UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

June 9, 2014

REPLY TO THE ATTENTION OF:
LU-9J

Jason Smith
Corporate Environmental Director
Tecumseh Products Company
2700 W. Wood Street
Paris, TN 38242

Re: Summary of Additional Investigative Work to be Performed following May 12, 2014 Meeting, Pursuant to Administrative Consent Order MID 005 049 440

Dear Mr. Smith:

Thank you for meeting with the United States Environmental Protection Agency (EPA) in Chicago on May 12, 2014. As a result of our meeting, Tecumseh Products Company (TPC) agreed to undertake additional investigatory work to adequately characterize the nature and extent of contaminant releases at or from the facility and to investigate human health concerns associated with nine residences north of the site and the Martin's Home Center. This letter documents the specific tasks TPC agreed to perform at the May 12th meeting to accomplish the goals of these investigations.

Basis for Further Site Investigation

In anticipation of our May 12th meeting, a series of figures summarizing TPC-provided sampling results from primarily temporary groundwater sampling locations, as well as other data or interpretations, were generated. These figures document the progression of investigation and sampling results at locations where only temporary data was available and establishes the inadequacy of the data, both on and off-site, to document the extent and intensity of contaminants within the plume. In addition, the figures support the concern that on-site plume(s) are undefined and appear to be sinking/expanding. The figures developed prior to the meeting, and reviewed and revised with TPC during the meeting, are attached to this letter as Figures 1-15.

Requirement to Perform Three Dimensional Characterization of the Contaminant Plume

In response to EPA's January 31, 2014 deficiency letter, TPC provided to EPA on March 27, 2014 a revised Statement of Work identifying Membrane Interface Probe (MIP) and Groundwater High Resolution Site Characterization (HRSC) investigation activities it proposes

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to perform to further characterize the source areas. In response to the concerns presented at the May 12th meeting, TPC agreed to expand the scope of its MIP and HRSC investigation and mobilize its subcontractor to begin the work in June 2014. Described below is a detailed description of the positioning of the MIP and HRSC locations agreed upon at the meeting; Figure 1 visually identifies the location of the MIPs and HRSC locations, and Figures 2-15 provide the bases for EPA's requests. Also set forth below is the general protocol discussed at the meeting, as well as potential issues requiring further clarification. TPC agreed to expand the HRSC investigation to additional areas beyond those identified in prior drafts of the SOW, with the understanding that siting adjustments may be necessary based on MIP results and initial HRSC results. Finally, a site visit will be conducted in June during the three dimensional characterization exercise to help ensure the characterization effort will be consistent with EPA's expectations. The goal of the three dimensional characterization in source area(s) is to produce the necessary data to: 1) define the nature, extent, and intensity of the contaminants in the source area(s); 2) design and install an adequate monitoring well network in the source areas; 3) establish a platform for the adequate characterization and delineation of the nature and extent of releases at or from the facility; and, 4) evaluate the source area corrective measures that could be required.

Membrane Interface Probe (MIP) Investigation

During the May 12th meeting, EPA and TPC agreed to 21 preliminary locations for the MIP investigation; these locations are shown on the attached Figure 1. The locations were selected to cover the high-concentration areas identified by TPC during passive soil-gas source characterization (refer to Figures 2 and 3 of the Technical Memorandum dated April 10, 2014, and attached to the April 15, 2014 quarterly progress report). Other areas were selected that were not identified by TPC as sources, but which contain high levels of contamination, are in areas that do not have current data, or are in areas with limited data. Locations outside the identified source areas are numbered on the attached Figure 1, and were included to assess the veracity of the of the soil-gas characterization data and concentration differences between defined source areas and the non-source areas. Lastly, the results of the passive soil gas work TPC performed in early 2014 in the northwest portion of the site, and near the sewers in the southeast potion of the site are currently unavailable. Once provided, additional MIP locations that are not identified in Figure 1 may be necessary. Detailed below are certain procedures related to the MIP work that were not addressed in TPC's two prior Statements of Work, and are required for the proposed work to be considered acceptable, given that a work plan has not been prepared as originally requested.

- TPC will establish MIP sampling locations with a lateral spacing of approximately 150-feet between MIP sampling locations in identified source areas. The 150-foot spacing is necessary due to the observed spatial variability in TPC's soil-gas data.
- MIP screening data will be collected continuously from ground surface to the top of the deep basal clay.
- The MIP screening will be performed using in-series detectors to produce a combination of screening logs for each sampling location. EPA requires the following standard detectors for TPC's MIP work: EC (electrical conductance); gas chromatography (GC)-

grade flame ionization detector (FID); and halogen specific detector (XSD) or electron capture (ECD), if appropriate for isolating TCE. The detectors will establish the presence of trichloroethylene and associated degradation products in dissolved phase and/or as DNAPL (dense non-aqueous phase liquid). Photoionization (PID), or dry electrolytic conductivity (DELCD) detectors may also be employed by TPC along with the preceding detectors.

- The MIP will be calibrated with a TCE standard before each boring. MIP results will be compared with results from soil samples that will be collected and analyzed for VOCs (volatile organic compounds) by an on-site mobile laboratory.
- Soil samples will be selected for VOC analyses at the depths where the highest MIP readings for TCE are recorded at each MIP location. Laboratory analyses for VOCs need to be performed on 1-3 discrete soil samples per soil boring. The samples analyzed will be from the intervals displaying the three highest readings for trichloroethylene and/or degradation products. The soil sampling interval for each discrete soil sample will not exceed two (2) feet, or be less than 2-feet, for consistency. EPA has agreed to be in contact with TPC regarding samples selected for analysis. These data are needed to minimize the uncertainty regarding maximum source concentrations and assess the intensity and significance of the identified sources, evaluate the need for further source characterization and/or source remediation, and select the locations and screened intervals for permanent groundwater monitoring wells.
- It was agreed in the meeting that MIP locations denoted as locations 3, 4, and 9 on the original Figure 1 would be sampled as part of the high resolution groundwater sampling scope of work rather than with the MIP, while MIP location 11 was eliminated due to anticipated access issues. Since this location is immediately downgradient from the heaviest impact identified to date, EPA may assist TPC in gaining access for soil and groundwater sampling at location 11 in the future.
- The MIP results will be used to determine whether the sampling has sufficiently addressed the data gaps in source area characterization identified in EPA's January 31, 2014 letter.
- Upon completion of the MIP work, TPC will evaluate the MIP logs and provide cross-sections or fence diagrams incorporating all of the MIP data to aid in visualizing connection of preferential migration pathways across the site and assist in selecting locations for future monitoring well installations.
- Groundwater samples will subsequently be collected at the depth of the heaviest combined MIP readings and confirmation soil sampling results. The groundwater samples will be collected from permanent monitoring wells to be installed at the depth of heaviest impact(s). The locations and depths will be determined from the MIP results.
- Subsequent to our meeting, EPA provided TPC the option of collecting soil samples in 2-foot intervals continuously from the ground surface to the basal clay at all MIP locations, and performing laboratory analyses for VOCs on all sample intervals. This option was presented as an alternative to performing the MIP screening work to target individual sampling intervals for VOC analyses using the MIP screening data. If TPC chooses to implement this alternative, it must provide prior notification to EPA of such selection.

Groundwater High Resolution Site Characterization (HRSC) Work

EPA and TPC agreed to five (5) preliminary HRSC transects and 3 individual HRSC locations during the May 12th meeting. The locations identified for HRSC analysis are shown on the attached Figure 1. The HRSC locations were selected to be positioned downgradient from identified sources, including sewers and process areas, and/or along apparent preferential migration pathways. Additional HRSC locations that are not identified in Figure 1 may be necessary once the initial MIP and HRSC work are interpreted. I have detailed below the procedures EPA expects TPC to employ in conducting the HRSC work.

- TPC will position HRSC locations along transects so that horizontal spacing between individual HRSC sampling locations does not exceed 150 feet due to the noted horizontal spatial variability exhibited by the data and presence of multiple sources. For this phase of the work, a total of 37 sampling locations have been identified.
- Groundwater samples will be collected for laboratory analysis of VOCs at multiple depths at all HRSC locations.
- Samples will be collected at discrete consecutive intervals throughout the water column at all HRSC locations. Samples will be collected using Geoprobe® or equivalent direct-push technology equipped with dual tube samplers. Soil samples will be collected for logging from the ground surface through the basal clay. A 3-foot long slotted temporary well screen will be inserted into the outer tubes for groundwater purging and sampling. After sample collection for VOCs at the basal clay, the tubes and well screen will be retracted to the next interval, so that the sampling tube is positioned at the upper screen slot. Groundwater samples must be collected and analyzed from all intervals proceeding from the basal clay to the water table in 3-foot increments with no more than 3 feet between successive intervals.
- Samples will be collected sequentially across the entire saturated thickness of the aquifer.
- Groundwater samples will be collected and analyzed for VOCs from all discrete intervals not to exceed 3 feet, due to the documented variability in groundwater concentrations at varying depths in B-1/MW-1, B-50, and B-52, and potential for multiple sources at varying depths.
- Vertical spacing between the groundwater sampling intervals to be analyzed will also not exceed 3 feet, due to the aforementioned vertical concentration variability.
- The HRSC data will be used to select the location and screened intervals for permanent monitoring wells. Additional HRSC locations may also be needed. The combined HRSC and MIP results will be evaluated to determine the next steps in TPC's site characterization process.

