Ms. Barbara Jakub
Alameda County Health Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-577

March 30, 2009

Subject: Groundwater Monitoring Frequency, 76 Station 1871, 96 MacArthur Blvd, Oakland, RO# 0455

Dear Ms. Jakub:

Based on analysis of groundwater monitoring results collected to date at this site we recommend modifying the current monitoring program to provide a more cost effective monitoring program reflective of current and projected future site conditions. This recommendation is based on the following conditions:

1. The site has been under quarterly monitoring since November 1992.

2. Monitoring wells MW-6, MW-7, MW-8, MW-9, MW-10, and MW-11 have been "non-detect" at or below laboratory reporting limits for benzene at least the past 8 quarters.

3. Monitoring well MW-11 has been "non-detect" at or below laboratory reporting limits for MTBE, or at concentrations below the Primary MCL for MTBE for at least the past 8 quarters.

4. All monitored wells continue to show declining COC concentrations.

5. While groundwater velocities in the area can be expected to vary with respect to stratigraphy, well logs have shown lithology to be predominantly clays and silty sands and therefore hydraulic conductivity (K) can be expected to range from 10^{-5} feet/day to 10^{-2} feet/day (Fetter, C.W. 1987, pp. 80). Given very low measured groundwater gradients (dh/dl) that have ranged over the past 8 quarters from 0.02 to 0.05 with an average gradient of 0.038 and assuming an average effective porosity (n_e) of 0.35 groundwater velocities may be expected to range from $1.09x10^{-6}$ to $1.09x10^{-3}$ feet/day to the southwest where:

$$\text{Velocity} = K/n_e \times dh/dl$$

Given the above listed factors and observations it is recommended that this site be considered and approved for semi-annual groundwater monitoring.

Sincerely;

John R. Reay, P.G.
Senior Project Manager
Delta Consultants/COP West

PROFESSIONAL GEOLOGIST
JOHN R REAY
No. 4716
STATE OF CALIFORNIA

Cc (electronic copy)
Mr. Terry Grayson, COP West
Attachments:
Portions of TRC Fourth Quarter 2008 QMR, dated January 19, 2009

LEGEND

MW-11 ⊕ Monitoring Well with Groundwater Elevation (feet)

SP-H ⊕ Ozone Sparge Well

72.00 — Groundwater Elevation Contour

General Direction of Groundwater Flow

INTERSTATE HIGHWAY 580

WESTBOUND ON-RAMP TO I-580

SIDEWALK

SANTA CLARA AVENUE

MACARTHUR BLVD OVERCROSSING EASTBOUND ON-RAMP

PLANTER

MACARTHUR BOULEVARD

DRIVEWAY

SIDEWALK

QUICK STOP MARKET BUILDING

MW-9
65.91

OVERHEAD RAMP

MW-8
71.99

DRIVEWAY

SP-H

UST

UST

SP-G

MW-7
71.68

SP-DS

SP-F

DRIVEWAY

CANOPY

DISPENSER ISLANDS

SP-A

MW-10
68.25

MW-6
70.71

SP-E

SP-DS
SP-DD

SP-C

SP-BS
SP-BD

MW-1
72.83

DRIVEWAY

SIDEWALK

OVERHEAD FREEWAY STRUCTURE

72.00

HARRISON STREET

SIDEWALK

MW-11
61.49

WESTBOUND ON-RAMP TO I-580

LANDSCAPING

MACARTHUR BOULEVARD

67.00

62.00

N

NOTES:

Contour lines are interpretive and based on fluid levels measured in monitoring wells. Elevations are in feet above mean sea level. UST = underground storage tank.

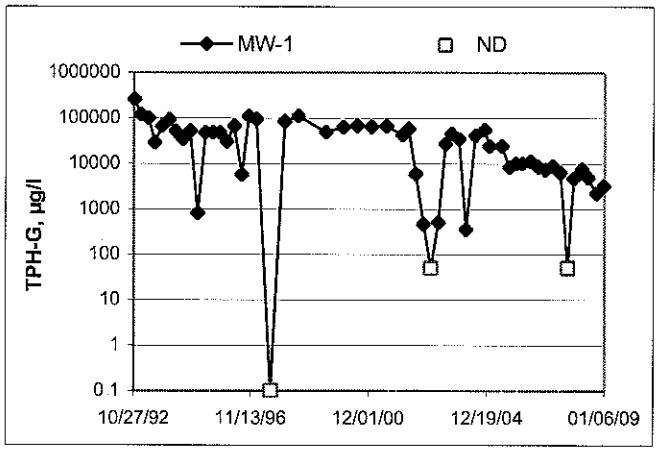
SCALE (FEET)

