDOT ROW only		
On State-Owned Land Only		
Organoleptic Exceedence only (< HB CTLs)		
DE Soil Exceedences above 2'		
DE Soil Exceedences from 2' to 10'		
DE Soil Exceedences below 10'		
Free Product		
Site Qualifies for LSSI NFA		

DE = Direct Exposure CTLs ; HB = Health Based

- Complete SCS Worksheet for all LSA/LSSI assessments
 - Exception-site receives closure
- Used to characterize, ID risk, gives an estimate of closure costs



Example No. 1 (SAR)



Example 1:

No Site Information

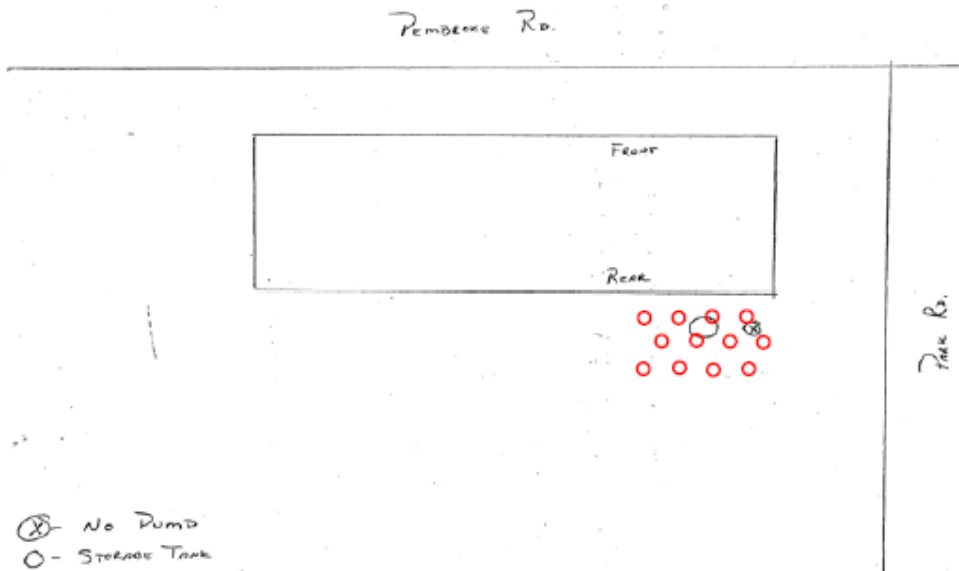
1. Free product reported during 1988 tank removal.
2. No other information available other than this "site map."

Where to start?

Where does assessment end?



Example No. 1 (SAR)

