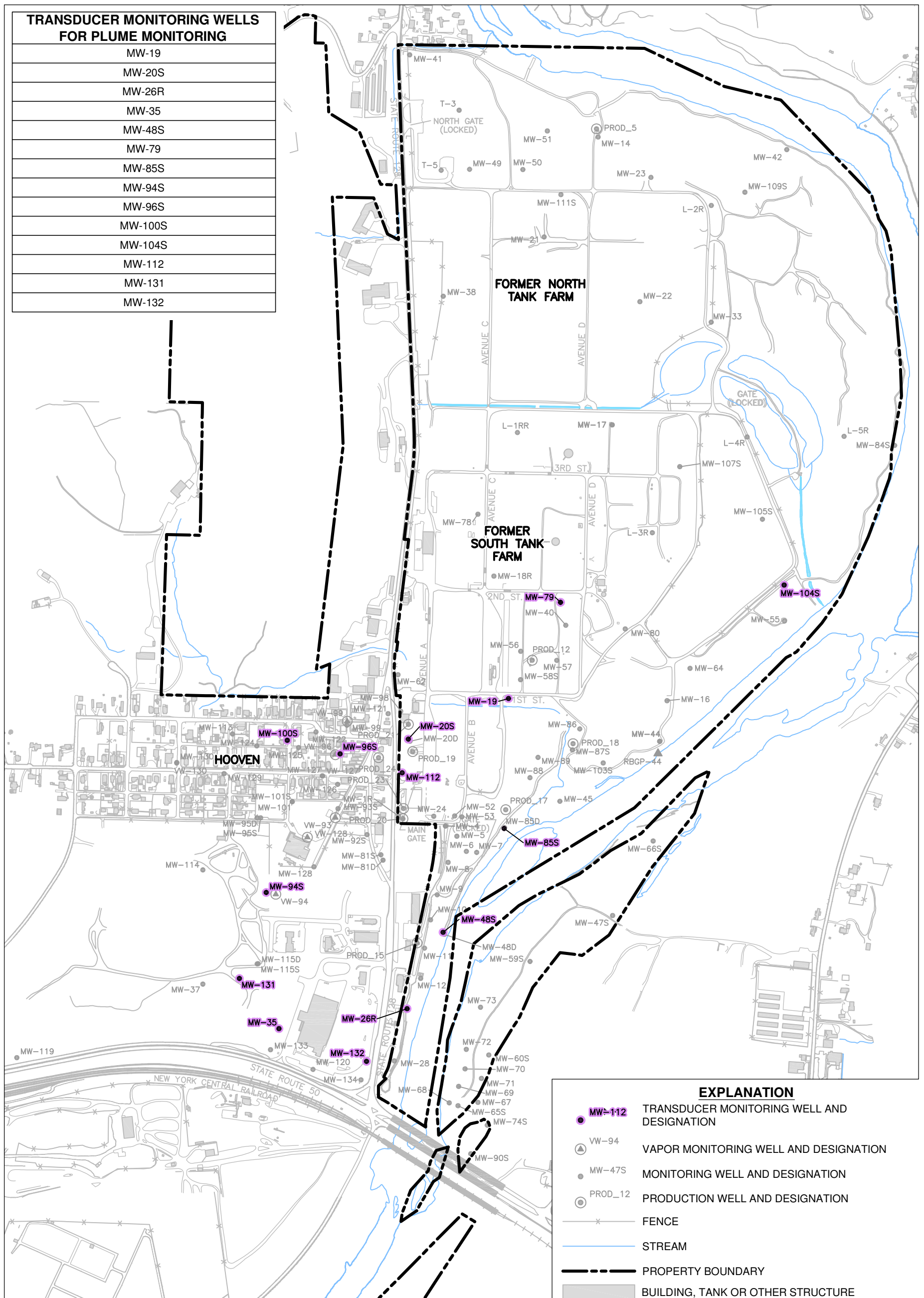


US EPA ARCHIVE DOCUMENT

MW-19
MW-20S
MW-26R
MW-35
MW-48S
MW-79
MW-85S
MW-94S
MW-96S
MW-100S
MW-104S
MW-112
MW-131
MW-132



A horizontal scale bar with a black and white alternating pattern. The left end is labeled '0' and the right end is labeled '650'.



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FIGURE 2-1

TRANSDUCER MONITORING WELLS

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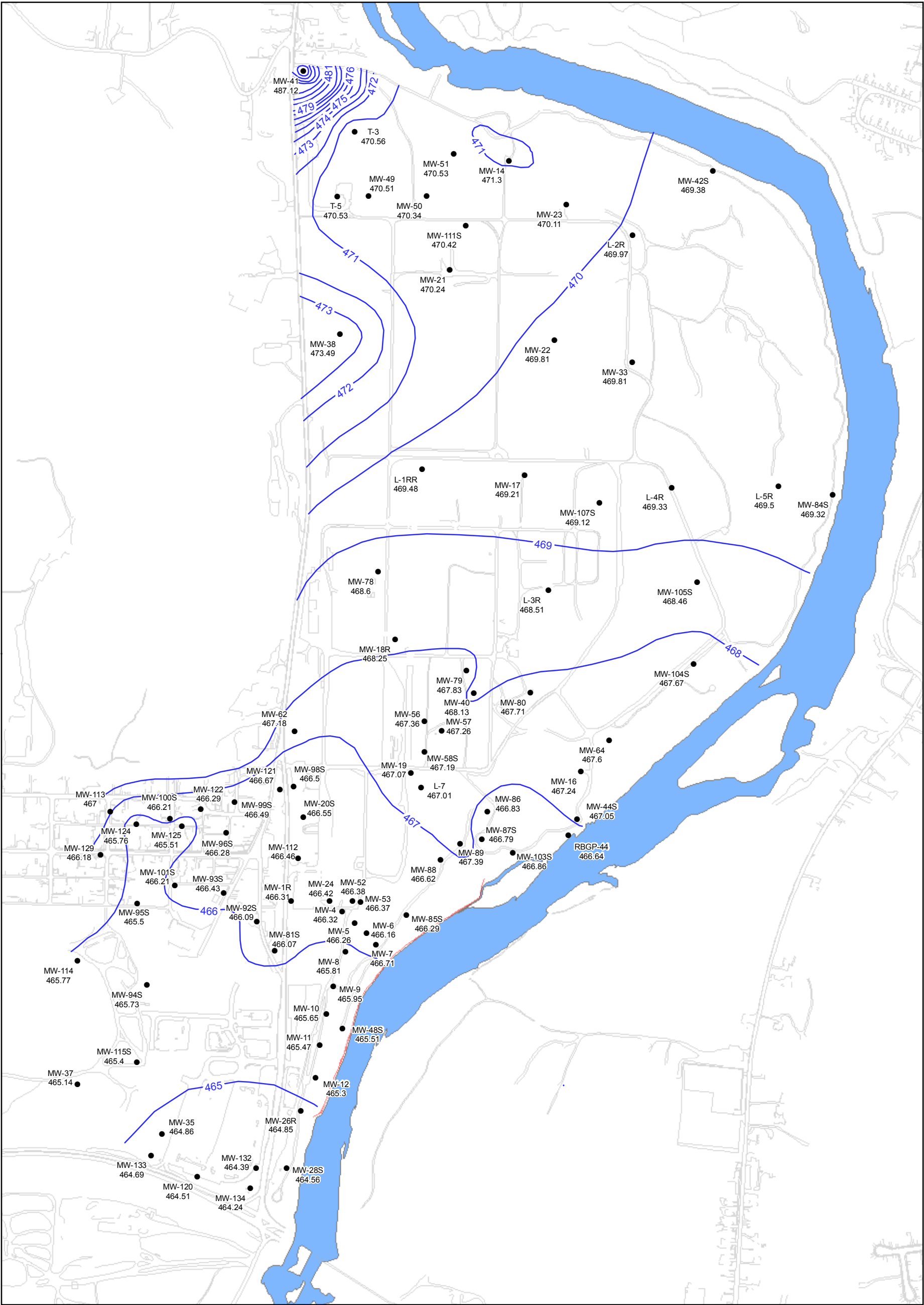
Drawn By: REP

Checked By: PS

Scale: 1" = 650'

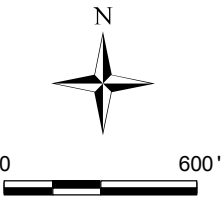
Date: 10/31/08

File: 500TRANMONWELLS200912



EXPLANATION

- EQUIPOTENTIAL CONTOUR LINE
Elevation In Feet Above Sea Level
Contour Interval is 1.0 feet
(Line Dashed where approximate)
- BARRIER WALL

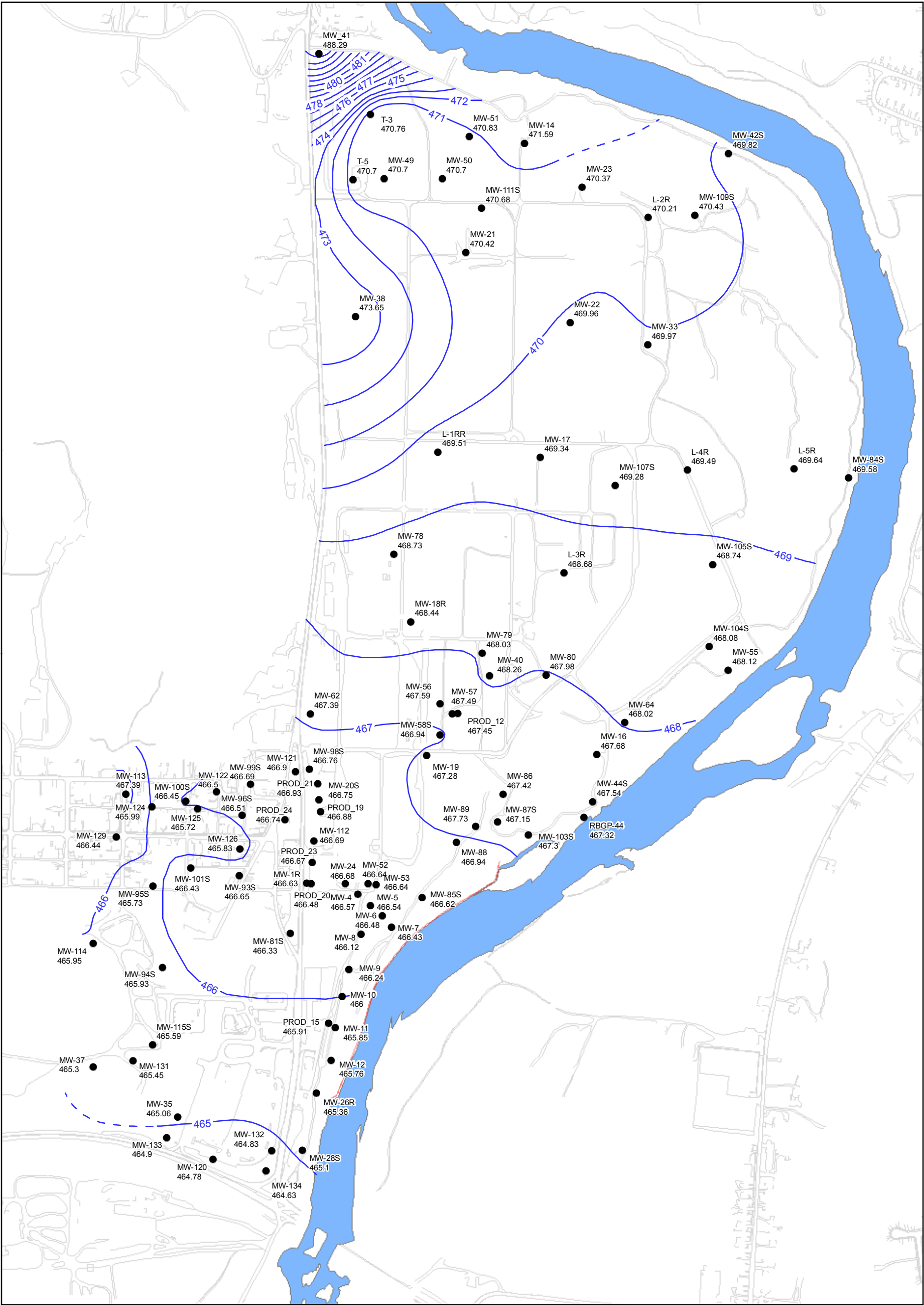


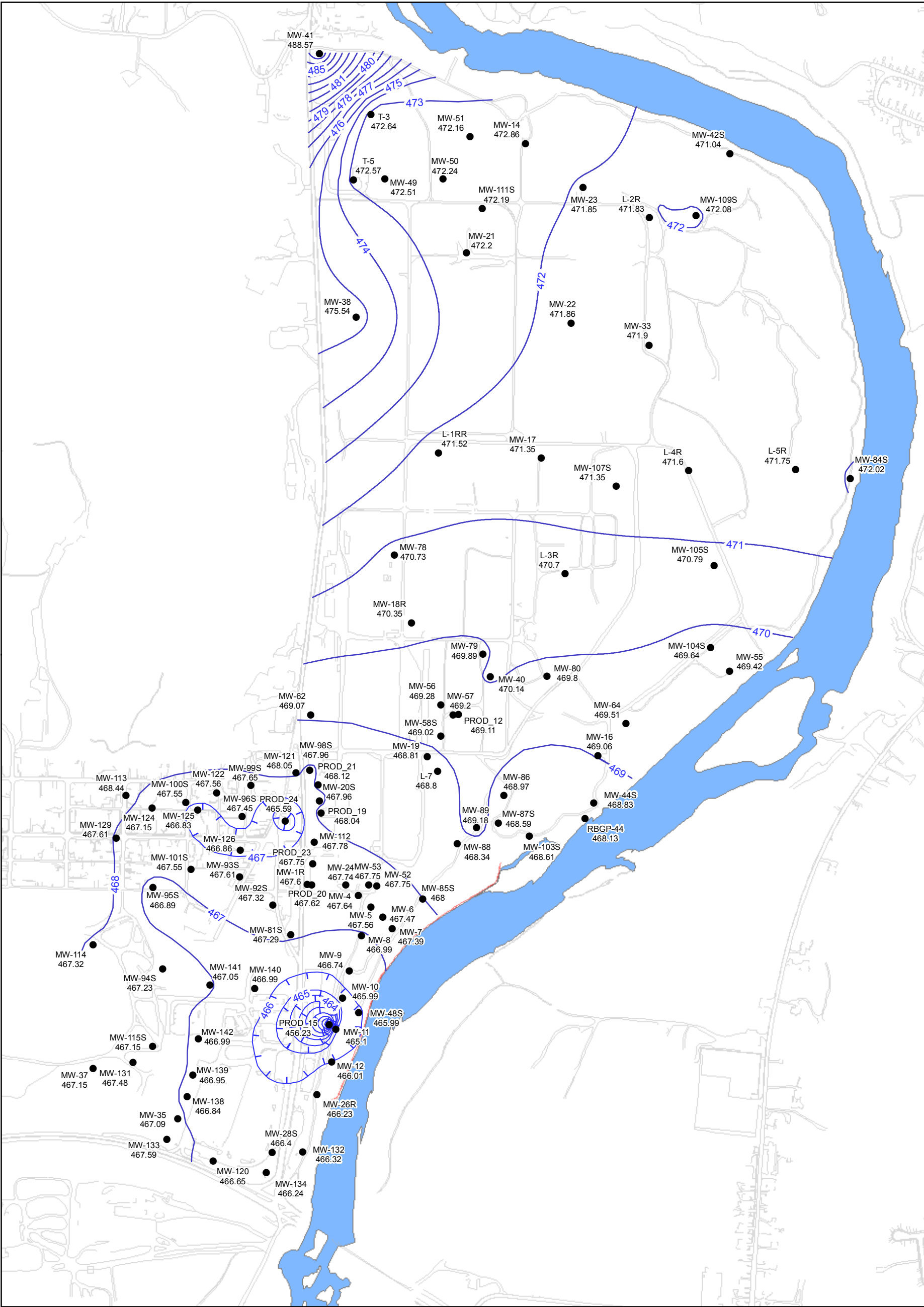
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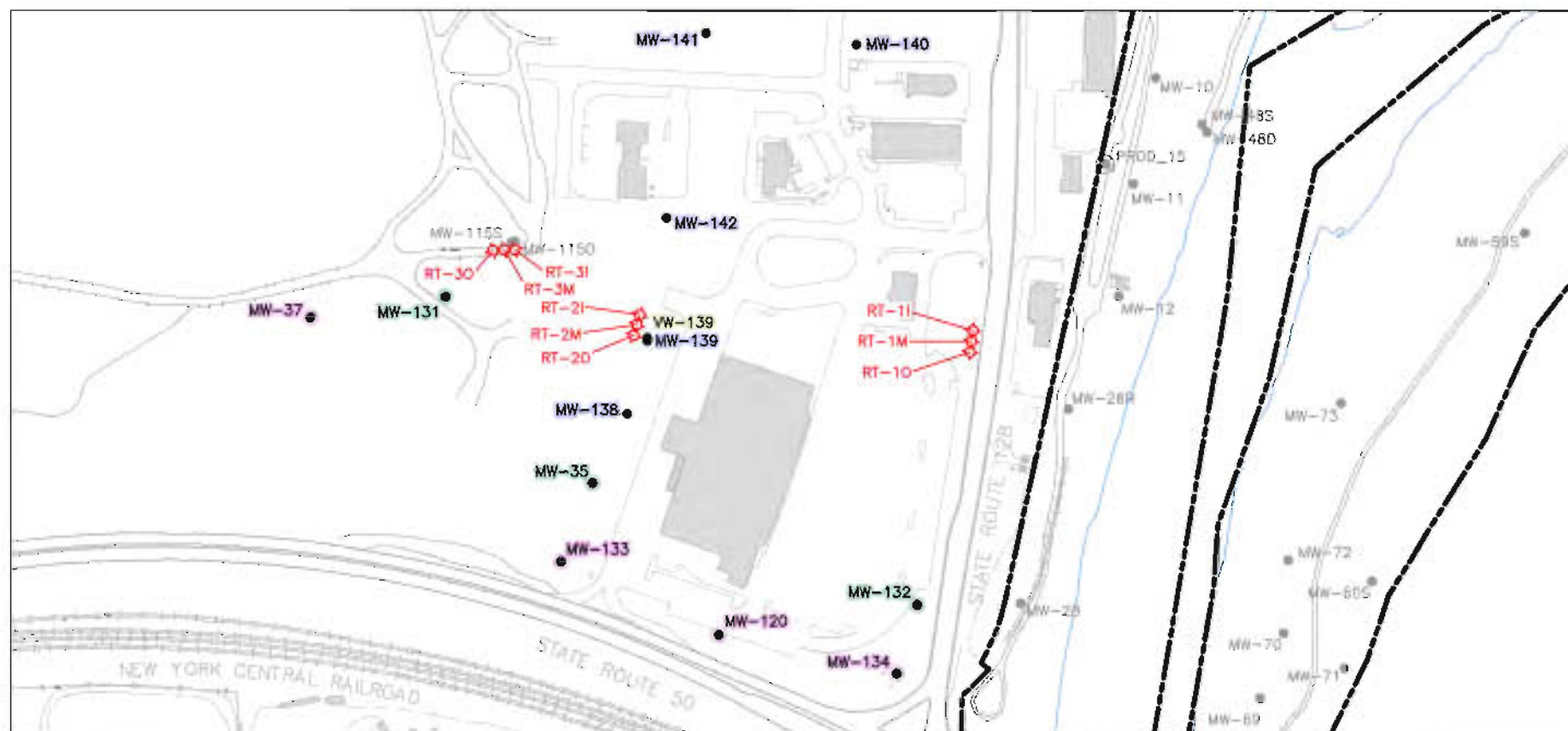
FIGURE 2-2