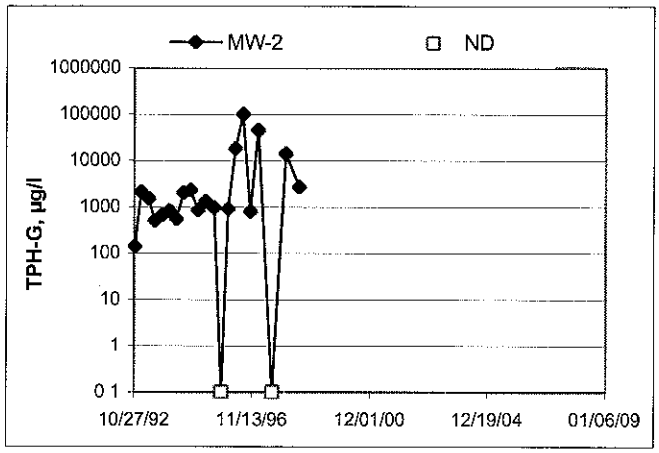
0 40

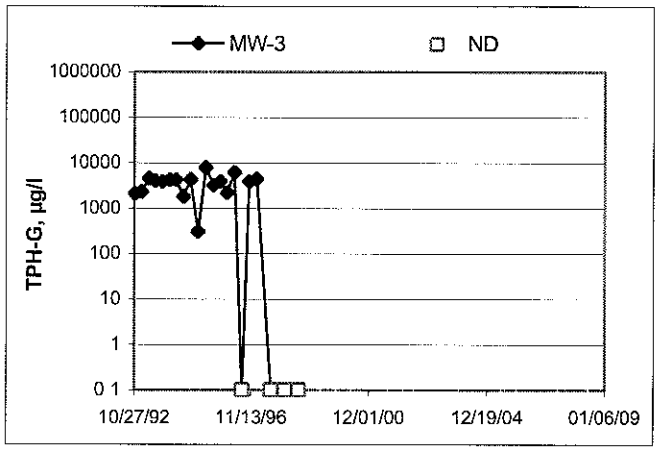
PROJECT:	154771
FACILITY:	76 STATION 1871 96 MACARTHUR BOULEVARD OAKLAND, CALIFORNIA
GROUNDWATER ELEVATION CONTOUR MAP December 30, 2008	
TRC	**FIGURE 2**

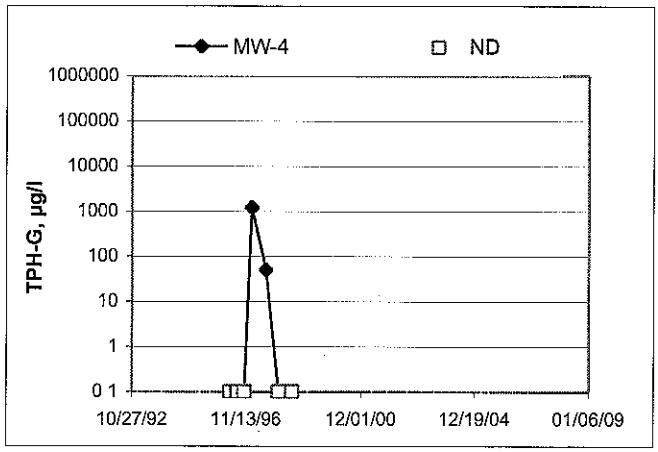
MS=1:40 1871-003 L:\Graphics\QMS NORTH-SOUTH\x-1000\1871+1871-QMS.DWG Jan 19, 2009 - 2:35pm aakers

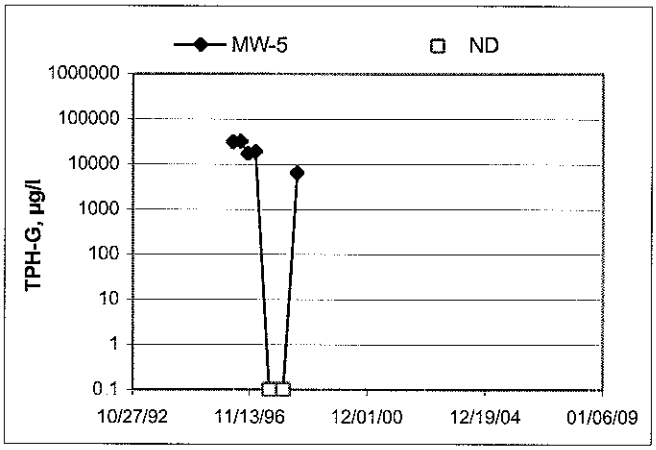
TPH-G Concentrations vs Time
76 Station 1871