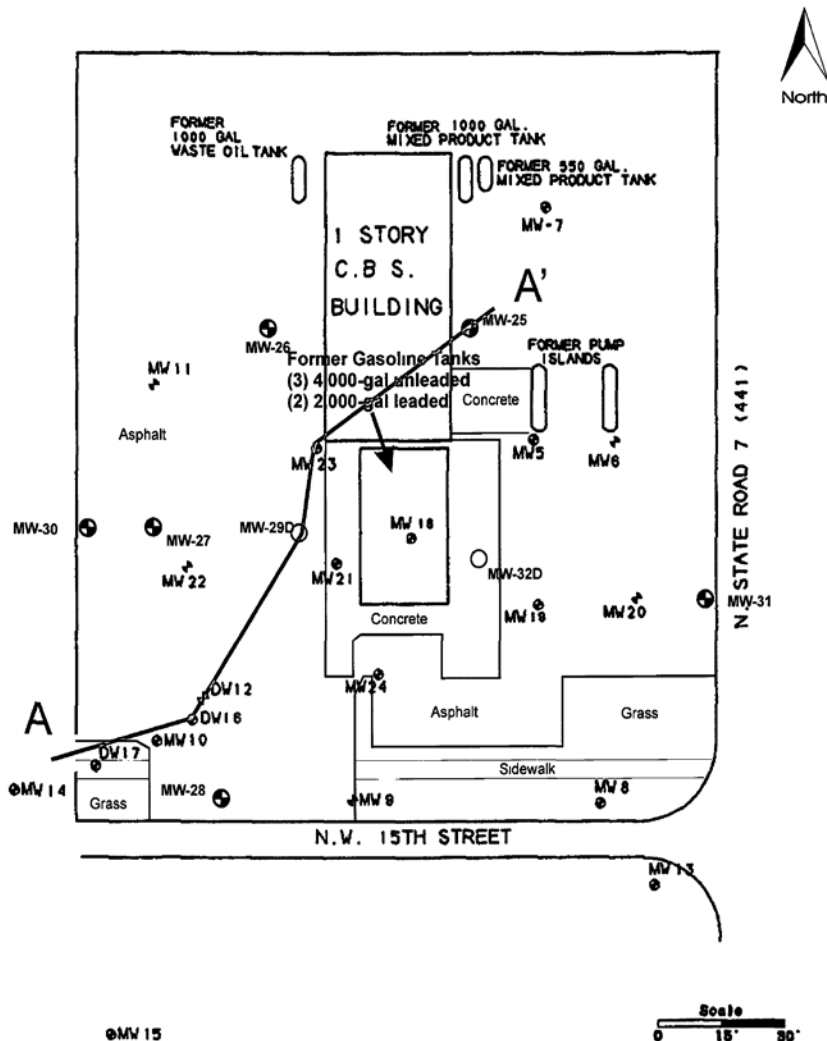


Submit Proposal to:

- Since we don't know exact location of the source area, begin with advancing 12 soil borings in a grid pattern south of building.
- Based on field screening results, authorize a total of 4 step-out borings to delineate soil contamination.
- Install minimum one monitor well (area of highest screening results) to identify possible impacts to groundwater.



Example No. 2 (SAR)



Example 2:

One Discharge on Site

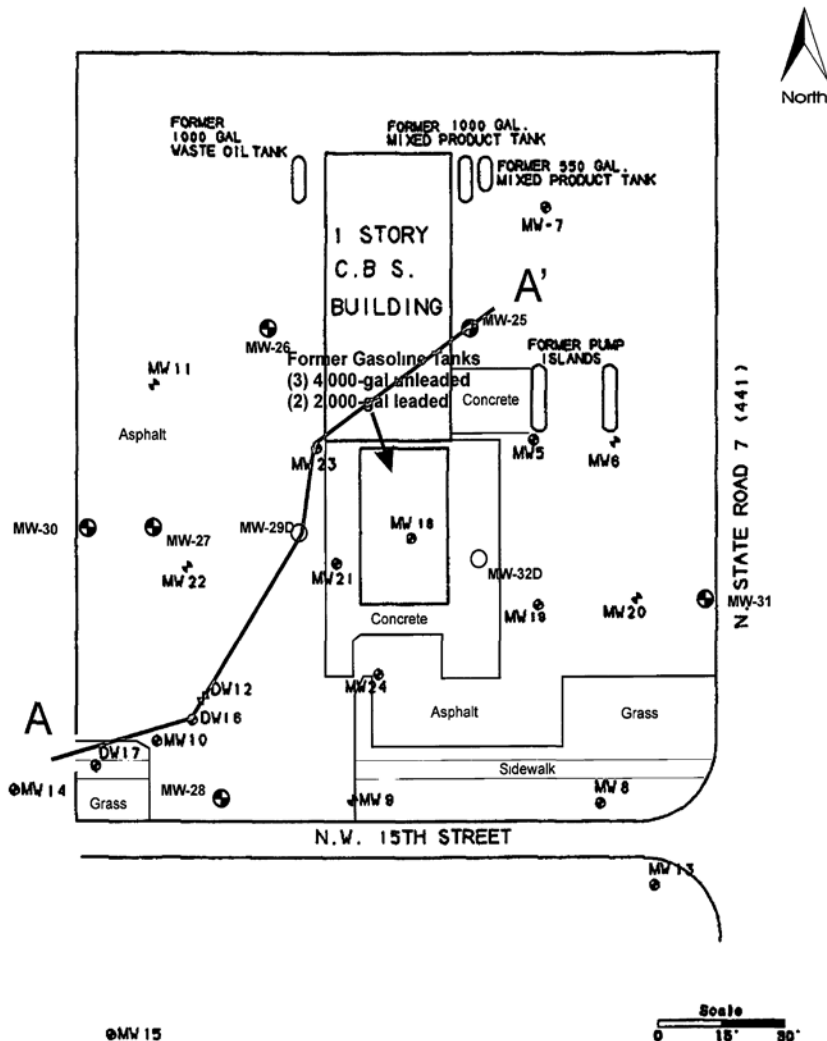
1. No tanks, lines or dispensers currently on-site.
2. SA, SR, & NAM all previously completed at site.
3. 31 wells previously installed on-site, including:
 1. 5 “deep” wells; and
 2. 3 “off-site” wells on 2 separate properties

