



Monitoring & Maintenance Engineering, Inc.

PHOSter Case History

Lou's Quick N Easy Site

ADEM UST Incident UST02-08-05

York, Alabama

Site Description:

This site is located in the southern tip of the Porter's Creek Formation which is characterized by dark gray massive plastic clay overlain by thin shell marl. Groundwater fluctuates between 2 and 7 feet below grade with an easterly gradient. The site was a former service station. The source area was assumed to be the UST pit. The site was impacted with benzene and MTBE above SSTLs. Due to the high concentrations southeast of the station, a significant contaminant mass was assumed to be located below the station slab.

PHOSter/iSOC System

A twelve injection point system was constructed for this site. An additional three wells were included in the site design to incorporate the use of the iSOC (in-situ Submerged Oxygen Curtain) technology. All injection wells were of two inch diameter and all were served via ½" diameter HDPE tubing. The tubing was laid without fittings or splices. This allowed the installation and relocation of the ¼" Teflon oxygen tubing over the course of the remedial action. The iSOC injectors were installed in the areas closest to the source area and to impact the groundwater/soil below the service area slab.

Start-up

Client provided for the installation of the fifteen injection wells with two foot long screens set to a depth of 10' below the groundwater table. Client also provided for the installation of the below ground HDPE tubing and a single-phase, 100 amp, 240 Volt power service. The PHOSter system was mobilized to the site, connected to the electrical service and the site piping on February 21, 2007. SMME conducted the initial biological sampling, field training of Client's personnel on system operation and maintenance and started the system.

Remediation Progress

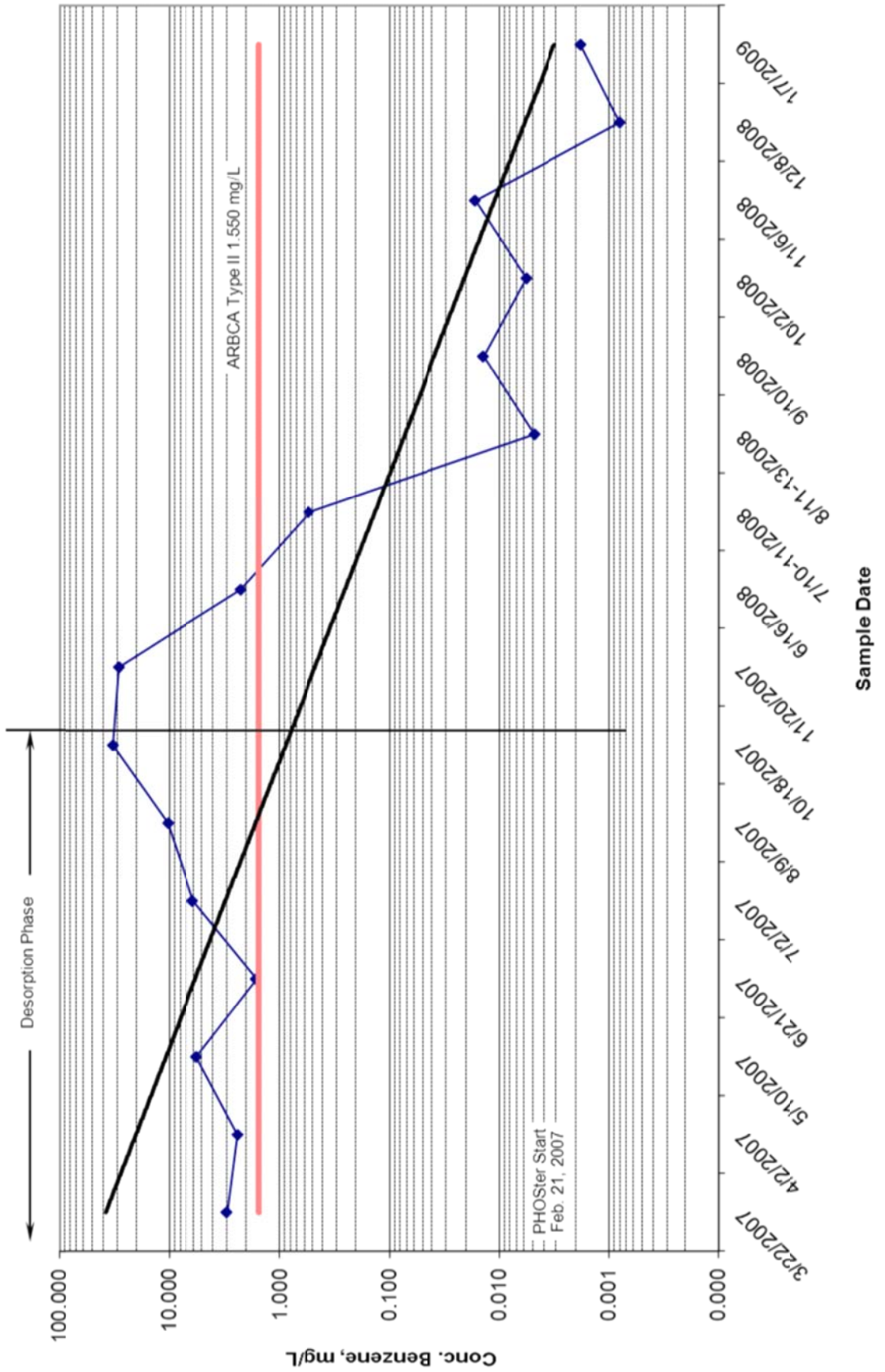
The treatment system was operated for twenty-six months until analysis indicated achievement of the SSTLs. A slight rebound of MTBE at MW-8 required a system restart and additional operation for six more months. The system was shut-down in April, 2010 and the site received an NFA after well closure in October of 2012.

