Nonantum TCE Investigation

Massachusetts Department of Environmental Protection

October 27, 2016

This presentation will cover:

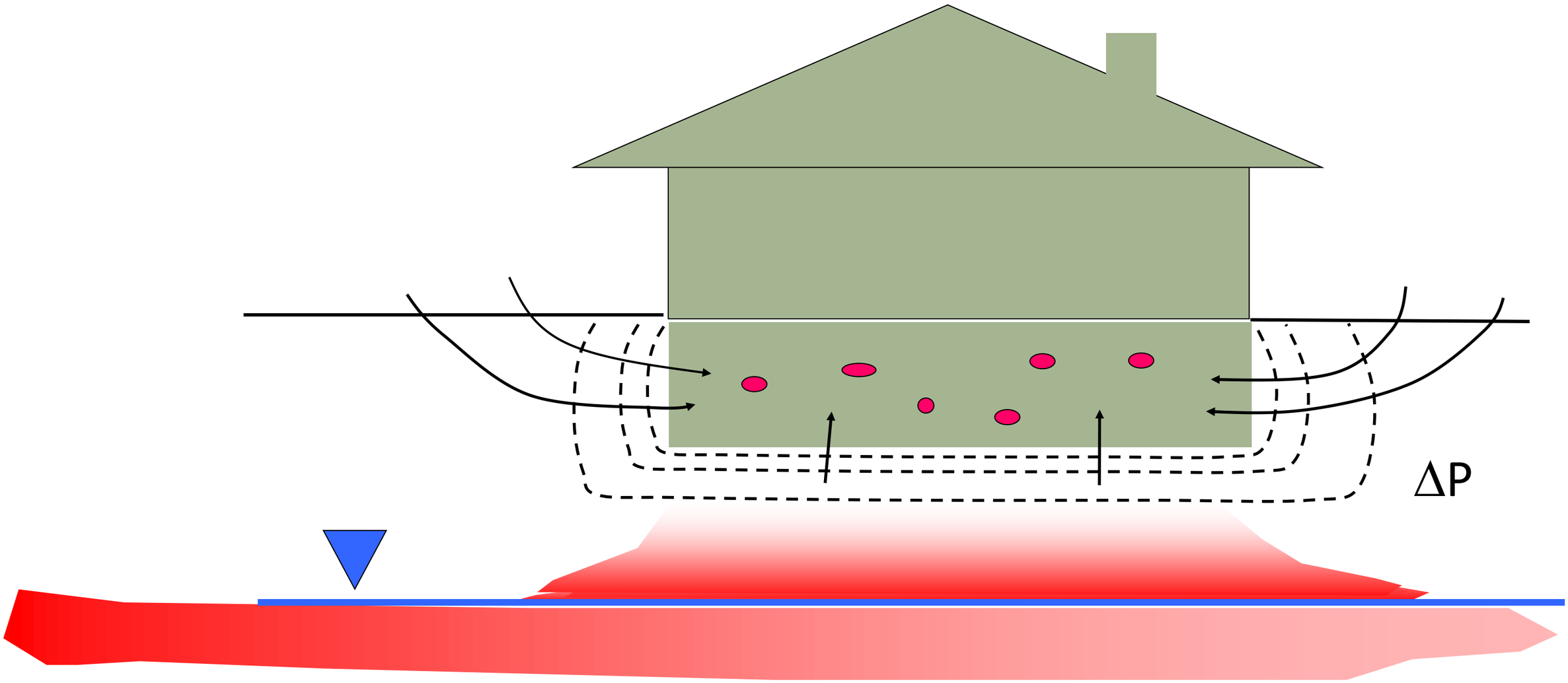
- MassDEP's main concern:

  Trichloroethylene (TCE) in indoor air via Vapor Intrusion
- Re-cap of site history and MassDEP testing prior to May 2016
- Groundwater testing since May 2016
- Indoor air testing since May 2016
- Next Steps

