



Qenos

2017 Groundwater report

13/2/2018



Annual Groundwater Monitoring Event (GME)

1. Results

2. Recommendations

3. Trends



The 2017 Groundwater Monitoring Event was completed in October and November.

- 111 monitoring wells sampled in 9th -13th October 2017 (83 in 2016)
- 240 monitoring well levels gauged in 14th November 2017. (225 in 2016)
- Conducted in accordance with Qenos Groundwater Quality Management Plan and 2016 GME recommendations.
- AECOM issued Draft Report to Qenos in Feb 2018

Acronyms used	
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes
GME	Groundwater Monitoring Event
GQMP	Groundwater Quality Management Plan
LNAPL	Light Non Aqueous Phase Liquid
TPH	Total Petroleum Hydrocarbon
TDS	Total dissolved solids

3



GME results

Trigger levels

- Increased TPH in BH171QO activated trigger level
 - Monitoring to be increased to six monthly

Light Non Aqueous Phase Liquid (LNAPL)

- Elastomers and Resins: - None detected.
- Plastics: - Remains stable with one well.
- Olefins: - 8 wells in 2017, compared to 5 in 2016 and 14 in 2015.
 - Long term trend reduction.
- The LNAPL removal works undertaken during 2017 using active and passive methods removed.
 - 245 liters from well BH141QO with active skimmer . (178 L in 2016)
 - 10 liters by the use of passive skimmers and absorbent socks. (55 L in 2016)



GME results

Dissolved phase Hydrocarbons.

- Elastomers: - Increase in dissolved hydrocarbons (BTEX) at SE corner of site compared to 2016 but still within historical analysis.
- Plastics: - Increasing trends TPH C₆-C₉ (Not BTEX) for two wells on southern sided of site. Believed to be associated with an increase in compounds analysed.
- Resins: - Increasing trend for TPH C₆-C₉ and benzene in well BH8QR at South East corner of site. Believed to be associated with adjacent site.
- Olefins: - Generally decreasing or stable on site.
 - Significant increase in TPH in BH171QO since last sampled in 2014. (near Maidstone St)
 - Increase in TPH C₆ to C₃₆ from well BH34QO. (Offsite well south of Olefins)

Groundwater mounding and TDS.

- Olefins: - Mounding and low TDS continues in the Area1/2 process area.
- Olefins: - Mounding and low TDS at the ETP abating. No Diethanolamine detected
- Plastics: - Mounding near 3rd street indicates service leakage in area.

Natural Attenuation

- Estimates of 90 - 144 mg (Olefins), 40- 57 mg (Plastics) of BTEX is being degraded per litre of groundwater flowing through the site.

5



GME RECOMMENDATIONS

Site wide

- Repair damaged wells required by GQMP
- Continue LNAPL monitoring and remediation.
- Continue annual Groundwater monitoring and trending

Elastomers

- Sample for BTEX again in 2018 to assess whether there is an increasing trend.

Olefins

- Sample BH171QO six monthly to see if there is increasing trend.
- Continue to assess BH34QO for long term trends of TPH
- Continue to investigate possible sources of mounding in process plant.
- Sample for Diethanolamine again in 2018 at Waste Water Treatment Plant.

Plastics

- Sample wells with increasing TPH trend again in 2018 to assess if there is a longer term trend