Where to start?

Where does assessment end?



Example No. 2 (SAR)



Submit Proposal to:

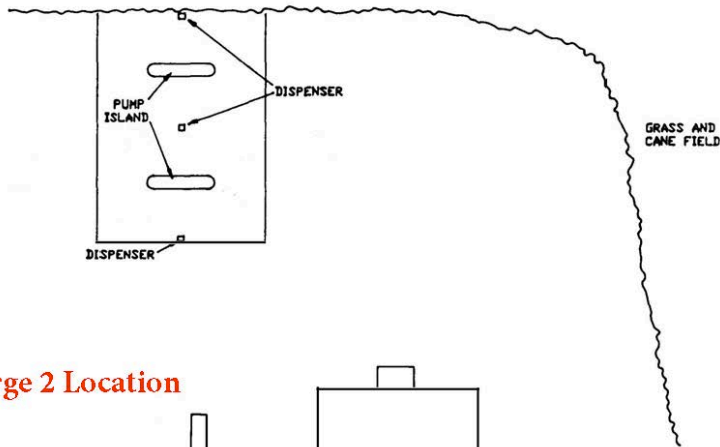
- Obtain two off-site access agreements.
- Identify whether or not off-site noticing has been done yet, scope (if necessary)
- Collect snapshot of groundwater (full round based on historic profile).
- Review historic soil screening information, confirm results at up to 8 locations.
- Once soil / GW sampling results come back, step-out borings and wells as reasonable contingent work.



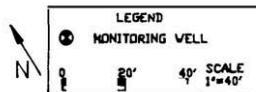
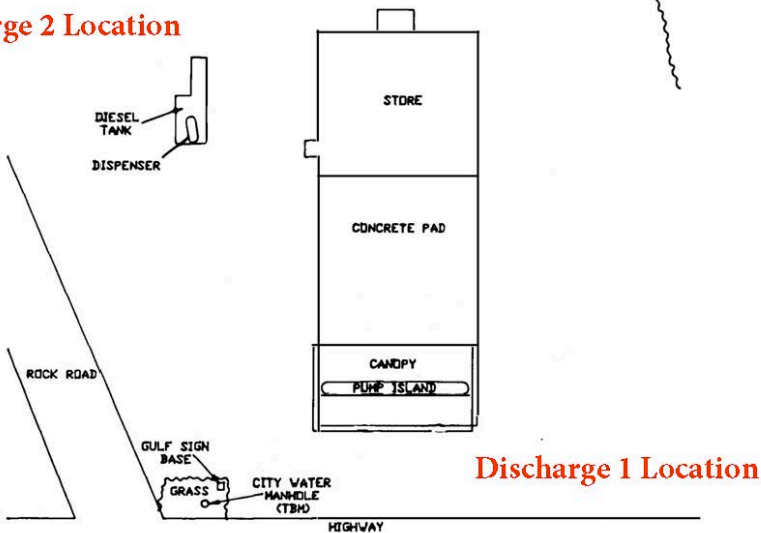
Example No. 3 (LSA)

FIGURE 2
SITE MAP

Discharge 1 Location



Discharge 2 Location



Example 3:

