

Groundwater Update

Western South Boundary VOCs
Brookhaven National Laboratory
Community Advisory Council Review
June 8, 2017

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70 YEARS OF
DISCOVERY

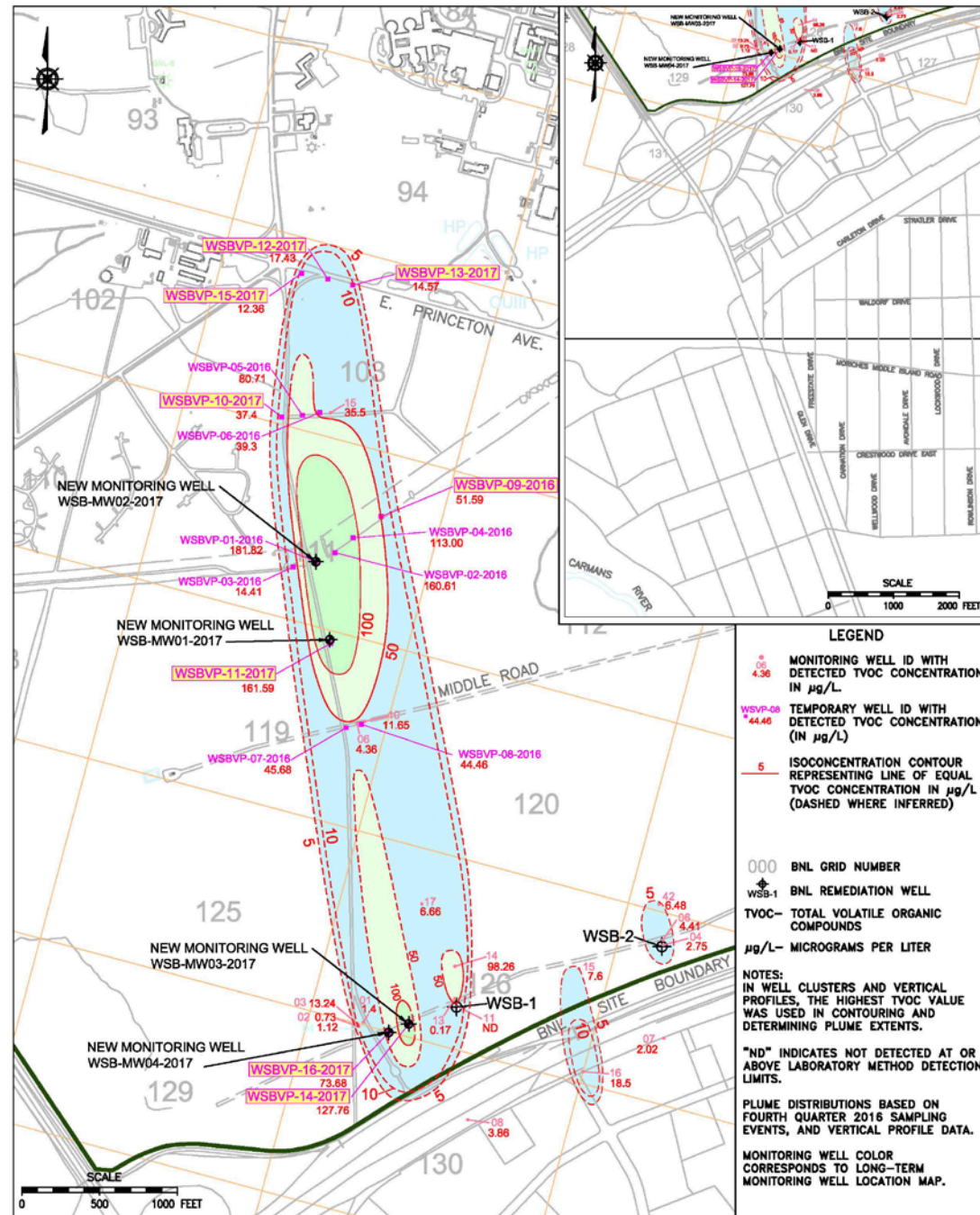
A CENTURY OF SERVICE



BROOKHAVEN
NATIONAL LABORATORY

Western South Boundary Area VOCs Characterization Update

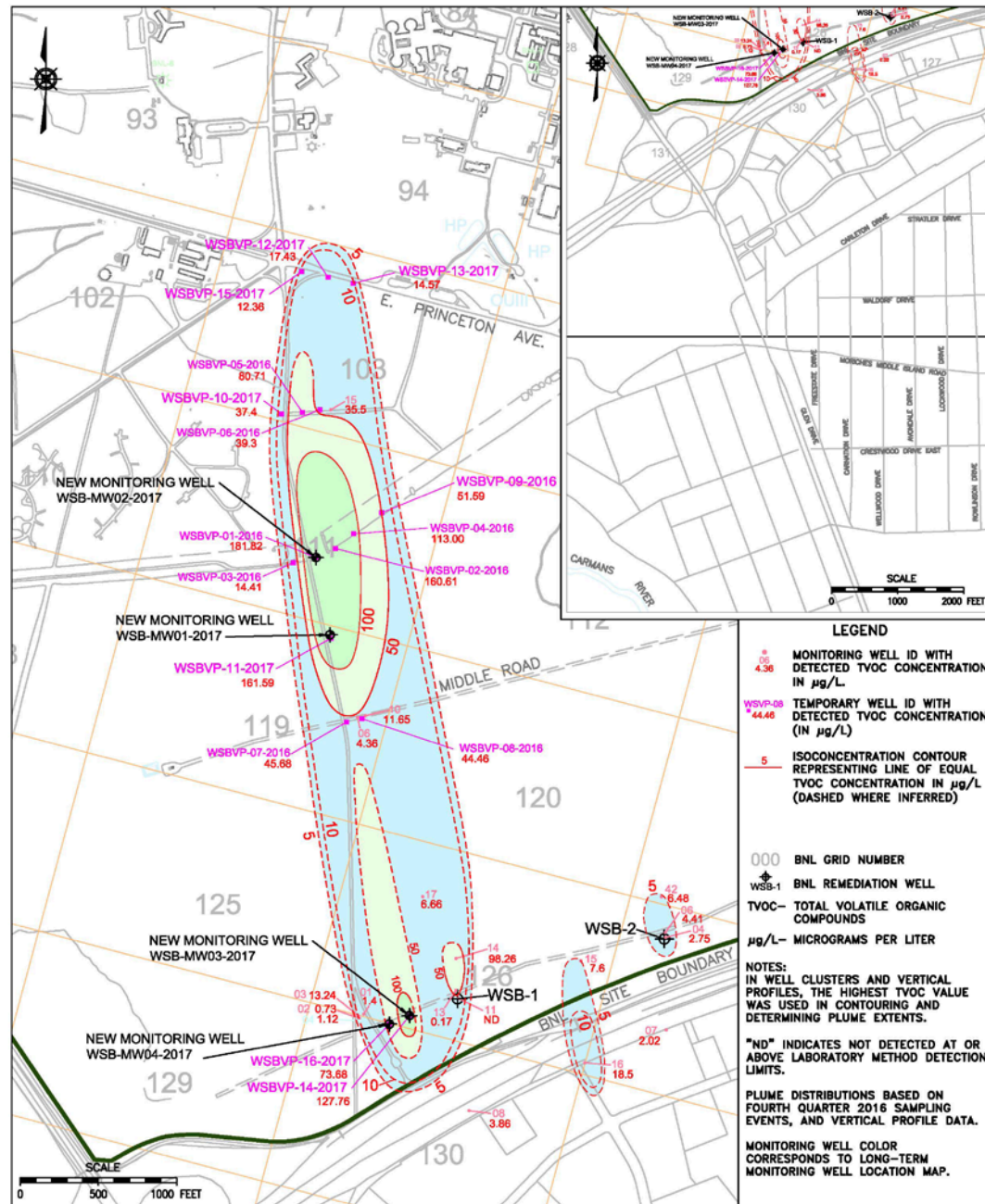
- Last briefed CAC in January 2017
- This effort began with the installation of two (2) temporary vertical profile wells as per 2014 GW Status Report recommendation to characterize Freon-12 (February 2016)
- Installed six (6) temporary vertical profile wells during November/December 2016
- Completed eight (8) additional temporary vertical profile wells since last CAC update. Total of 16 temporary vertical profile wells
- Installed four permanent monitoring wells since January 2017