**POTENTIOMETRIC SURFACE MAP
JANUARY 22, 2009**

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EXPLANATION

RT-20
RT-2M
RT-2I

PERMANENT ROST TRANSECT AND DESIGNATION

MW-138

MONITORING WELL AND DESIGNATION
(INSTALLED MARCH 2009)

MW-35

SENTINEL MONITORING WELL AND DESIGNATION

MW-37

POINT OF COMPLIANCE MONITORING WELL
AND DESIGNATION

VW-139

NESTED VAPOR WELL AND DESIGNATION

MW-47S

MONITORING WELL AND DESIGNATION

PROD-12

PRODUCTION WELL AND DESIGNATION

STREAM

PROPERTY BOUNDARY

BUILDING, TANK OR OTHER STRUCTURE



0 300'



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FIGURE 2-5

SENTINEL, POINT OF COMPLIANCE, AND ROST
MONITORING NETWORK

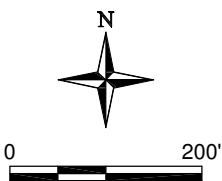
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Drawn By: REP Checked By: MM Scale: 1"=300' Date: 12/8/09 File: 500ROST-TRANSECTS200912

CONSTITUENT TABLE EXPLANATION

- | WELL DESIGNATION | MW-133 | 6/29/09 | SAMPLE DATE |
|------------------|--------|---------|-------------|
| Benzene | B | 0.5 | |
| Chlorobenzene | CB | 0.8 | |
| Ethylbenzene | E | 0.8 | |
| Toluene | T | 0.7 | |
| Xylenes, Total | X | 0.8 | |
- 

1. ALL VALUES IN MILLIGRAMS PER LITER (mg/L)
2. J ESTIMATED VALUE



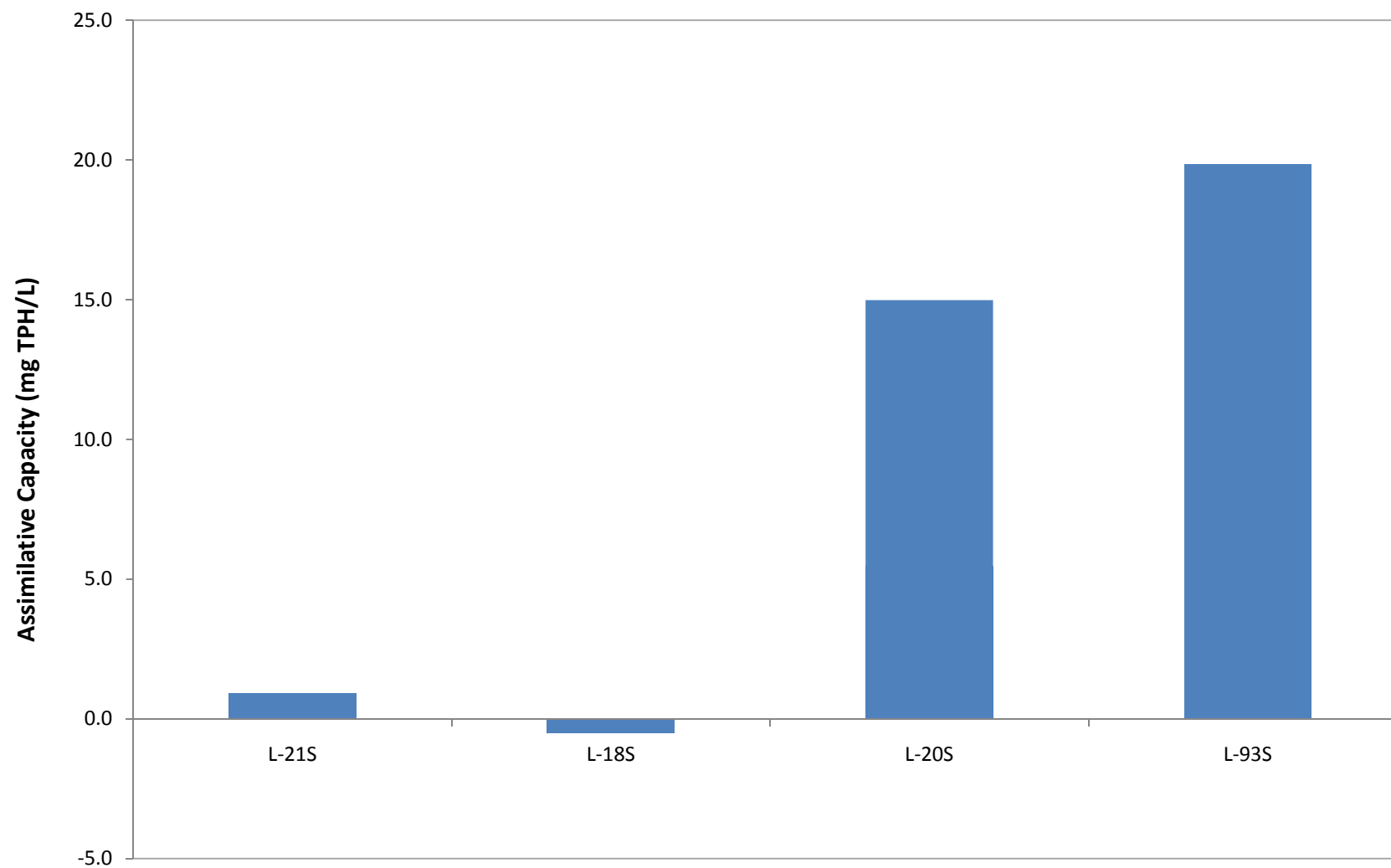
SOUTHWEST QUAD GROUNDWATER RESULTS (NOVEMBER 2008 THROUGH JUNE 2009)

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Drawn By: REP	Checked By: MM	Scale: 1" = 200'	Date: 12/8/09	File: 500-SW-BTEX-200811-200906
---------------	----------------	------------------	---------------	---------------------------------

**FIGURE 2-7. PORE WATER ASSIMILATIVE CAPACITY
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



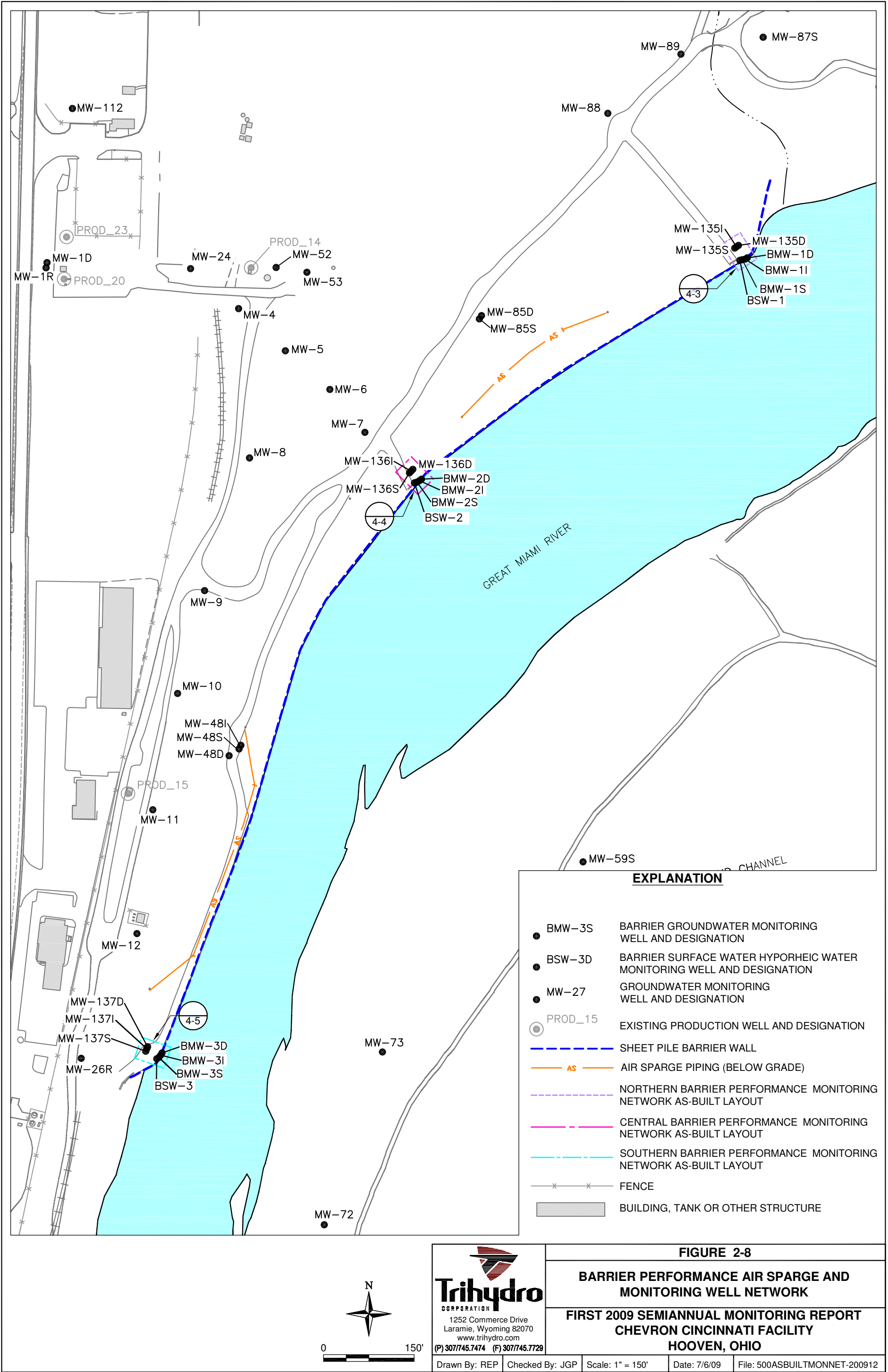
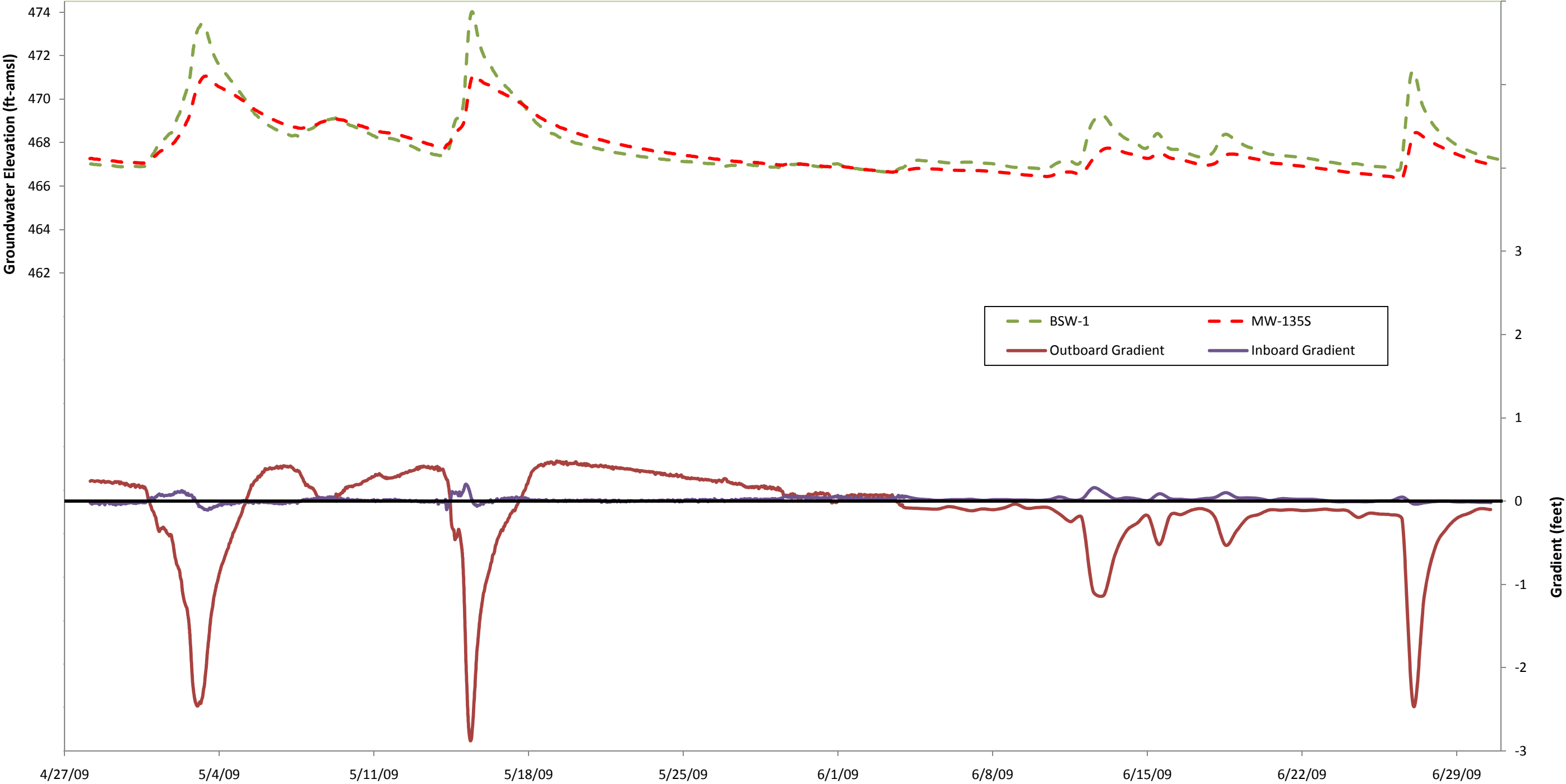
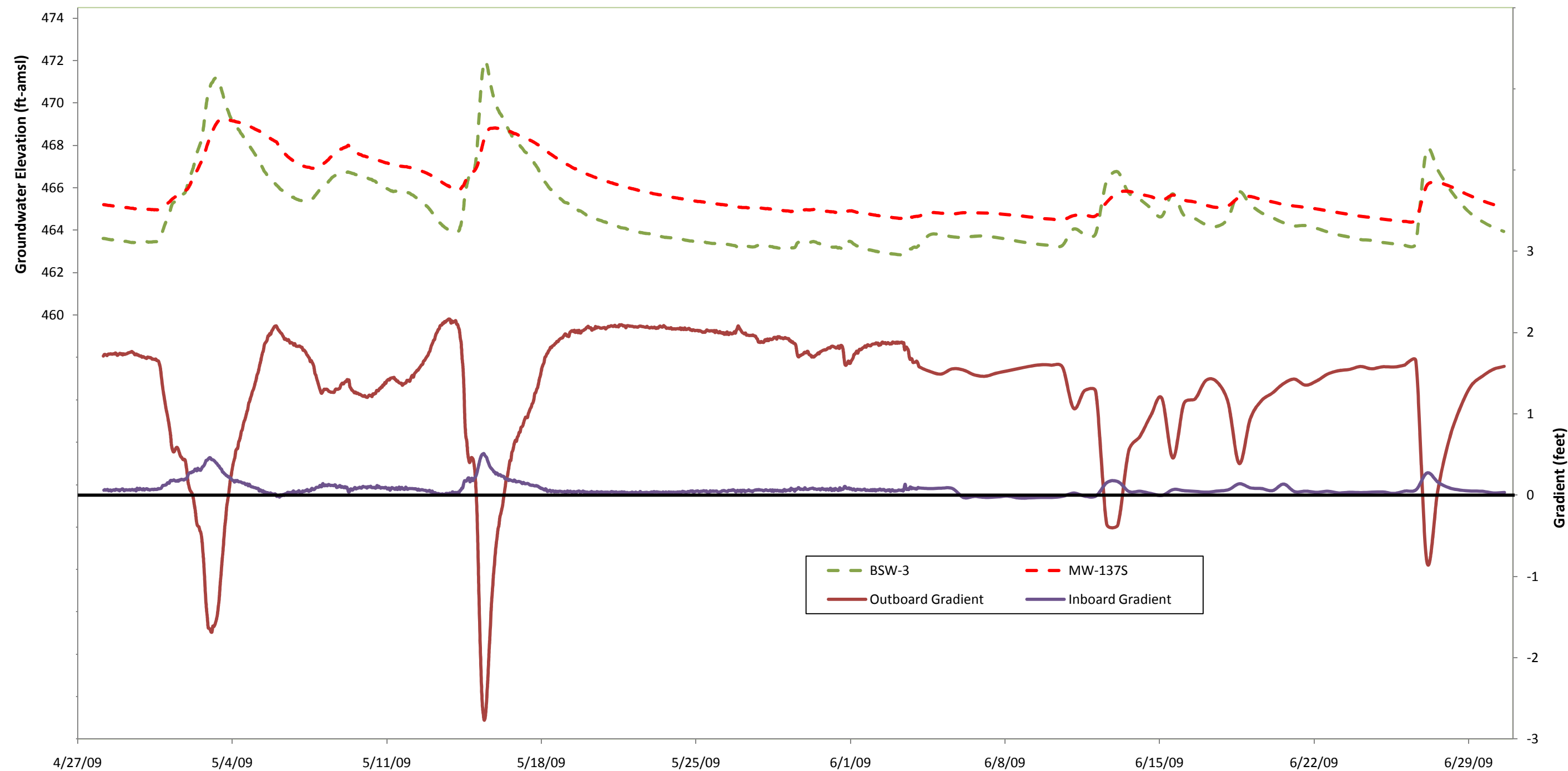