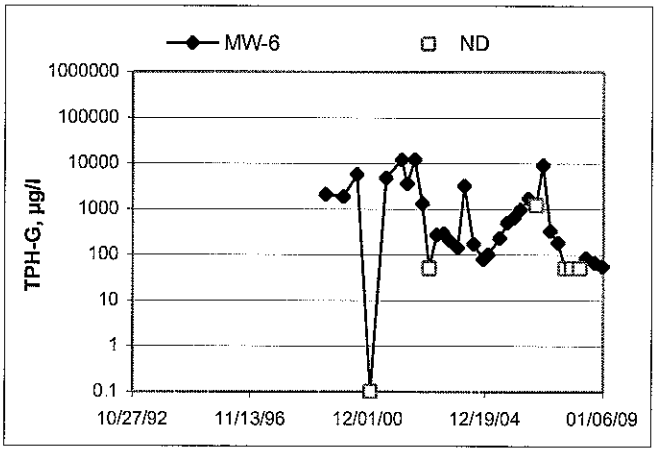


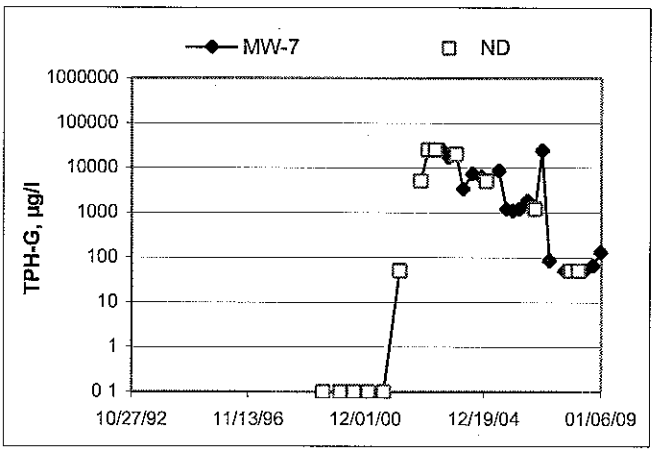


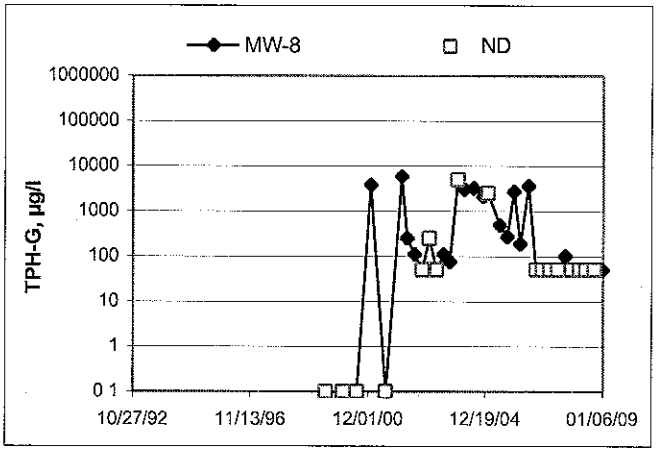




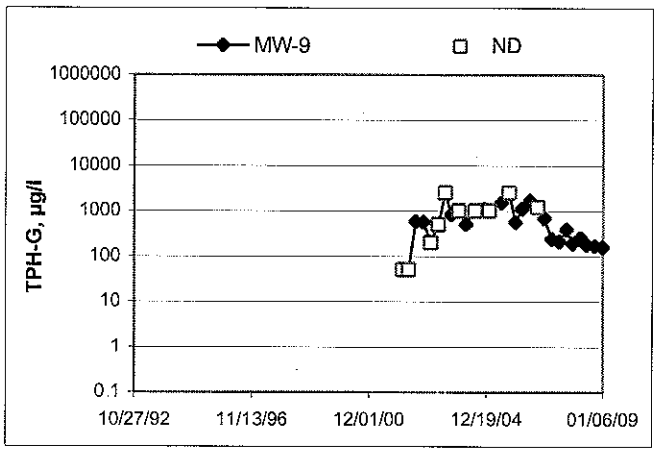