Human Health Concerns

Based on the high levels of TCE in various soil gas samples, the high variability in soil gas sample results, and concerns regarding the delineation of impacts in groundwater, TPC agreed on May 12th to evaluate presumptive mitigation and/or vapor intrusion testing at nine (9) residences of concern north of the site (PIN 325-0160-00, 325-0120-00, 305-2091-00, 305-2110-00, 305-2120-00, 305-2131-00, 305-2140-00, 305-2151-00, and 305-2170-00). Within ninety days, TPC

agreed to provide an assessment for future steps in the evaluation of these properties. In addition, TPC agreed to initiate efforts to obtain access to the Martin's Home Center site to conduct soil gas testing at the building perimeter, as shown in Figure 3 of the original SOW, dated March 3, 2014, rather than at the TPC property line, as proposed in the revised SOW. Additional work may still be needed after this initial scope of identified work.

Other Matters Discussed on May 12

EPA emphasized that permanent monitoring wells must be installed following completion and assessment of the investigatory work described during this phase of investigation. It is likely that subsequent follow-up investigation(s) will also be required to establish the extent of contamination in groundwater to MCLs. In addition, TPC's characterization work for the groundwater/surface water interface submittal will require coordination with and approval from MDEQ. The proximity of contamination relative to on-site sewers was noted, and EPA requested site plans showing the configuration for all current/former on-site sewers. TPC indicated that plans showing the configuration of sewers within building footprint were unavailable. EPA remains concerned that the on-site sewers may be a source for contamination, and requires a visual survey of on-site manholes. The visual survey can be completed during the MIP and HRSC work. Based on the results, EPA will evaluate whether alternate methods for determining the location of sewers are needed. Finally, in a follow-up message to TPC, EPA identified that all of the existing permanent monitoring wells installed at all intervals at SS-09, SS-10, NS-18, NS-19, and NS-20 should be added to the current quarterly groundwater monitoring network to track the lateral and vertical migration of contamination adjacent to these (three) source areas beginning with the current quarter in May 2014.

EPA appreciates TPC's continued cooperation and commitment to addressing the site concerns we discussed at our meeting and look forward to scheduling the site work referenced above as soon as possible. Please contact me is you have any concerns or comments.

Sincerely,

Joseph Kelly, Project Manager
Remediation and Reuse Branch

cc: Graham Crockford, TRC Environmental Corporation (TPC Project Manager)
Douglas McClure, Conlin, McKenney & Philbrick, PC
Stacy Metz, TRC Environmental Corporation
Tecumseh District Library – Public Repository

Attachments: Figures 1-15

bcc: Susan Perdomo, ORC C-14J
Joseph Kelly, LCD LU-9J
Mario Mangino, LCD LU-9J
Dan Mazur, LCD LU-9J
Colleen Olsberg, LCD LU-9J
Dave Petrovski, LCD LU-9J
Bhooma Sundar, LCD LU-9J