FIGURE 2-9. BARRIER WALL NORTH TRANSECT VERTICAL GRADIENTS
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



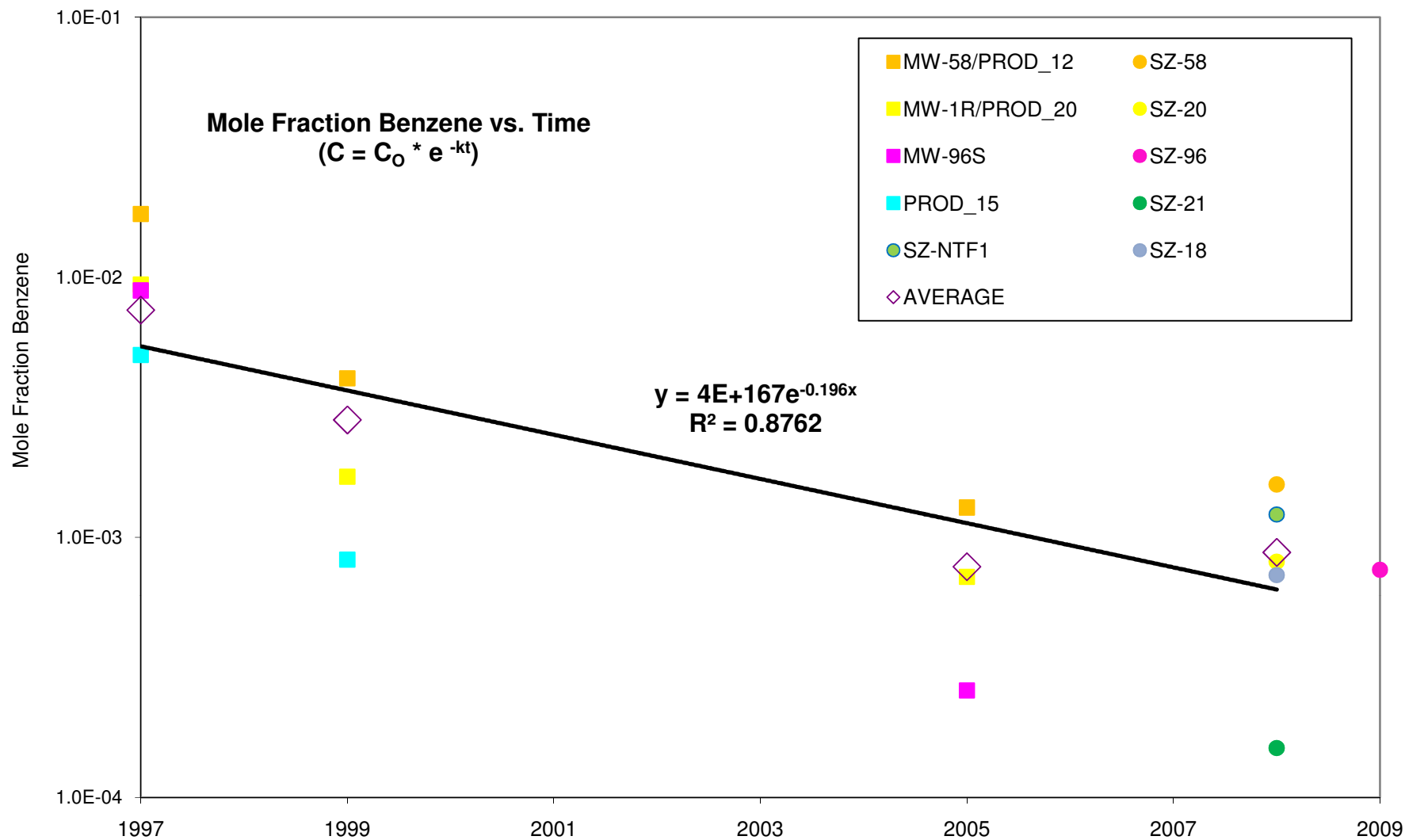
EXPLANATION
Outboard Gradient - Groundwater elevation at BMW-1D minus the surface water elevation at BSW-1.
Inboard Gradient - Groundwater elevation at MW-135D minus the groundwater elevation at MW-135S.

FIGURE 2-10. BARRIER WALL SOUTH TRANSECT VERTICAL GRADIENTS
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



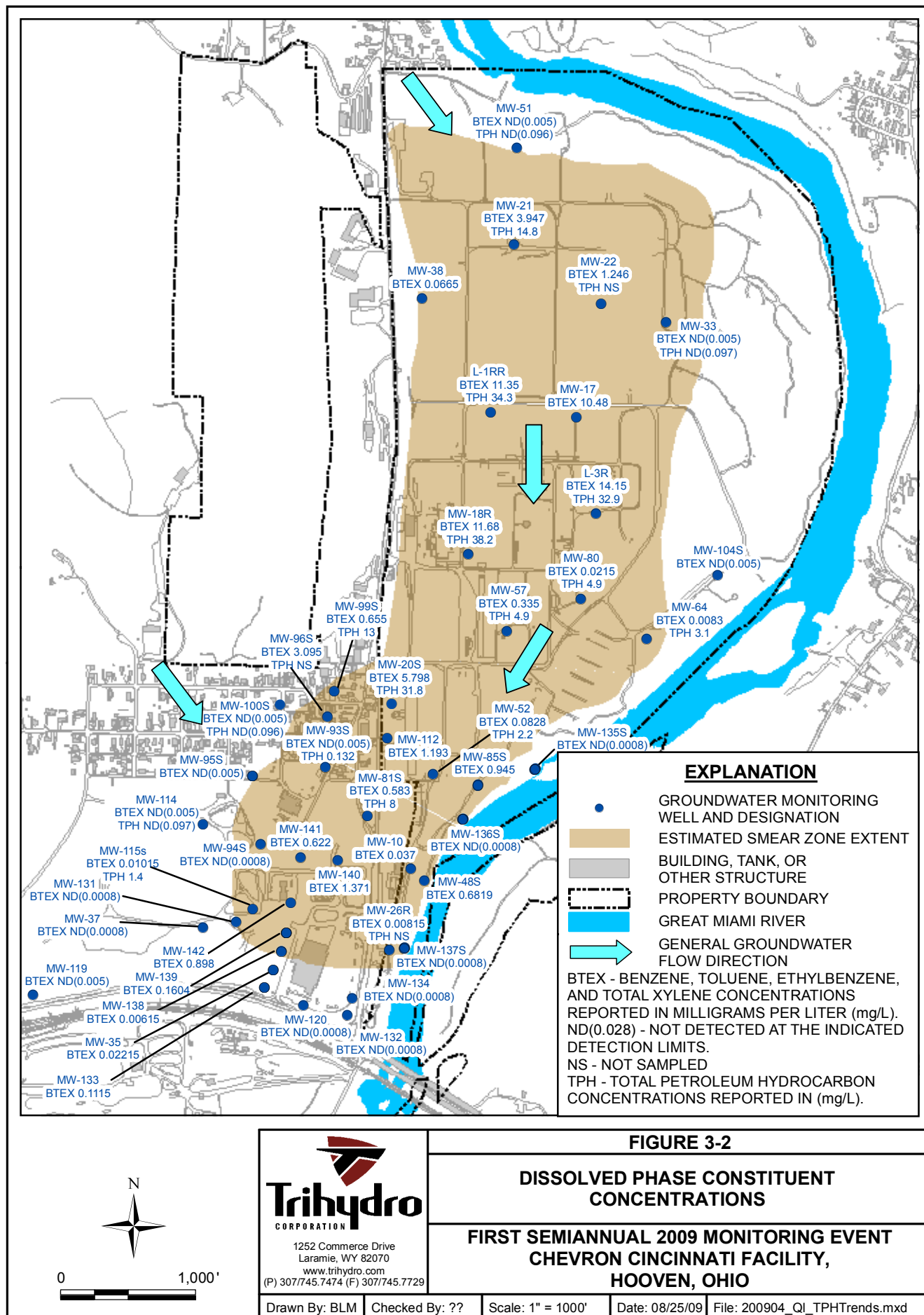
EXPLANATION
Outboard Gradient - Groundwater elevation at BMW-3D minus the surface water elevation at BSW-3.
Inboard Gradient - Groundwater elevation at MW-137D minus the groundwater elevation at MW-137S.

FIGURE 3-1. BENZENE MOLE FRACTION VERSUS TIME IN LNAPL AND SOIL CORE SAMPLES
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO

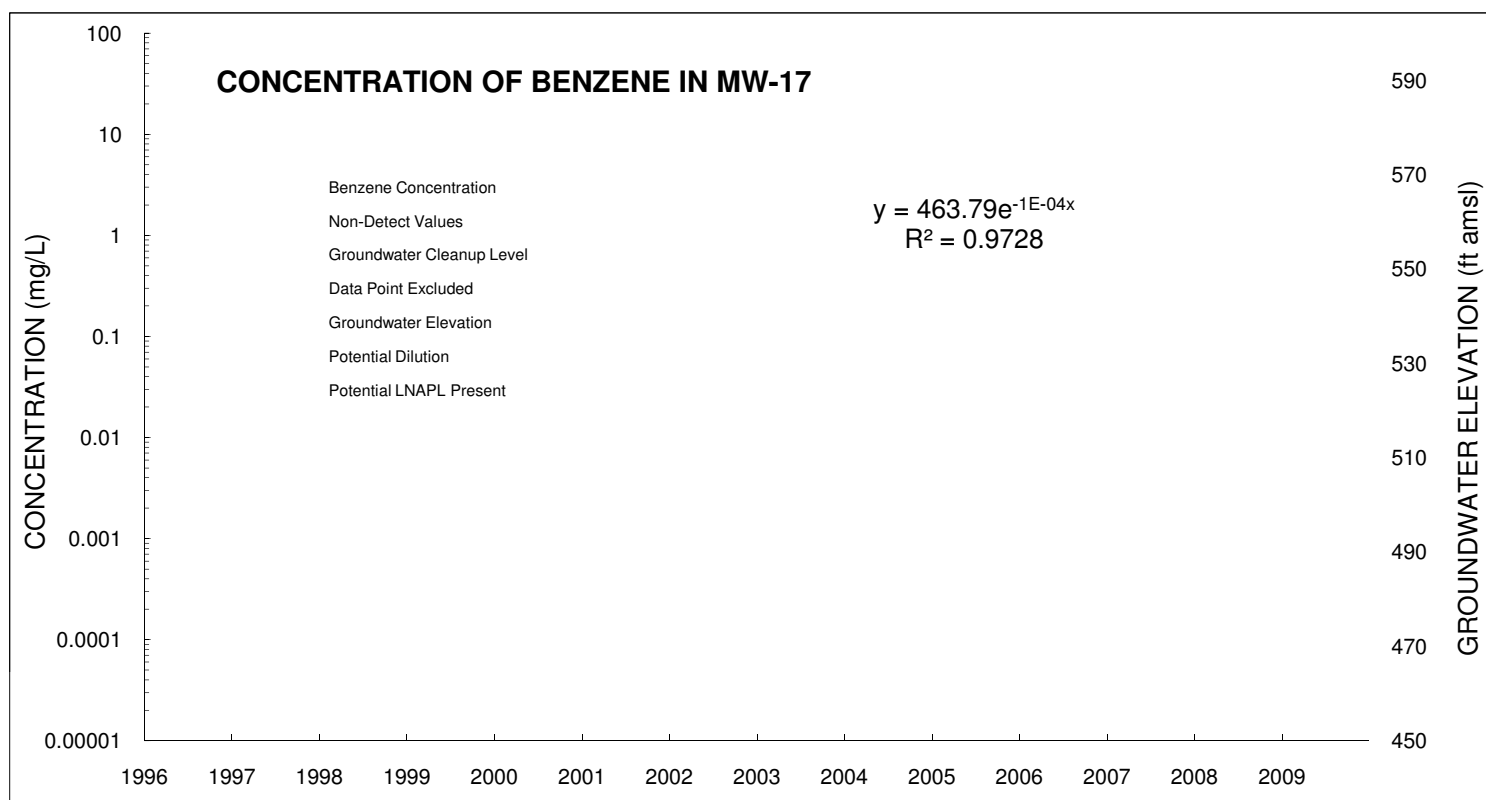


EXPLANATION

1. SZ DESIGNATION INDICATES SMEAR ZONE SOIL CORES COLLECTED IN 2008 AND 2009 WHERE MOLE FRACTION BENZENE ARE AVERAGED FOR EACH OF THE SAMPLES COLLECTED FROM THE MIDDLE OF THE SMEAR ZONE AT EACH LOCATION.
2. MOLE FRACTION BENZENE FOR ALL OTHER EVENTS CALCULATED USING LNAPL ANALYTICAL RESULTS



**FIGURE 3-3. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-17
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CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



EXPLANATION

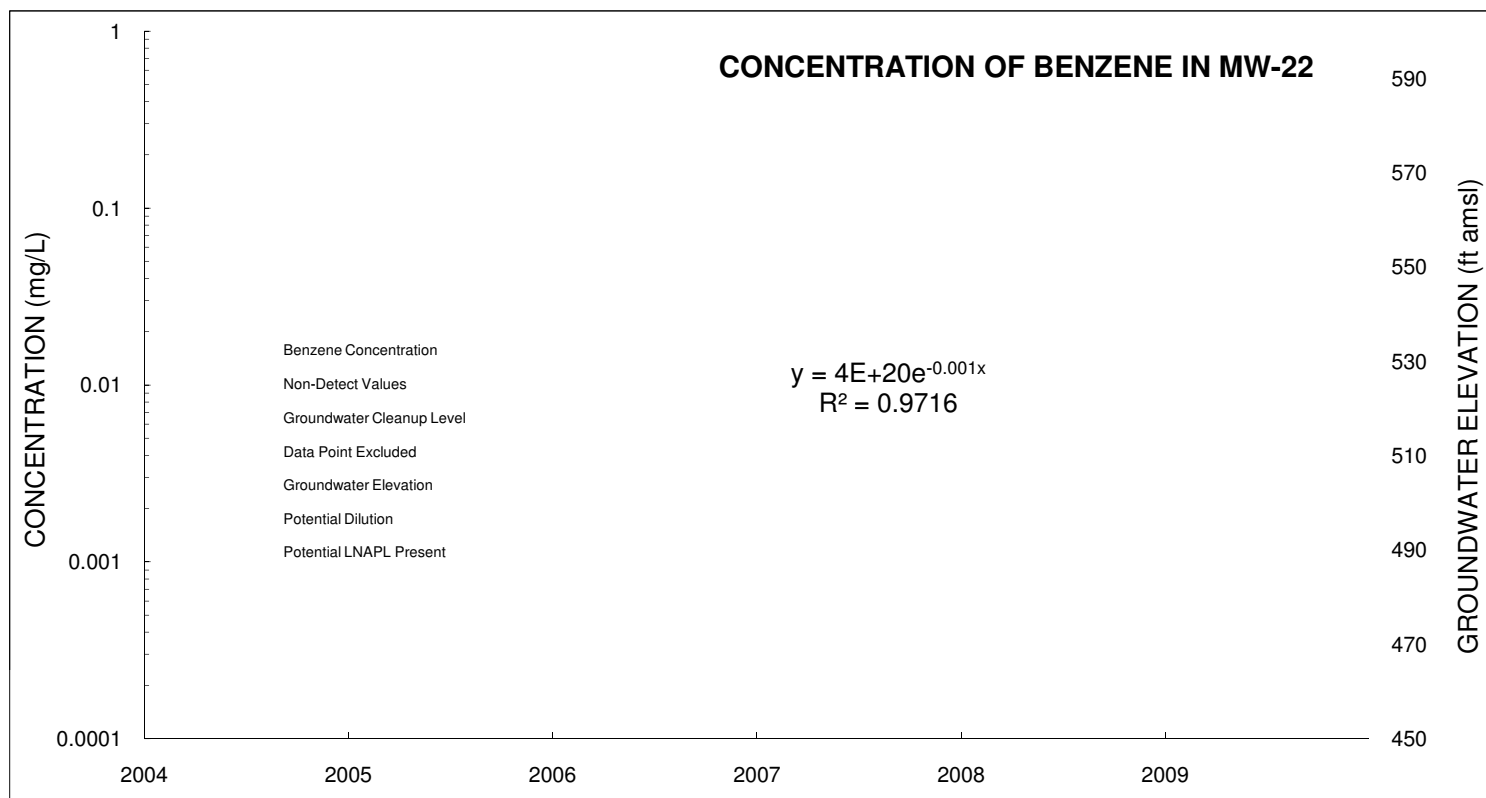
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (4/23/08)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-4. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-22
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

