

Permanent Shut Down Plan for the Offsite Remediation System Motiva Fairfax Terminal

Presented by EPA Region III

Andrew Fan

May 29, 2013

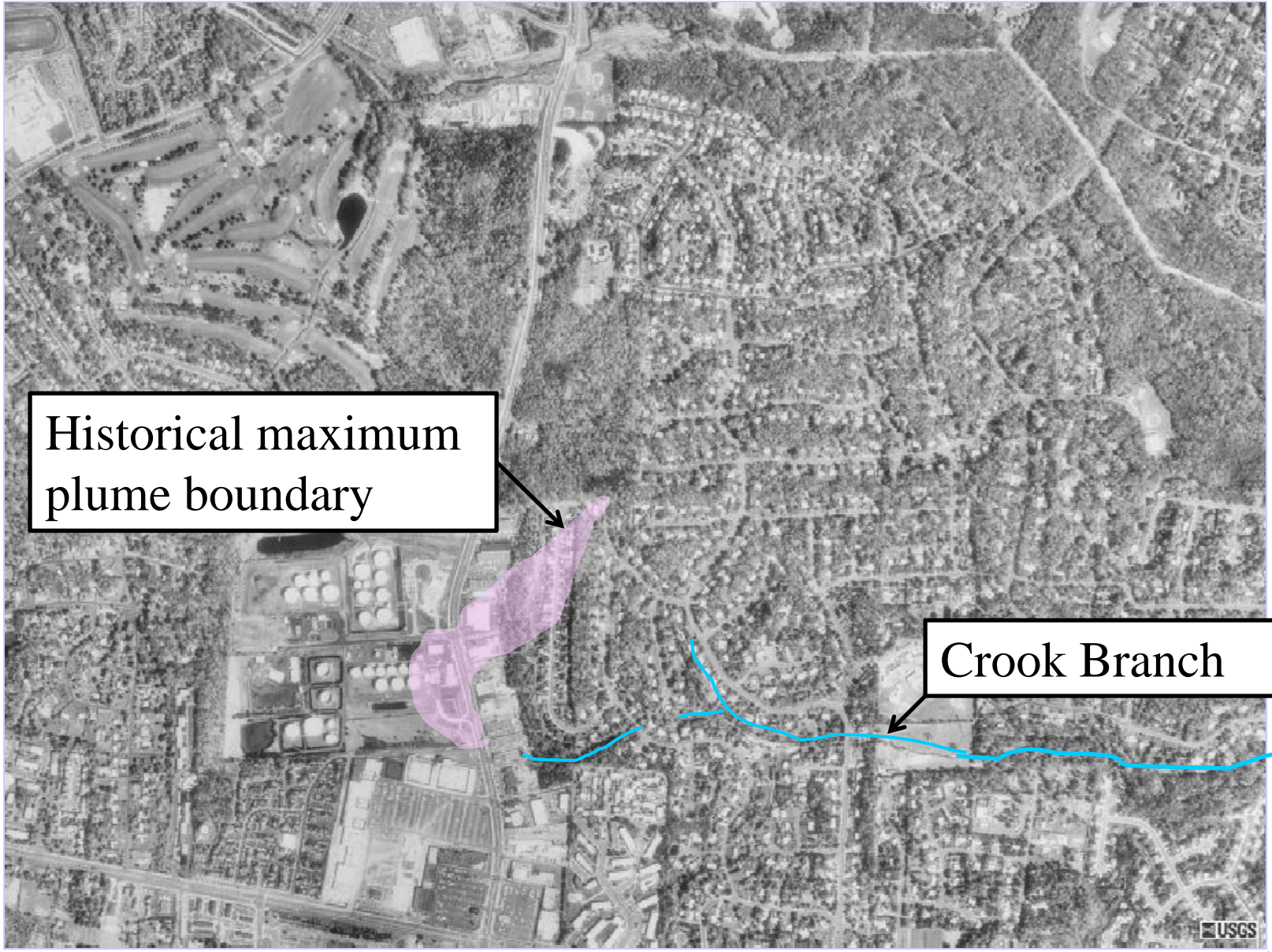


Origin of Spill

Former Star Enterprise Terminal

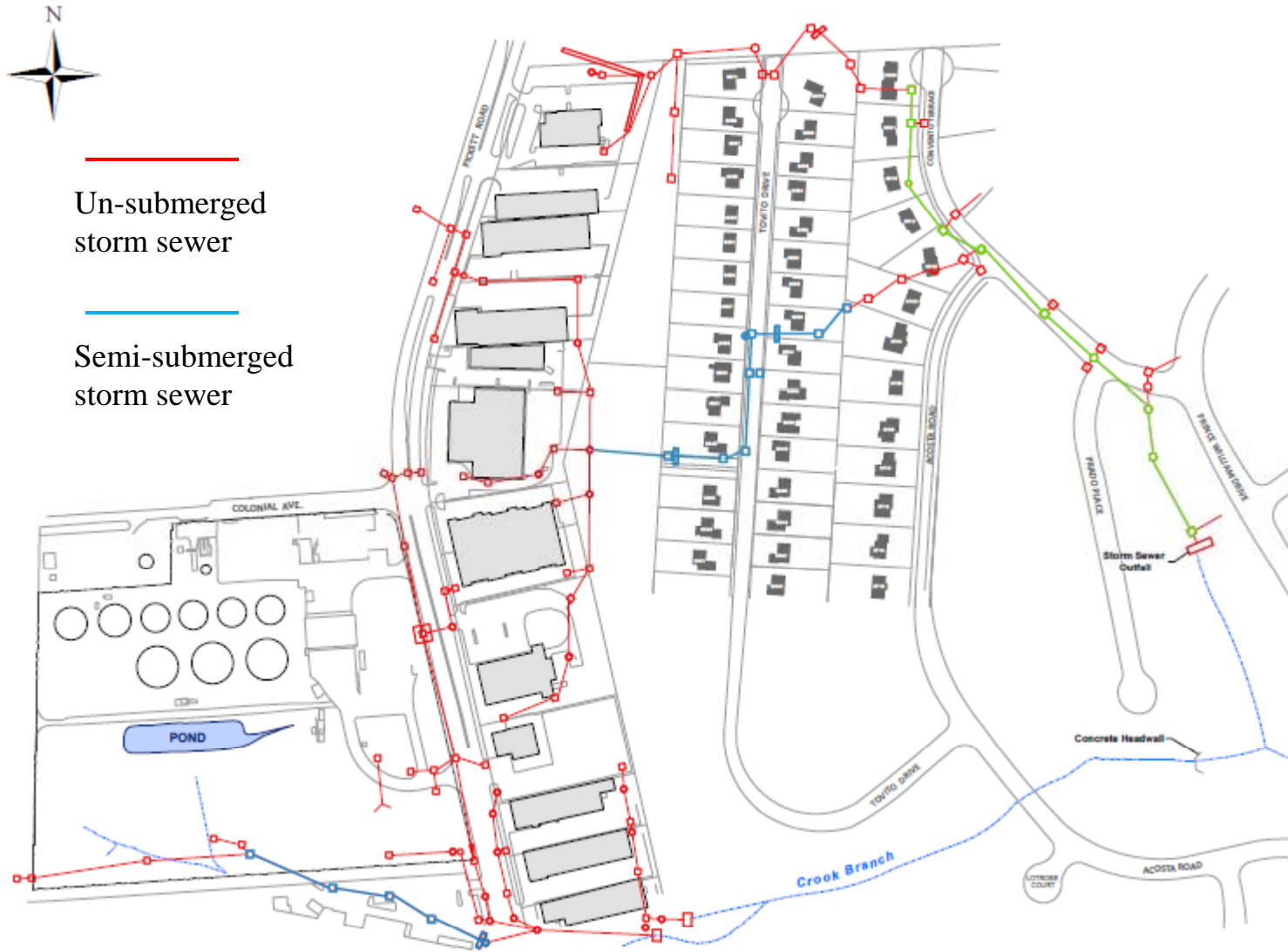
Now Motiva Enterprises LLC





Historical maximum
plume boundary

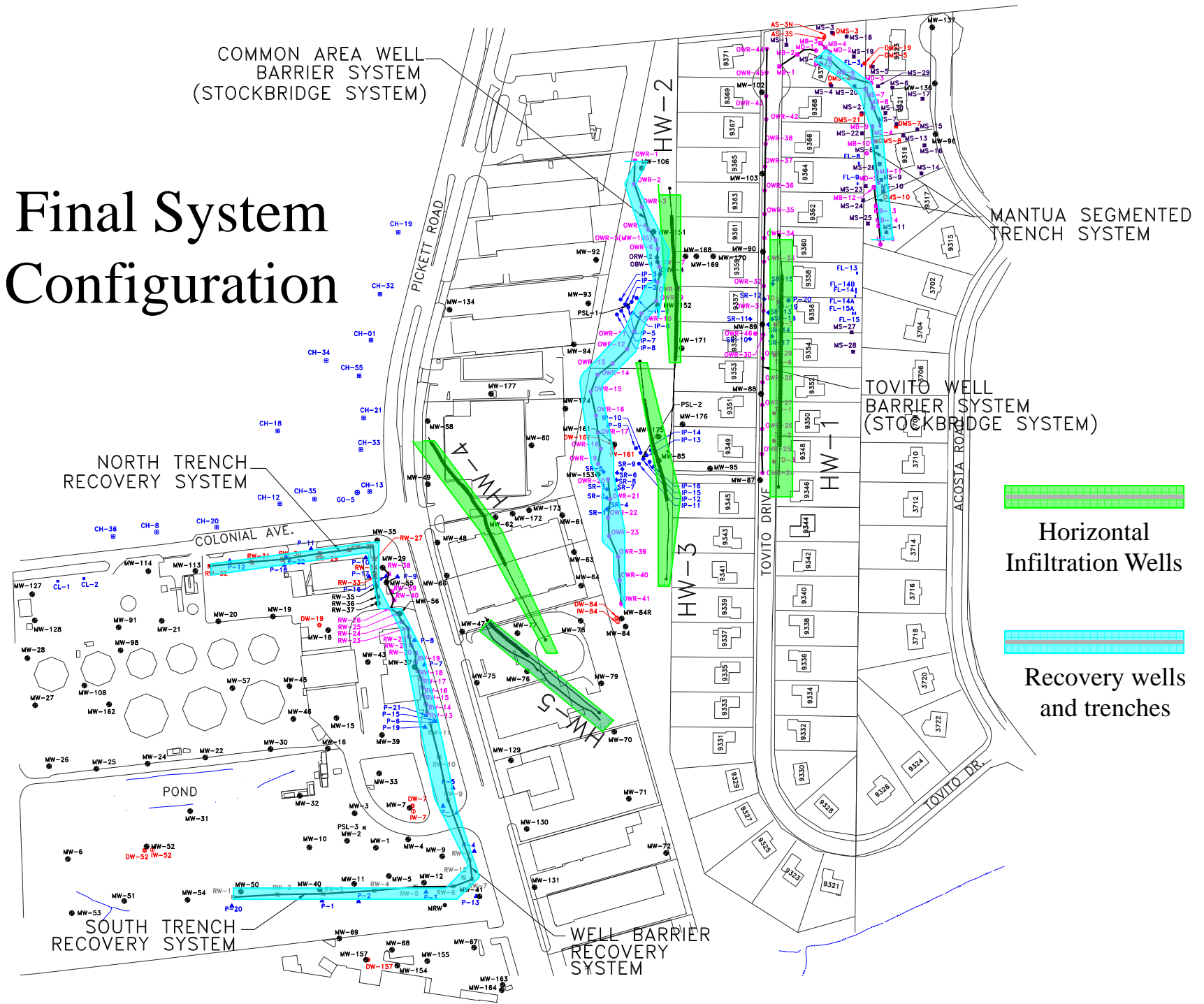
Crook Branch



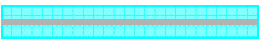
Time Line

- Spill was discovered in 1990
- Installation of an interim remediation system began shortly and became operational in 1991
- The system was modified and expanded throughout early 1990s.
- Liners were installed in problem storm sewers in mid 1990s
- In April 2000, the current configuration of the system was implemented as the final remedy
- In April 2009, a shut down test for the offsite portion of the system in the Mantua community began
- In 2012, Motiva proposed to permanently shut down the offsite system