Figure 1: MIP Locations and HRSC Transects

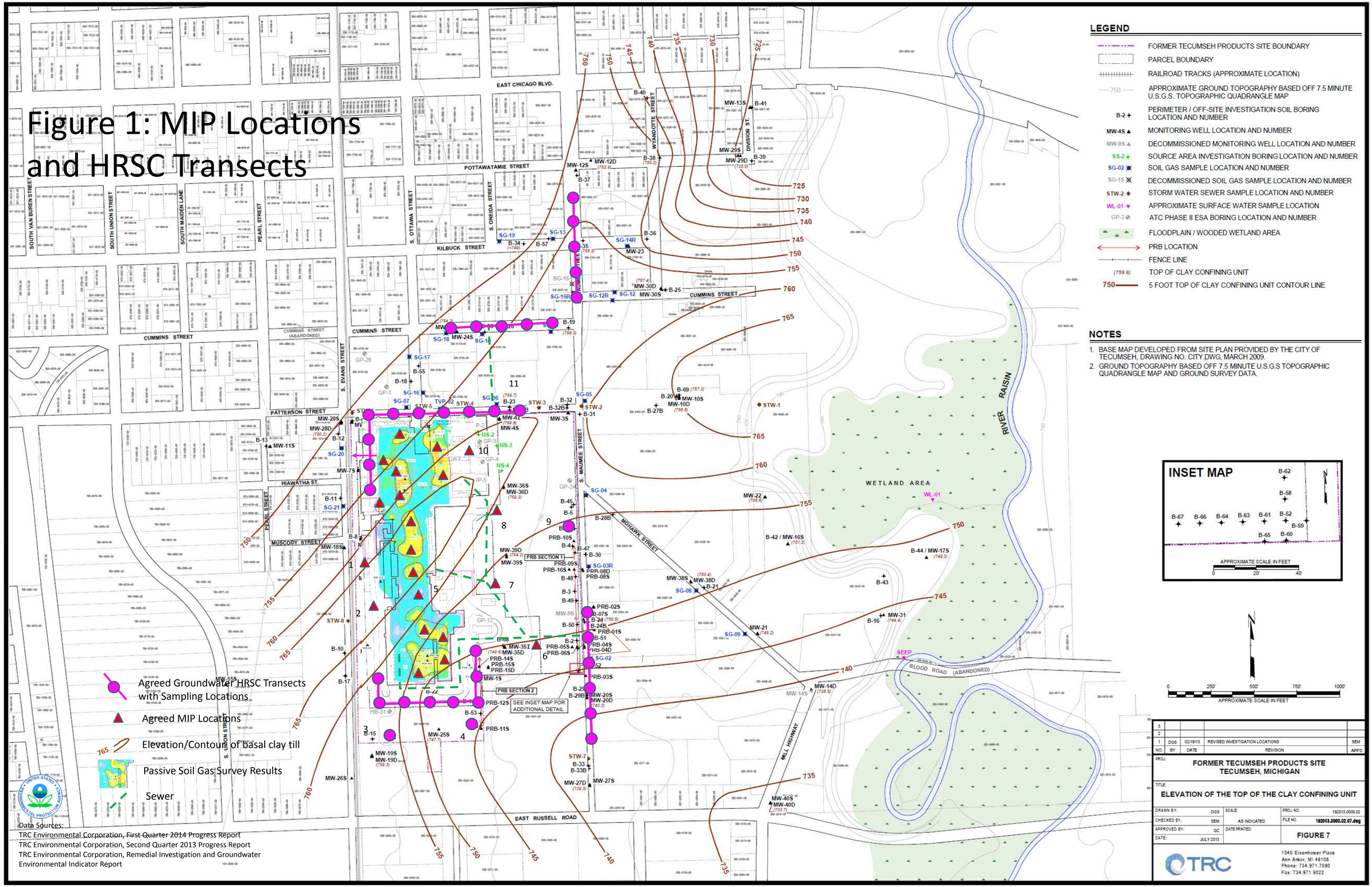
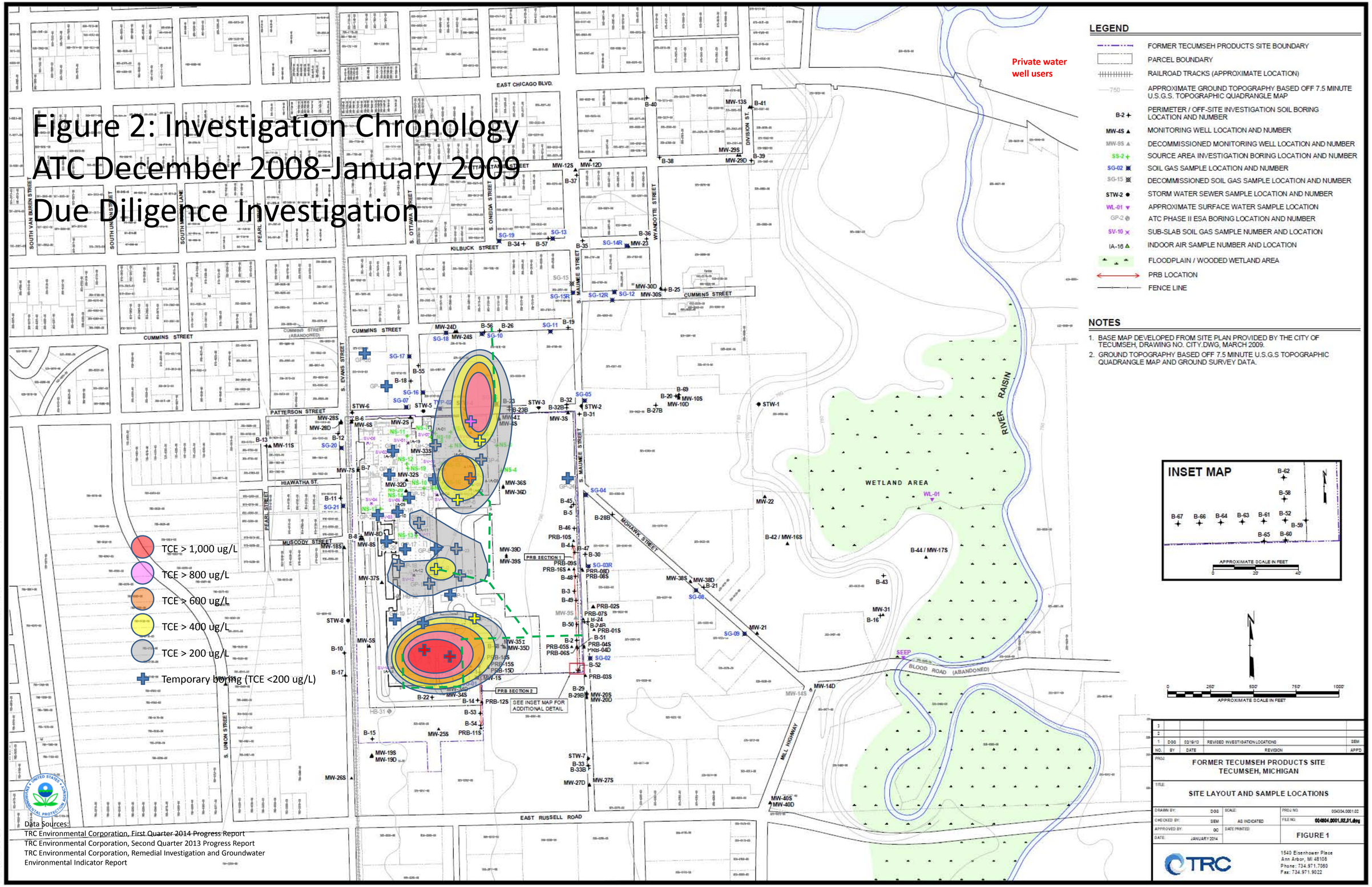
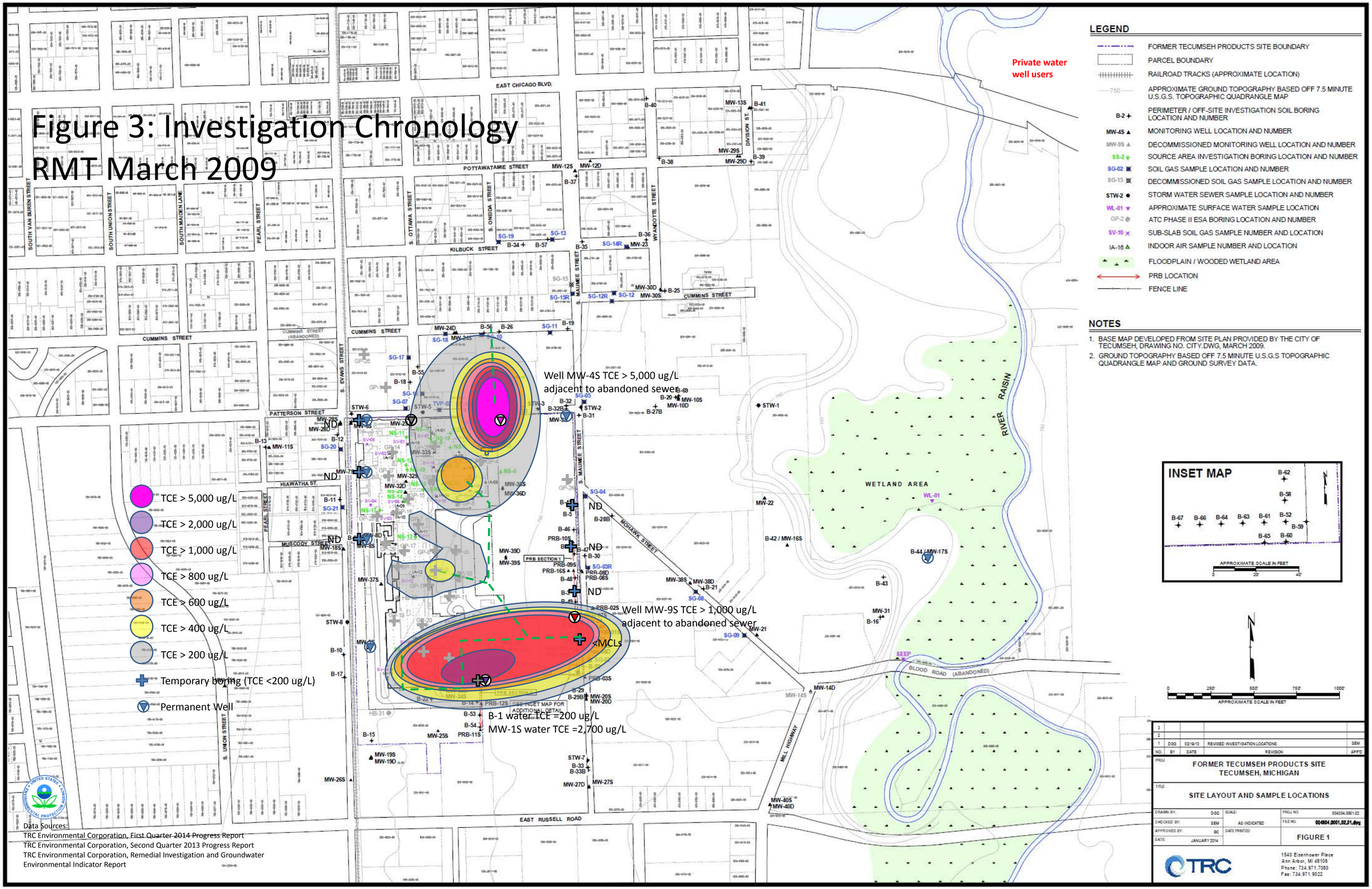


Figure 2: Investigation Chronology
ATC December 2008-January 2009
Due Diligence Investigation



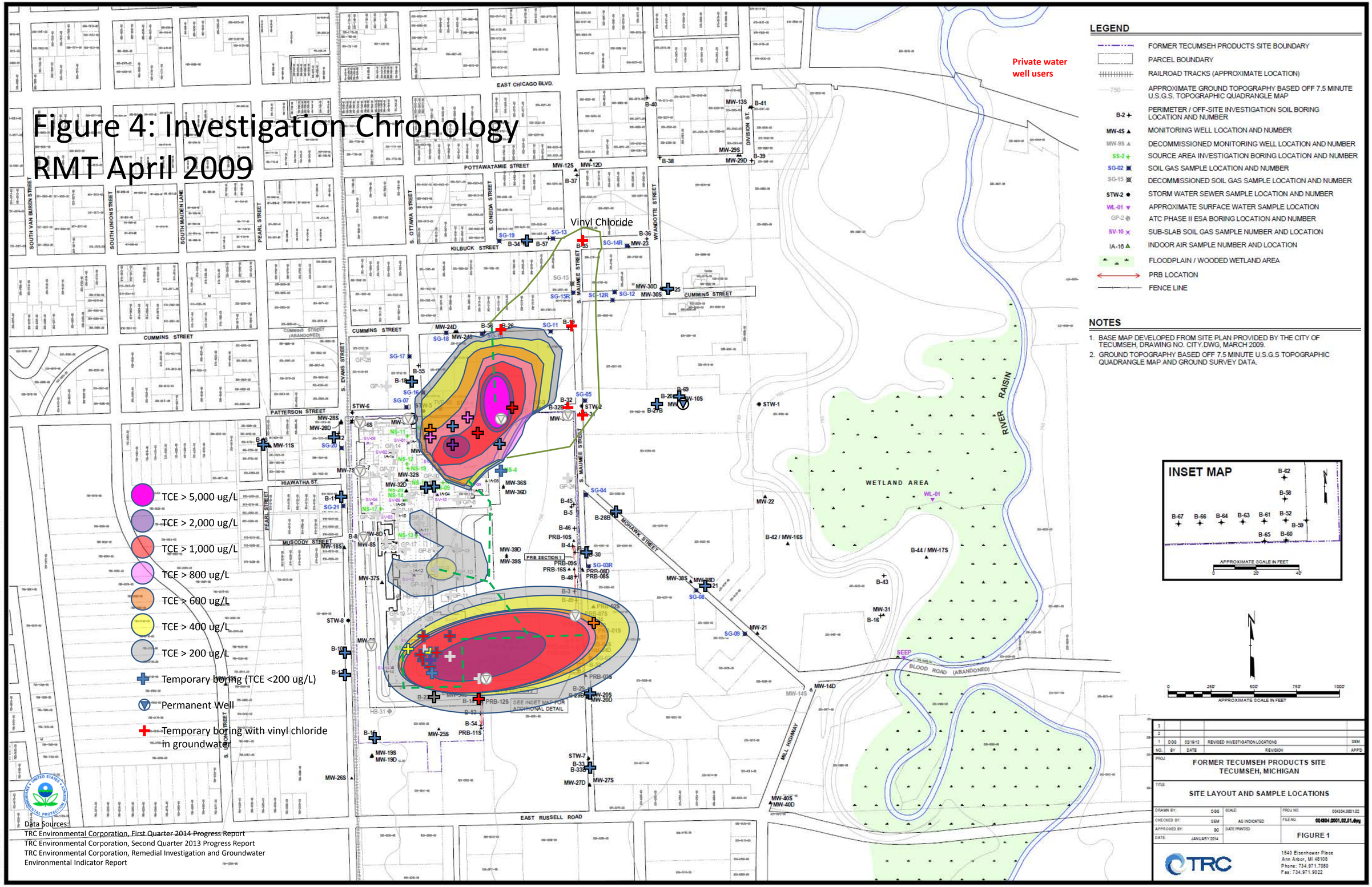
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 3: Investigation Chronology
RMT March 2009



