Velsicol Burn Pit Superfund Site
Update on In-Situ Thermal Treatment

Presentation to Pine River Superfund Citizens Task Force

September 21, 2016

ch2m SM

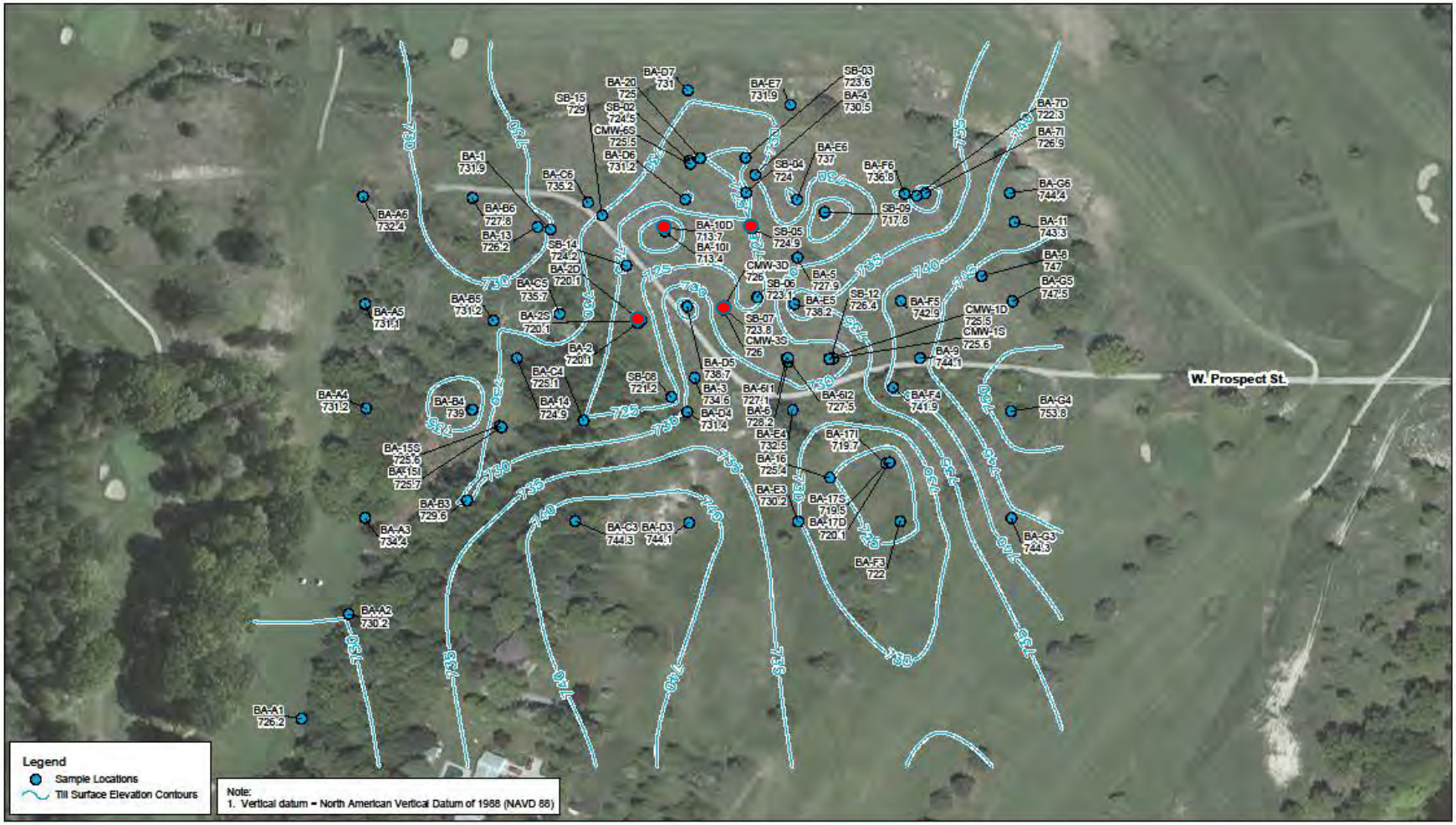
Agenda

- 1980s Excavation Photos
- Observed Non-Aqueous Phase Liquid (NAPL) Locations
- Preliminary NAPL Data
- 3-D Model Overview
- Target Treatment Zone
- Next Steps

1982 Consent Judgement Excavation Photos

1982 Consent Judgement Excavation Photos

Observed NAPL Locations



NAPL Location

0 130 260 Feet

DRAFT

Figure 6
Till Surface Contour Map
Velsicol Burn Pit Superfund Site
St. Louis, Michigan

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Select NAPL Sample Results – Preliminary Data