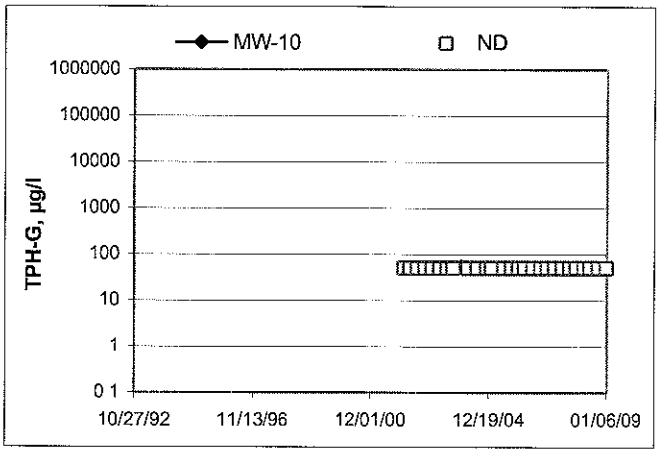


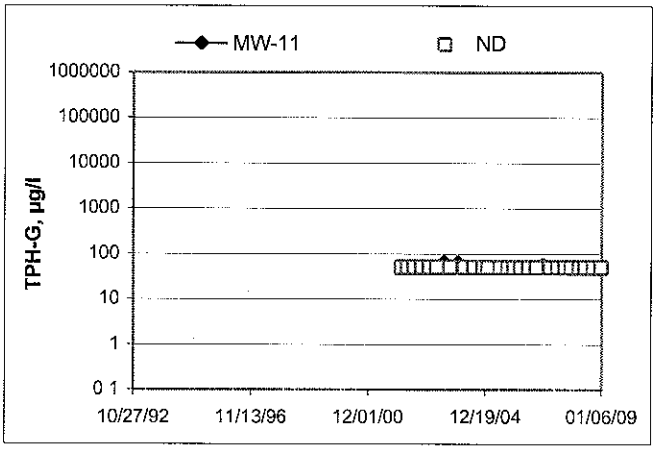




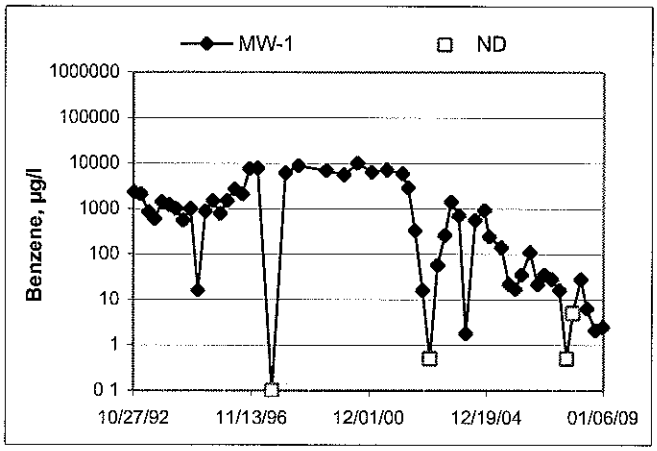
TPH-G Concentrations vs Time
76 Station 1871