Final System Configuration



Horizontal Infiltration Wells



Recovery wells and trenches

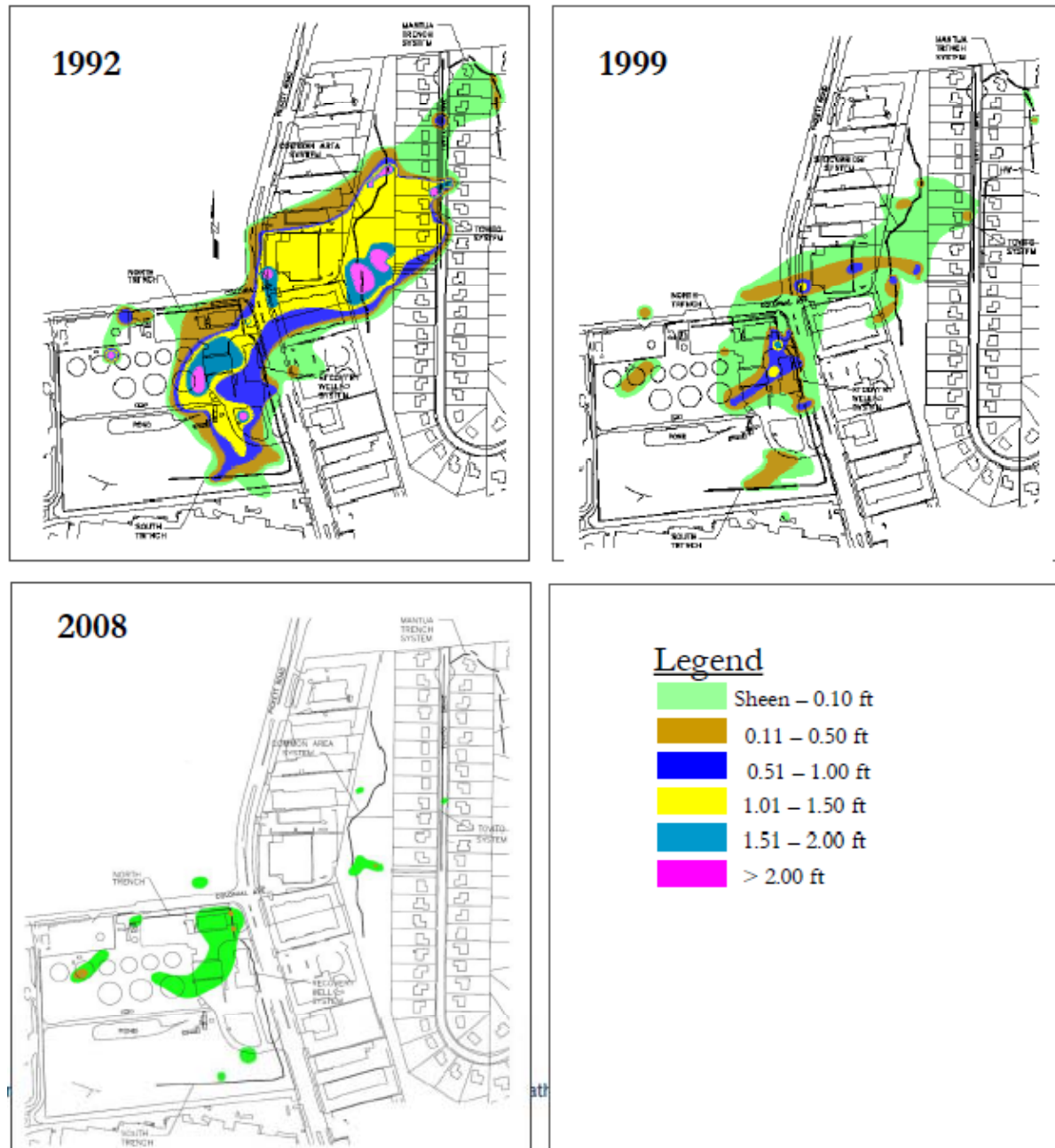
Groundwater Treatment System

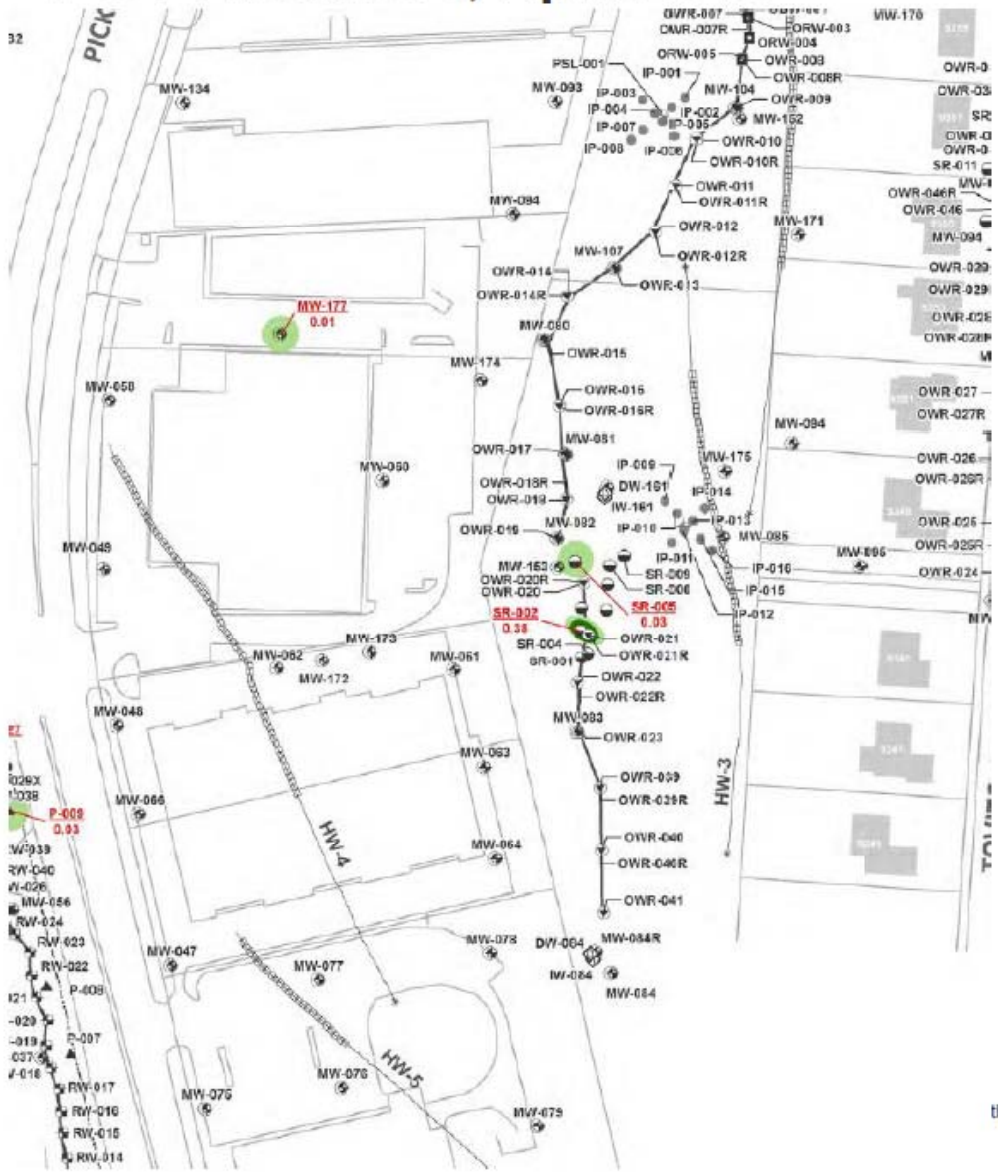


System Shut Down Criteria

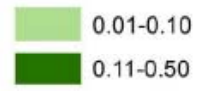
- As stipulated in EPA's Statement of Basis for the Final Remedy, Motiva may request EPA's approval to shut down the remediation system in whole or part if the following conditions are met
 1. The system performance has reached diminishing returns and further operation of the system will not be more effective than natural attenuation can achieve
 2. Shutting down the system will not pose unacceptable risks to human health or the environment