Western South Boundary Area VOCs Characterization Update

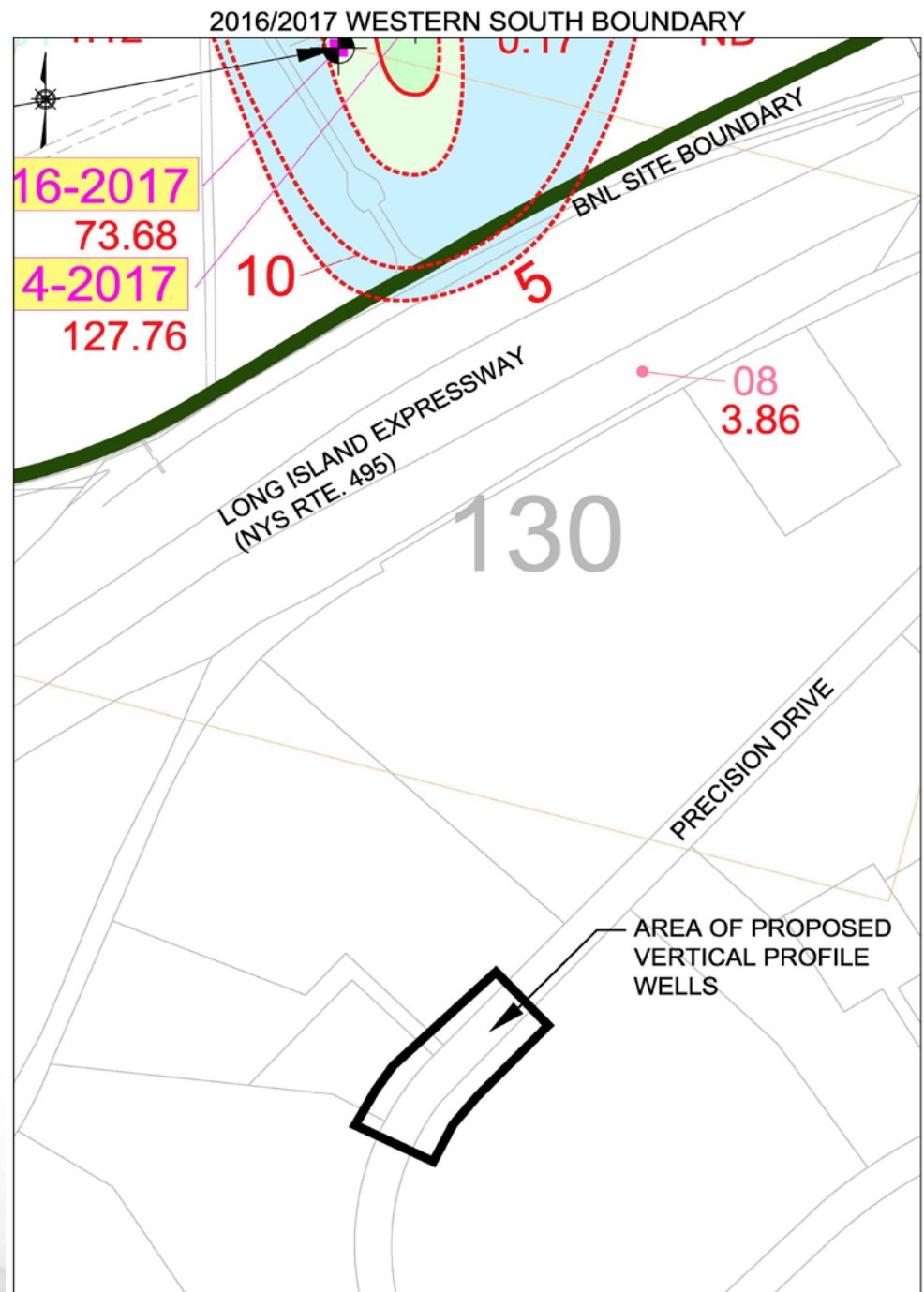
- We have characterized the northern and southern extent of high level VOCs on site
- Primary VOCs are TCA, DCE, and Freon-12
 - DCE is a breakdown product of TCA
- Peak concentrations were TCA (79 µg/L), DCE (96 µg/L), Freon-12 (69 µg/L)
- Elevated TCA/DCE and Freon-12 in Deep Upper Glacial aquifer at slightly different depths (160'-200' below ground surface)
- Contamination is slightly deeper than the current extraction wells at the Western South Boundary