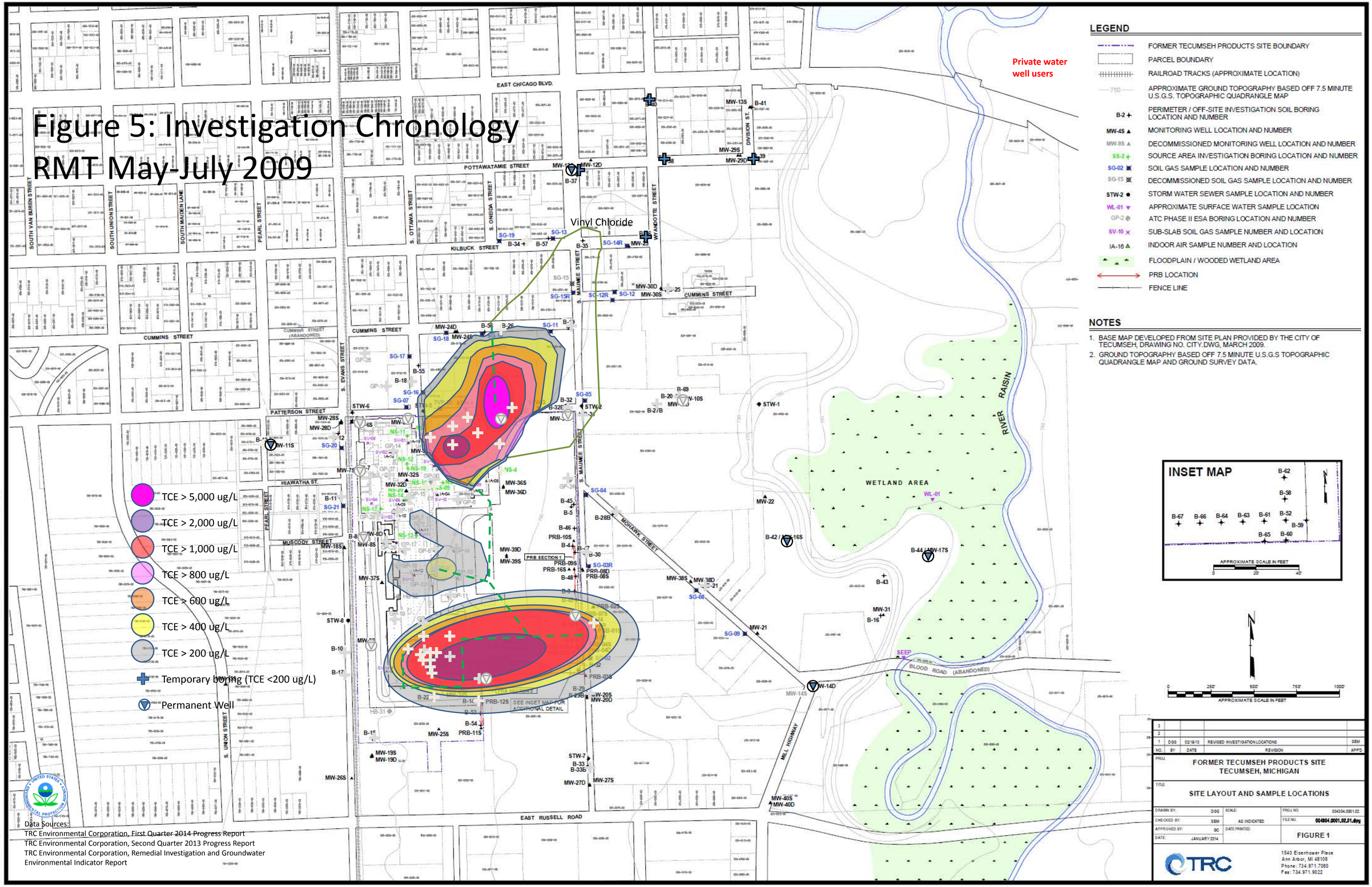
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 4: Investigation Chronology
RMT April 2009



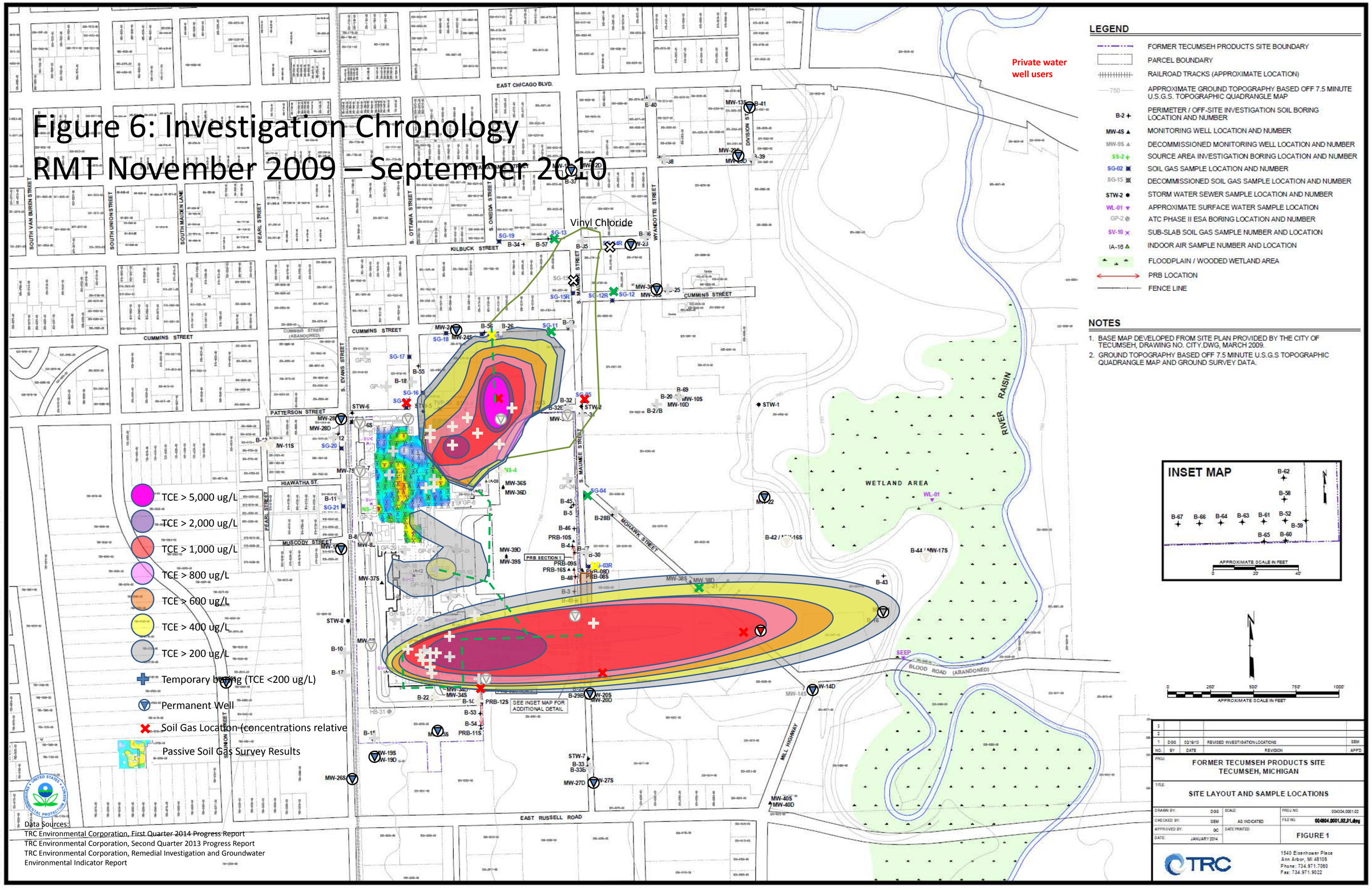
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 5: Investigation Chronology
RMT May-July 2009