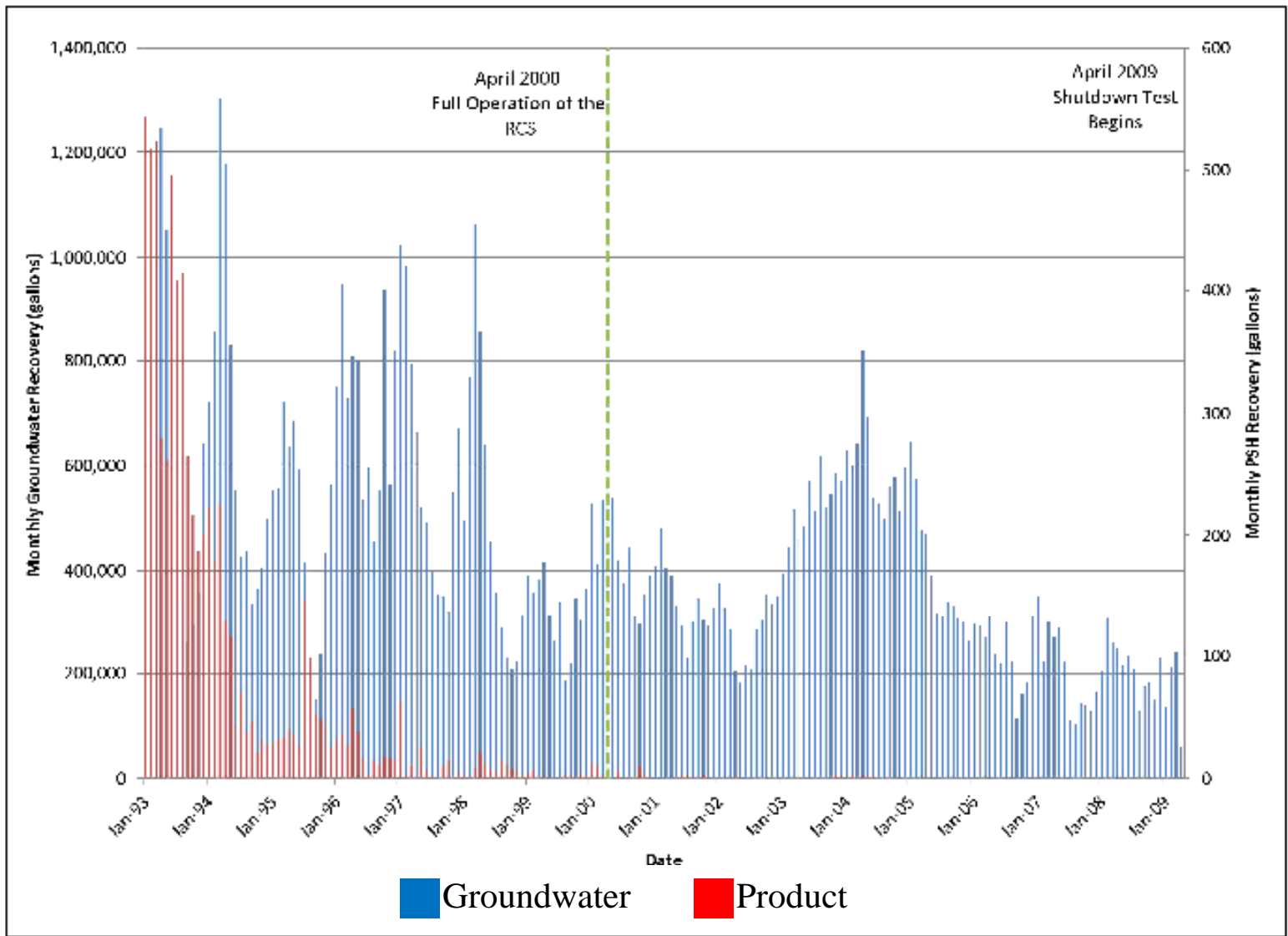
Product Thickness Plume Maps Over Time





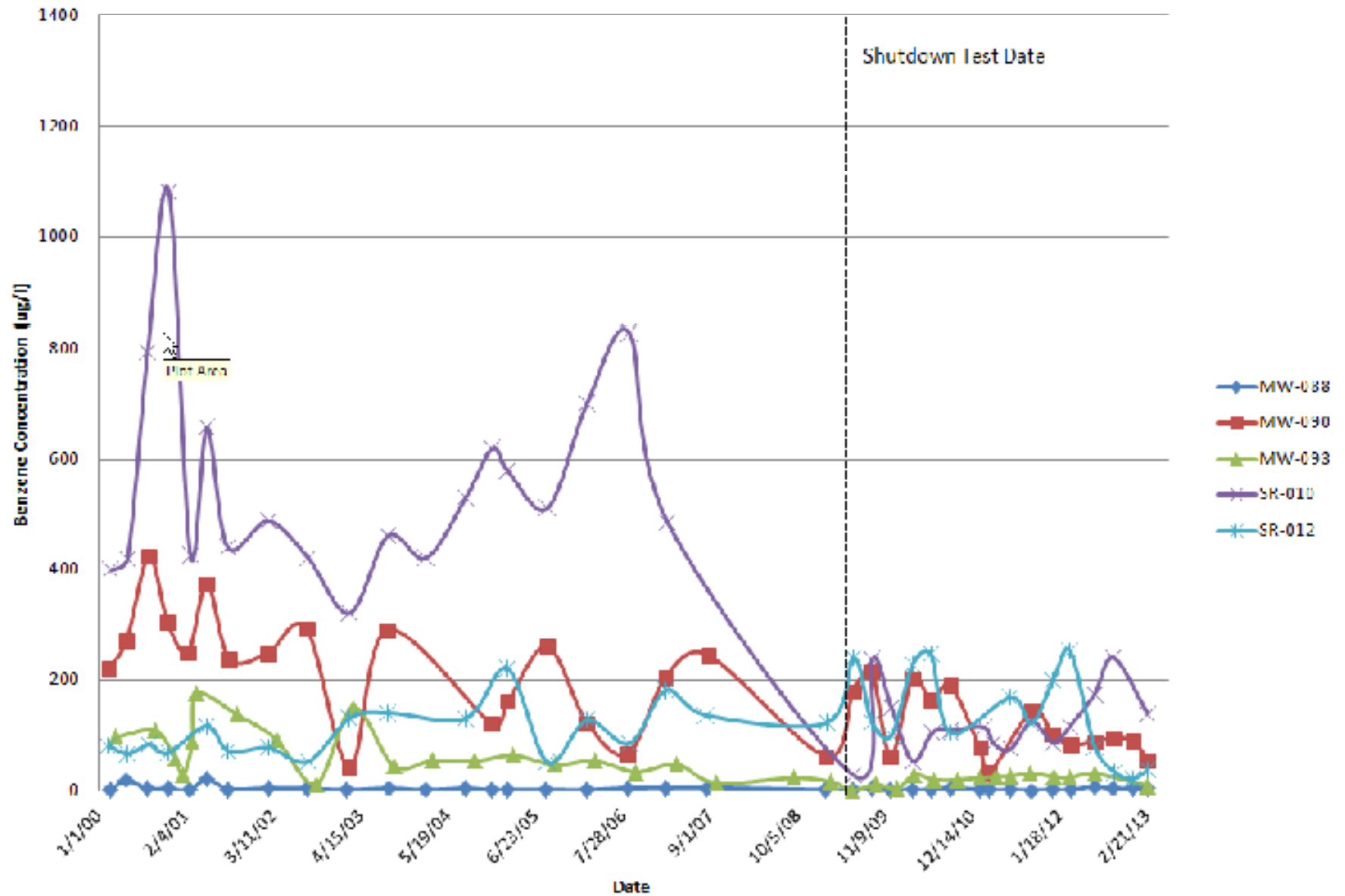
Product thickness April 2013

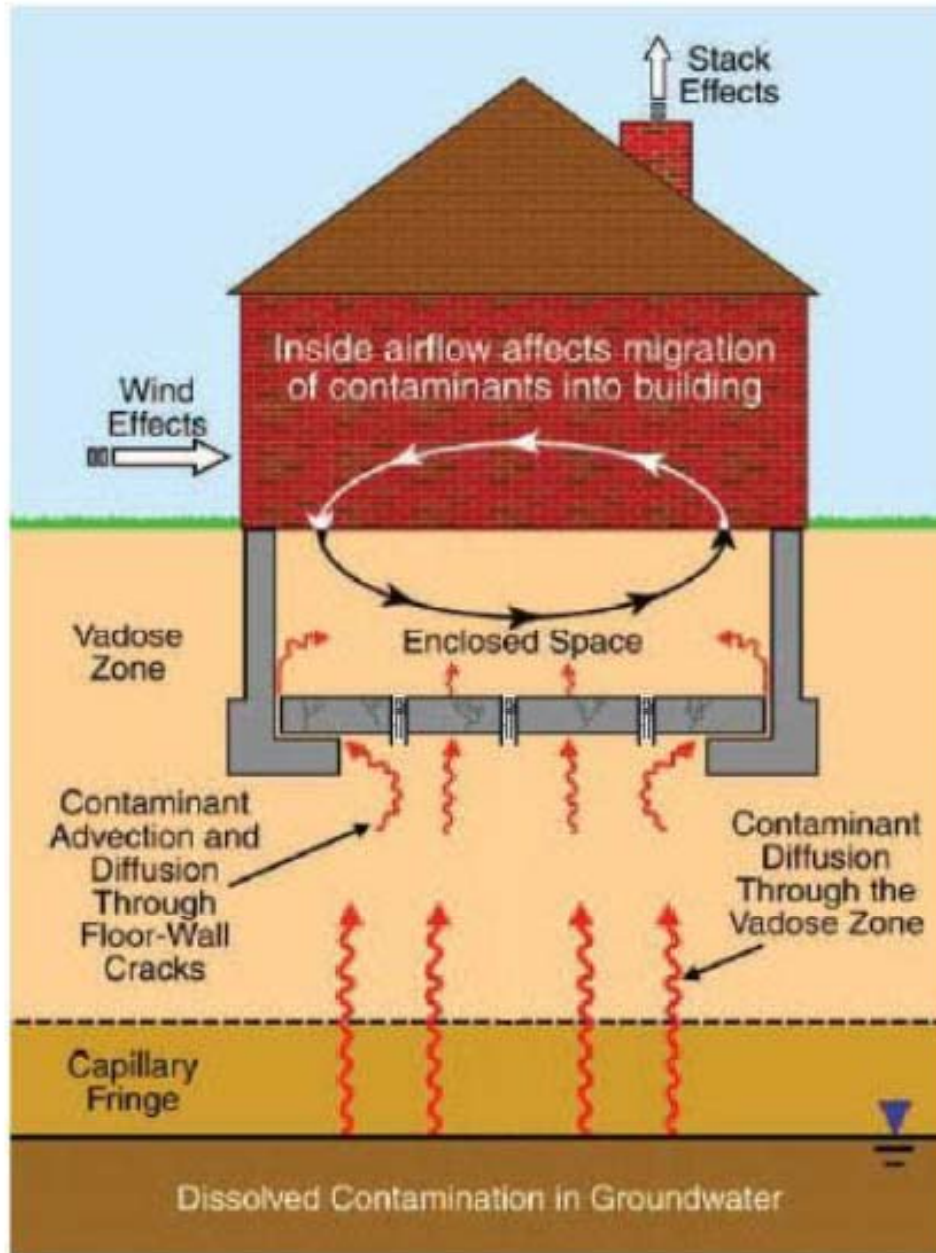




Monthly Off-Site Groundwater and Product Recovery
 January 1993 - April 2009




Tovito Benzene in Groundwater: 2000–2013

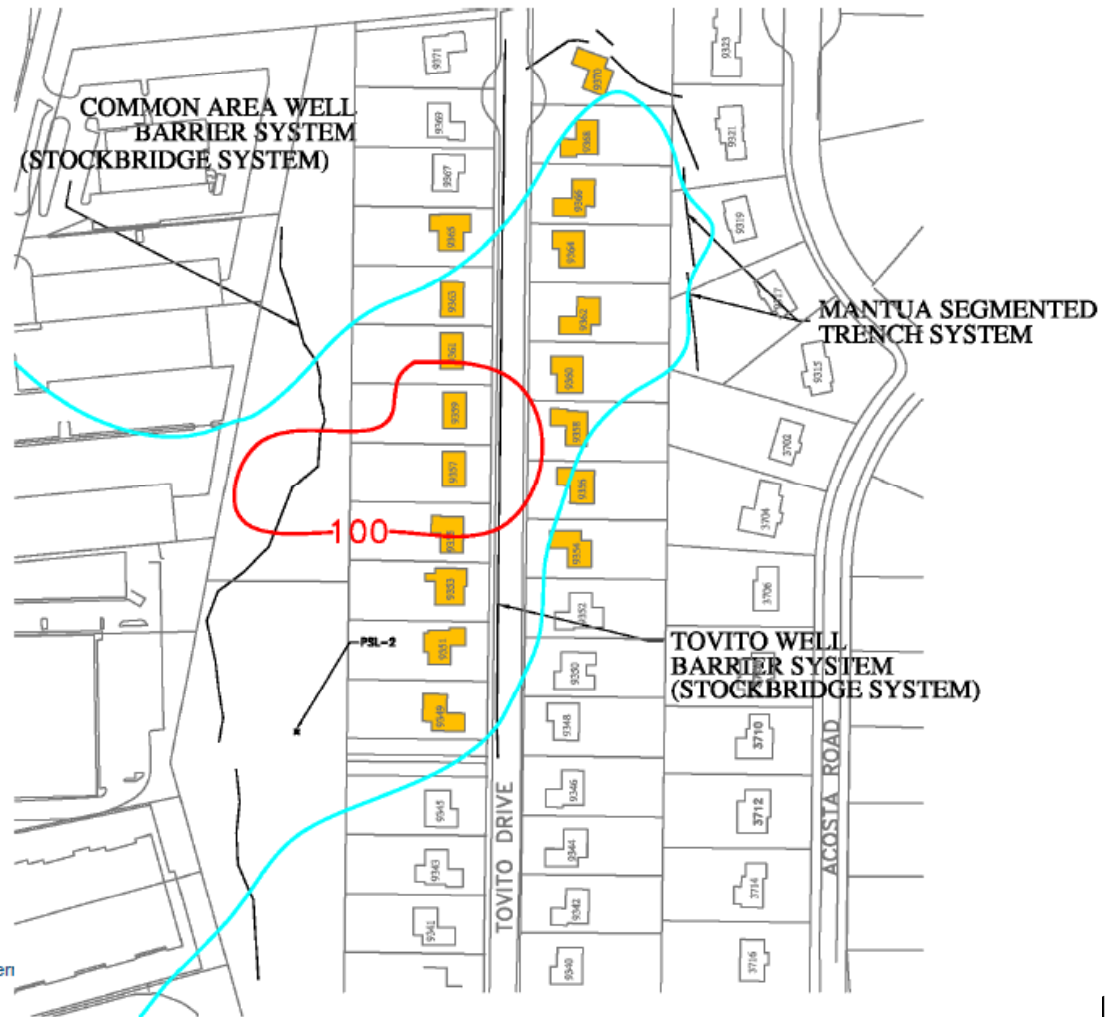




Tovito Drive Soil Vapor Assessment: Study Area Homes