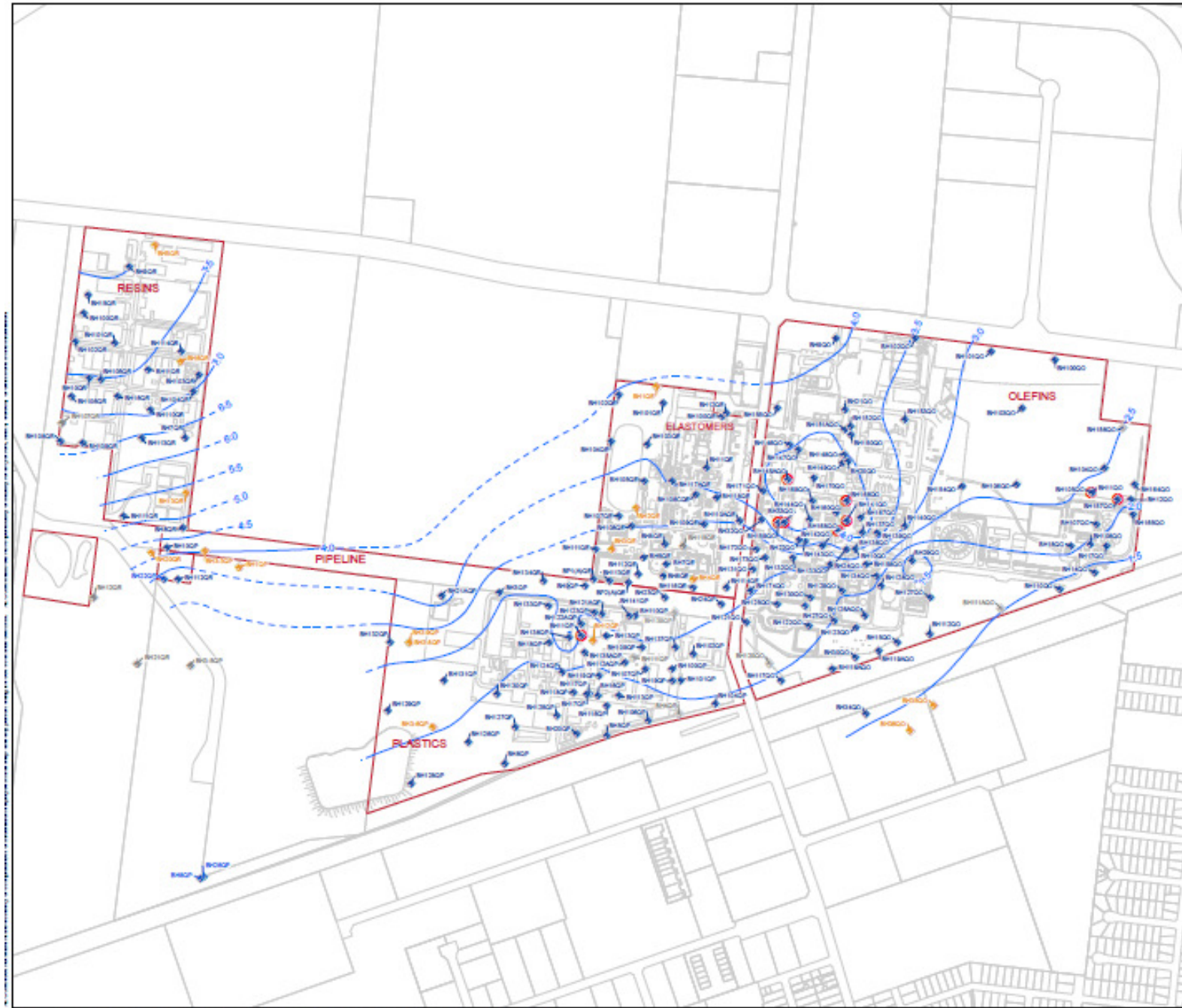
Resins

- Check for long term benzene and TPH C₆-C₉ trend at BH-8QR after 2017 GME





- LEGEND**
- ◆ Well not gauged
 - ◆ B1 Aquifer
 - ◆ B1/B2 Aquifer
 - LNAPL present in well
 - Inferred Groundwater Elevation Contour (mAHD)
 - Site boundaries