This site remedial action improved our data set for MTBE reduction rates, as well as showed the ease of combining PHOSter with additional technologies to improve contaminant treatment rates.

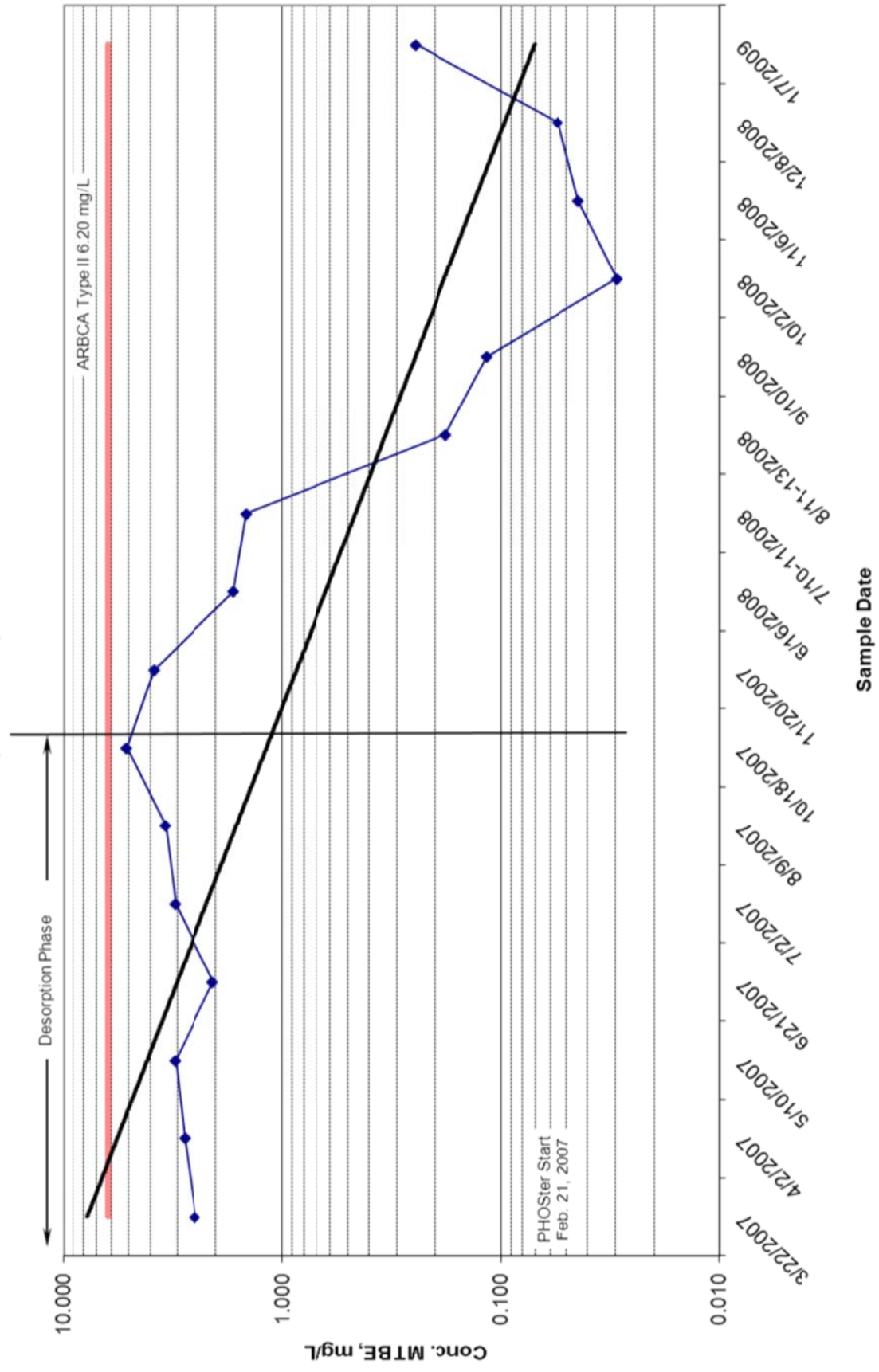
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FIGURES