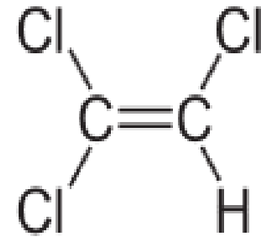
Vapor Intrusion

- Vapor Intrusion is gas entering a building from the subsurface (e.g., radon)
- Vapors can contain TCE from contamination in soil and/or shallow groundwater
- Factors that affect Vapor Intrusion:
  - Contaminant concentration in groundwater
  - Depth to groundwater
  - Integrity of basement floor

Vapor Intrusion Phenomenon



Trichloroethylene (TCE)



- Once a commonly used industrial solvent
- MassDEP has increased its attention on TCE sites due to lower limits for health protection
- Effects of TCE exposure include effects on developing fetus, immune system effects, and increased risk of cancers to kidneys, liver and non-Hodgkin’s lymphoma.

TCE – Action Levels in Indoor Air

- 6 micrograms per cubic meter (µg/m^3) is level for immediate action in homes where there are women who are pregnant, due to risk to developing fetus
- 20 µg/m^3 is immediate action level for everyone else
- Immediate action levels in workplace are 24 µg/m^3 for pregnant women and 80 µg/m^3 for everyone else
- US Environmental Protection Agency long-term guideline for indoor air is 2 µg/m^3 in a residence and 8 µg/m^3 in a workplace

MassDEP's Investigation

- Site on West St. with TCE contaminated groundwater identified via MassDEP audit
- Groundwater sampling was initiated to find levels of TCE that could result in vapor intrusion
- Indoor air of potentially impacted homes was tested
- Note: groundwater in Newton is NOT drinking water

If TCE is Present in Indoor Air

- Follow-up actions may include one or all of:
  - Testing over 24-hour period (or 8-hr in workplace)
  - Air Purifying Unit(s)
  - Sub-Slab Depressurization System (e.g., Radon Abatement System)

Typical Radon Abatement System

Summary of Field Investigation from Fall 2014 to May 2016

- Installation of 56 wellpoints to sample groundwater
- Sampling of indoor air of 76 buildings
- Based on indoor air testing, mitigation systems were installed in 6 homes
- The area of groundwater contamination extended from Pellegrini Park to Middle Street