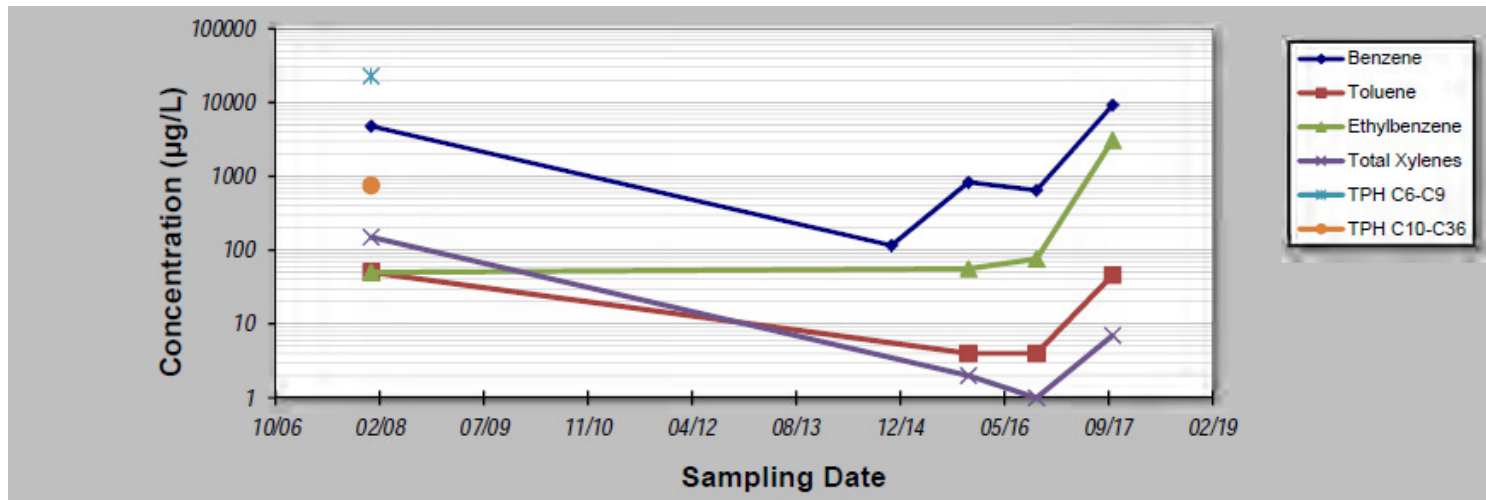
Note:
 Data collected 14 November 2017.

INFERRED GROUNDWATER ELEVATION CONTOURS (mAHD) UPPER BASALT (B1) AQUIFER QENOS NOVEMBER 2017

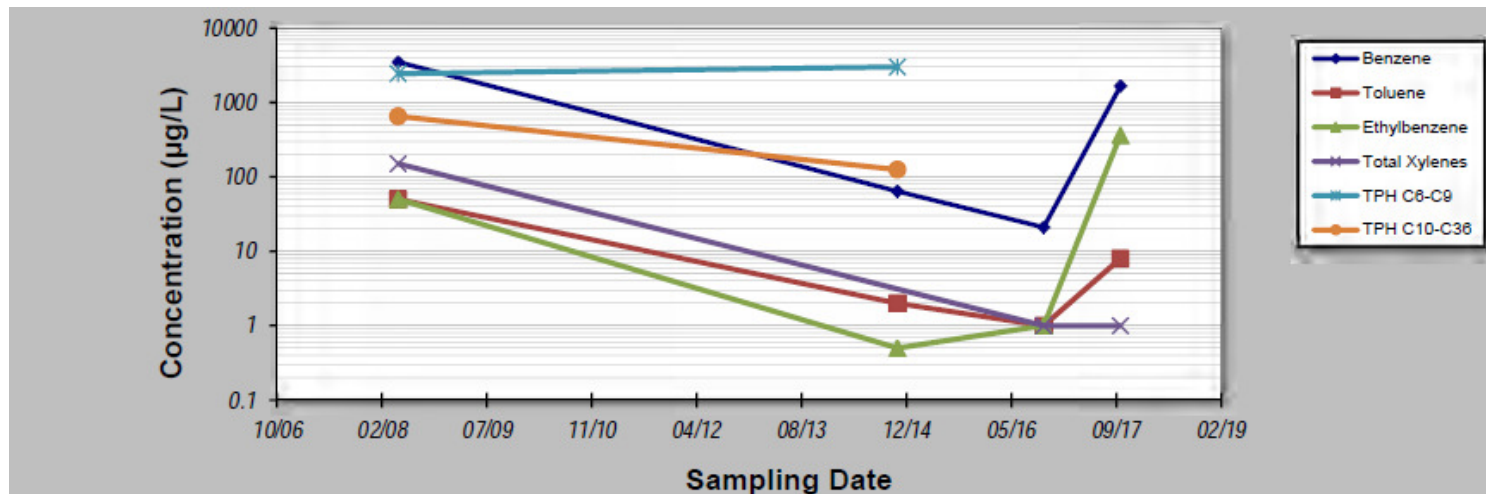
Genex Pty Ltd
 Genex Altona Complex
 Annual GME 2017
 Kororoit Creek Road Altona