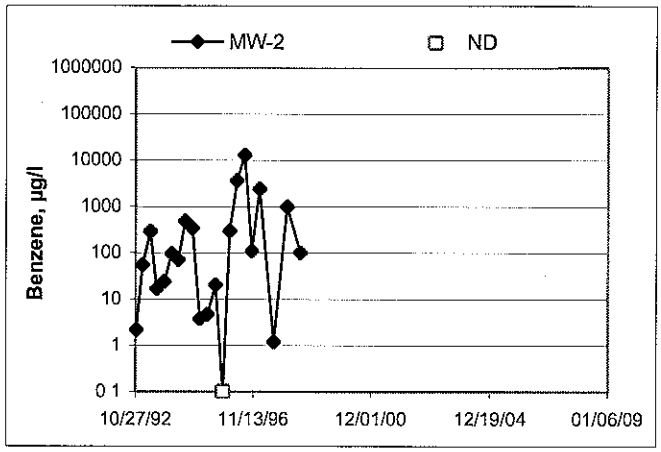


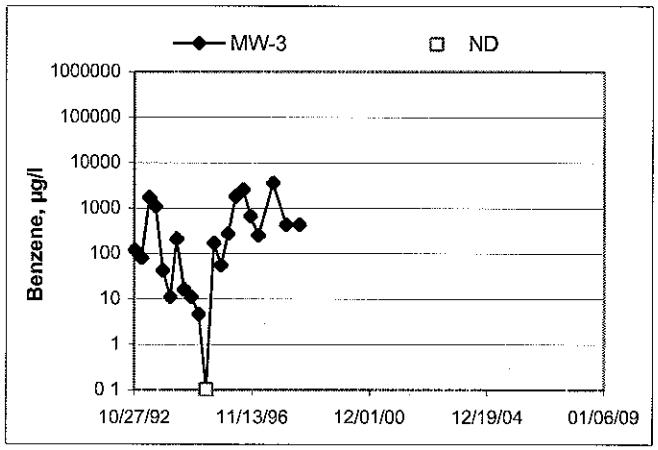


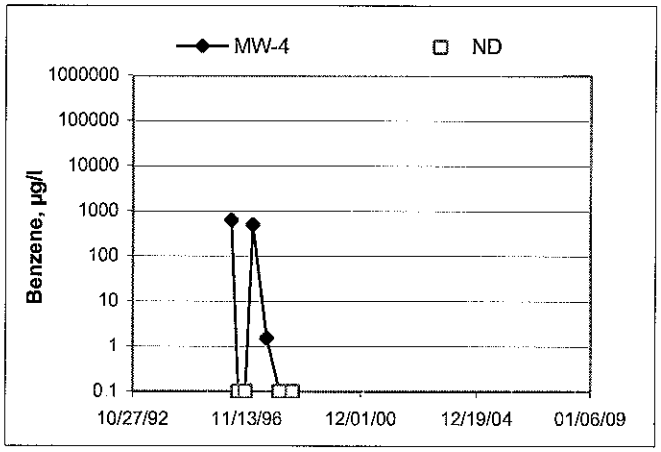


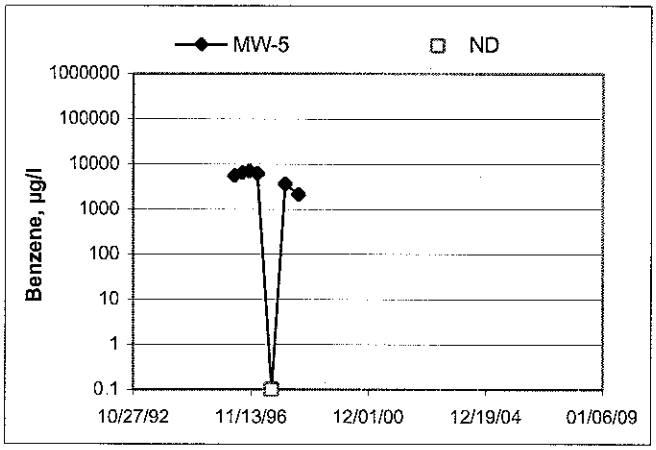
Benzene Concentrations vs Time
76 Station 1871