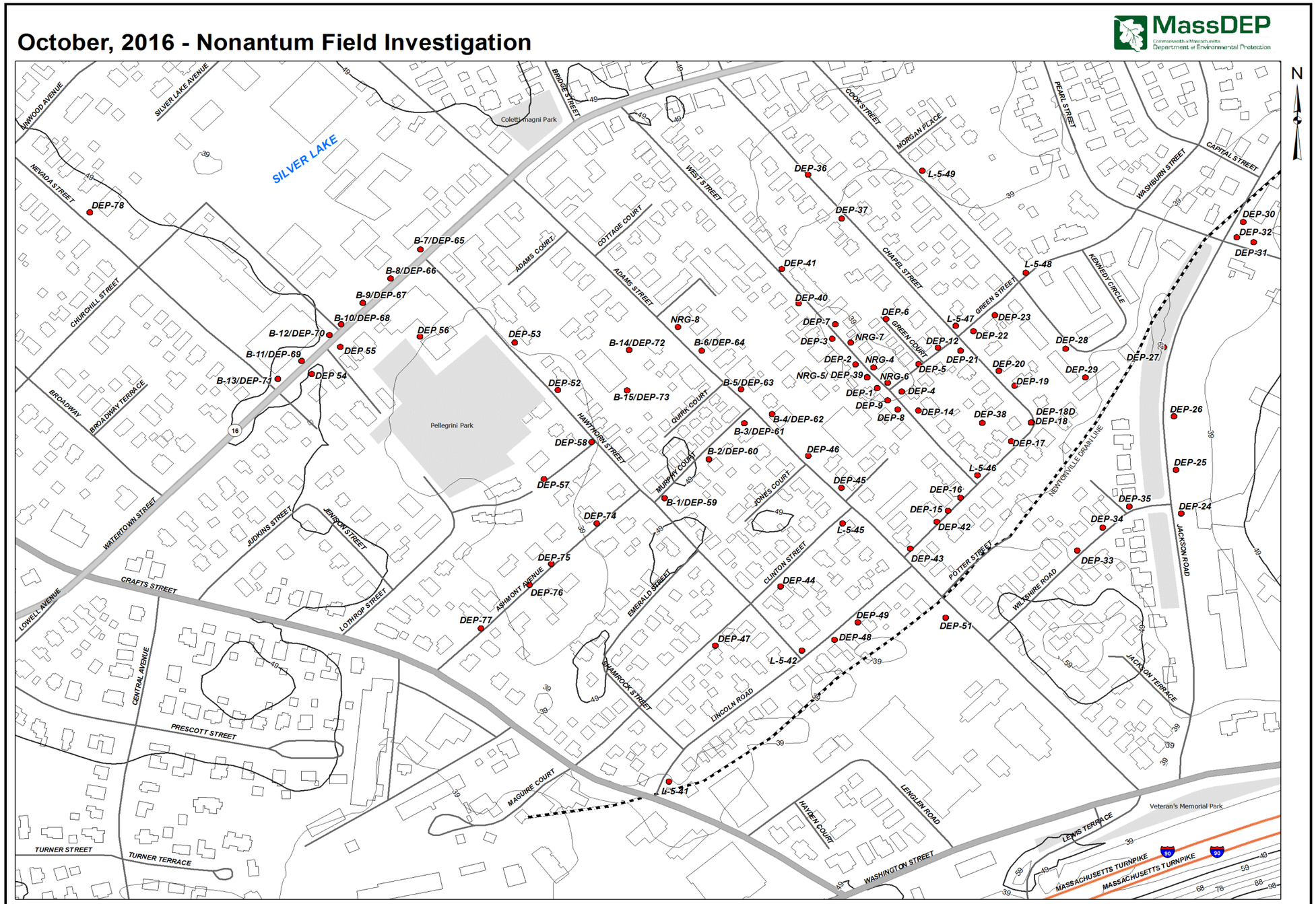
Next Steps as of May 2016

- Installation of additional groundwater monitoring wells using contractor drilling assistance
- Continue to identify properties within plume
- Test potentially affected homes/businesses
- Attempt to identify source(s)/Potentially Responsible Party(ies)