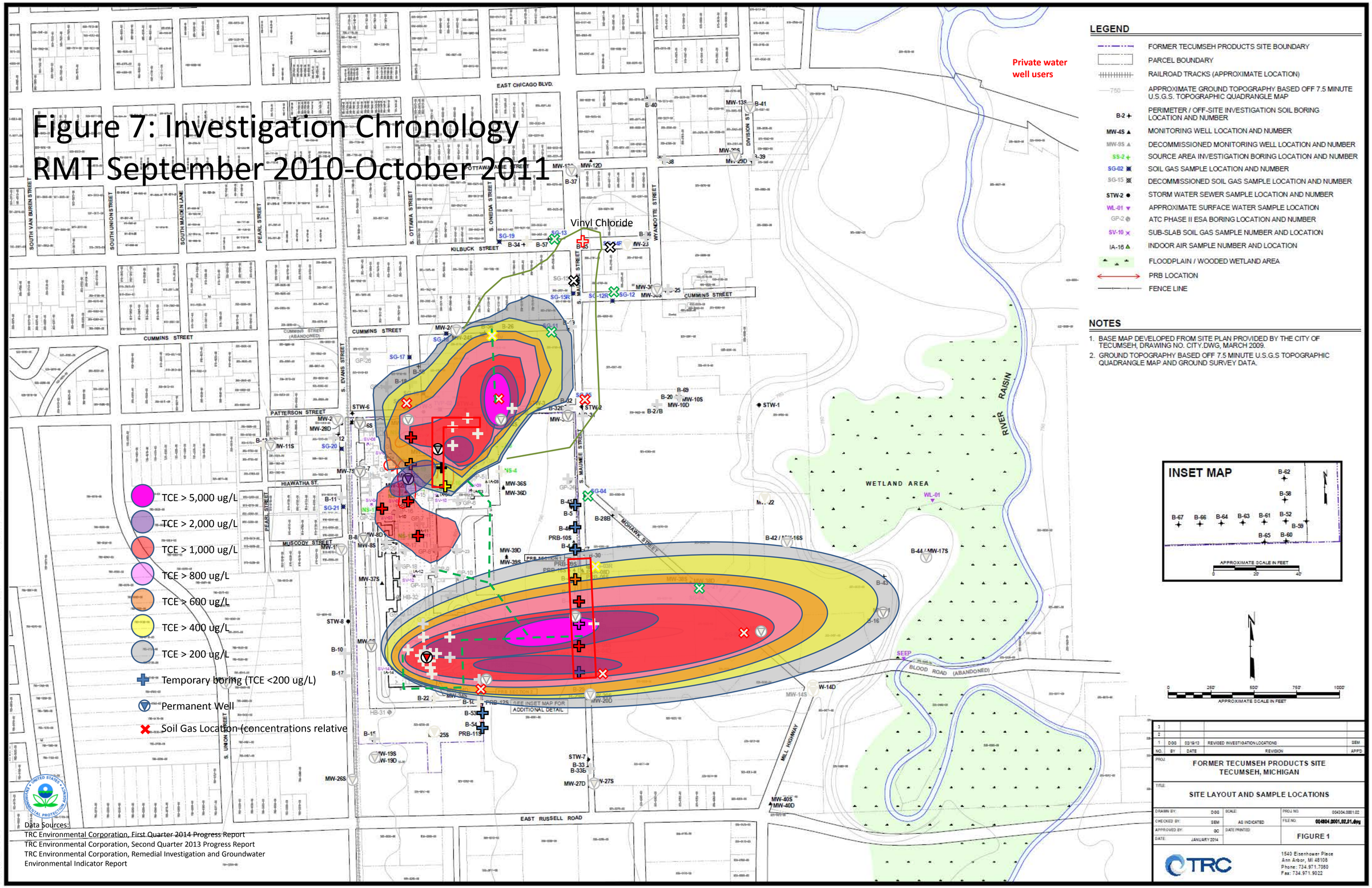
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 6: Investigation Chronology
RMT November 2009 – September 2010



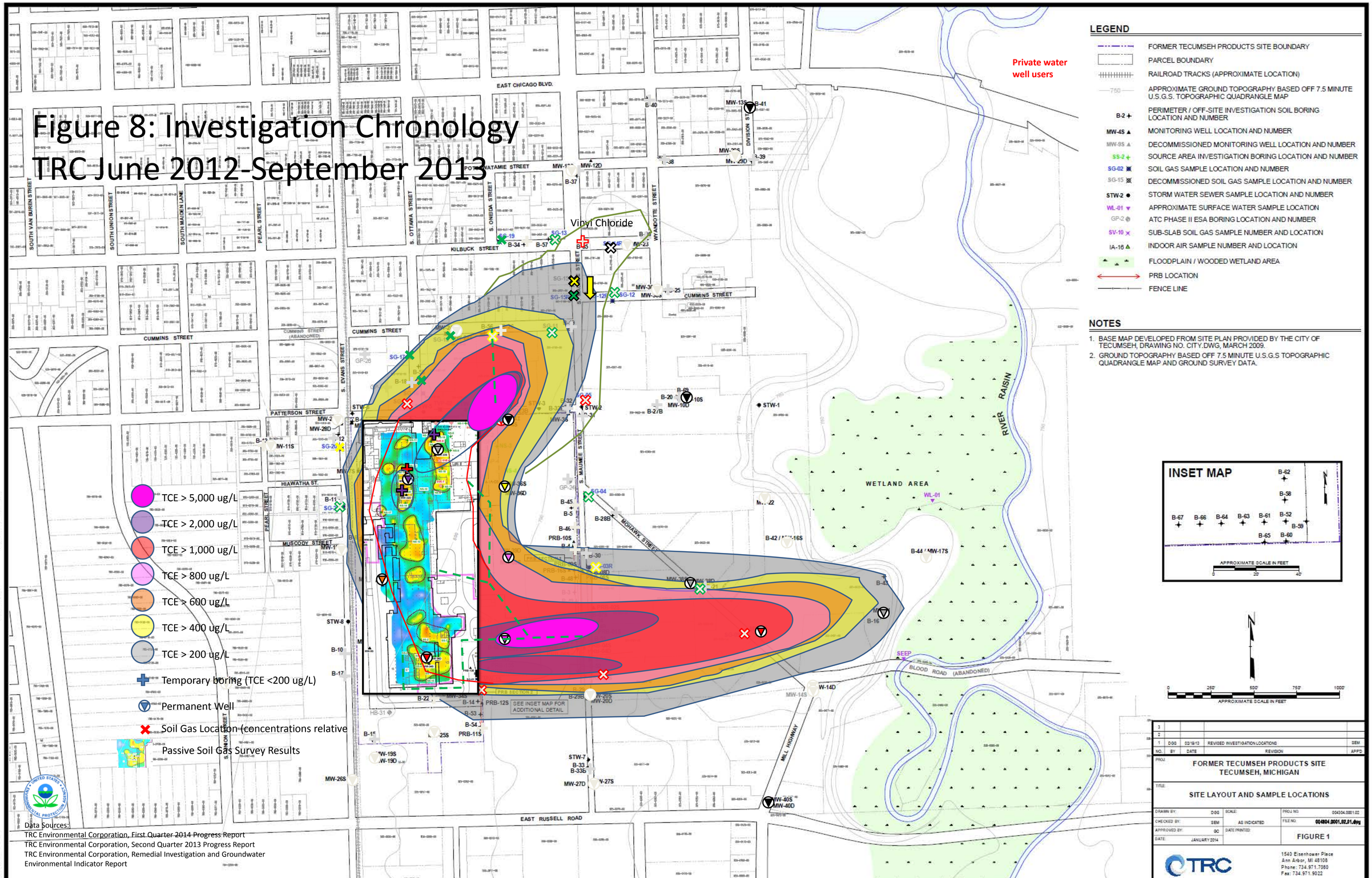
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 7: Investigation Chronology
RMT September 2010-October 2011