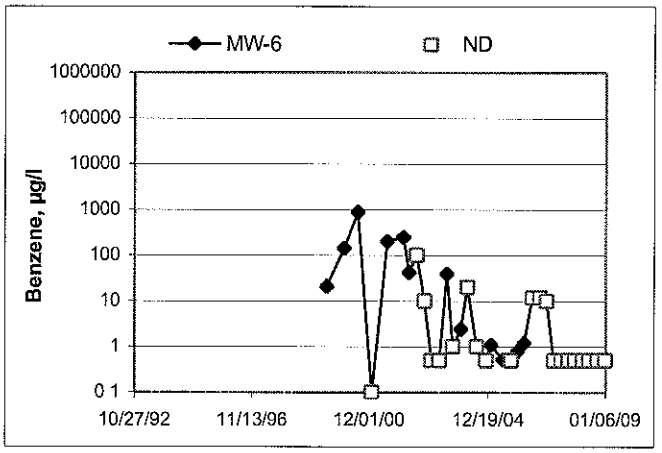


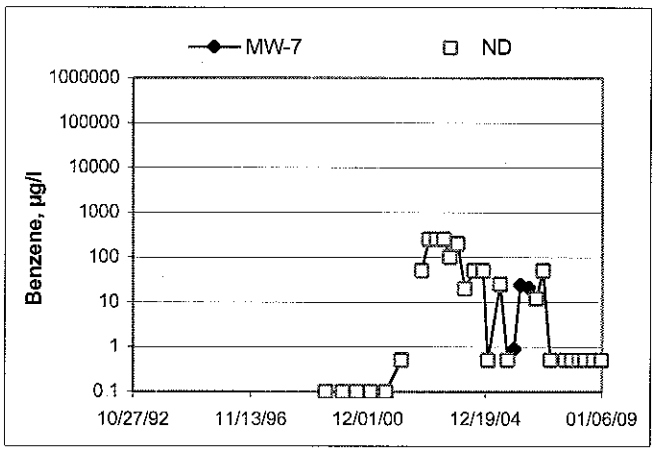


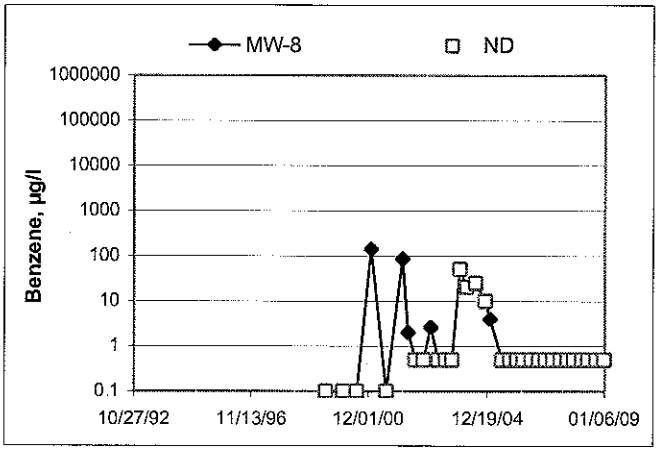




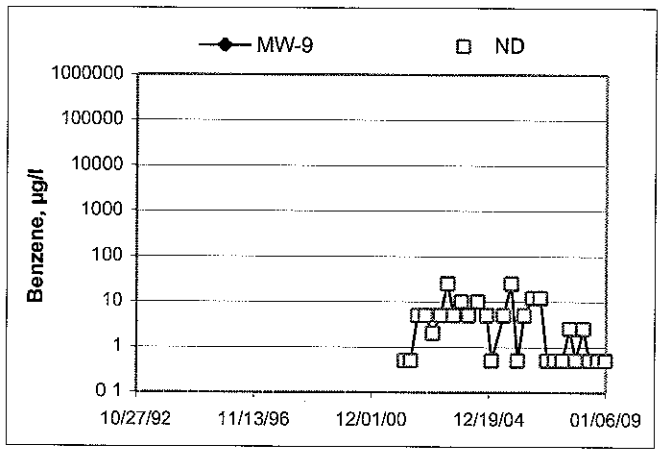


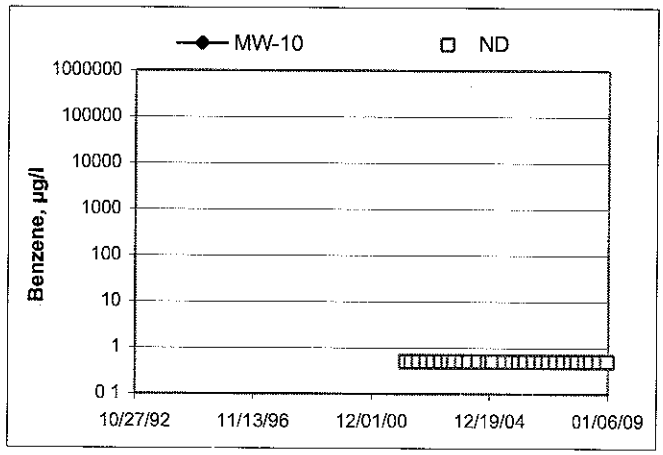


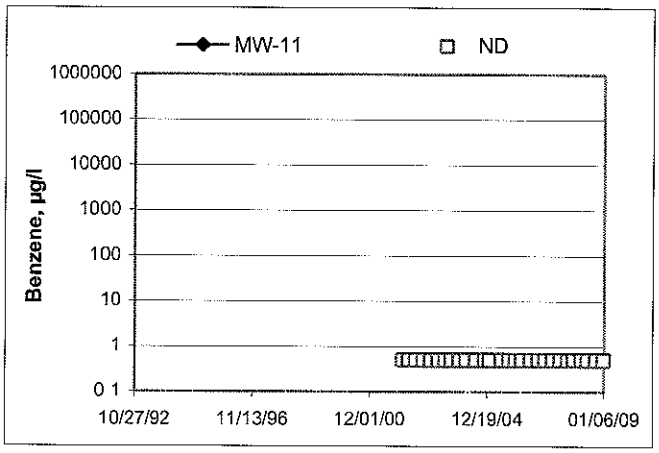




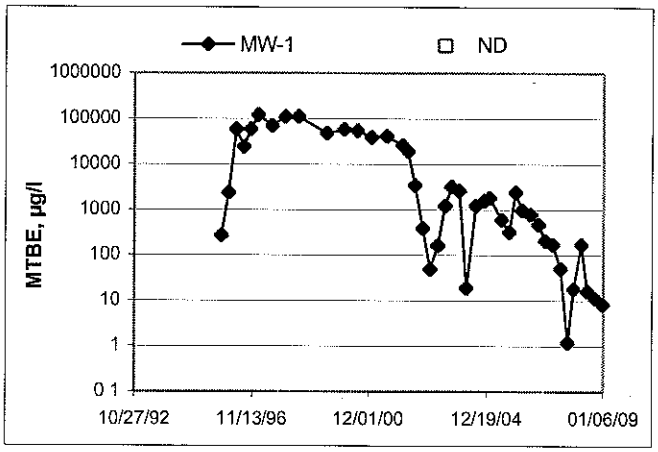
Benzene Concentrations vs Time
76 Station 1871