Two Discharges on Site

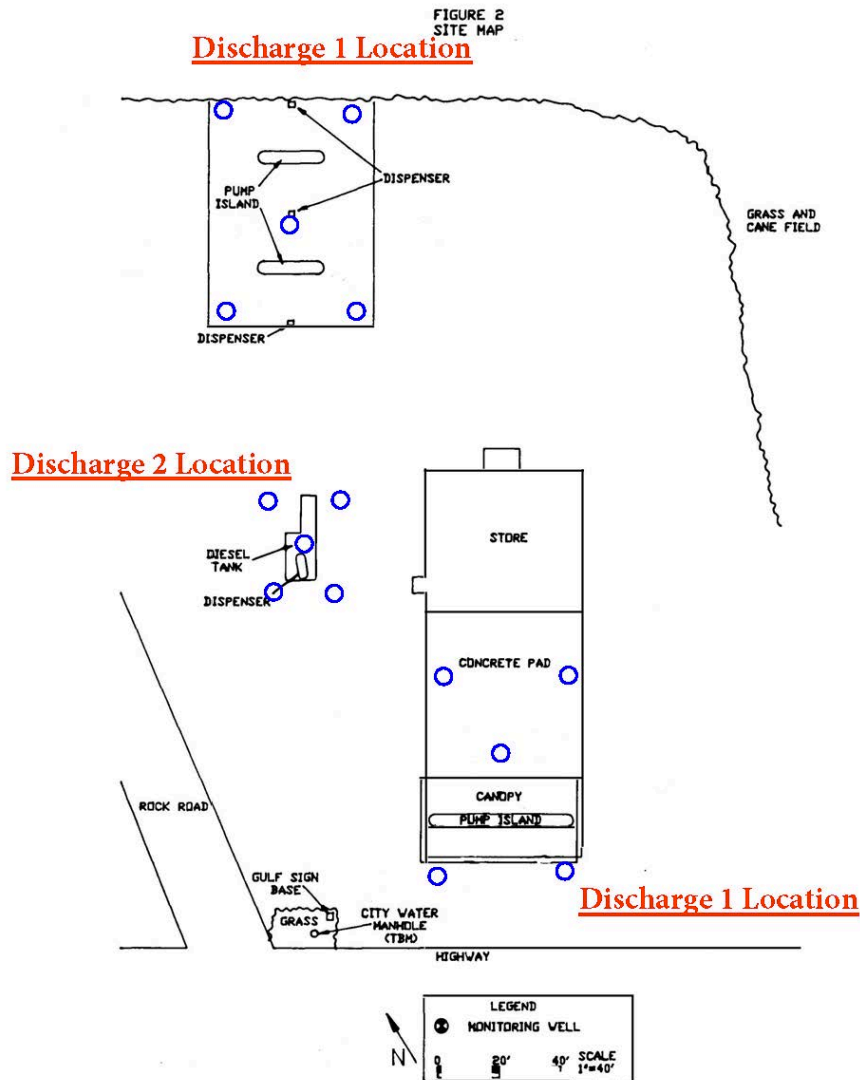
1. 1st Discharge was reported at the North and South Tanks. Free Product was present.
2. 2nd Discharge was reported at the Western tanks. Free Product was present as well.
3. Both are eligible discharges

**Where to start?
Where does assessment
end?**



Example No. 3 (LSA)

Submit Proposal to:

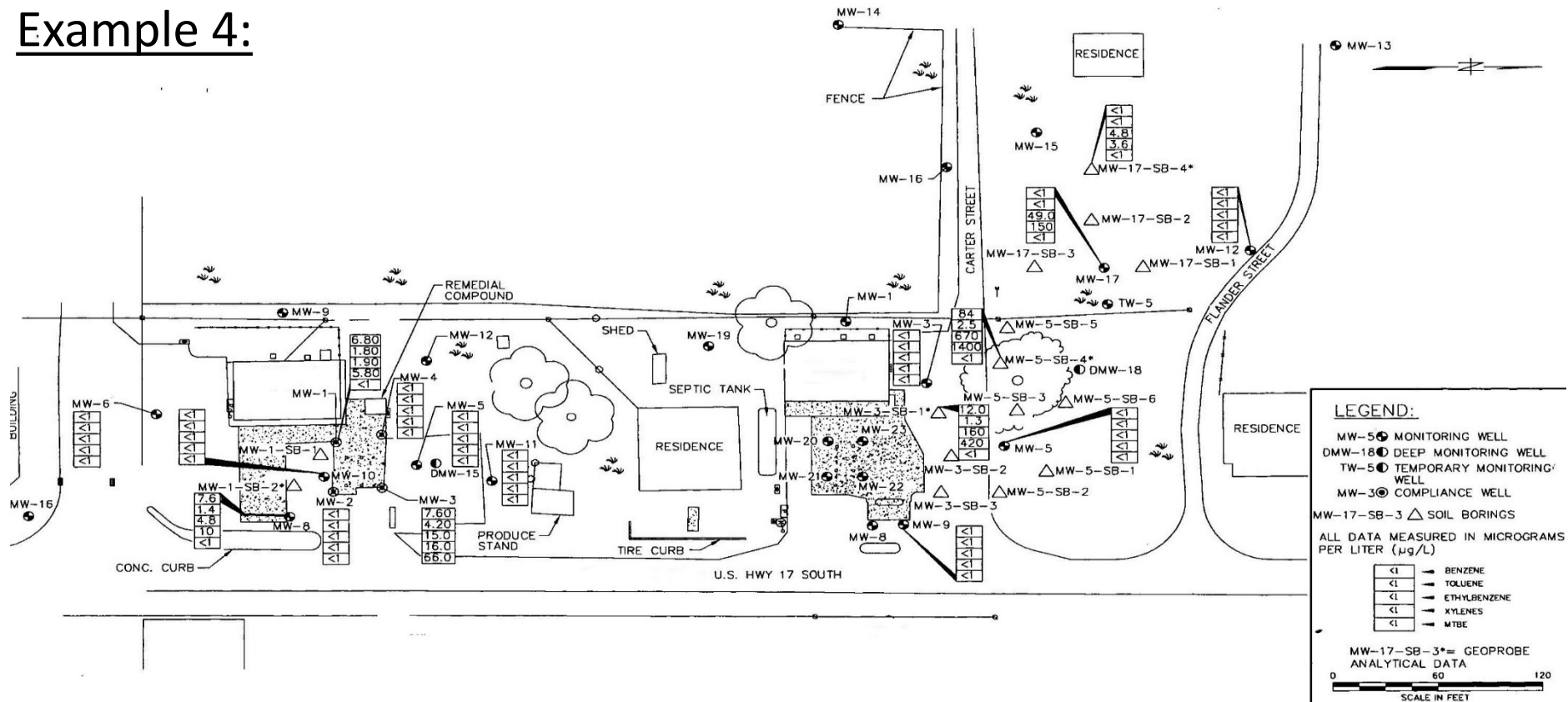


- The site history tells us there are two source areas. Begin with identifying the two areas.
- Having no knowledge of the size of the source area, install 5 soil borings at each discharge area.
 - One boring in each corner and one boring in the center (if not active).
 - Consider GW grab sample
- After soil boring/GW grab analytical results come back, then installation of monitoring wells can commence.
- Step-out borings and wells as reasonable contingent work.



Example No. 4 (LSA)

Example 4:



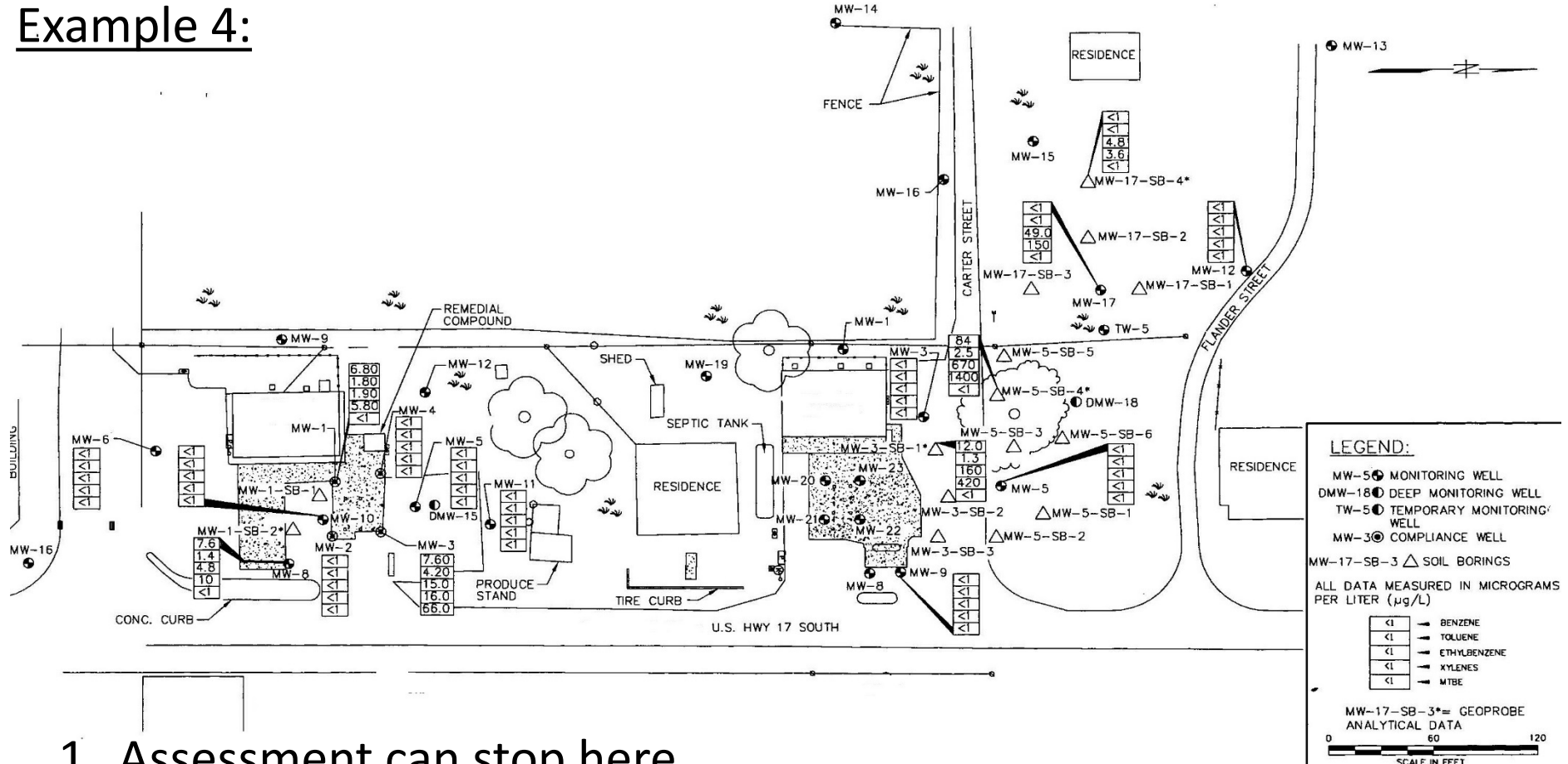
1. 7.6 Benzene Level at property boundary, no potable wells
2. Boundary is at a state road **without** the possibility of a DOT closure

Where to start?
Where does assessment end?