Figure
A3

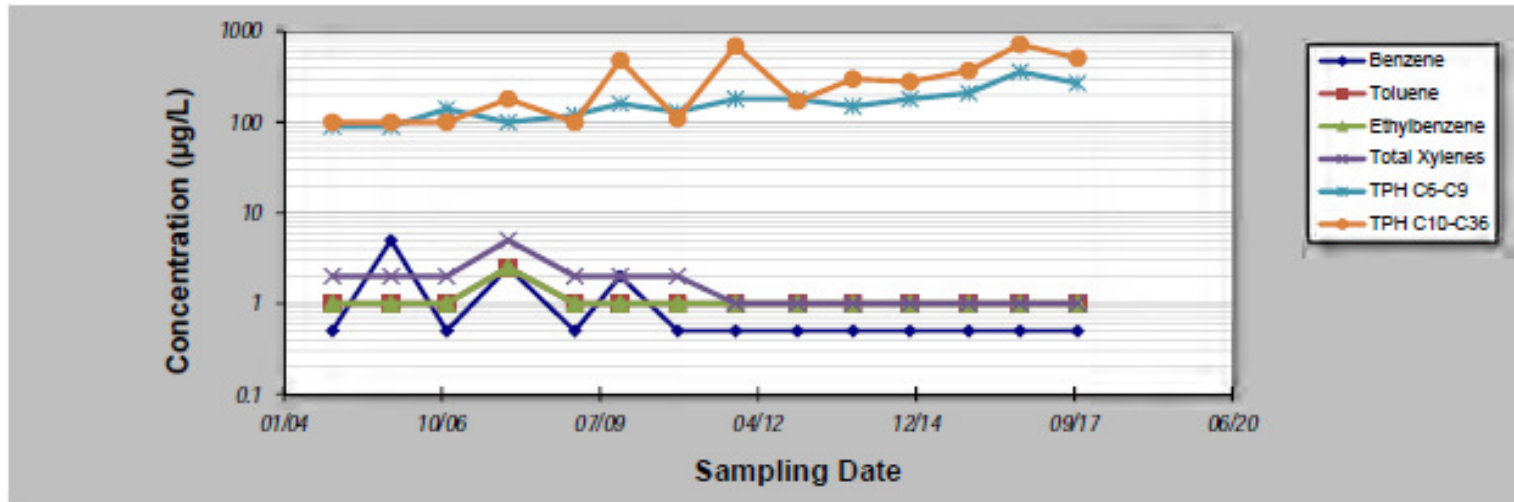
BH111QE Elastomers SW corner



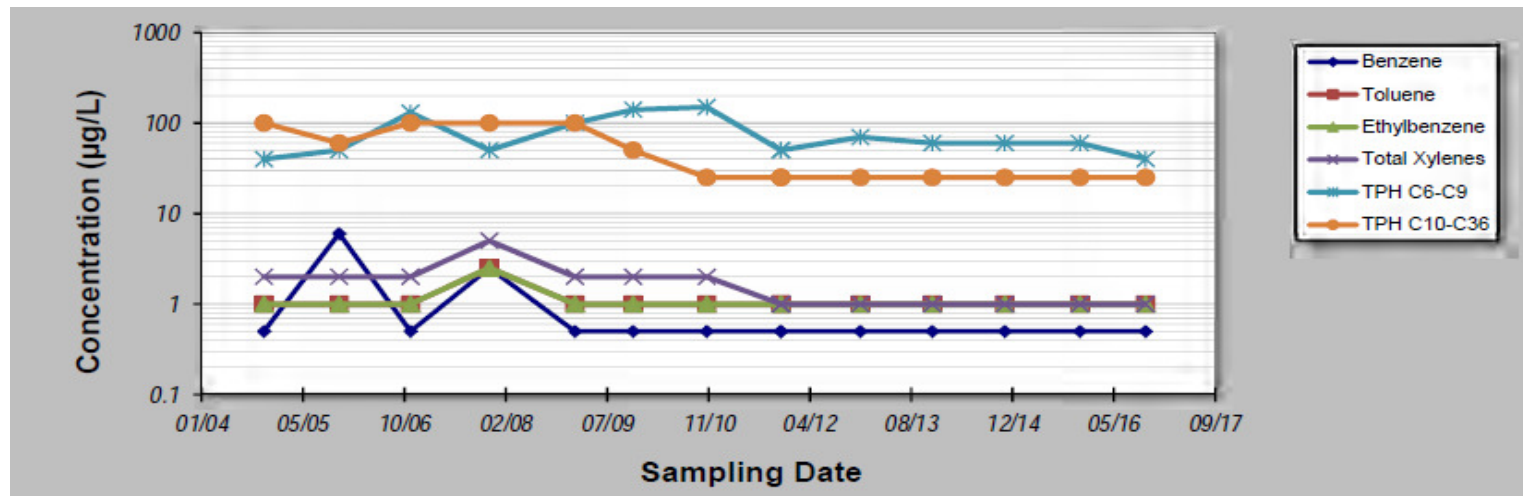