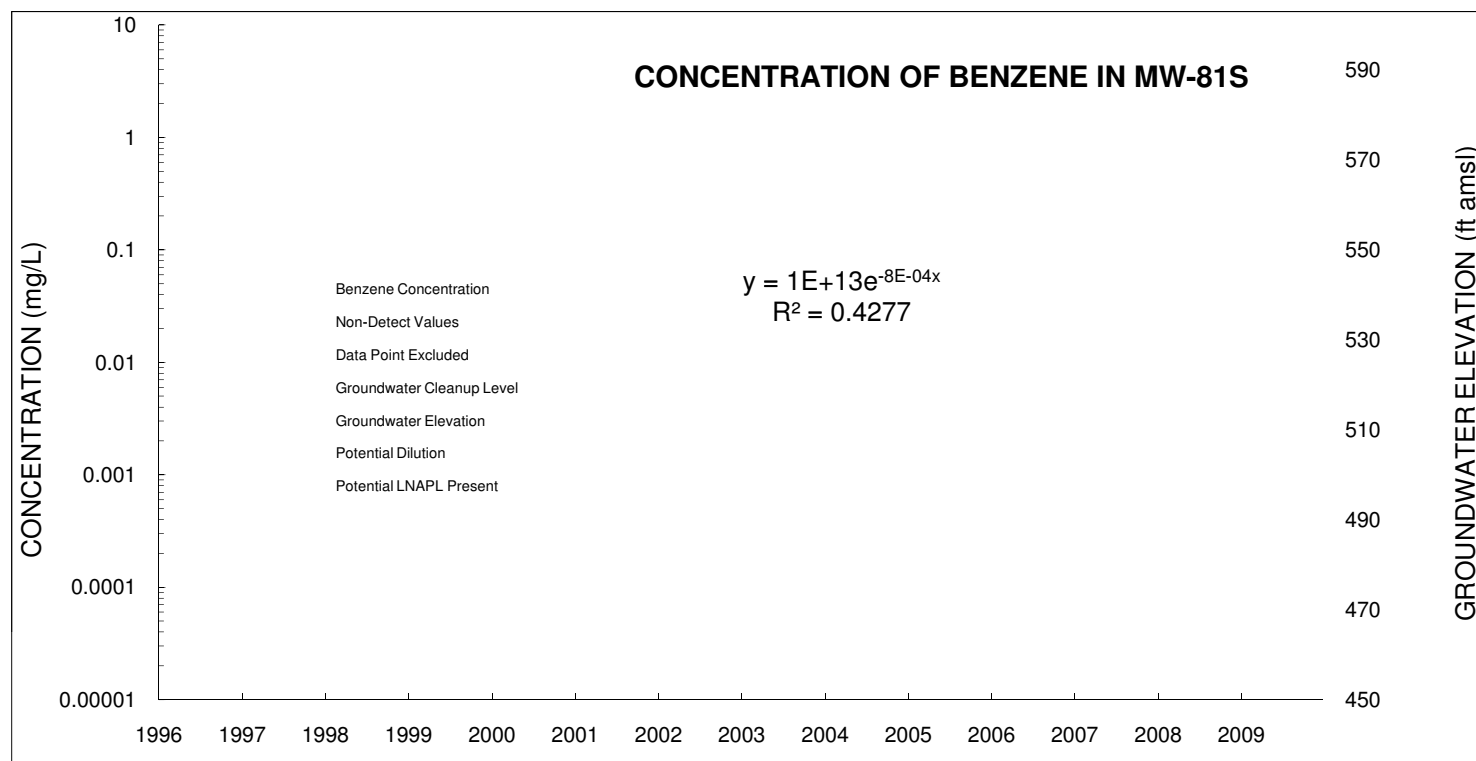
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (4/16/08)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-5. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-81S
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

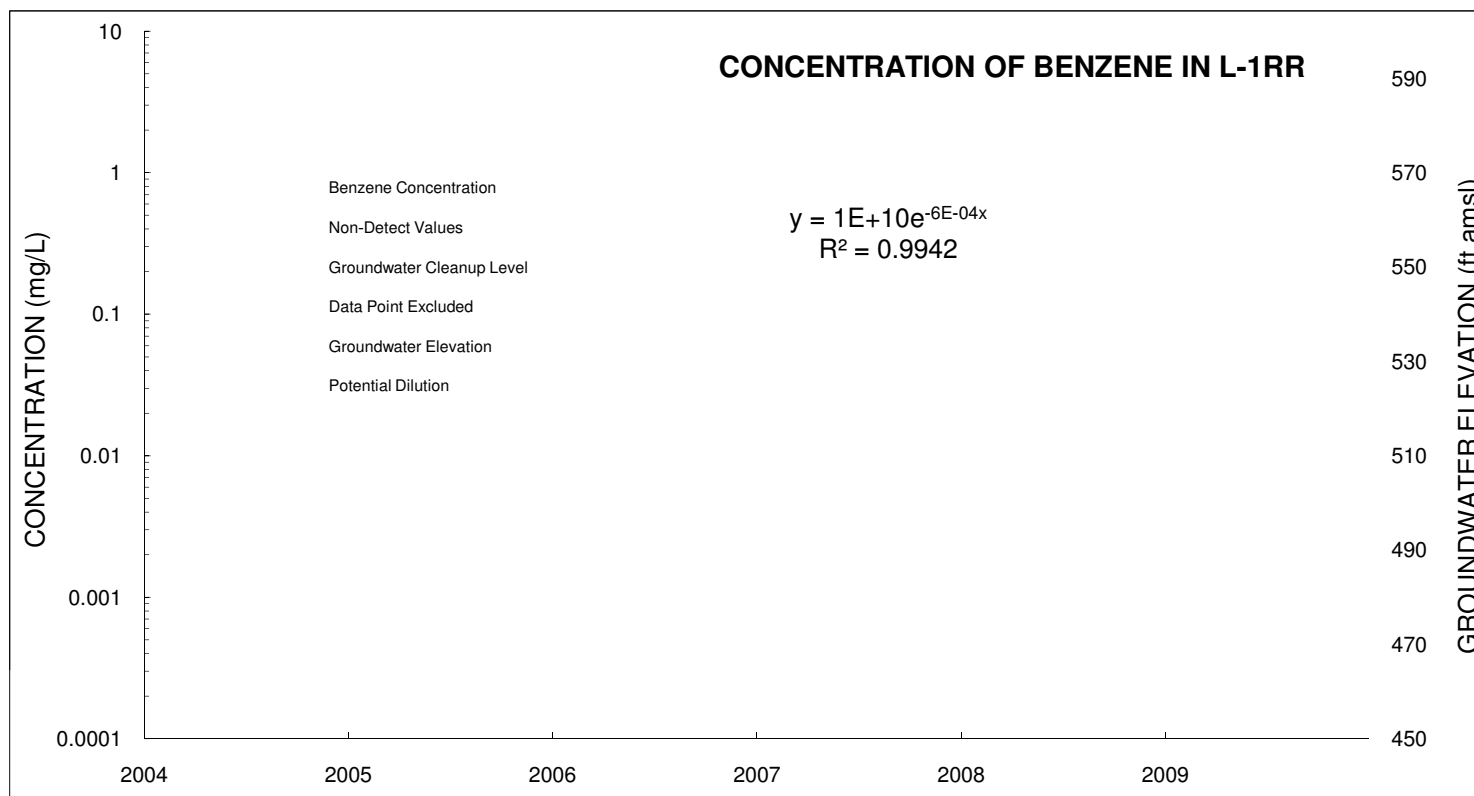
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

EIGHT DATA POINTS EXCLUDED (6/20/1996, 6/9/1997, 4/1/2002, 11/15/2005, 11/28/2005, 12/29/2005, 4/30/2008)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-6. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL L-1RR
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

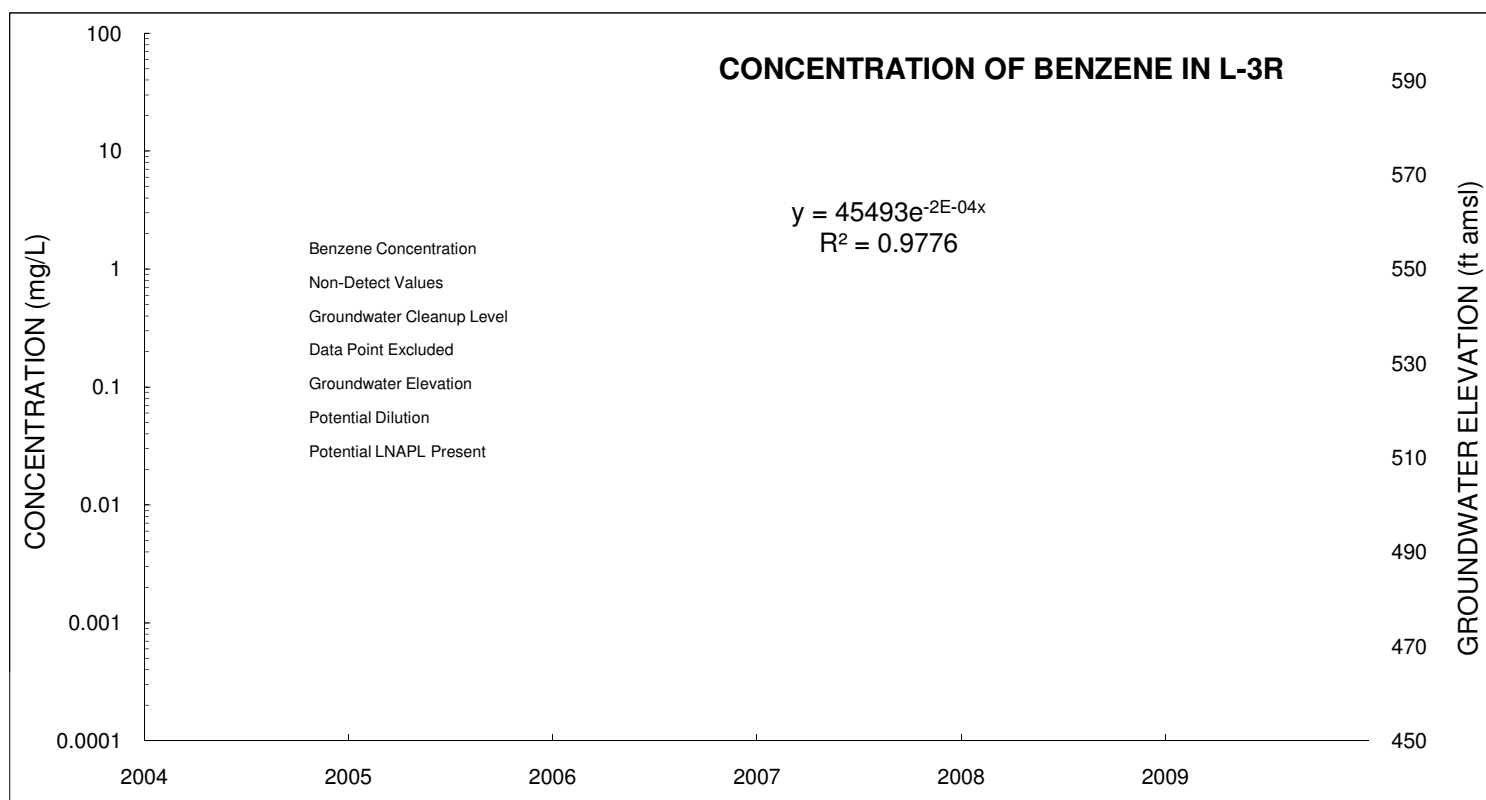
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (4/17/08)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-7. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL L-3R
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CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

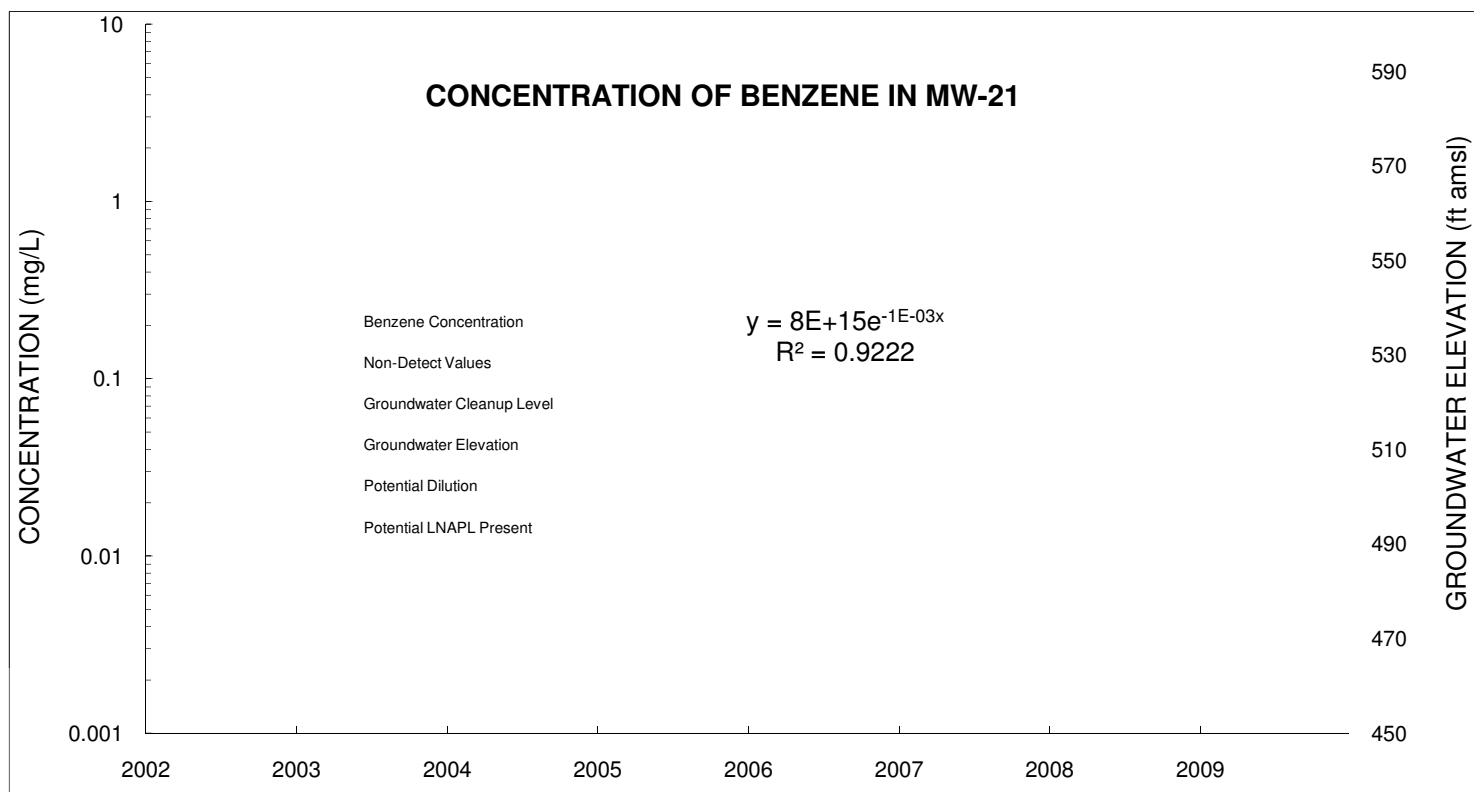
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (4/16/08)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-8. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-21
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