Example No. 4 (LSA)

Example 4:



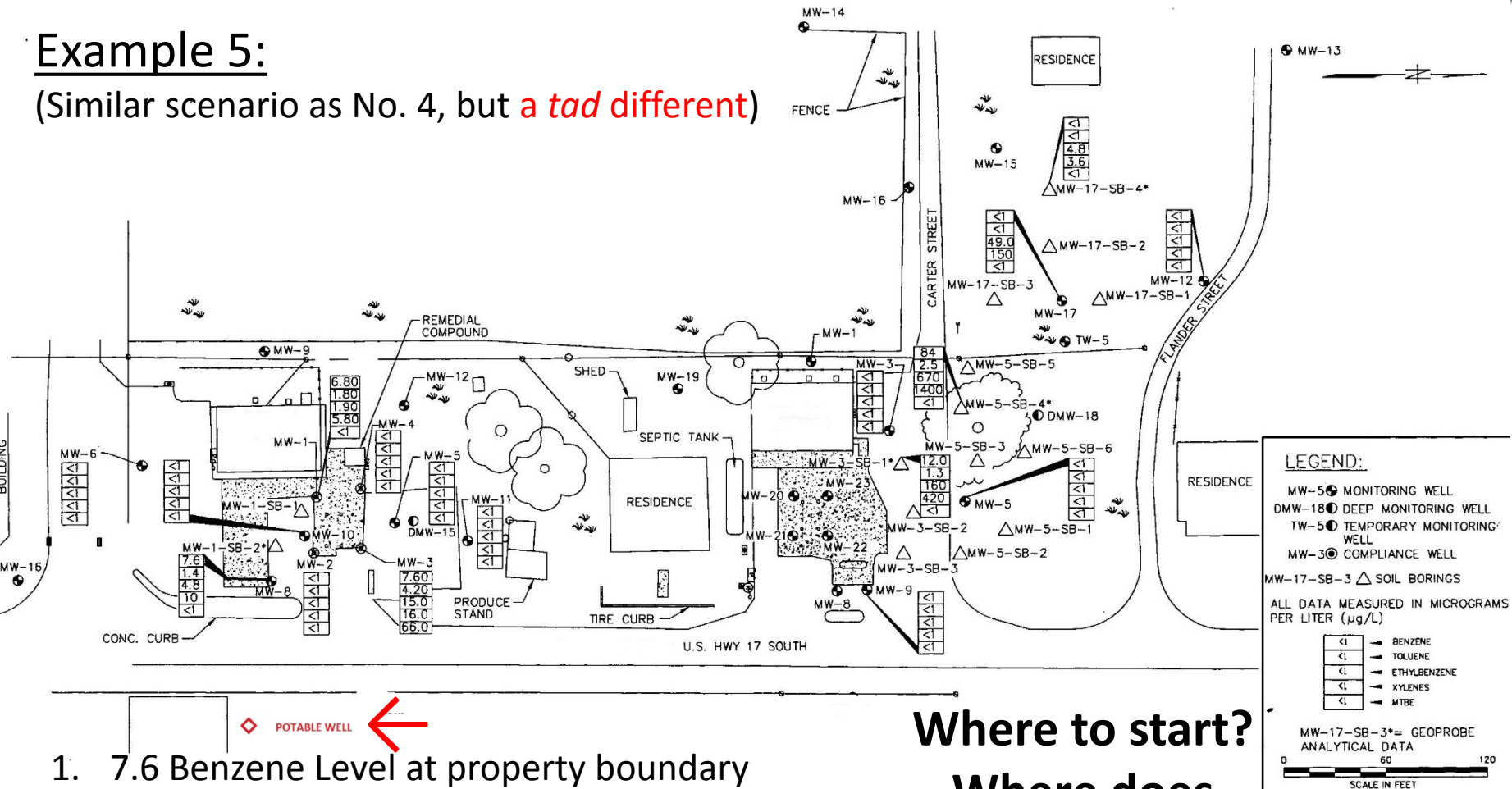
1. Assessment can stop here
2. Have sufficient delineation to Characterize the site.