BH113QE Elastomers SW corner



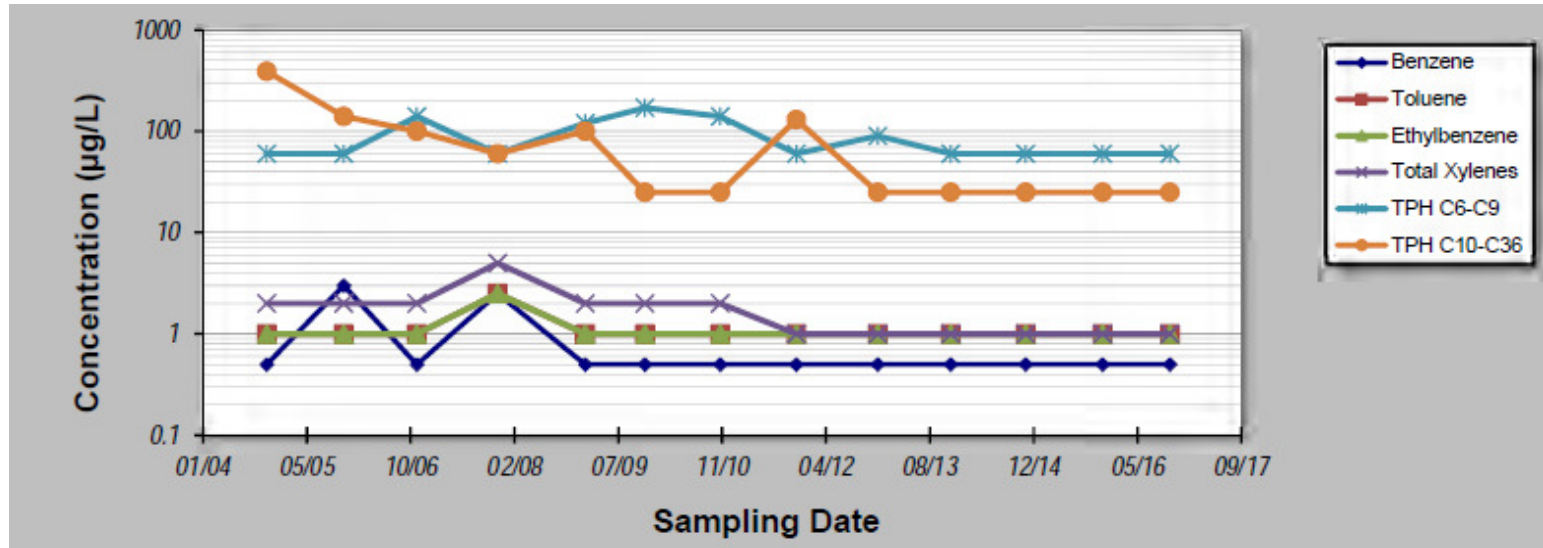
Off site well BH34QO