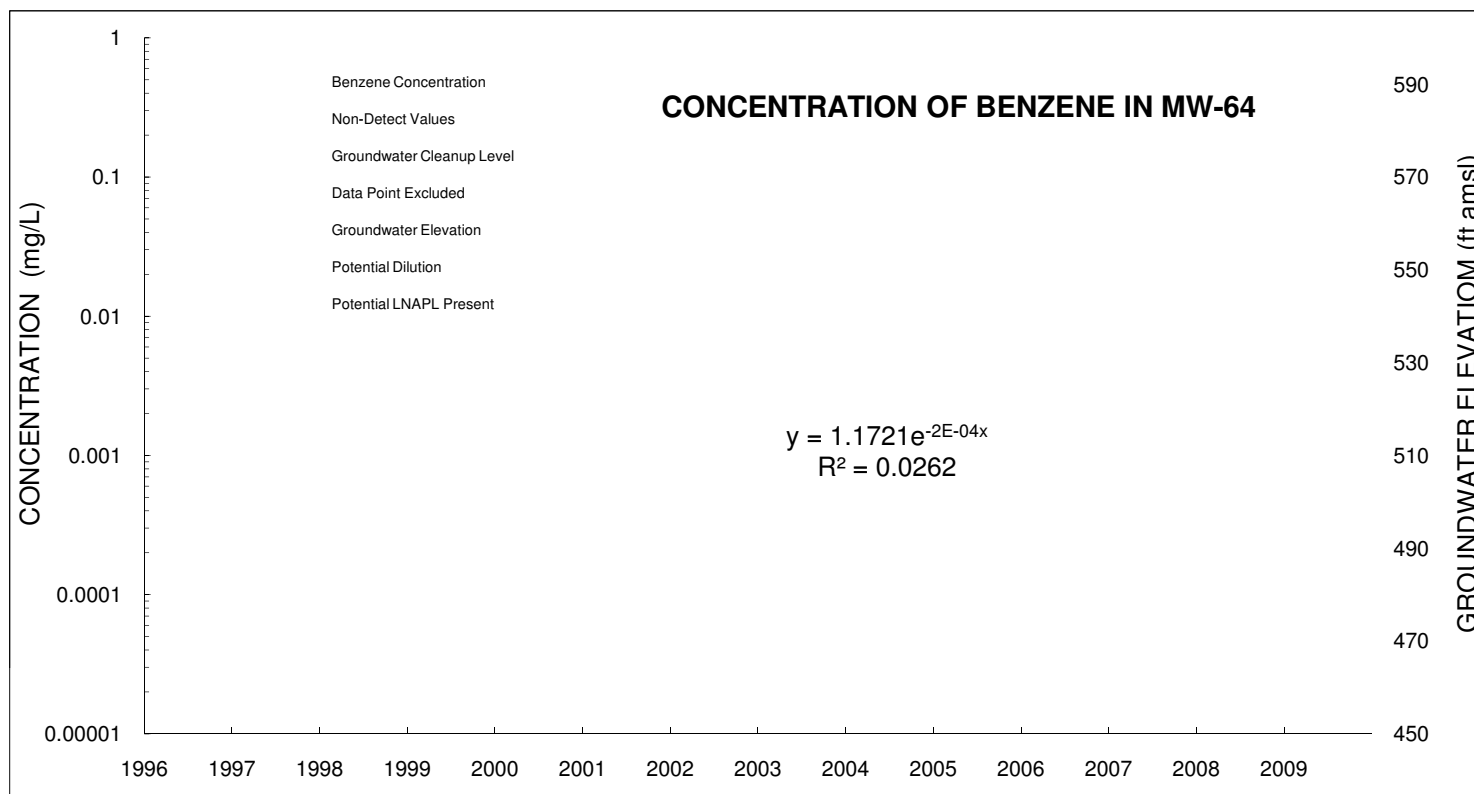
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

NO DATA POINTS EXCLUDED FOR MW-21

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

**FIGURE 3-9. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-64
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



EXPLANATION

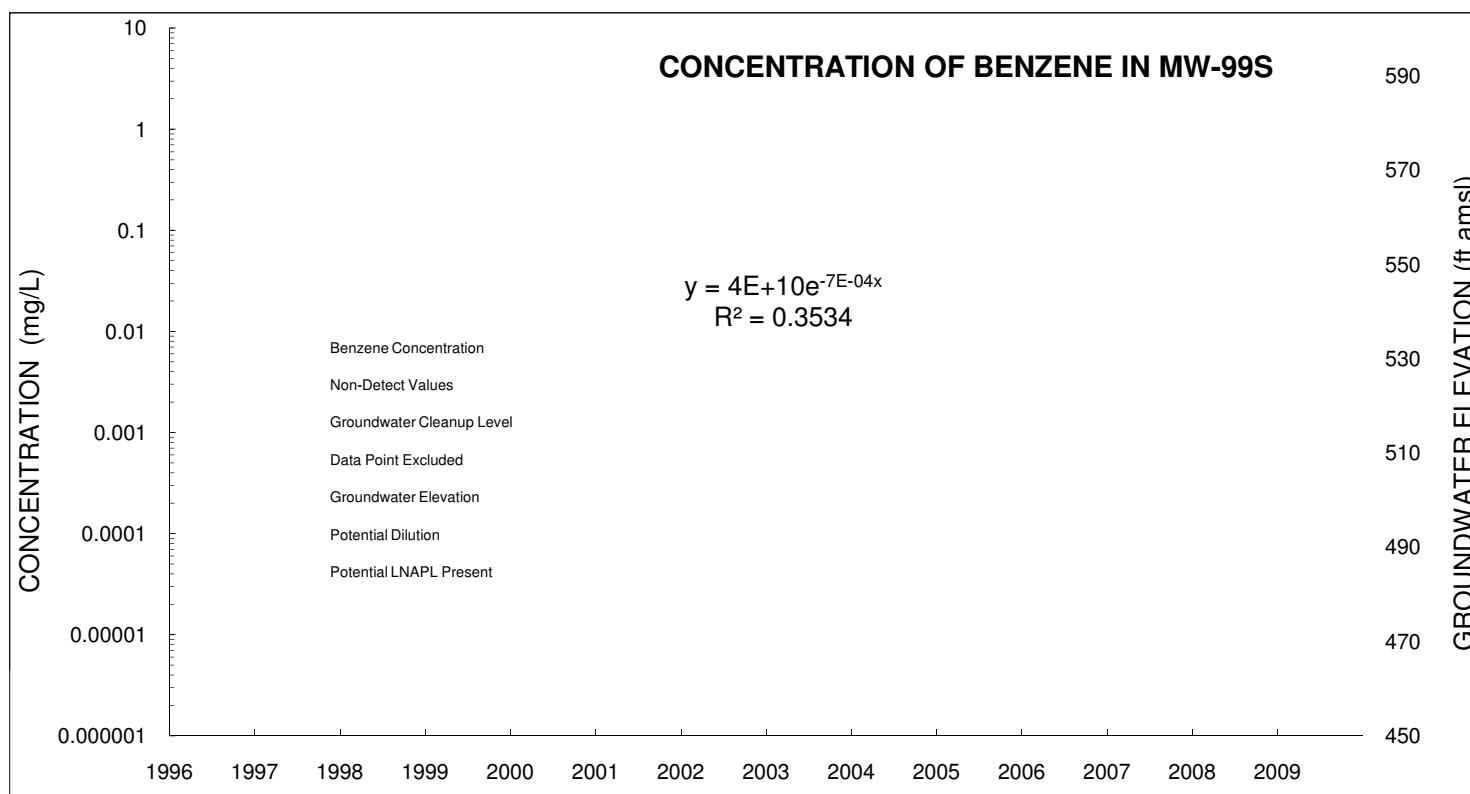
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (10/12/99)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

**FIGURE 3-10. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-99S
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



EXPLANATION:

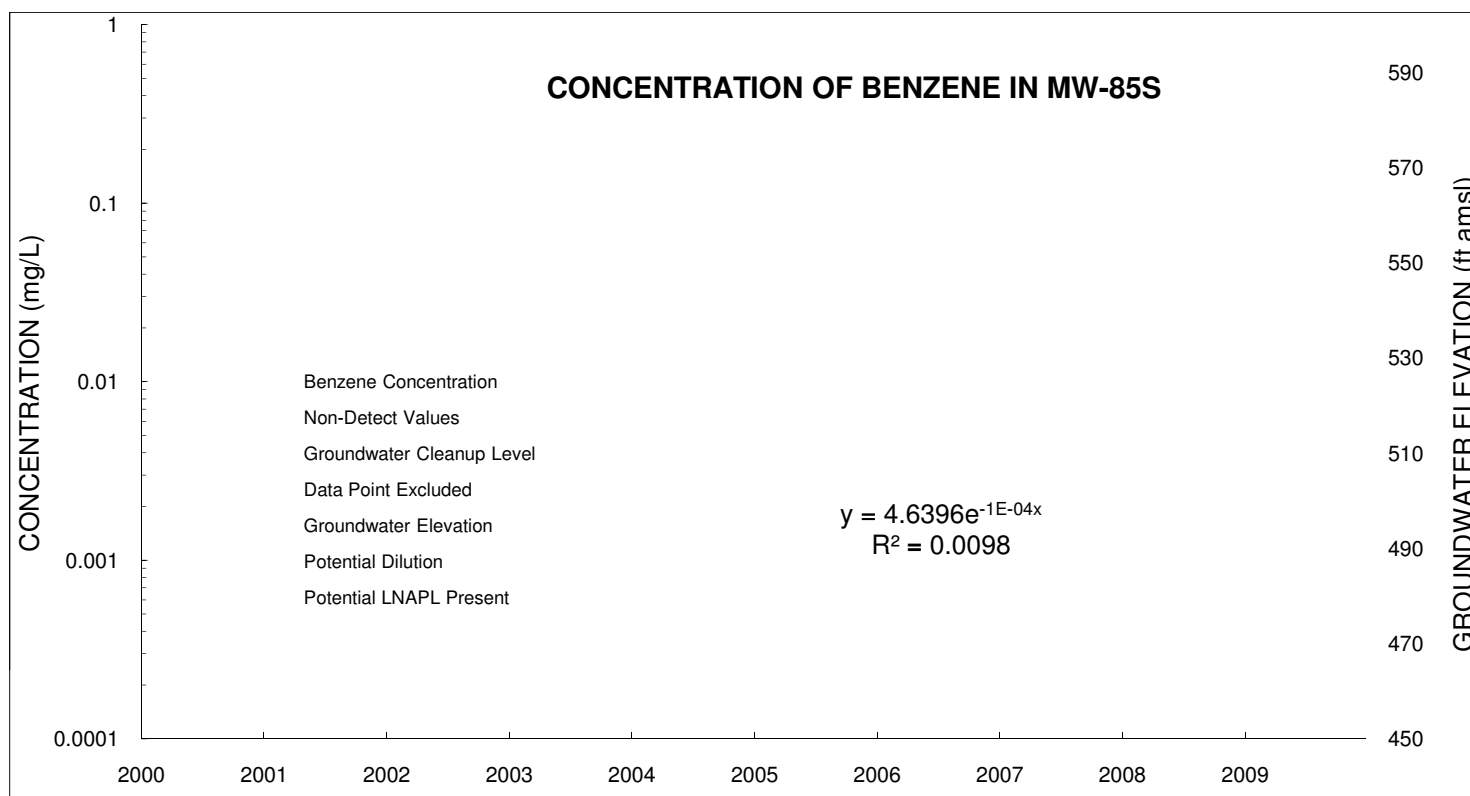
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

NINE DATA POINTS EXCLUDED (12/10/1997, 4/3/2000, 5/23/2000, 11/7/2001, 11/4/2002, 2/24/2005, 9/7/2005, 10/28/2005, and 11/20/2006).

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

FIGURE 3-11. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-85S
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO



EXPLANATION

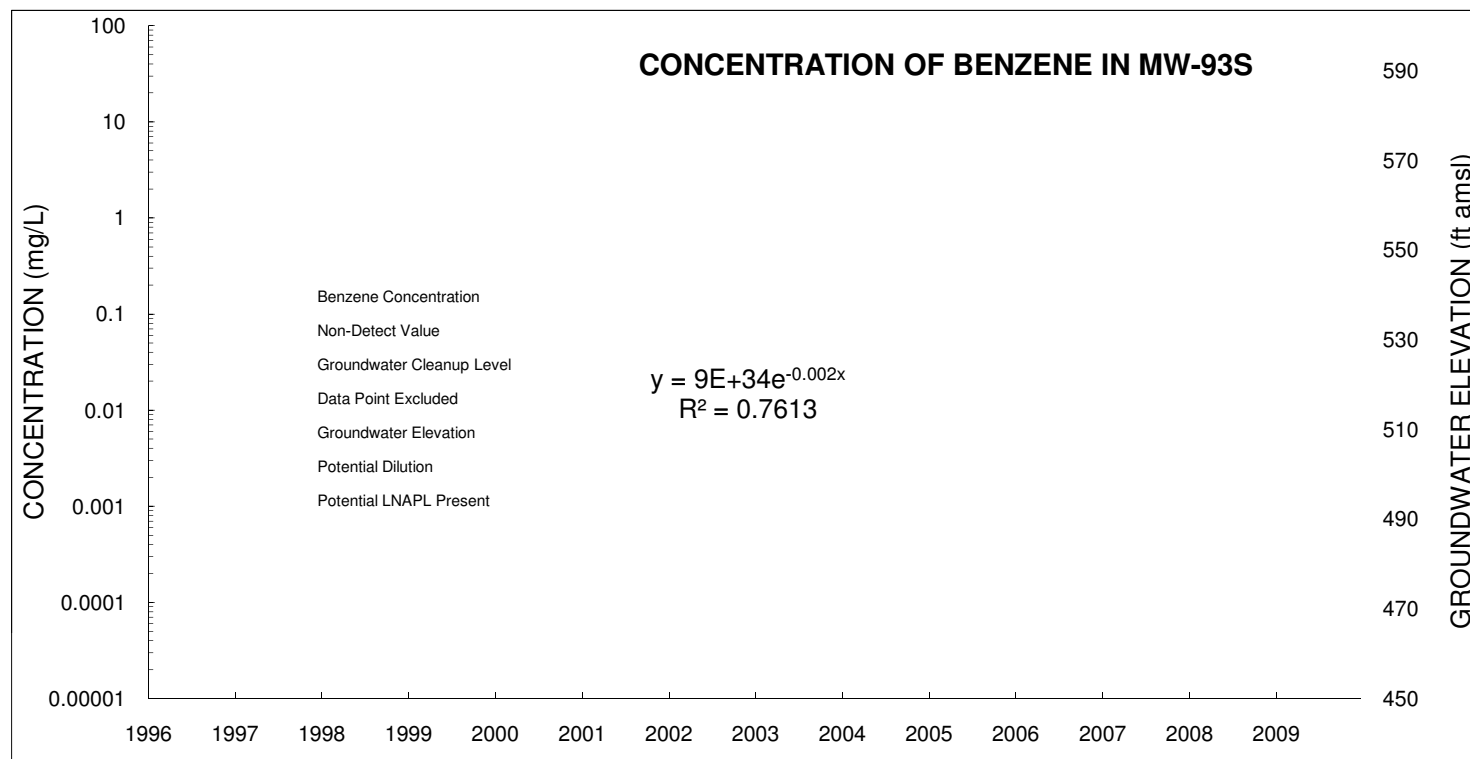
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

ONE DATA POINT EXCLUDED (12/11/08)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

**FIGURE 3-12. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-93S
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



EXPLANATION

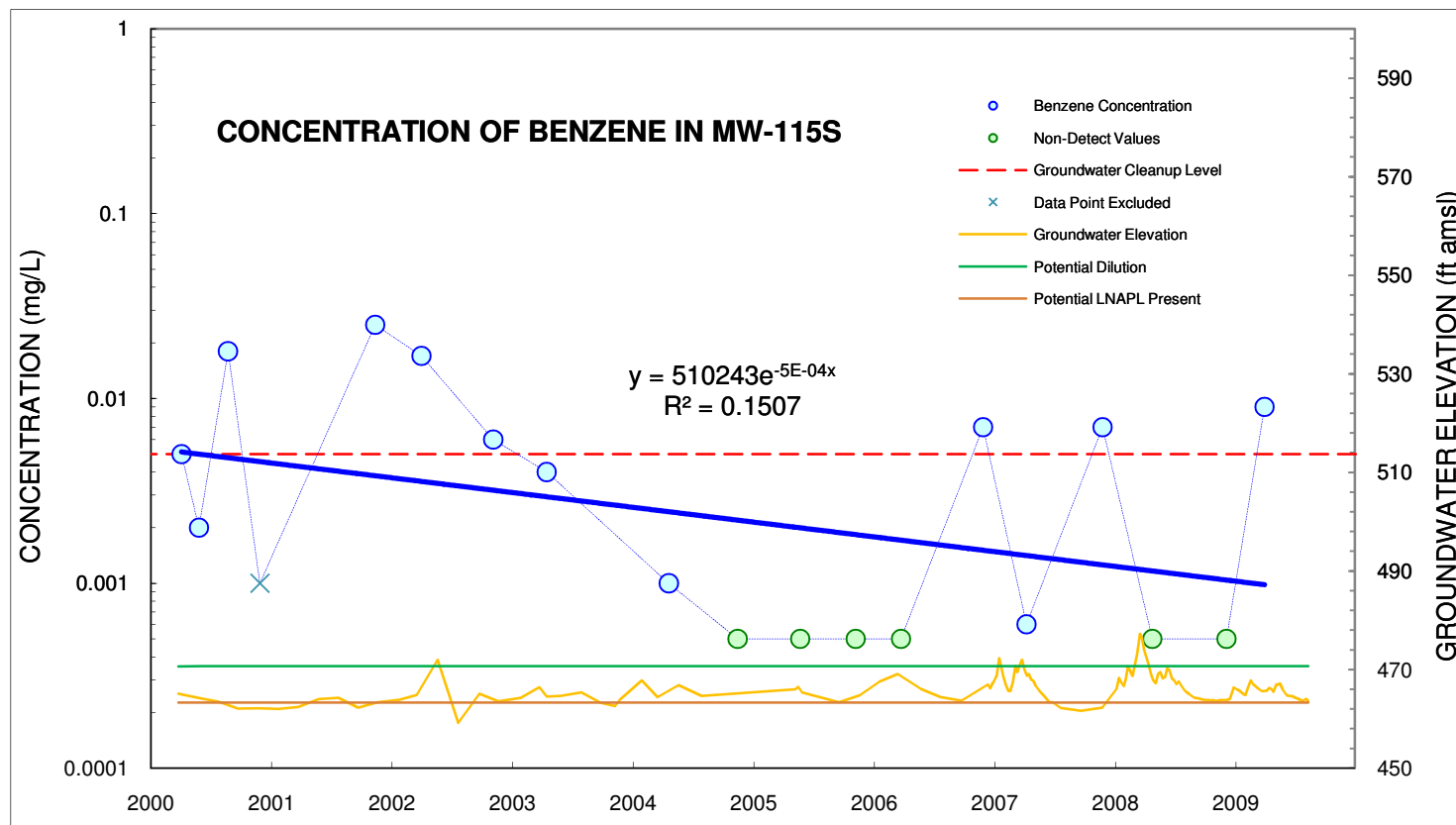
WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