Example No. 5 (LSA)

Example 5:

(Similar scenario as No. 4, but *a tad* different)

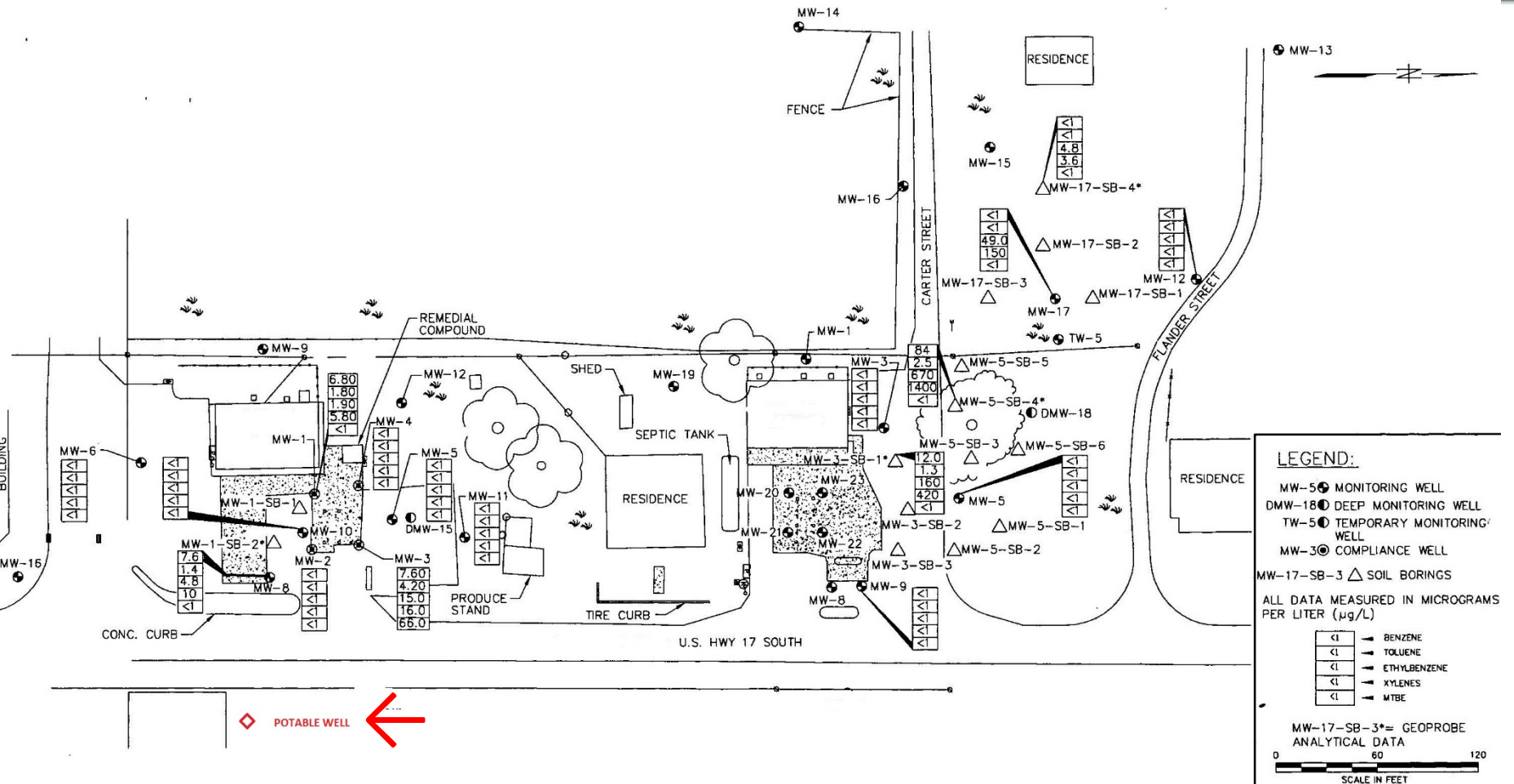


1. 7.6 Benzene Level at property boundary
2. Boundary is at a state road **with** the possibility of a DOT closure
3. There is a potable well directly across the street

Where to start?
Where does assessment end?



Example No. 5 (LSA)



1. Install an off-site well to ensure the well is not threatened



LSA Examples

Situations like the last example are common and would work in other scenarios, like below:

Property Boundary is adjacent to a 2nd property instead of a road.

Based on analytical data, if there is minimal contamination at the property boundary we can then have enough data to end assessment.

NOTE: Assessment would NOT end if there is a threat to potable water or other sensitive receptors.