HAND DELIVERED

August 25, 2014

Mr. Christopher Ralston
Maryland Department of the Environment
Remediation Division, Oil Control Program
1800 Washington Blvd., Suite 620
Baltimore, MD 21230-1719

RE: Five-Year CAP Evaluation
Inactive Exxon Facility #28077
14258 Jarrettsville Pike
Phoenix, Maryland
Case Number 2006-0303-BA2
Facility I.D. No. 12342

Dear Mr. Ralston:

Pursuant to the 2008 Consent Decree (Civil Action No. C-06-004455) between the State of Maryland and ExxonMobil Corporation (ExxonMobil), a meeting was held on May 7, 2014 with the Maryland Department of the Environment (MDE), ExxonMobil, Kleinfelder and Roux Associates to evaluate Site conditions and remedial progress five years after the June 2009 approval of the Corrective Action Plan (CAP).[1] The following summary of the evaluation presented at the May 7th meeting is broken into three sections:

- Section I – Comparison of Conditions Over Time
- Section II – Remedial Progression
- Section III – Recent and Future Focus

[1] Kleinfelder, January 2, 2009, Corrective Action Plan, Inactive Exxon Facility #28077, 14258 Jarrettsville Pike, Phoenix, Maryland.

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SECTION I - COMPARISON OF CONDITIONS OVER TIME

LNAPL

At the time of CAP Implementation, as a result of remediation, LPH had not been observed in any monitoring wells since August 2006 with the exception of a single observation of 0.01 foot in onsite monitoring well MW-27 in May 2008. There has been no detection of LPH in any monitoring well since the CAP was implemented.

Groundwater Concentrations

Dissolved phase hydrocarbons have been delineated, both laterally and vertically in the five years since the CAP was approved. The plume has contracted toward the onsite release area (former tank field), the near northeast area of the Site has been characterized, and there has been a continued reduction in the concentrations of gasoline constituents in monitoring and recovery wells in the near northeast. The offsite area to the southwest has responded well to remedial actions and the groundwater recovery efforts have been incrementally scaled back as part of several MDE-approved rebound assessments.

For the semi-annual groundwater sampling event conducted in March 2014, 24 wells had detections of BTEX (benzene, toluene, ethylbenzene and xylenes) or fuel oxygenates (a/k/a, Oxy-5: methyl tertiary butyl ether [MTBE], di-isopropyl ether [DIPE], ethyl tertiary butyl ether [ETBE], tertiary amyl methyl ether [TAME], and tertiary butyl alcohol [TBA]) above MDE state action levels. The locations of these wells are illustrated on **Figures 1** and **2**.

The table below shows the number of monitoring wells with MTBE and/or BTEX above state action levels during three time periods: early in the remediation (2006), at the time of CAP approval (mid-2009), and in recent sampling (first quarter 2014).

Monitoring Wells with MTBE/BTEX Above State Action Levels

MW Location	2006	2009	2014
TOTAL	**91**	**53**	**24**
Station Property	24	15	7
Southwest	35	4	2
Northeast	32	34	15

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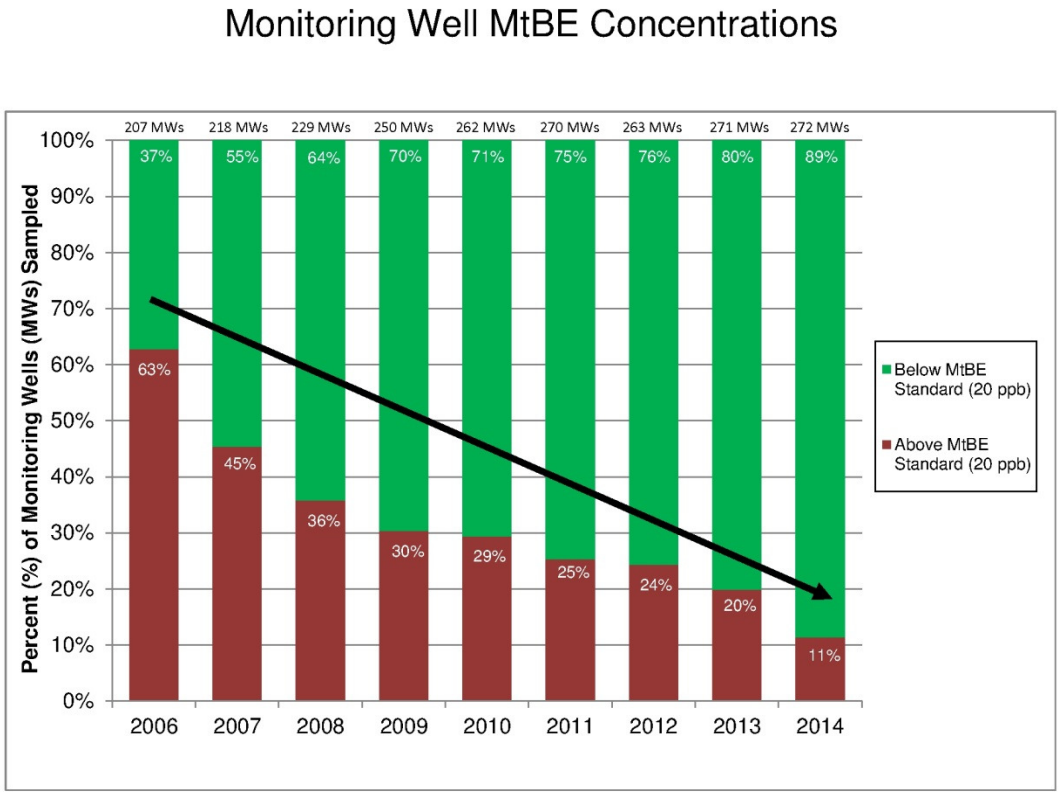
Overall, the percentage of sampled monitoring wells with MTBE concentrations above MDE's action levels has been declining each year since 2006 (see below).