FOUR DATA POINTS EXCLUDED (3/18/97, 6/9/97, 11/30/04, AND 4/30/2008)

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER

**FIGURE 3-13. GROUNDWATER CONSTITUENT CONCENTRATIONS VERSUS TIME, MONITORING WELL MW-115S
FIRST 2009 SEMIANNUAL MONITORING EVENT
CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO**



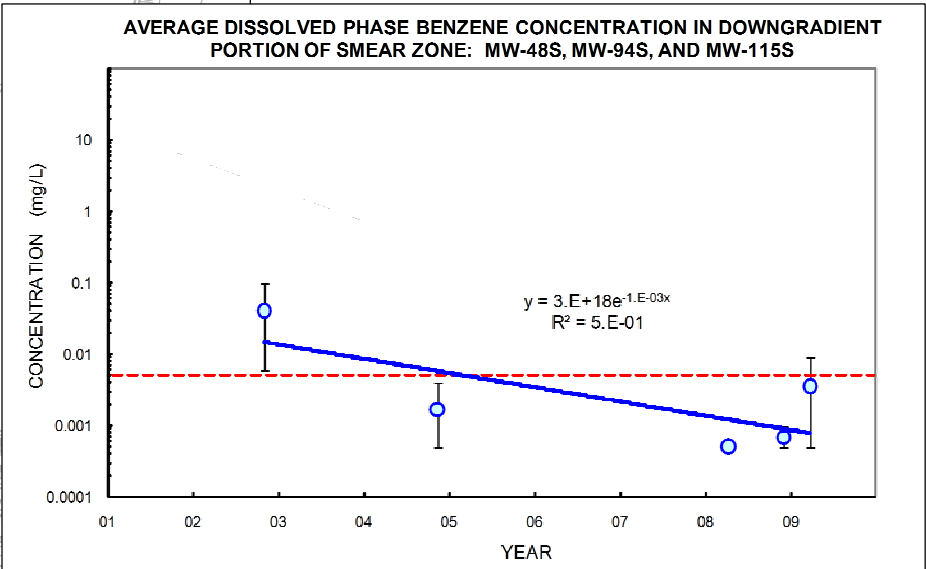
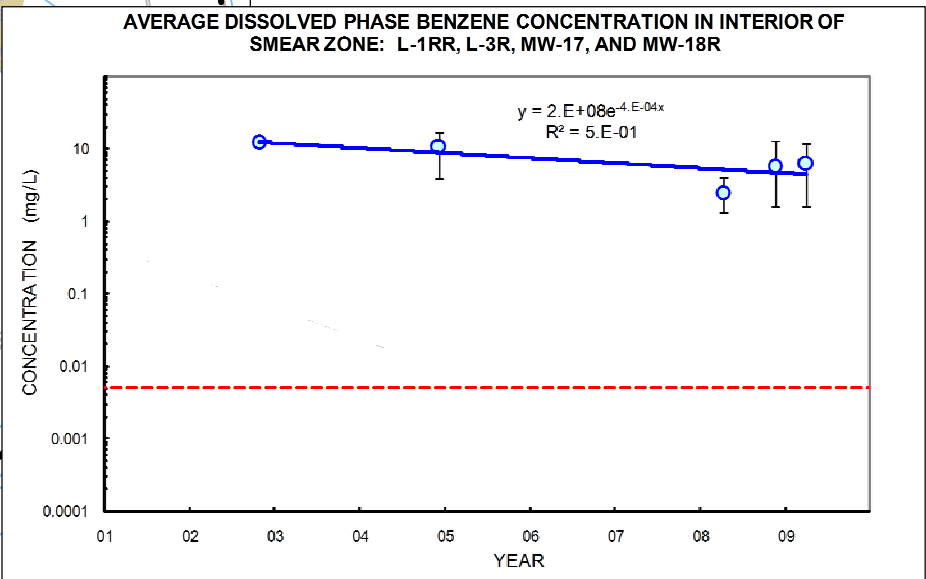
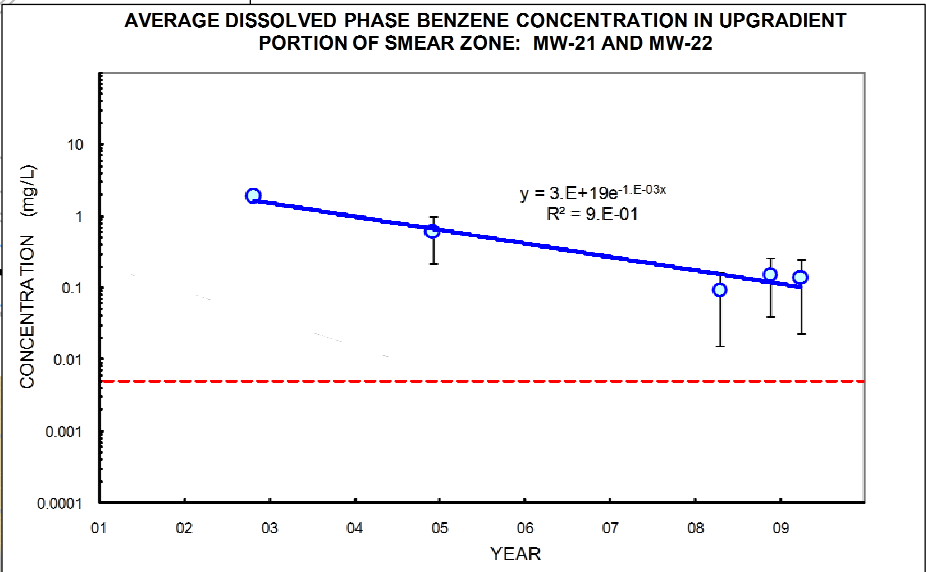
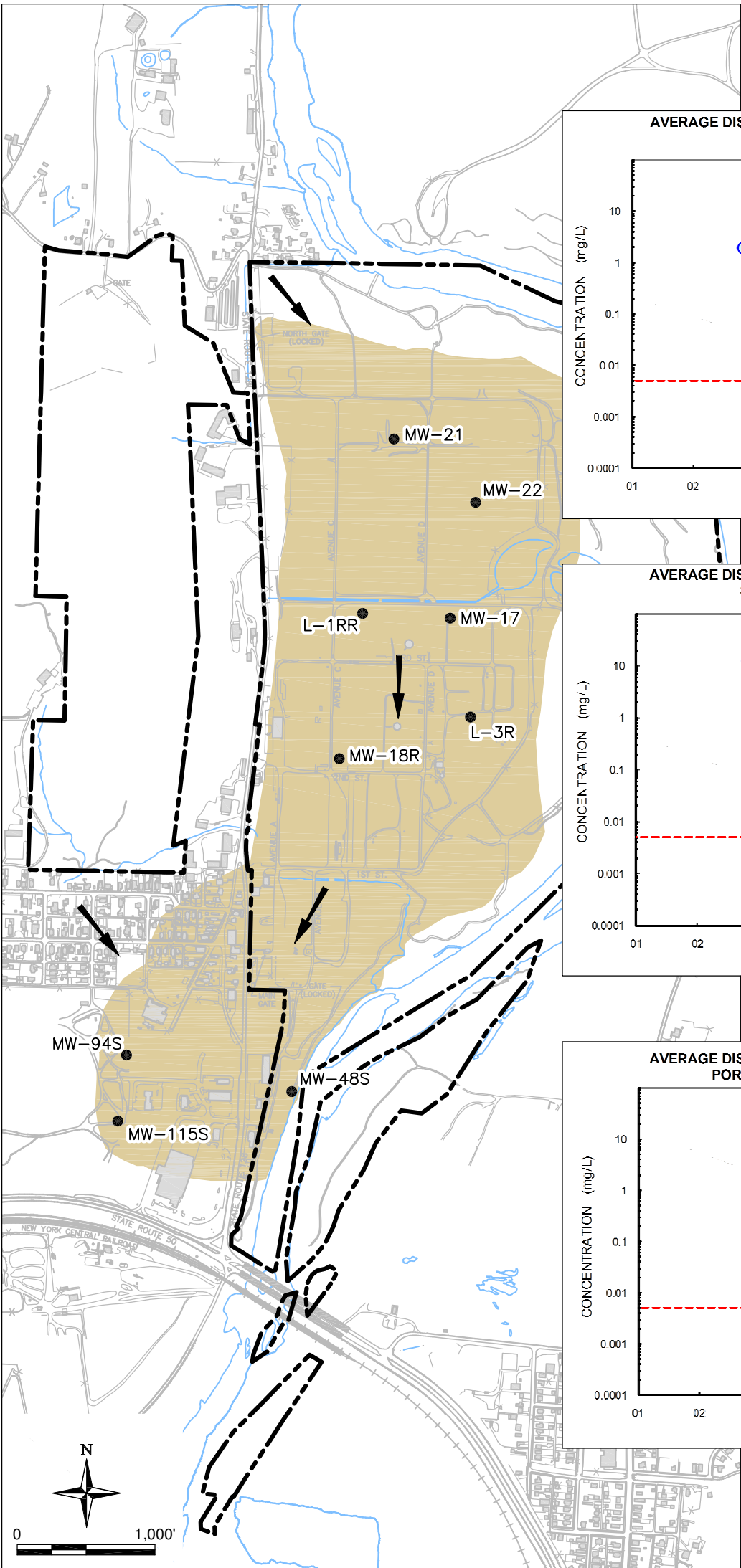
EXPLANATION

WATER LEVELS PRESENTED FOR POSSIBLE EXCLUSION OF DATA POINTS BASED ON POTENTIAL DILUTION OR PRESENCE OF LNAPL.

NO DATA POINTS EXCLUDED FOR MW-115S

FT AMSL - FEET ABOVE MEAN SEA LEVEL

mg/L - MILLIGRAMS PER LITER



EXPLANATION

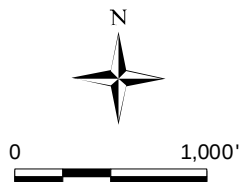
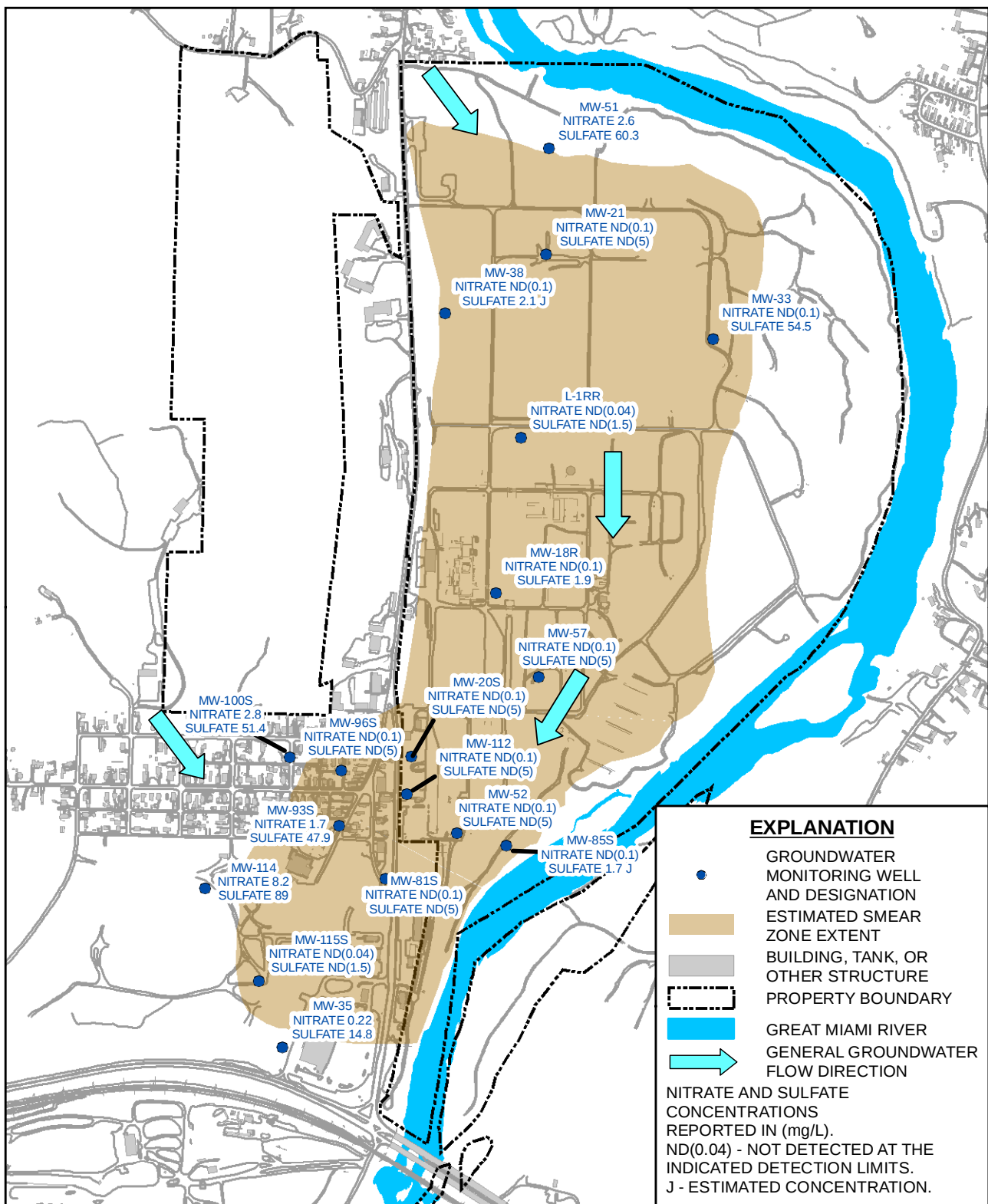
- | | | |
|----------|--|--------------------------------------|
| ● MW-22 | UPGRAIDENT MONITORING WELL AND DESIGNATION | — STREAM |
| ● MW-17 | INTERIOR MONITORING WELL AND DESIGNATION | - - - GROUNDWATER CLEANUP LEVEL |
| ● MW-48S | DOWNGRAIDENT MONITORING WELL AND DESIGNATION | ← GENERAL GROUNDWATER FLOW DIRECTION |
| - - - | PROPERTY BOUNDARY | ■ BUILDING, TANK OR OTHER STRUCTURE |
| — x — | FENCE | ■ SMEAR ZONE |

NOTES:

1. ERROR BARS REPRESENT MINIMUM AND MAXIMUM CONCENTRATIONS MEASURED DURING SAMPLING EVENT
2. NON-DETECT CONCENTRATIONS SET TO REPORTING LIMIT FOR AVERAGING
3. SAMPLING EVENTS DISPLAYED: FALL 2002, FALL 2004, FALL 2008, SPRING 2008 AND SPRING 2009

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FIGURE 3-14				
AVERAGE DISSOLVED PHASE BENZENE TRENDS ACROSS THE SMEAR ZONE				
FIRST 2009 SEMIANNUAL MONITORING EVENT CHEVRON CINCINNATI FACILITY HOOVEN, OHIO				
Drawn By: REP	Checked By: PM	Scale: AS SHOWN	Date: 12/15/09	File: 500SPATIO200912