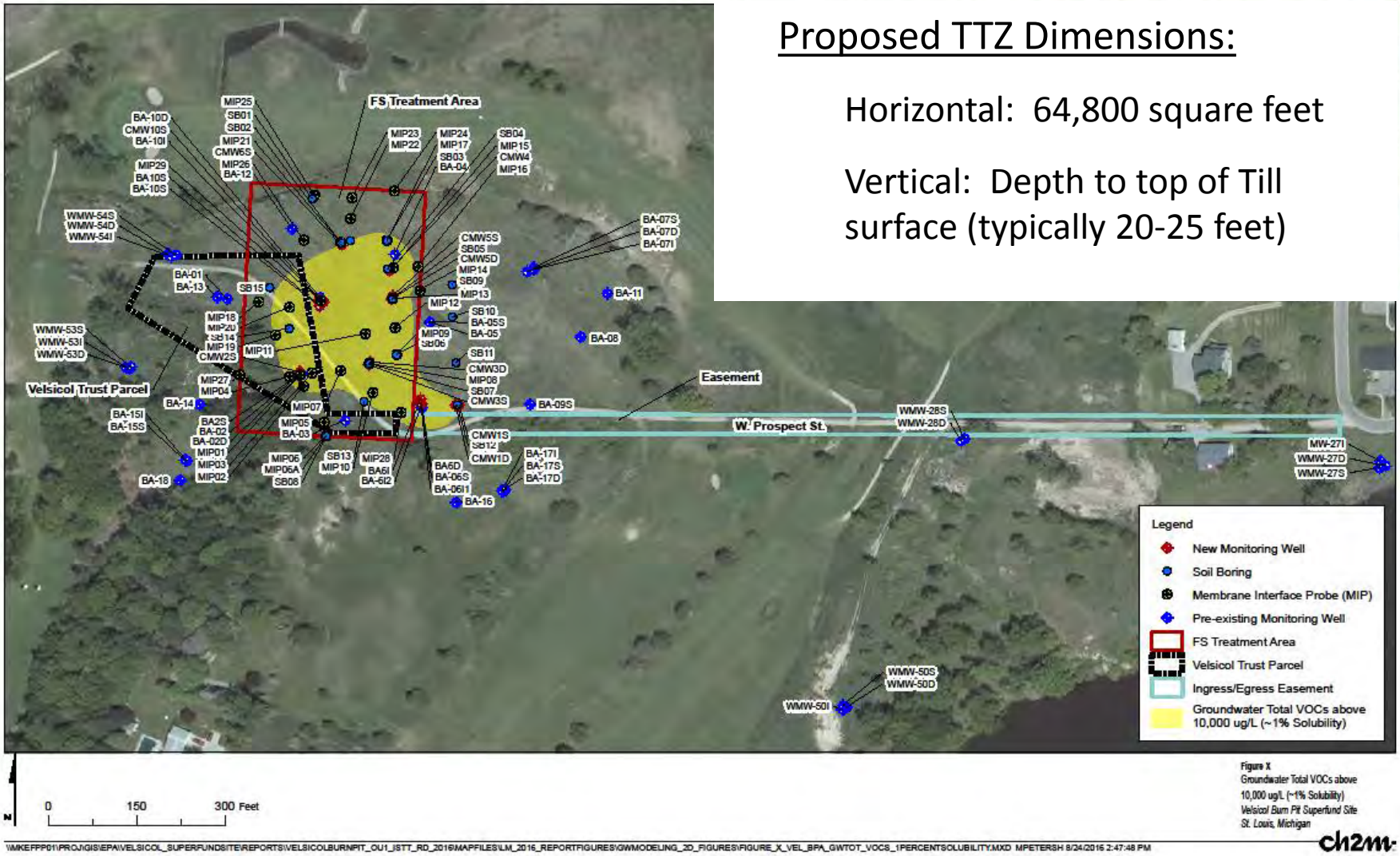
Parameter	Unit	CMW-3D	CMW-5D
Flash Point	ºF	84	57
Density @ 60ºF	g/cm^3	2.0141	1.7781
pH		3.95	3.88
Sulfur	wt. %	0.089	0.307
Cyanide	mg/L	<0.12	0.0051
Water Content	ppm	5,927	2,126
Peticides/PCBs			
Gamma-BHC (Lindane)	mg/kg	24,900	23,200
PCBs	ppm	<10	<10
Volatile Organic Compounds			
Benzene	ppm	8,547	36,876
1,2-Dichloroethane	ppm	32,383	34,511
Toluene	ppm	235	1,748
1,1,1-Trichloroethane	ppm	<100	7,584
1,2-Dibromo-3-chloropropane	ppm	625	7,014
1,3-Dichloropropane	ppm	274	5,330
Chlorobenzene	ppm	140	6,617
Dibromomethane	ppm	<100	2,207
Tetrachloroethene	ppm	<100	567
Carbontetrachloride	ppm	<100	2,467
Bromide and Chloride by Combustion Ion Chromatography			
Chloride	ppm	46,471	138,385
Bromide	ppm	658,861	485,857
H, N, C, O in Petroleum Products			
Hydrogen	% by wt.	3.95	3.73
Nitrogen	% by wt.	<0.30	<0.30
Carbon	% by wt.	21.13	27.15
Oxygen	% by wt.	74.16	68

3-D Model Overview

- Presentation/Discussion of 3-D files.

Target Treatment Zone

Plan View



Proposed TTZ Dimensions:

Horizontal: 64,800 square feet

Vertical: Depth to top of Till surface (typically 20-25 feet)

Next Steps for In-Situ Thermal Treatment (ISTT)

- Treatability Study
- Continued Coordination with Hidden Oaks Golf Course & Community
- Complete Performance Work Statement (PWS) for ISTT
- ISTT Vendor Bidding on PWS
- Select ISTT Vendor
- Complete Design for ISTT
- ISTT Implementation

Questions/Discussion