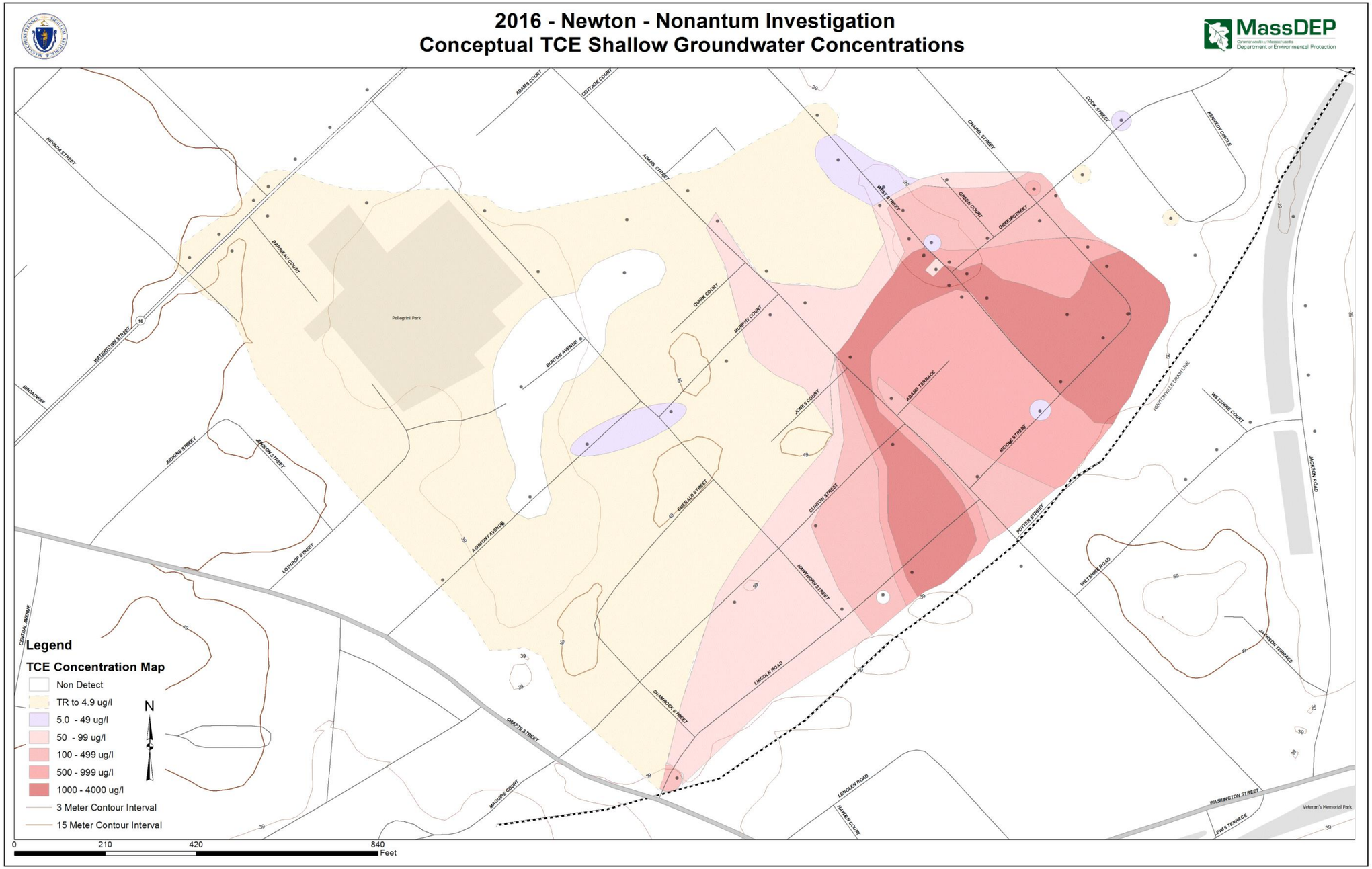
Additional Monitoring Wells

- Twelve wells were installed on Adams Street, Murphy's Court, and Ashmont Street
- Seven wells were installed along Watertown Street
- Levels of TCE ranged from trace to 52,000 ppb TCE
- Highest TCE found at 50-70 feet below ground
- Groundwater testing on Nevada Street is ongoing