Legend

-  Estimated Benzene Contour 100 (ug/l) April 2009
-  Dissolved phase plume boundary
-  18 SSSV Study Homes



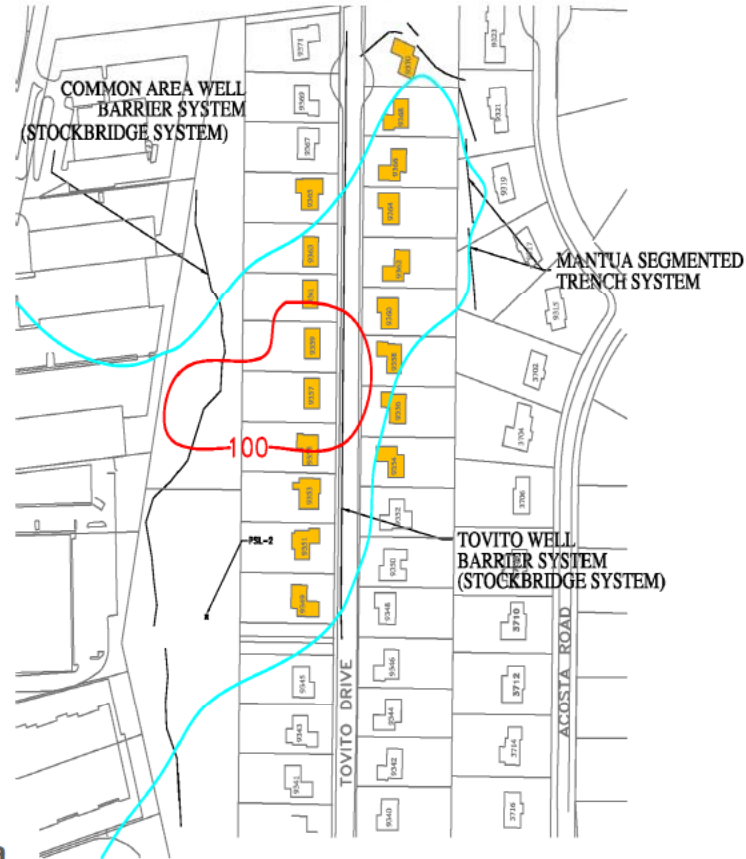
Public Meeting - Motiva Fairfax Terminal - Pen



Tovito Drive Soil Vapor Assessment: April 2009 Results

April 2009 Results	
Detectable benzene in SSSV samples	5 homes
Highest benzene concentration x attenuation factor	0.54 ug/m3
USEPA risk-based concentration - benzene	3.1 ug/m3
Detectable MTBE in SSSV samples	1 home
Highest MTBE concentration x attenuation factor	0.272 ug/m3
USEPA risk-based concentration - MTBE	94 ug/m3
Detectable xylene in SSSV samples	18 homes (<i>all sampled homes</i>)
Highest xylene concentration x attenuation factor	534 ug/m3 *
USEPA risk-based concentration - xylene	100 ug/m3
* Xylenes originated from the resin used to install the vapor probes.	