2016/2017 WESTERN SOUTH BOUNDARY



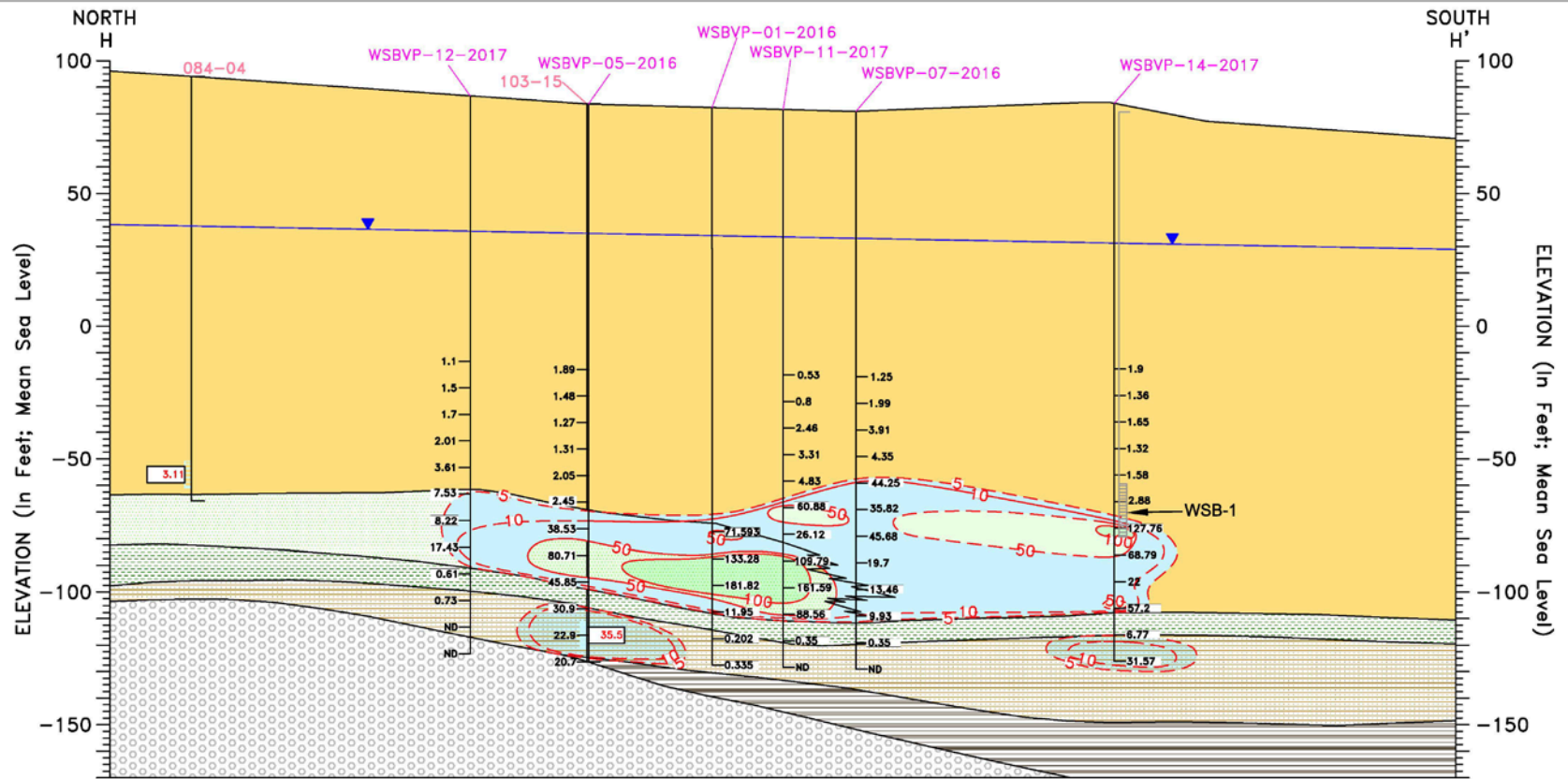
Western South Boundary Area VOCs Next Steps

- Determine whether higher levels of VOCs have migrated off-site
- Characterization done during the RI/FS in this area showed only low levels of VOCs up to 16 ppb
- Install temporary vertical profile wells along Precision Dr. in the Industrial Park south of the LIE
- Based on results determine whether additional characterization is needed
- Perform groundwater modeling to evaluate plume fate and transport
- Collect data – July/August
- Brief CAC on results in early fall





2016/2017 WESTERN SOUTH BOUNDARY



LEGEND

Upper Glacial aquifer	Gardiners Clay	Magothy aquifer	087-21 BNL Well ID	Water Table As Of Dec. 5-9, 2016
UG Upper Glacial Sands	GL Gardiners Clay	MA Magothy Sands and Clay	ND Indicates not detected at or above laboratory method detection limits	TVOC- Total Volatile Organic Compound
UC Upper Glacial Silt & Clays	GS Gardiners Clay - Silt	MB Magothy Brown Clay	7.54 TVOC Concentration (µg/L)	µg/L- Micrograms Per Liter
UU Upton Unit		MC Magothy Clays (undifferentiated)	5 TVOC Contour (µg/L) (Dashed Where Inferred)	
		MO Magothy - OTHER	Monitoring Well Screen	
			Extraction Well Screen	

- NOTES:**
- 1) GEOLOGIC INFORMATION SHOWN IS BASED ON ADDITIONAL EXPLORATIONS (e.g., HYDROPUNCHES, GEOPROBES, VERTICAL PROFILES, AND/OR TEST WELLS) DOCUMENTED IN PREVIOUS, CHARACTERIZATION REPORTS.
 - 2) PLUME DISTRIBUTIONS BASED ON FOURTH QUARTER 2016 SAMPLING EVENTS, AND VERTICAL PROFILE DATA.
 - 3) CONTOUR INTERVAL IS AS SHOWN.
 - 4) BNL WELL ID COLOR CORRESPONDS TO LONG-TERM MONITORING PROGRAM WELL LOCATION MAP.