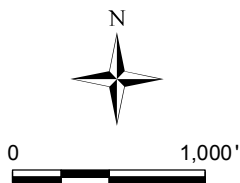
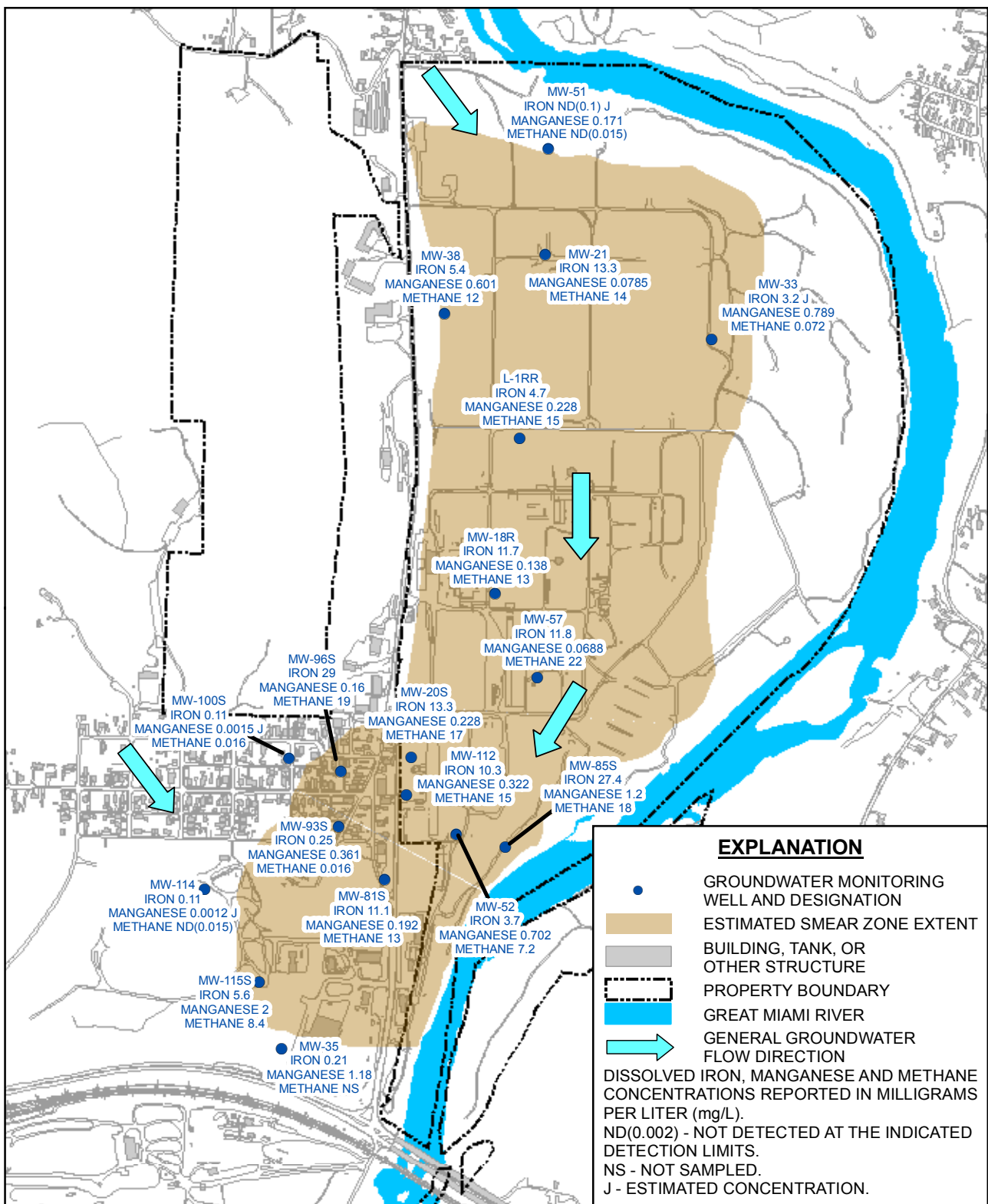
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FIGURE 3-15

**DISSOLVED PHASE NITRATE
 AND SULFATE CONCENTRATIONS**

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Drawn By: BLM | Checked By: ?? | Scale: 1" = 1000' | Date: 08/25/09 | File: 200904_QL_EAccept_OxTrends.mxd



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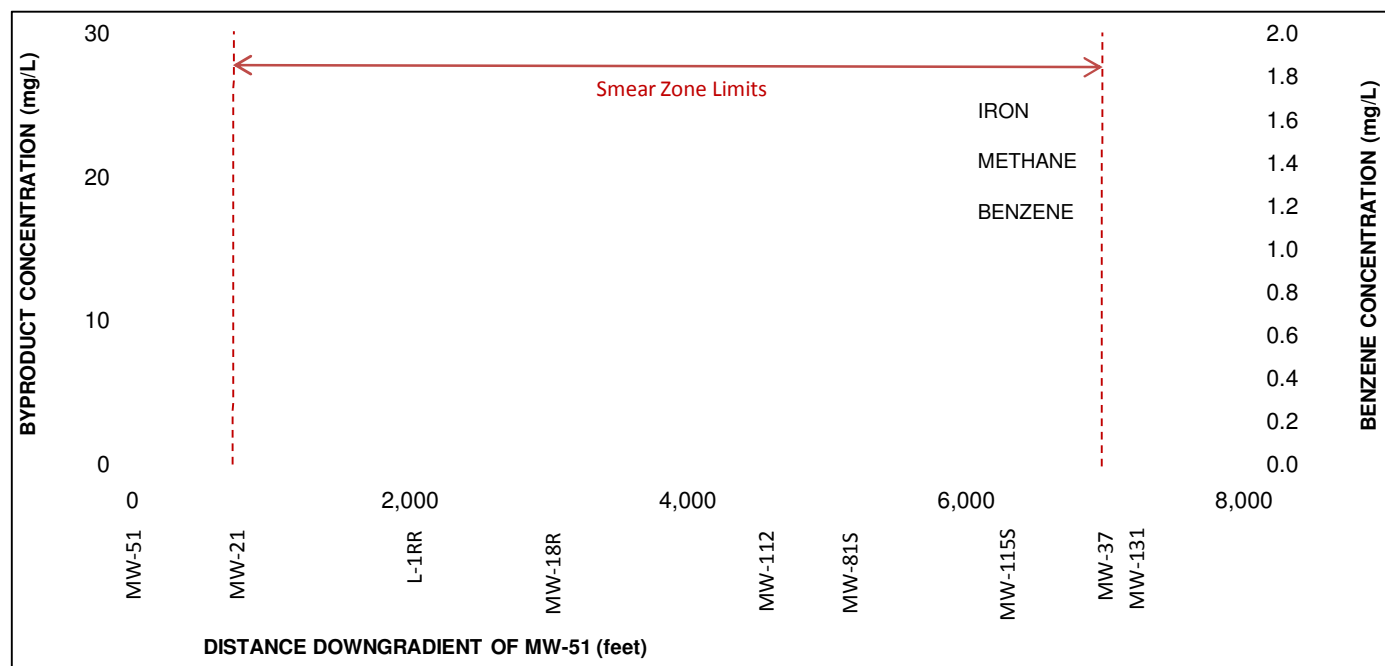
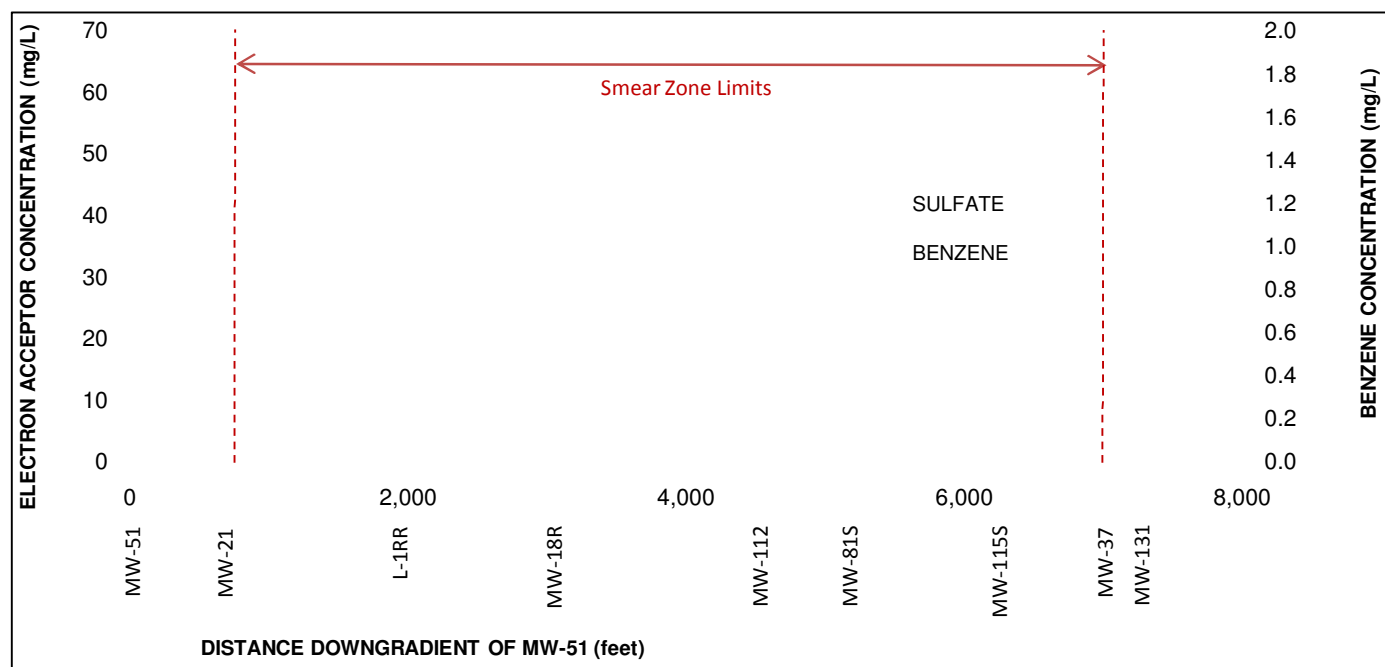
FIGURE 3-16

DISSOLVED PHASE IRON, MANGANESE, AND METHANE CONCENTRATIONS

**FIRST SEMIANNUAL 2009 MONITORING EVENT
 CHEVRON CINCINNATI FACILITY,
 HOOVEN, OHIO**

Drawn By: BLM | Checked By: BR | Scale: 1" = 1000' | Date: 08/25/09 | File: 200904_QI_RedTrends.mxd

FIGURE 3-17. DISSOLVED PHASE BENZENE AND NATURAL ATTENUATION INDICATOR CONCENTRATIONS VERSUS DISTANCE
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CHEVRON CINCINNATI FACILITY, HOOVEN, OHIO

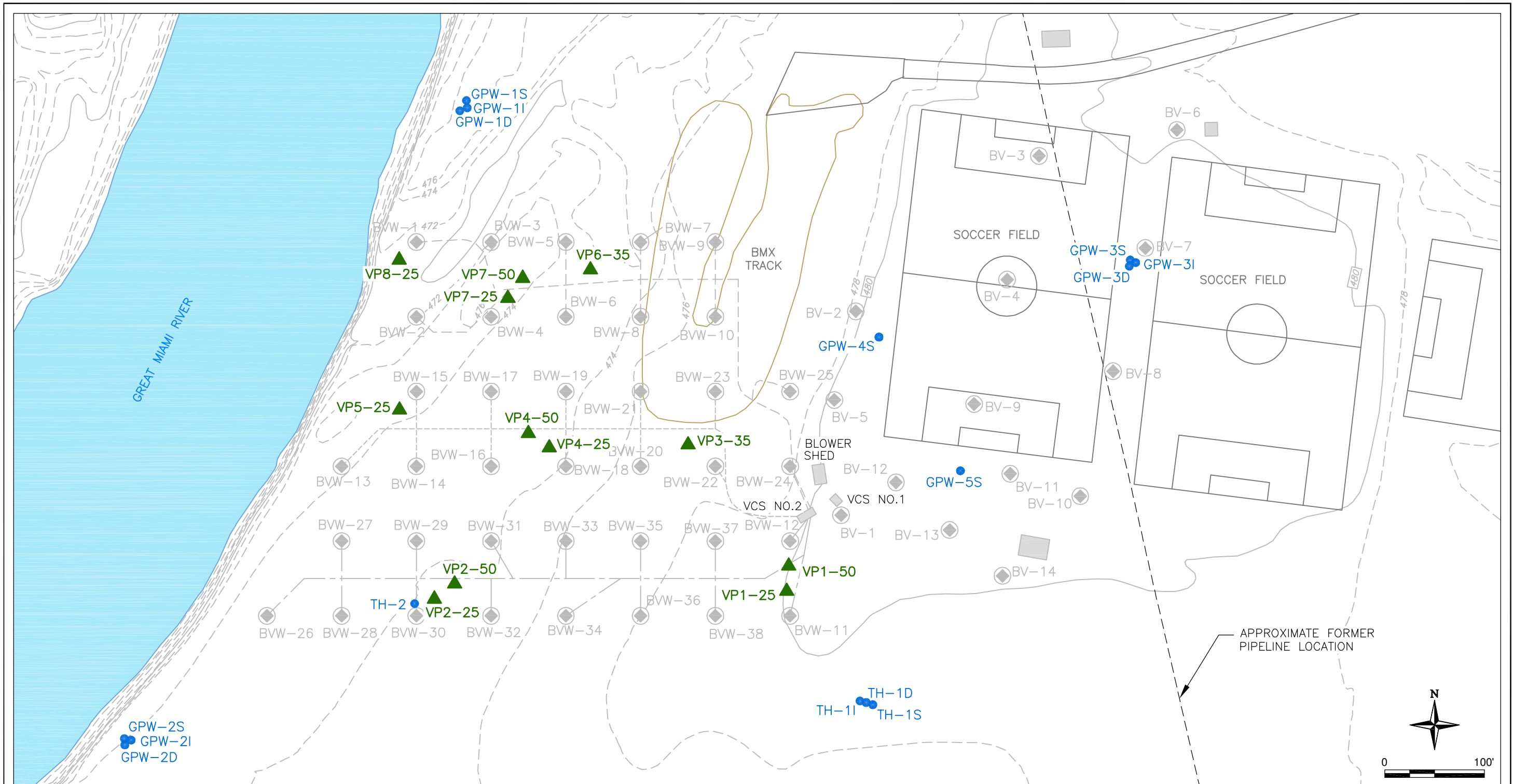


EXPLANATION

NON-DETECTED CONSTITUENTS SET AT THE DETECTION LIMIT

IRON DISPLAYED AS FERROUS IRON

mg/L - MILLIGRAMS PER LITER



EXPLANATION

- GPW-2D GROUNDWATER MONITORING WELL AND DESIGNATION
- ▲ VP2-25 VAPOR MONITORING POINT
- ◆ BVW-26 BIOVENT WELL AND DESIGNATION
- - - - - EXPANDED BIOVENTING SYSTEM PIPE RUN #1
- - - - - EXPANDED BIOVENTING SYSTEM PIPE RUN #2
- - - - - EXPANDED BIOVENTING SYSTEM PIPE RUN #3

- 480 --- GENERAL TOPOGRAPHIC CONTOUR (FT-AMSL, INTERVAL 2 FEET, DASHED WHERE INFERRED)
- BUILDING, TANK OR OTHER STRUCTURE
- ROAD
- VCS VALVE CONTROL SHED
- FT AMSL FEET ABOVE MEAN SEA LEVEL

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FIGURE 4-1

GULF PARK LAYOUT

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HOOVEN, OHIO**

Drawn By: JP Checked By: PM Scale: 1"=100' Date: 12/15/09 File: 500GP_LAYOUT

FIGURE 4-2. HYDROGRAPHS AND TRIGGER LEVELS FOR TH-2 AND GPW-5S (2006-2009)
FIRST 2009 SEMIANNUAL MONITORING EVENT
GULF PARK, CLEVELS, OHIO

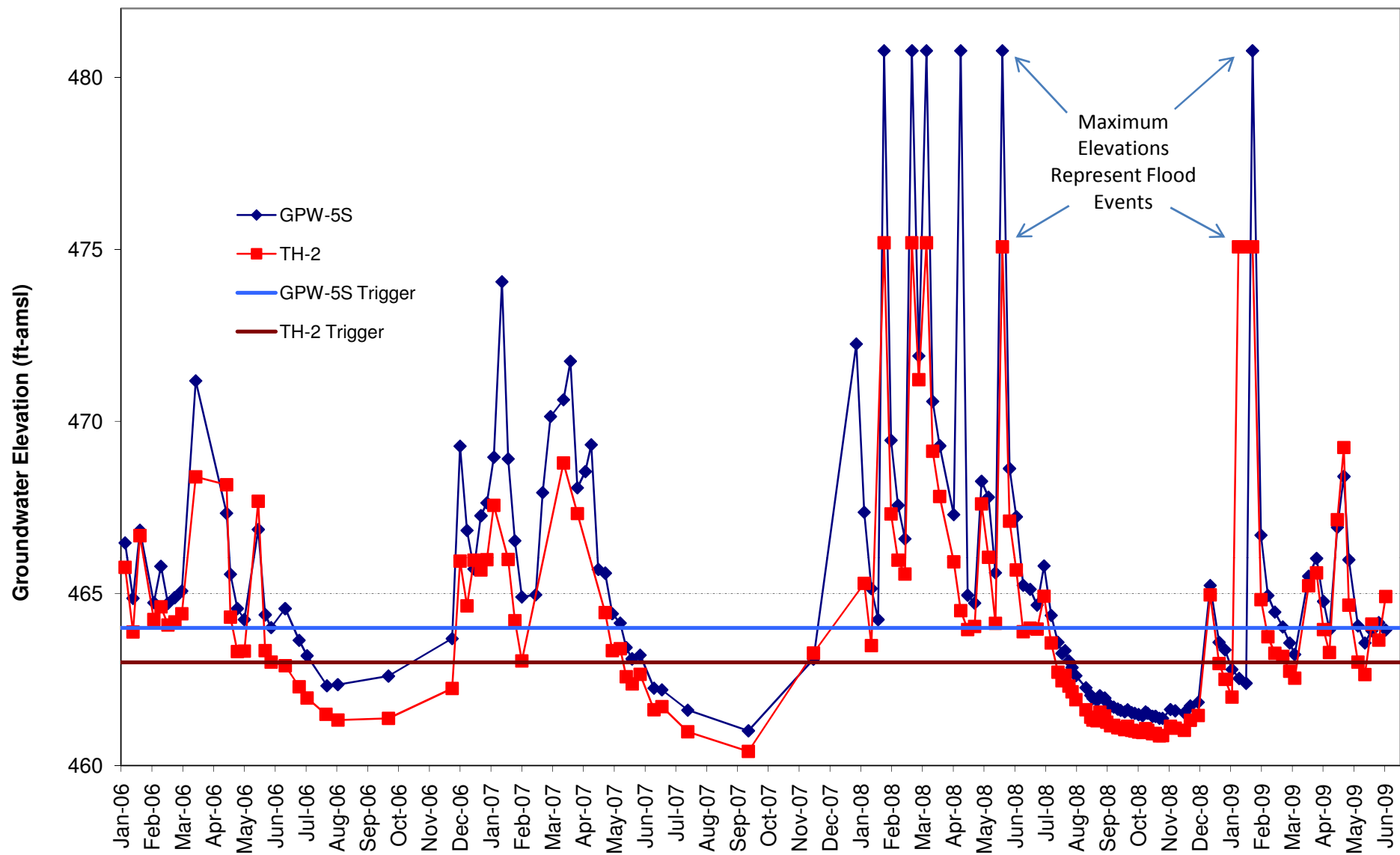


FIGURE 4-3. TOTAL BTEX CONCENTRATION VERSUS TIME FOR MONITORING WELLS GPW-1S, GPW-2S, GPW-3S, GPW-4S, GPW-5S
FIRST 2009 SEMIANNUAL MONITORING EVENT
GULF PARK, CLEVELS, OHIO