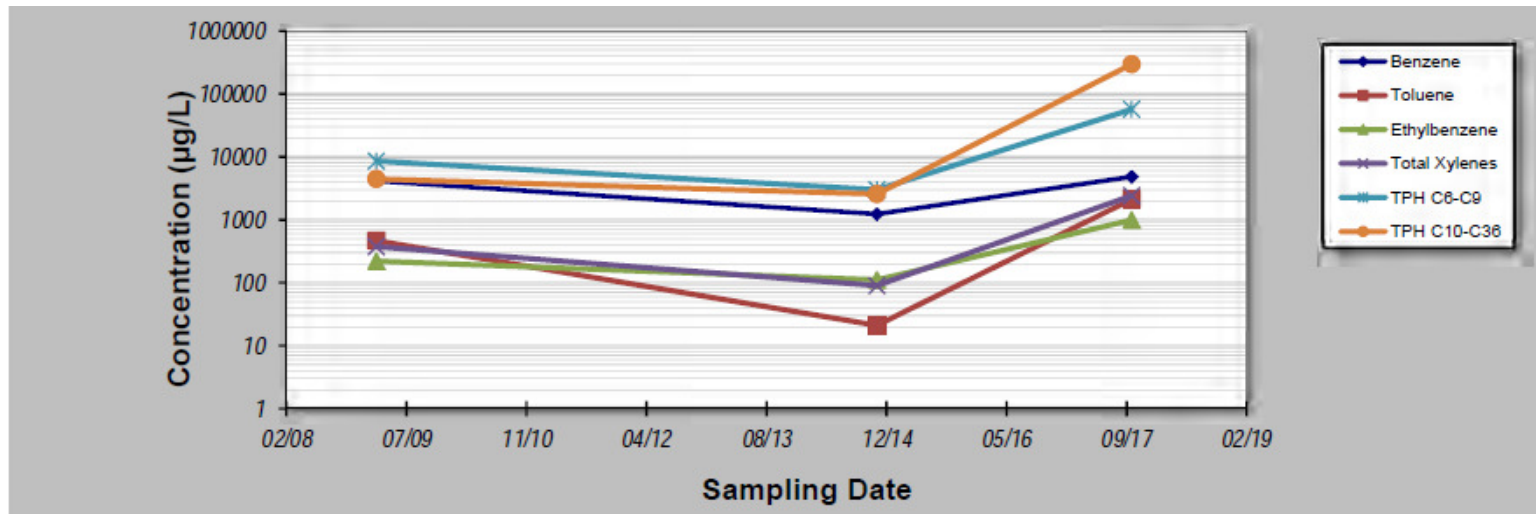
Off site well BH35QO



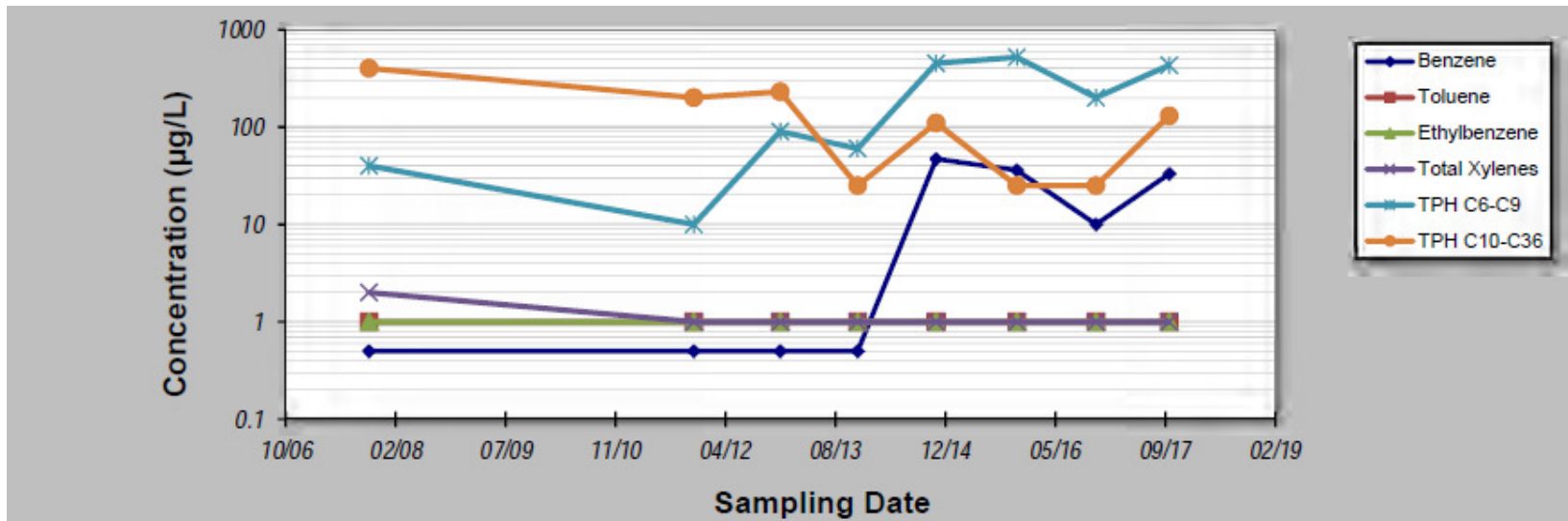
Off site well BH36QO