Monitoring well locations



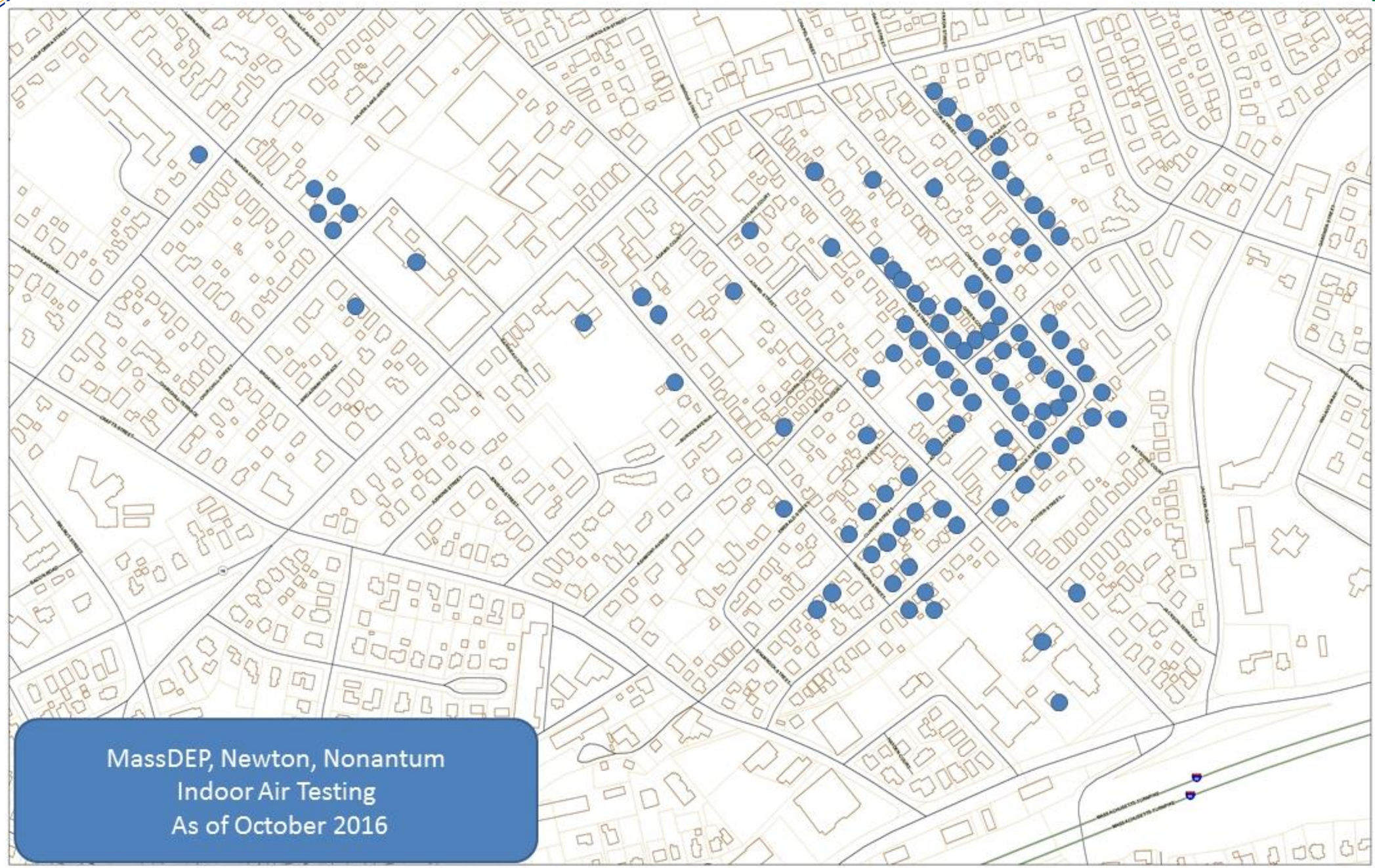
Conceptual Shallow Groundwater Plume



Additional Indoor Air Testing

- Indoor samples have been collected at 45 additional homes since May 2016
- Seven additional homes need vapor intrusion mitigation
- Indoor air tested at 4 commercial buildings
- TCE detected in one building above immediate action level, requiring mitigation
- Indoor air tested at 2 public buildings; no TCE detected at both buildings

Indoor air testing locations



Follow-up Actions

- Based on the groundwater testing results and historical records, MassDEP issued Notices to 3 potentially responsible parties (aka PRPs).
- The PRPs have replied that they intend to take immediate actions, initially focusing on the property, in response to MassDEP's letter.
- Some immediate actions at 320 Nevada Street have been taken; floor drains, ventilation, testing
- Plan of additional immediate actions due Nov. 3rd

Next Steps

- MassDEP will continue to test groundwater and indoor air as necessary to identify vapor intrusion.
- Once plan of immediate actions is submitted to and approved by MassDEP, that work will be conducted by Licensed Site Professionals (aka LSPs).
- Comprehensive testing will ultimately determine the extent of contamination in all media.
- Extent and degree of contamination will inform remedial decisions

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Questions ???