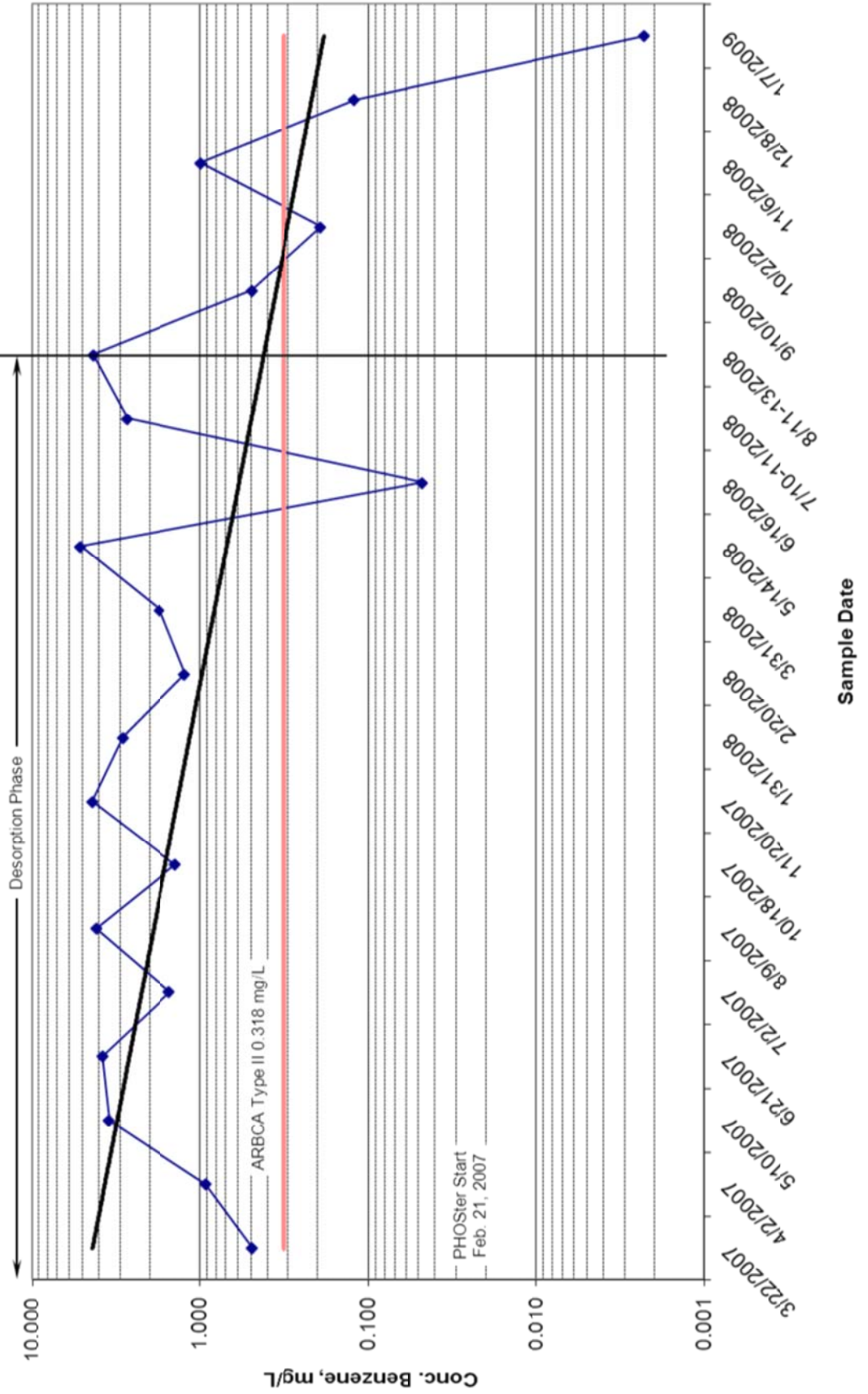
York, Alabama; MW-3



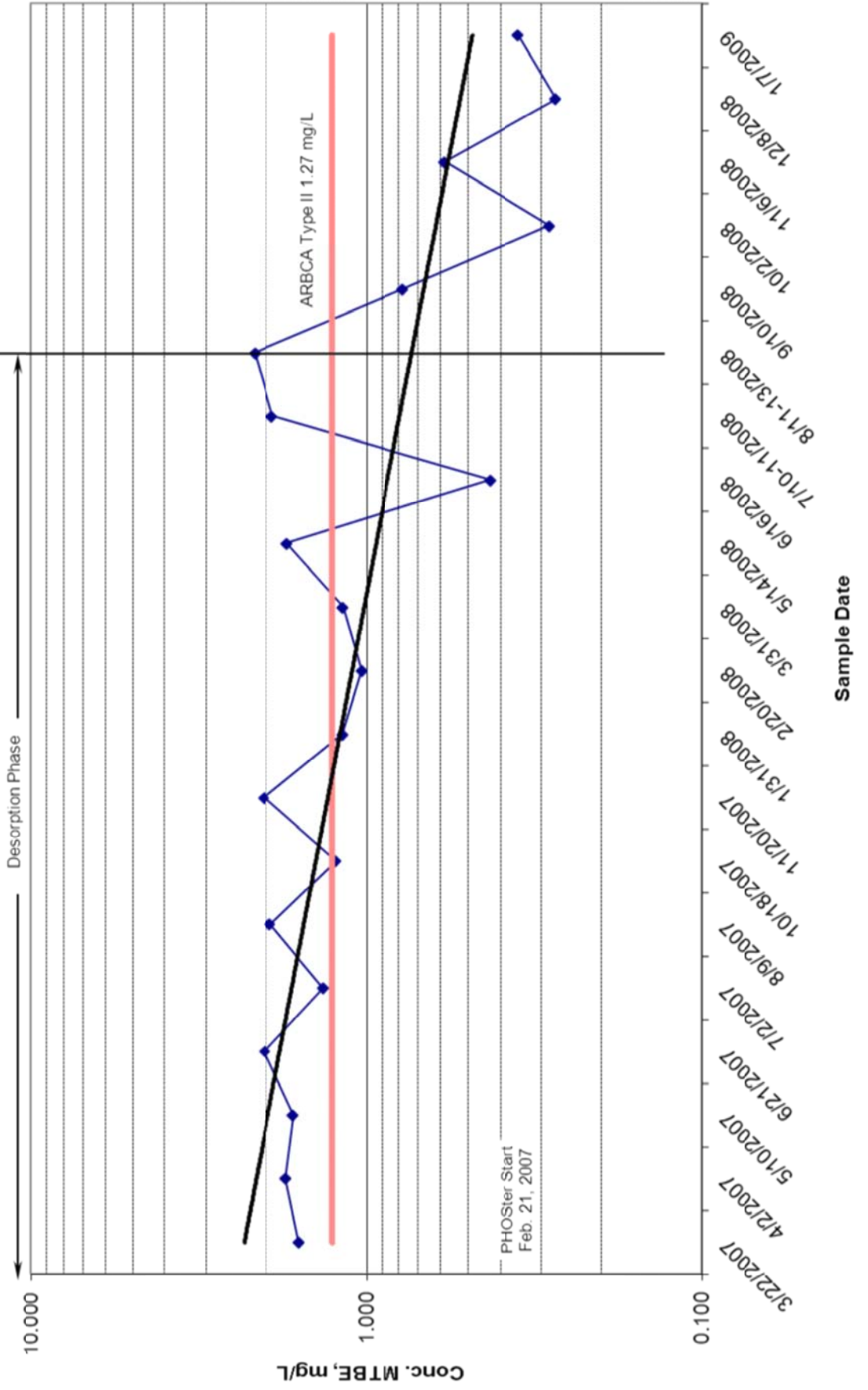
York, Alabama; MW-3