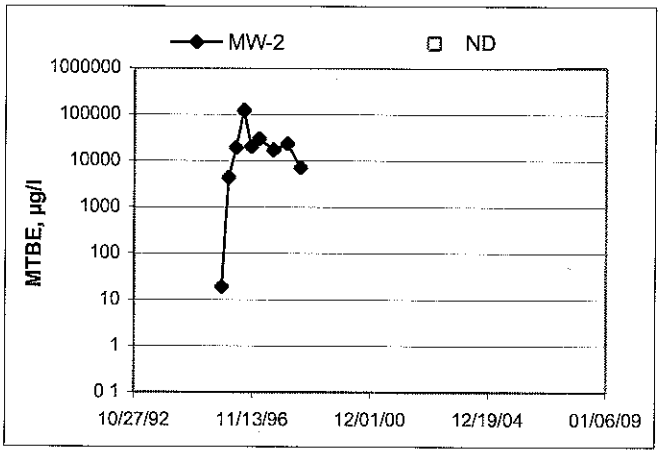


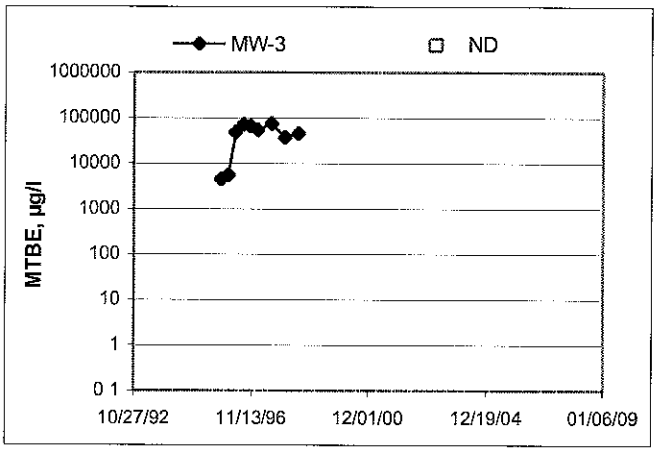


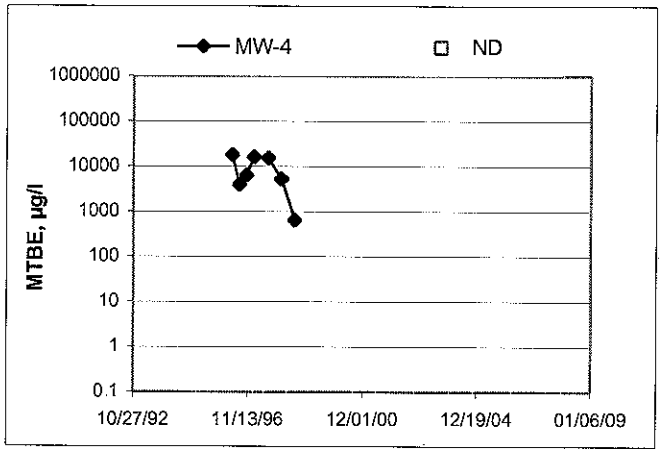


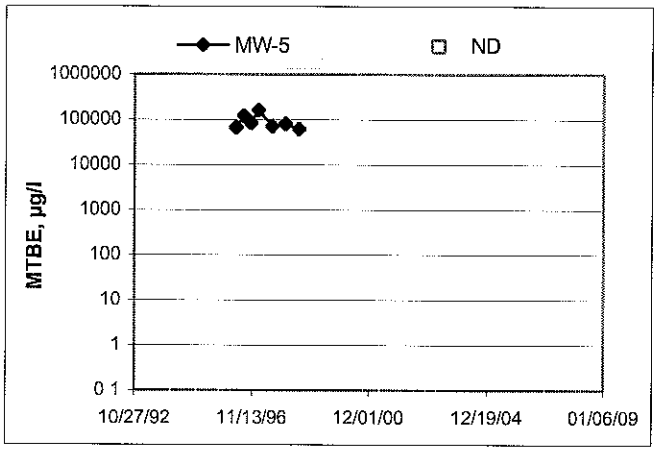
MTBE Concentrations vs Time