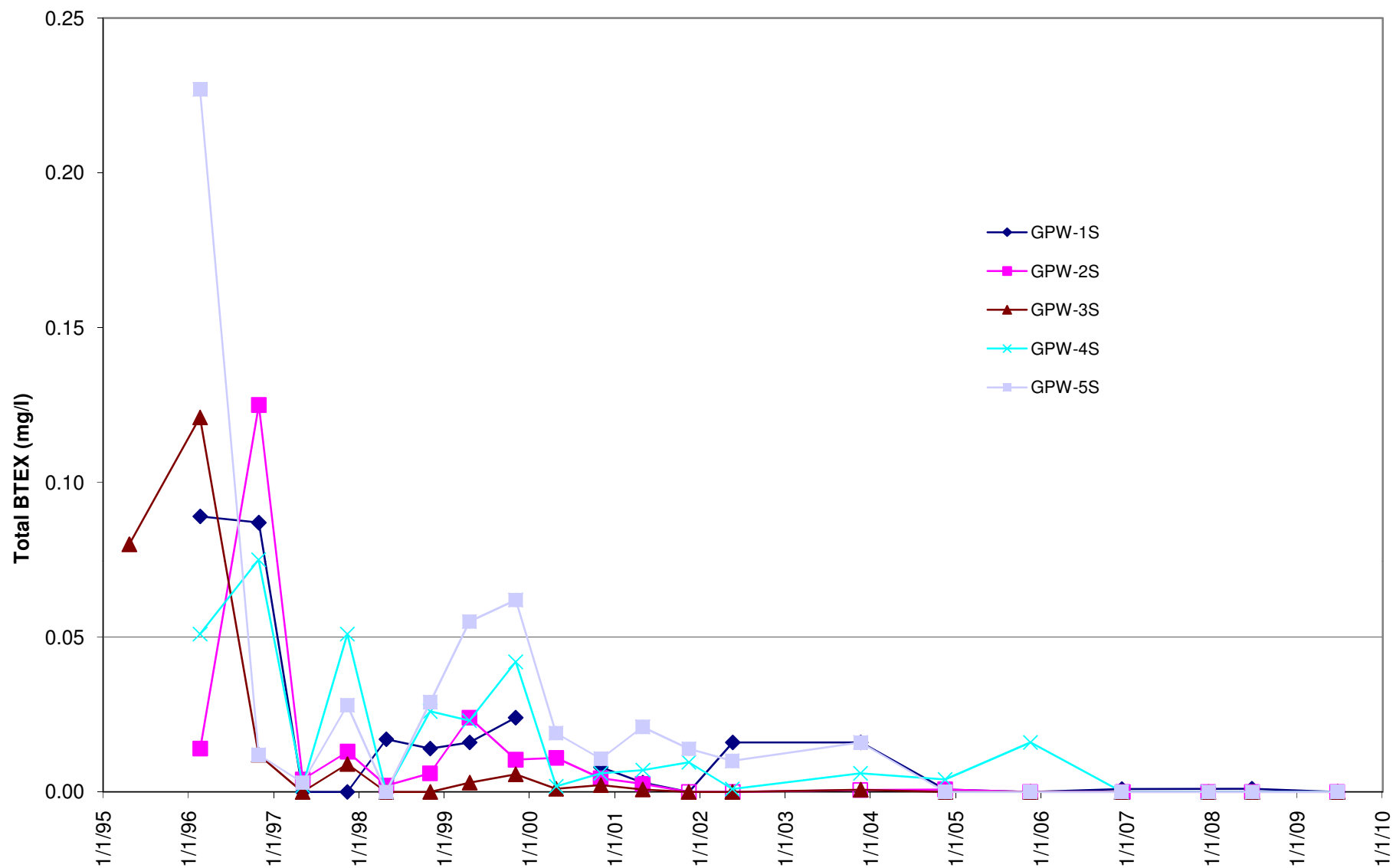


FIGURE 4-4. TOTAL BTEX CONCENTRATION VERSUS TIME FOR MONITORING WELL TH-1S
FIRST 2009 SEMIANNUAL MONITORING EVENT
GULF PARK, CLEVELS, OHIO

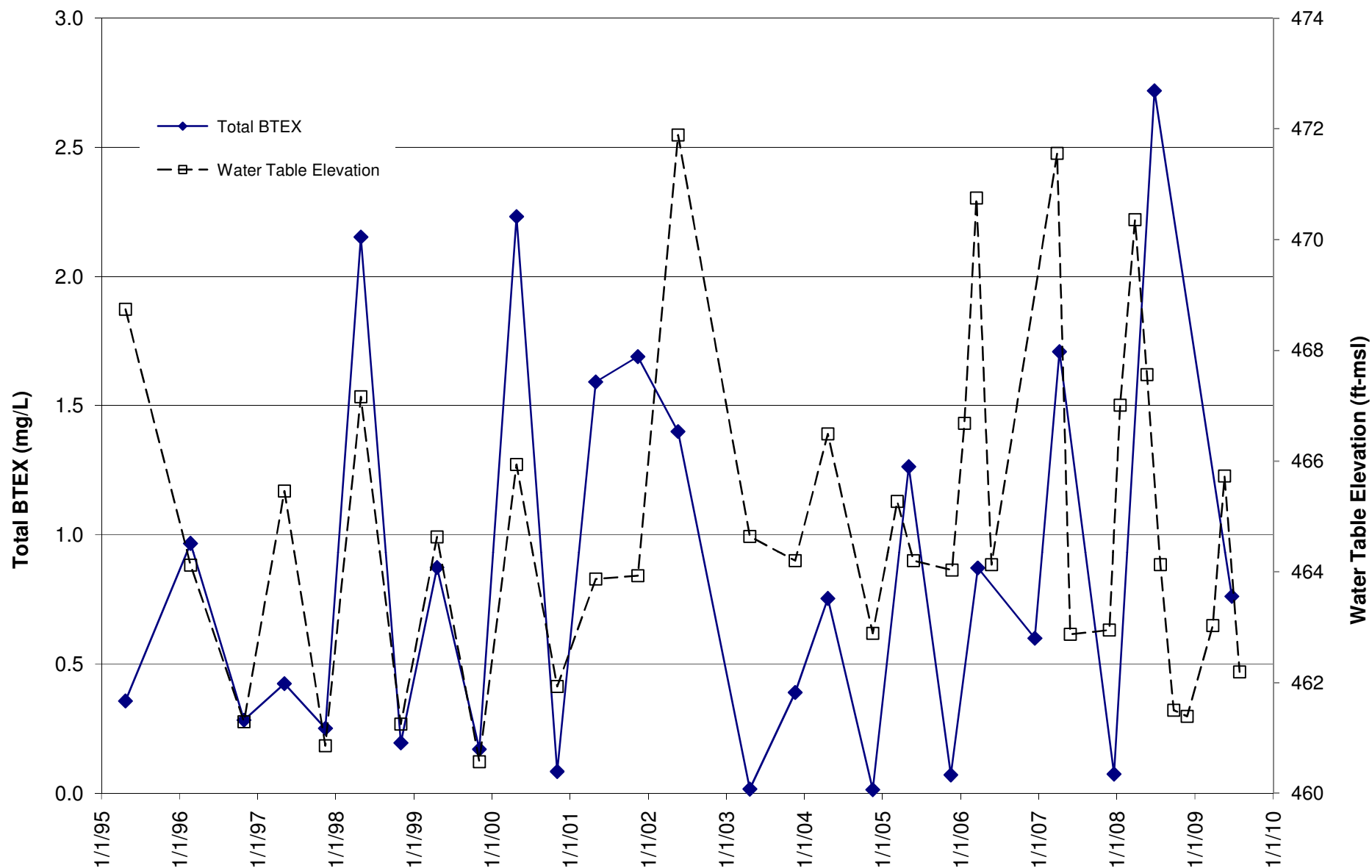
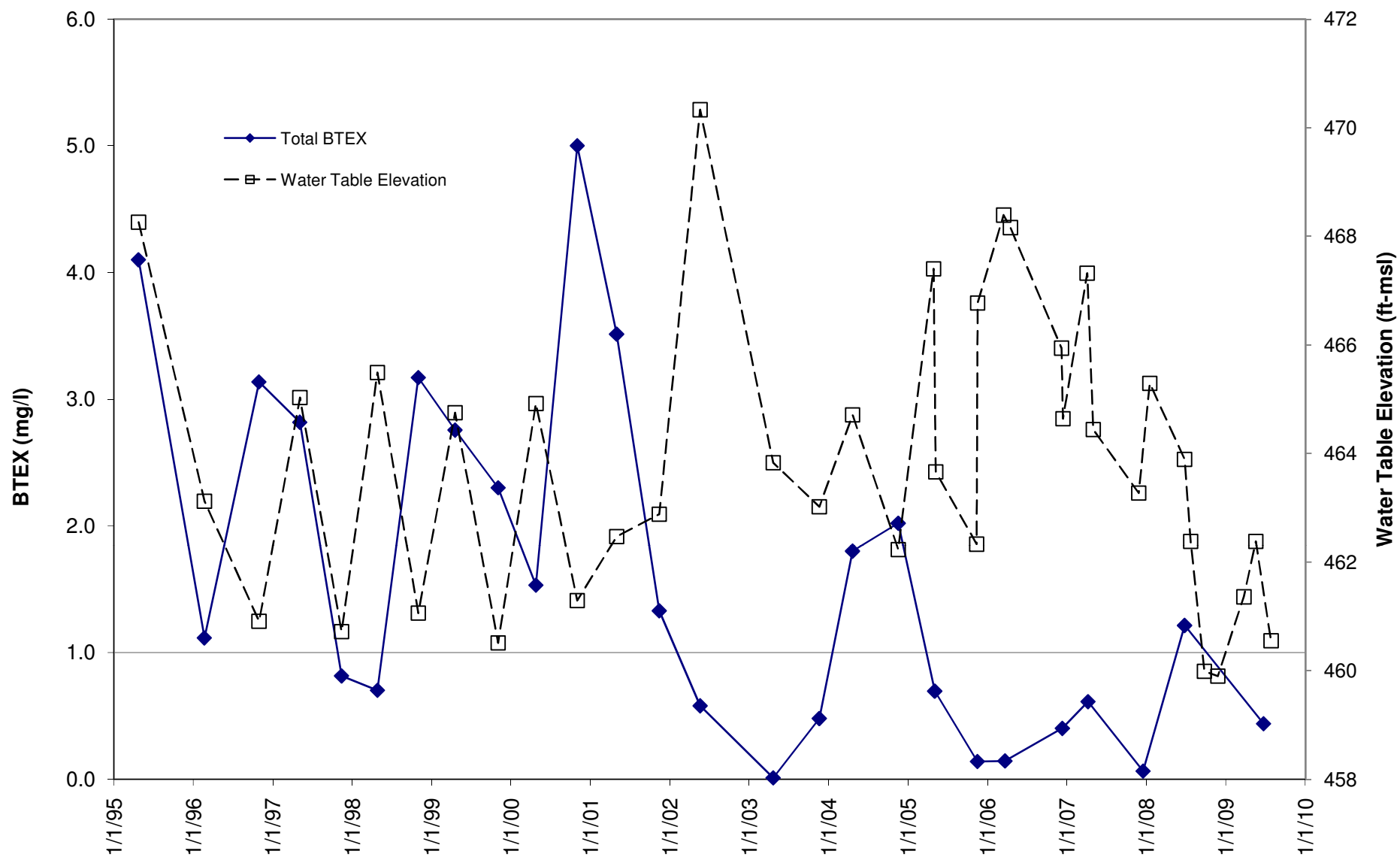
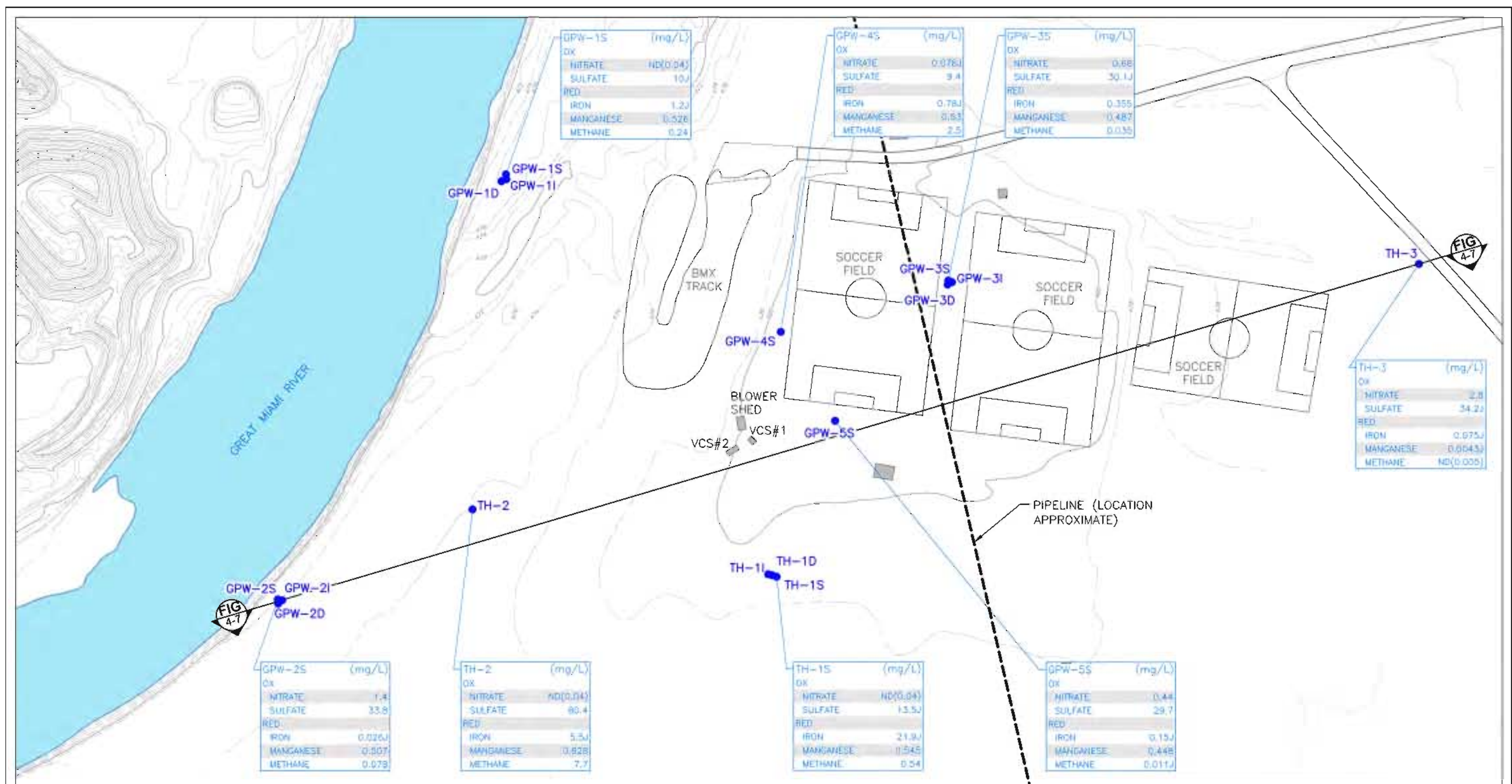


FIGURE 4-5. TOTAL BTEX CONCENTRATION VERSUS TIME FOR MONITORING WELL TH-2
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EXPLANATION

● GPW-2S SHALLOW GROUNDWATER MONITORING WELL AND DESIGNATION

■ STRUCTURE

— ROAD

— GENERAL TOPOGRAPHIC CONTOUR (FT AMSL, INTERVAL 2', DASHED WHERE INFERRED)

FT AMSL FEET ABOVE MEAN SEA LEVEL

mg/L MILLIGRAMS PER LITER



Trihydro
CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 4-6

SUMMARY OF GROUNDWATER OXIDATION AND REDUCTION TRENDS

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CLEVELAND, OHIO

Drawn By: JGP Checked By: PM Scale: 1" = 150' Date: 12/14/09 File: 500GP_2009_OXRED

FIGURE 4-7 TOTAL BTEX AND NATURAL ATTENUATION INDICATOR CONCENTRATION VERSUS DISTANCE
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