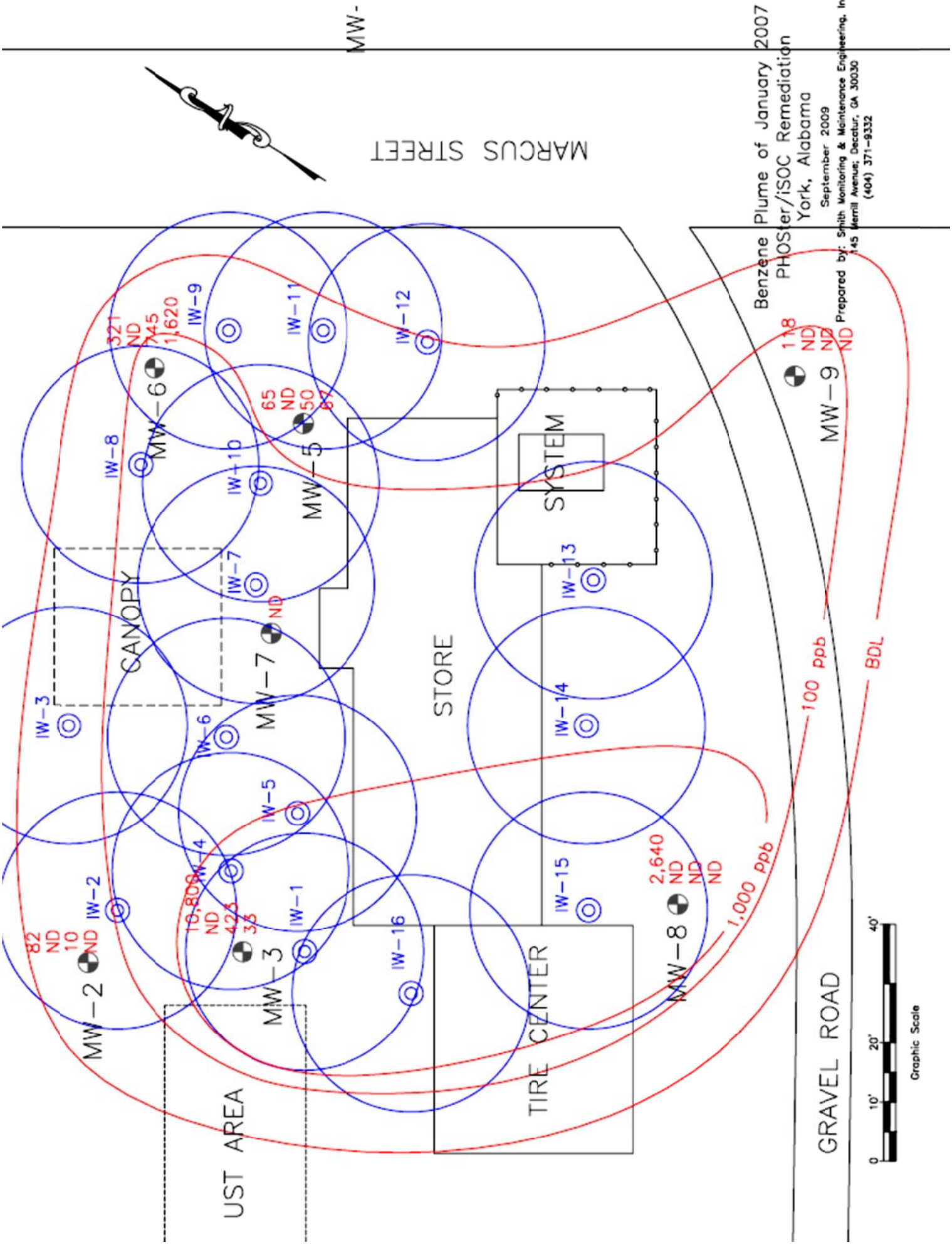
York, Alabama; MW-8



York, Alabama; MW-8



MARCUS STREET



Benzene Plume of January 2007
 PHOS
 York, Alabama
 September 2009
 Prepared by: Smith Monitoring & Maintenance Engineering, Inc.
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118 ND
 MW-9 ND