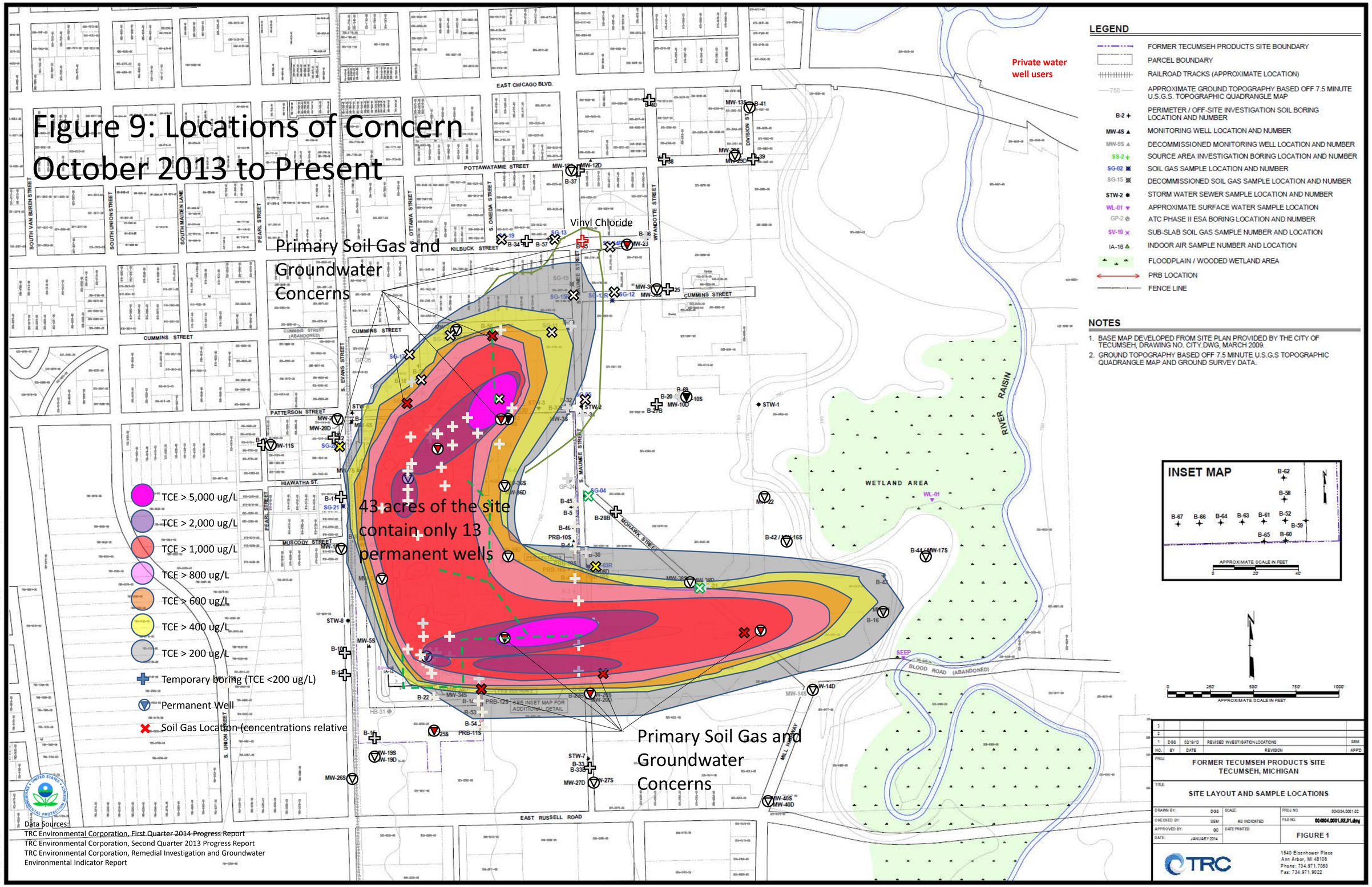
Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 8: Investigation Chronology
TRC June 2012-September 2013



Data sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater
Environmental Indicator Report