76 Station 1871

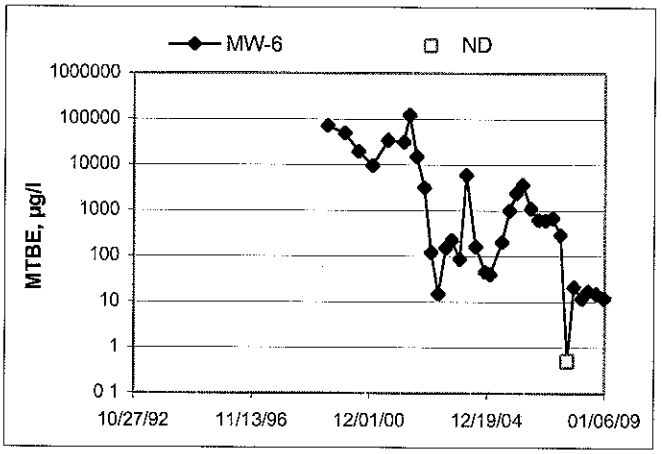


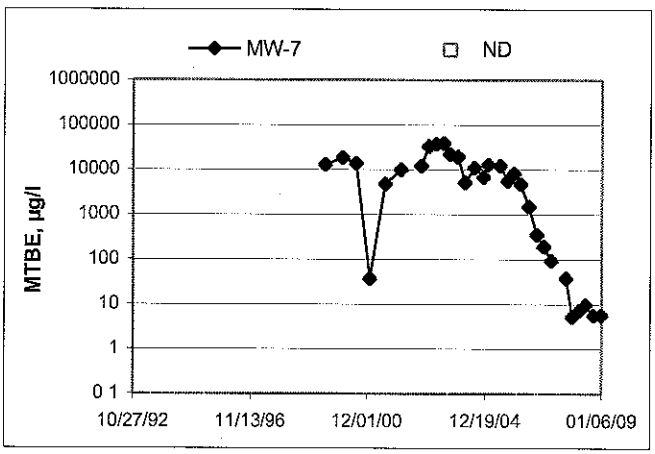


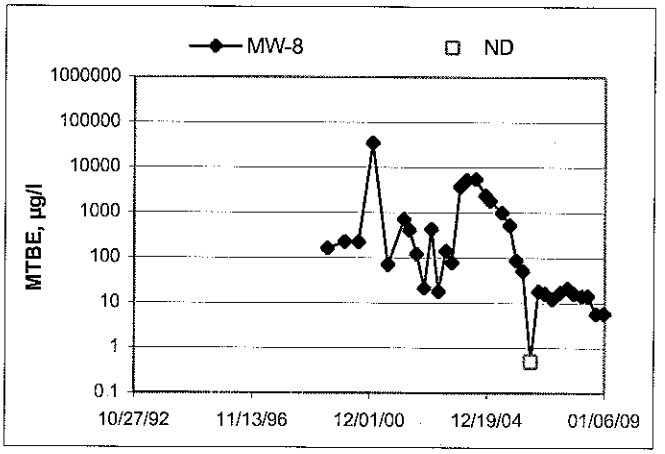












MTBE Concentrations vs Time
76 Station 1871