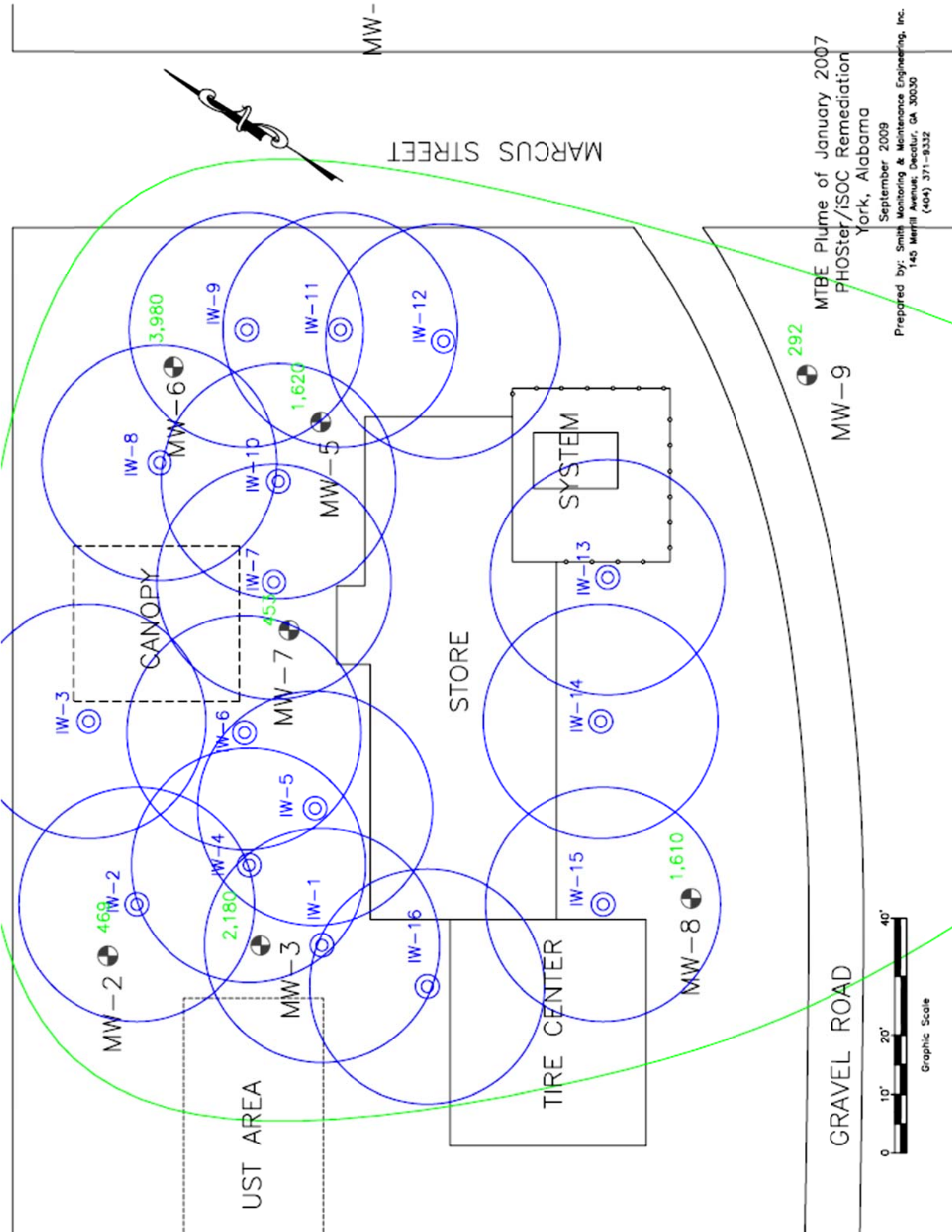
100 ppb

BDL

GRAVEL ROAD



Graphic Scale



MTBE Plume of January 2007
 PHOSTer/iSOC Remediation
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