Figure 9: Locations of Concern October 2013 to Present



Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 10: Position/Depth of Wells Relative to Source Areas

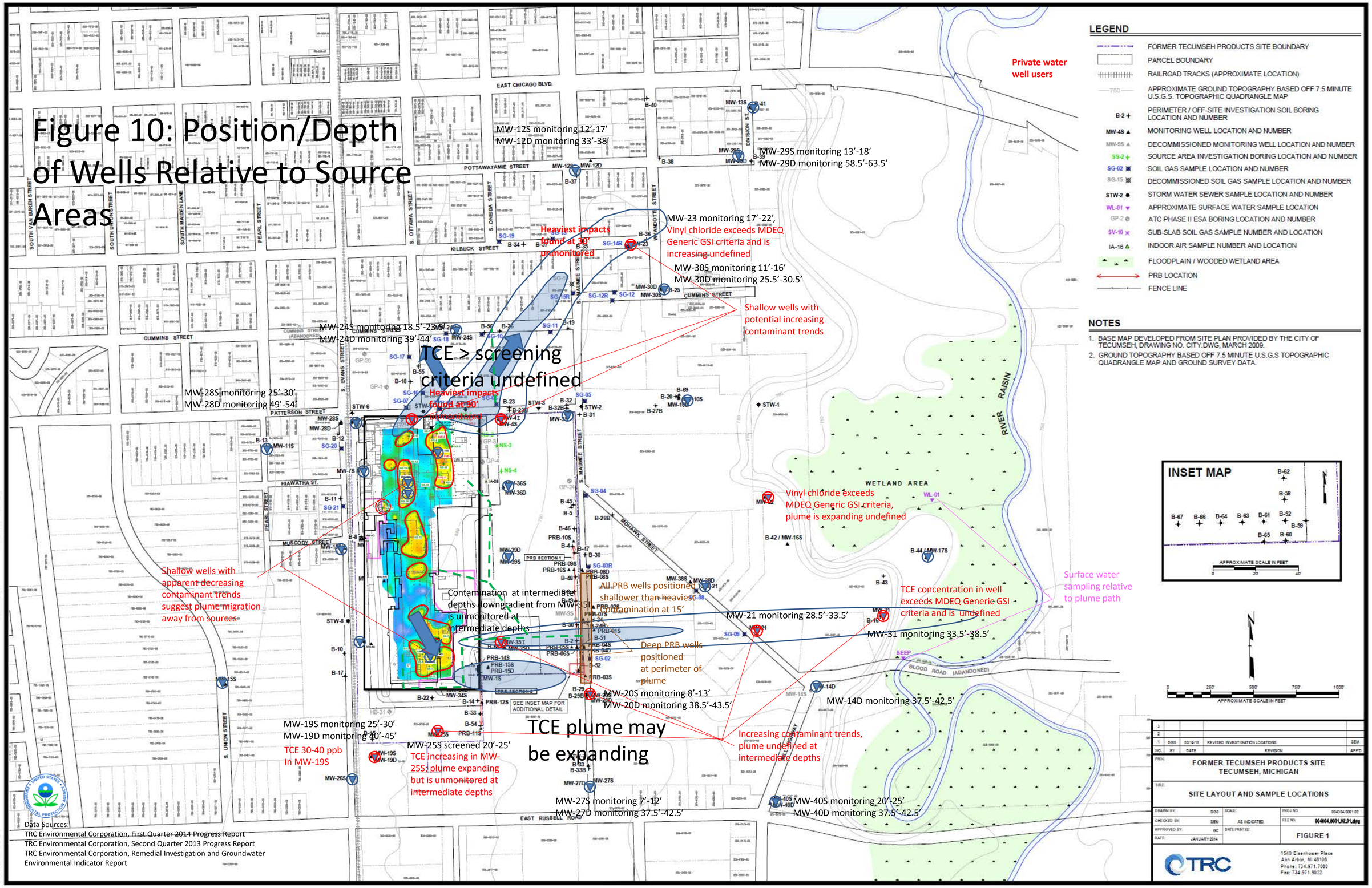
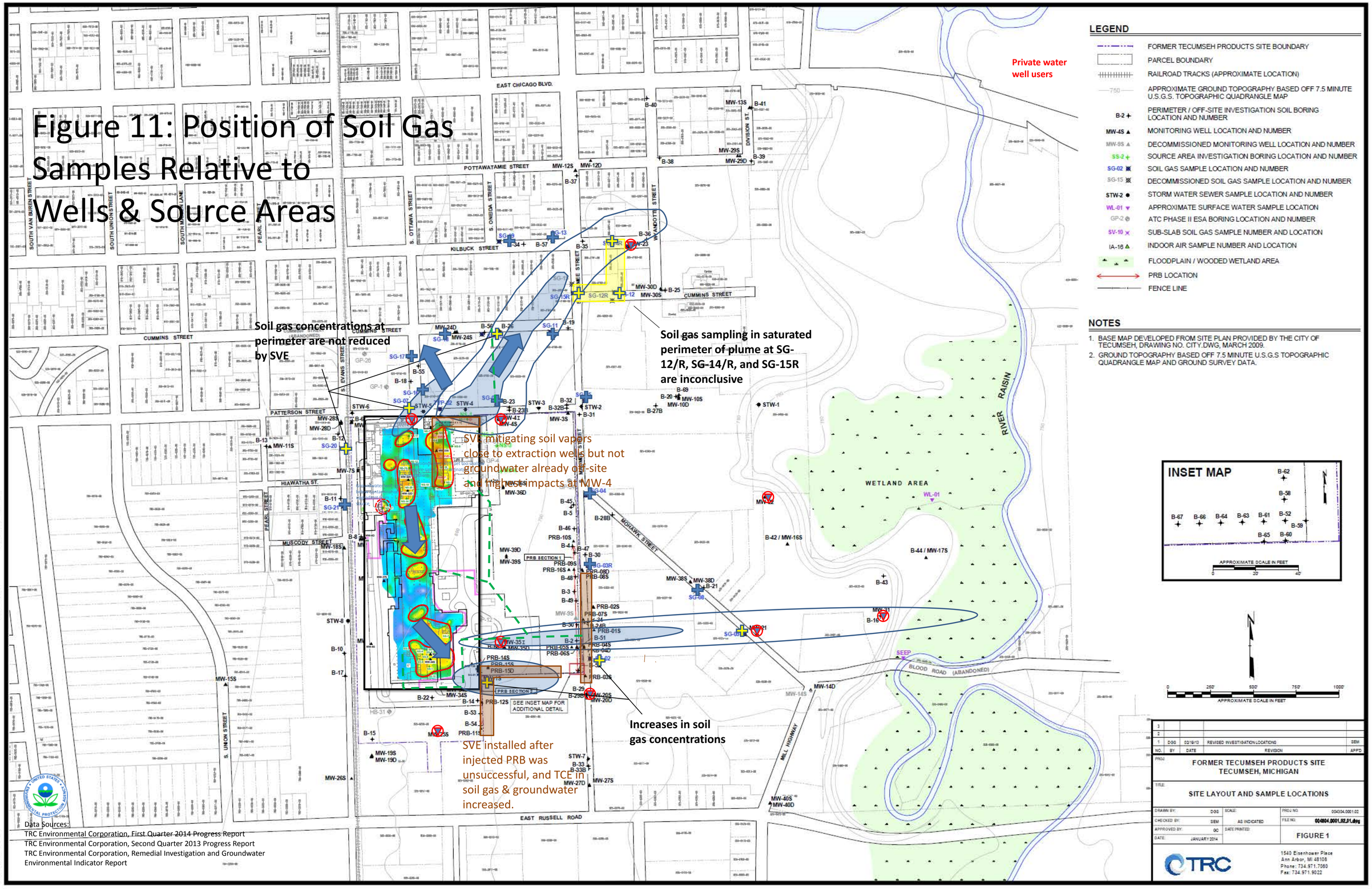
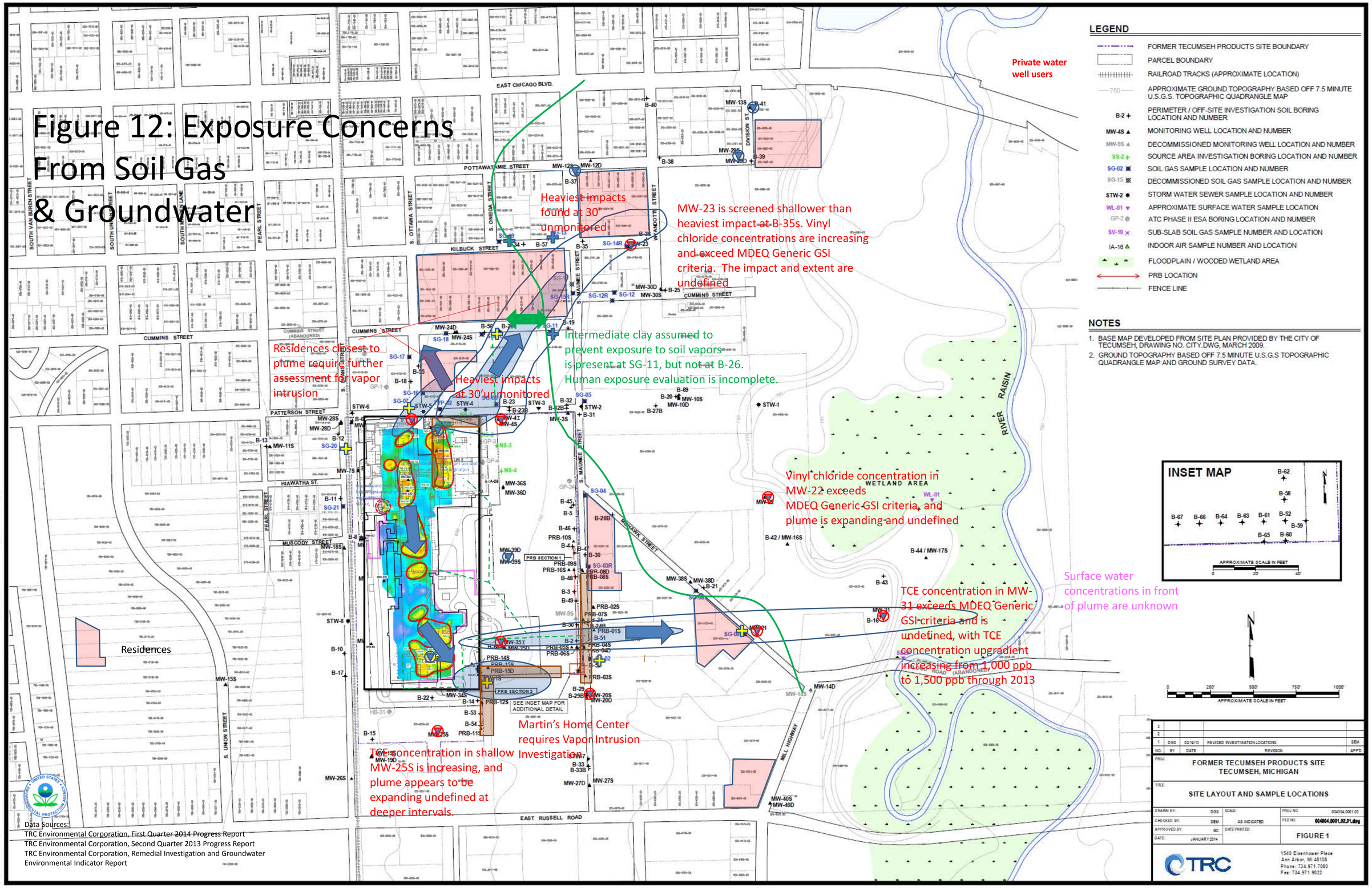