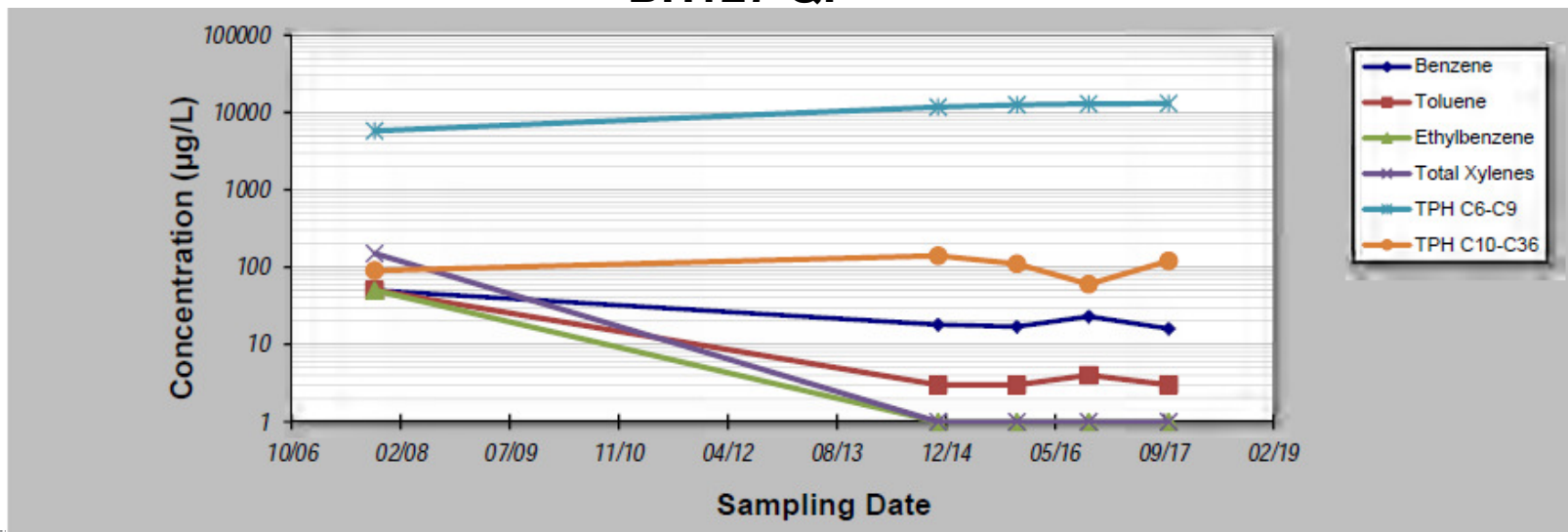
BH171QO near Maidstone St



BH116QP



BH127 QP



BH108QR SE corner