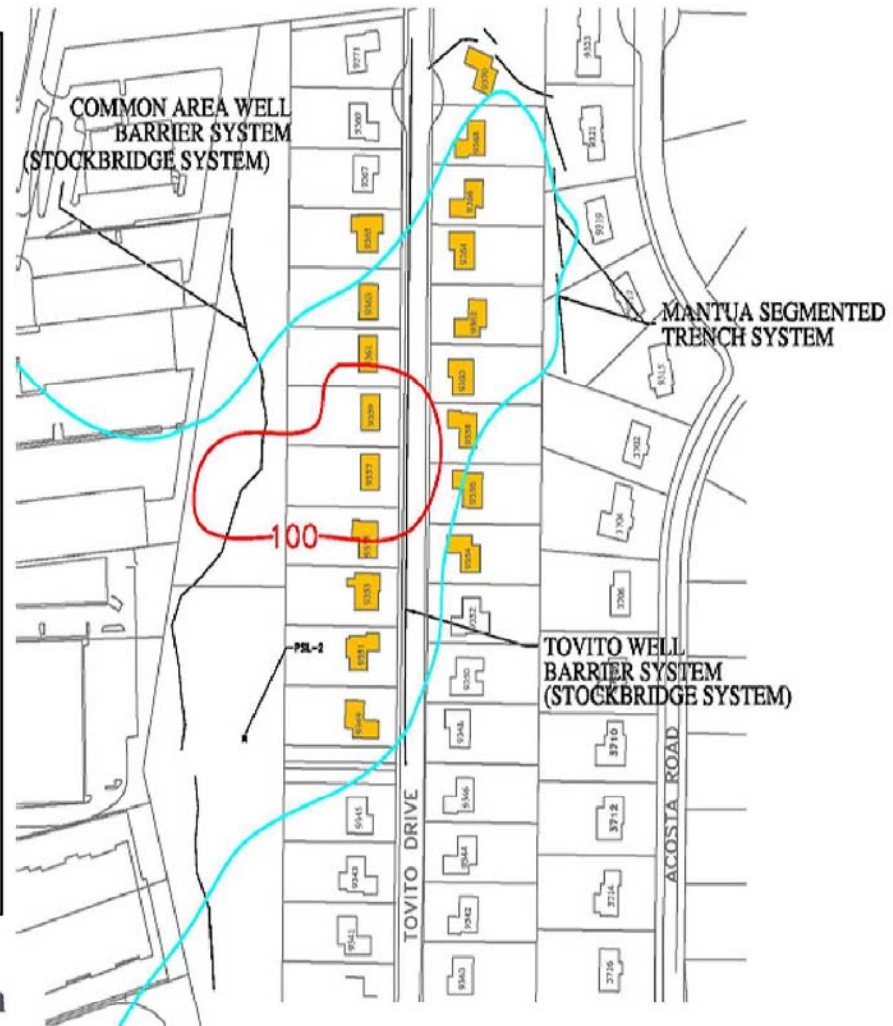
No values exceed screening criteria



Tovito Drive Soil Vapor Assessment: January 2010 Results

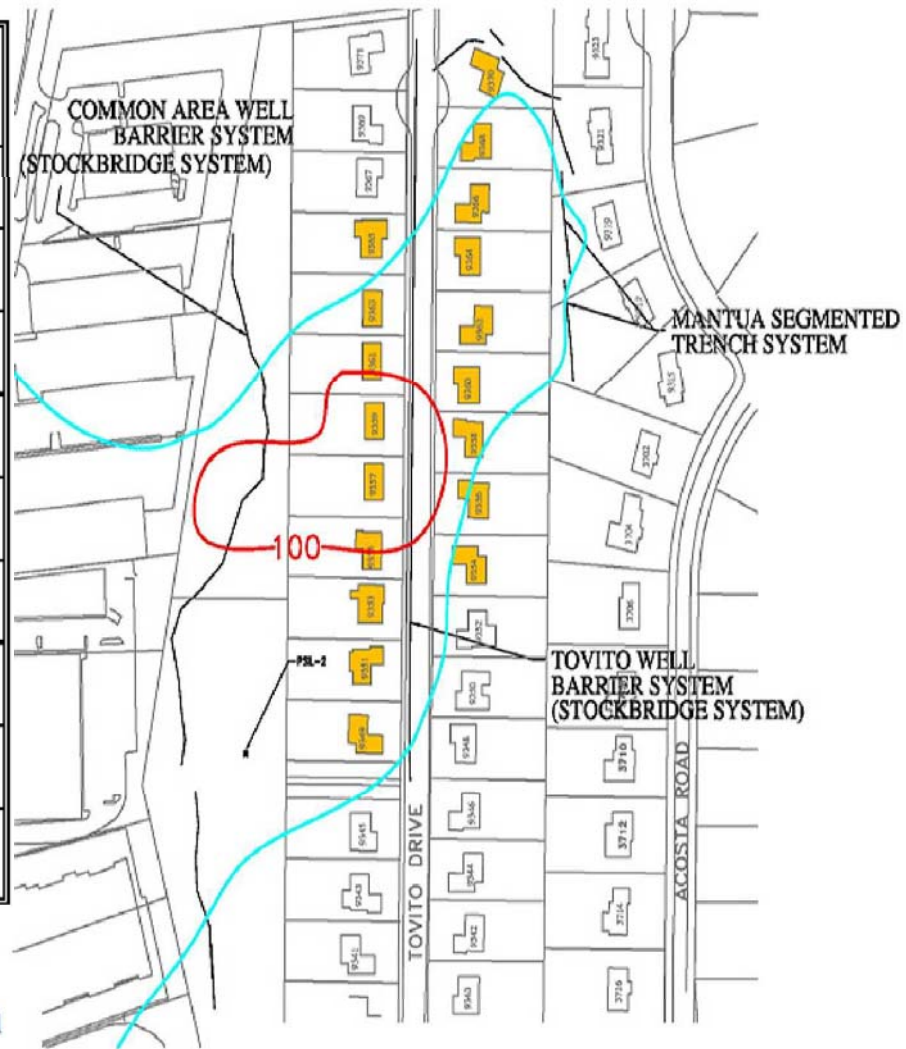
	January 2010 Results
Detectable benzene in SSSV samples	2 homes
Highest calculated IA benzene concentration	0.142 ug/m ³
USEPA screening level - benzene	3.1 ug/m ³
Detectable MTBE in SSSV samples	1 home
Highest calculated IA MTBE concentration	0.42 ug/m ³
USEPA screening level - MTBE	94 ug/m ³
Detectable xylene concentrations	1 home
Highest calculated IA xylene concentration	0.198 ug/m ³
USEPA screening level - xylene	100 ug/m ³

No values exceed screening criteria



Tovito Drive Soil Vapor Assessment: July 2010 Results

	July 2010 Results
Detectable benzene in SSSV samples	3 homes
Highest calculated IA benzene concentration	0.116 ug/m ³
USEPA screening level - benzene	3.1 ug/m ³
Detectable MTBE in SSSV samples	0 homes
Highest calculated IA MTBE concentration	n/a
USEPA screening level - MTBE	n/a
Detectable xylene concentrations	2 homes
Highest calculated IA xylene concentration	0.66 ug/m ³
USEPA screening level - xylene	100 ug/m ³