Figure 11: Position of Soil Gas Samples Relative to Wells & Source Areas



Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 12: Exposure Concerns From Soil Gas & Groundwater



Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

Figure 13: September 2012 Extent of Groundwater Impacts For TPC's Groundwater EI

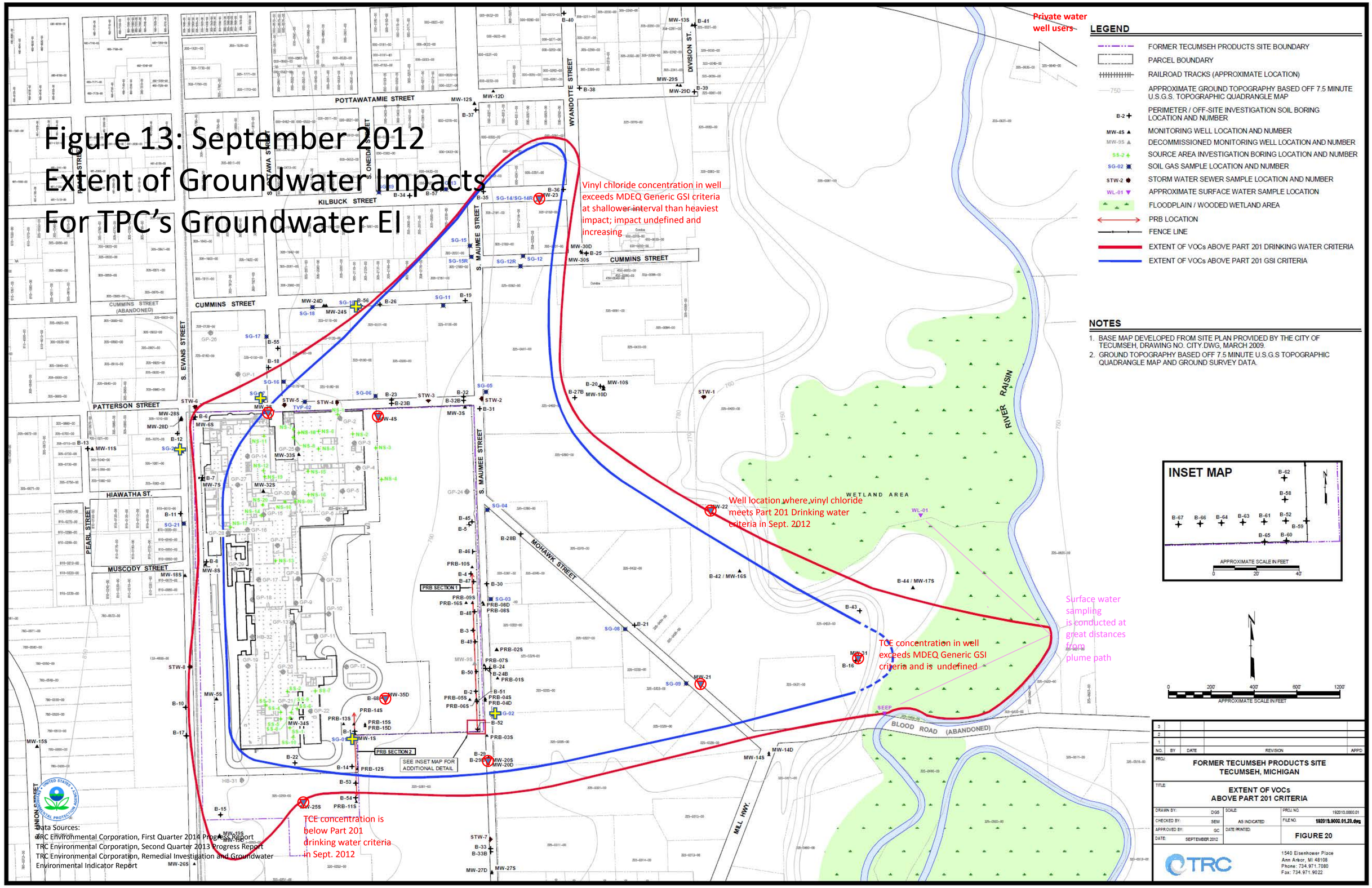
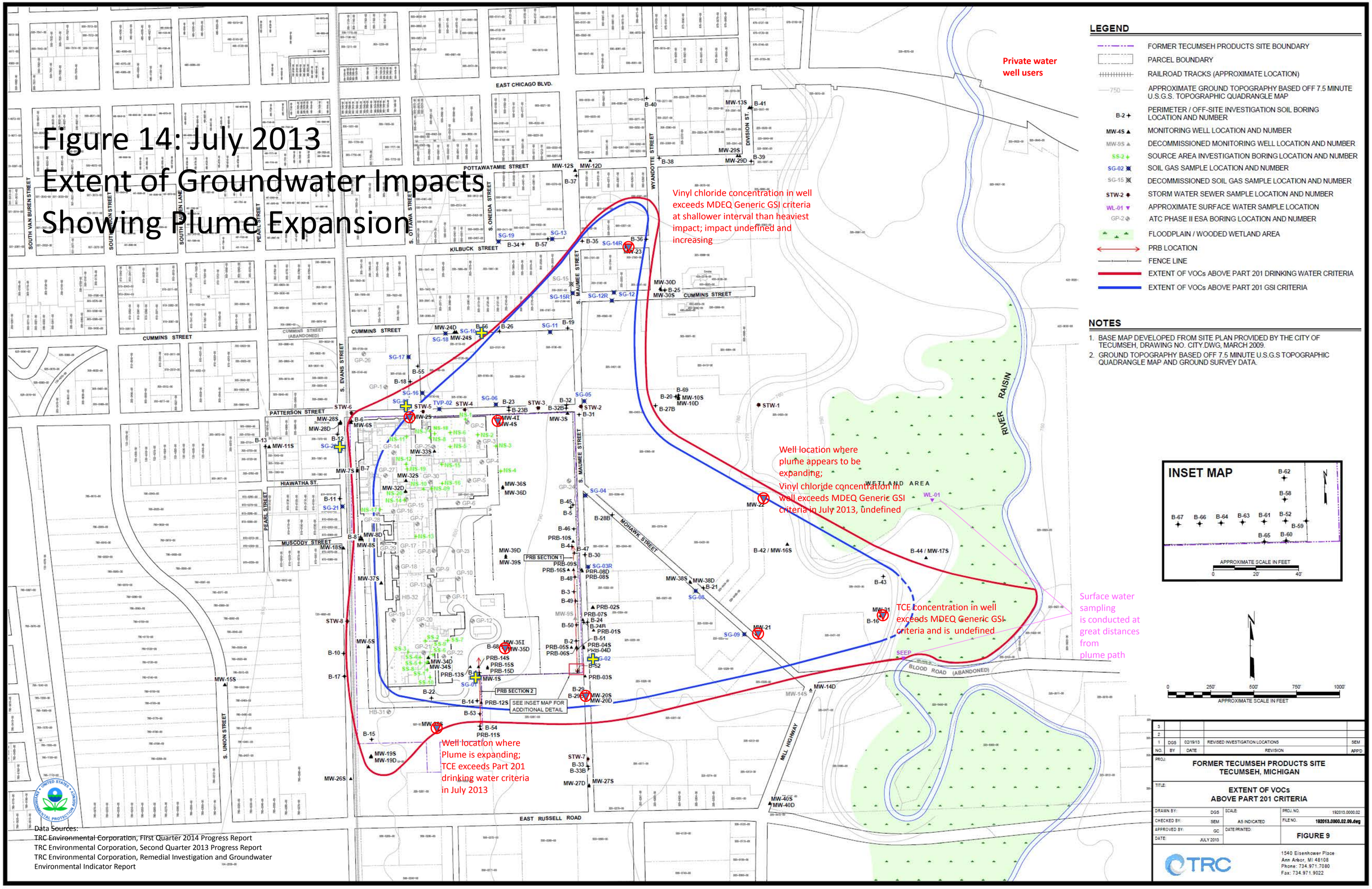


Figure 14: July 2013 Extent of Groundwater Impacts Showing Plume Expansion



Data Sources:
TRC Environmental Corporation, First Quarter 2014 Progress Report
TRC Environmental Corporation, Second Quarter 2013 Progress Report
TRC Environmental Corporation, Remedial Investigation and Groundwater Environmental Indicator Report

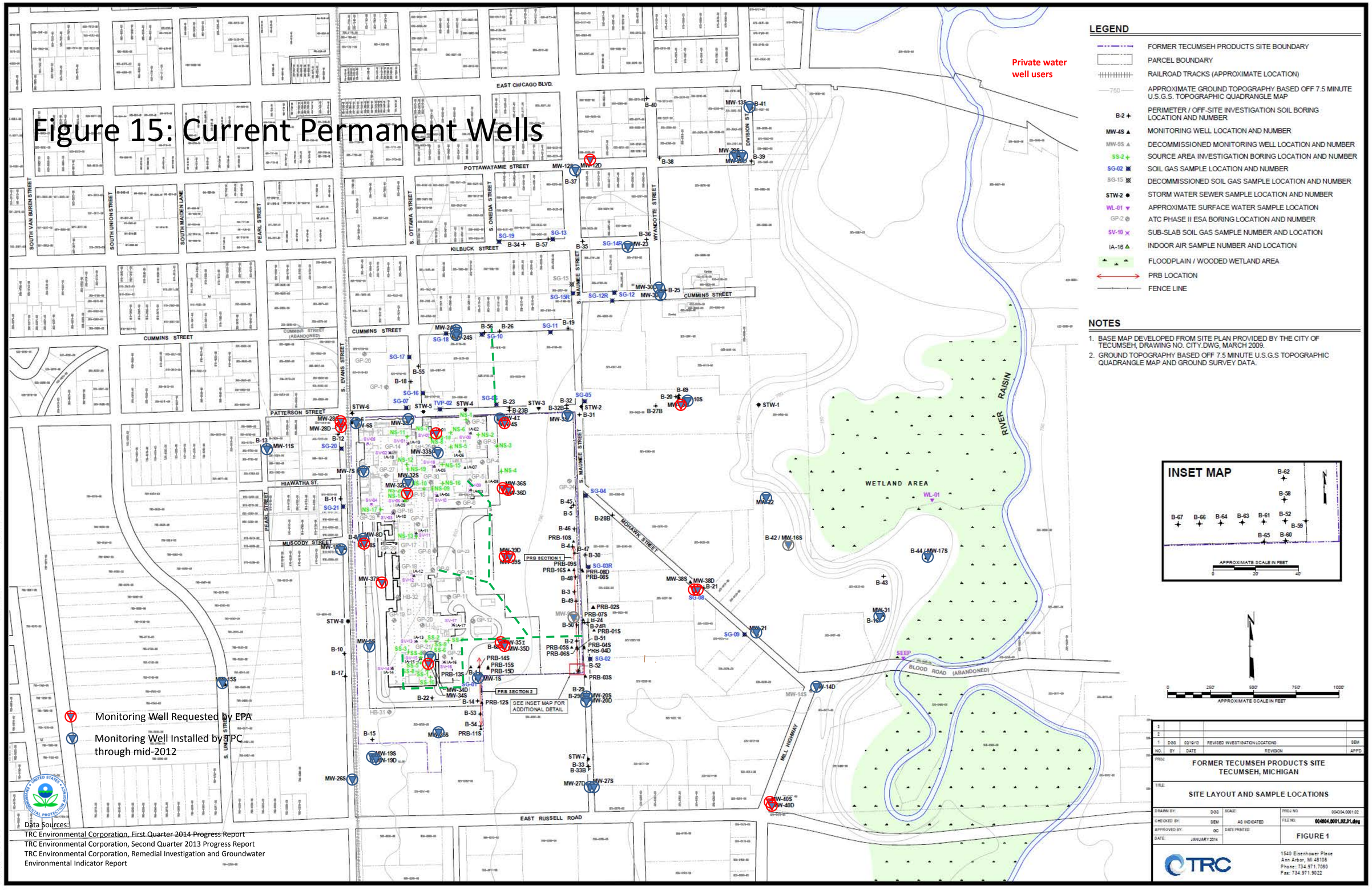



Figure 15: Current Permanent Wells