No values exceed screening criteria

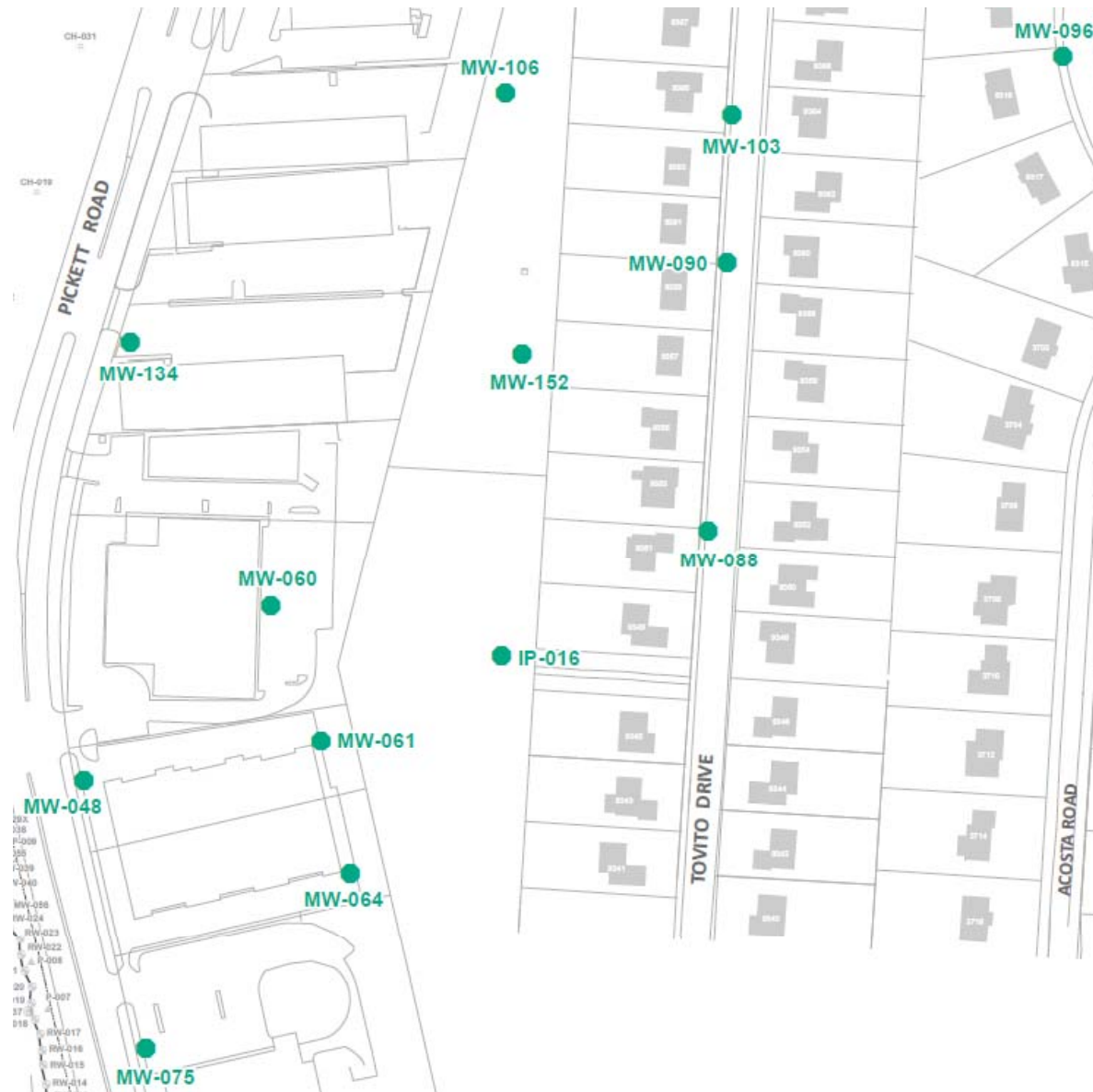
What actions will follow permanent shut down of the offsite system

- Abandon 67 recovery wells, 184 monitoring wells, and several thousand feet of horizontal wells, trenches and associated vaults and piping
- Conduct annual sampling of 13 selected monitoring wells remaining in the community to ascertain that natural attenuation continues to degrade the contaminants
- Conduct annual inspection of storm sewers in sections where liners were installed
- Submit annual monitoring reports to EPA
- Continue operation of the onsite system indefinitely

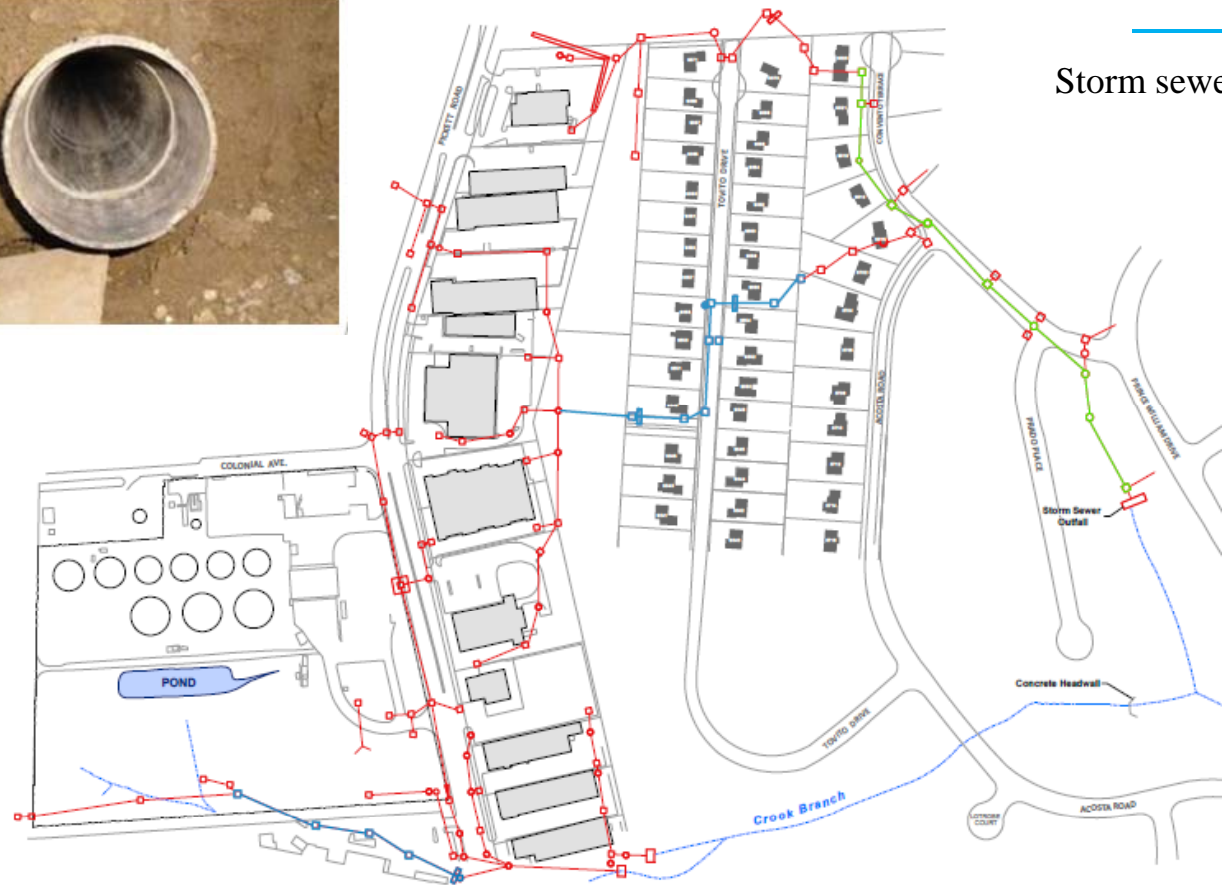
Abandon wells, vaults and piping



Annual Sampling of 13 monitoring wells



Annual inspection of storm sewers with liners installed



Storm sewer with liner

Questions and Comments