ppb - parts per billion
MtBE = methyl tertiary butyl ether

Private Supply Wells

Prior to CAP implementation, a maximum of 12 private supply wells (PSW) on 11 properties had MTBE above state action levels. Point of Entry Treatment (POET) systems were installed on all properties with gasoline constituents above action levels.

At the time the CAP was approved, four properties remained with MTBE above state action levels. Since November 2011, all private supply wells sampled have been below MDE's state action levels for gasoline constituents, including MTBE. Additionally, there has been no finding that remedial activities have resulted in reduced availability of water to PSWs in the project area.

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Soil Gas

At CAP implementation, six properties where LNAPL had been observed were sampled on a quarterly basis for soil gas concentrations. Currently two properties are being sampled quarterly for one year, starting in 4Q13, as part of a post-SVE sampling program following the shutdown of the Northeast SVE systems in late 2013. Historically, all soil gas concentrations have been below the MDE's Tier I Action Levels and 99.4% of samples have been below Tier 2 Screening Levels.

Remedial Infrastructure

At the time the CAP was put in place, the MDE-approved remedial system was comprised of the following:

- Up to 88 recovery wells;
- Six SVE systems (three in the southwest and three in the northeast); and
- Groundwater treatment, including a fluidized bed reactor, air stripping and LGAC.

Since CAP implementation, the remedial infrastructure has been modified, with prior MDE approval, to the following:

- Up to 75 recovery wells;
- Two SVE systems (both in the southwest, related to the service station property); and
- Groundwater treatment consisting of a fluidized bed reactor and LGAC

In September 2010, air stripping was removed from the treatment train, and LGAC-only treatment was initiated. Since CAP implementation, four of the six onsite SVE systems have been shut down with MDE's approval.

SECTION II - REMEDIAL PROGRESSION

Approach

Since 2006, the overall remedial approach at the Site has been as follows:

- Protect human health via private supply well monitoring, POETs, bottled water, and soil vapor sampling;
- Assess impact through the monitoring well network, site characterization activities and the site conceptual model; and
- Remediate impact by way of plume containment, plume contraction, source reduction, groundwater pump-and-treat and soil vapor extraction.

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Site Conceptual Model

The Site Conceptual Model (SCM) has taken into account the geologic framework of the study area, the hydrology and physiography of the area, groundwater hydraulics, hydrocarbon distribution, and potential receptors. The SCM promotes an iterative process of data-supported decision-making. Discrete studies undertaken in support of the SCM include:

- Lineament Trace Analysis
- 2010 Near NE Surface Geophysical Survey
- 2010 Near NE Packer Sampling
- 2011 Vertical Evaluation Study
- Borehole Geophysical Testing
- 2013-2014 Additional Site Characterization ("deep drilling")

Groundwater Monitoring

Since 2006, the on- and off-site monitoring well network, installed to identify impacted areas and to monitor the effectiveness of remedial activities, has provided data for the following:

1. Gasoline migration pathway assessment;
2. Peripheral delineation (lateral and vertical);
3. Interior characterization (LNAPL limits, near NE area, release area);
4. Protective monitoring for potential receptors;
5. Monitoring for temporal variations;
6. Potentiometric monitoring; and
7. Aquifer testing & observation points.

Groundwater Recovery

Since the CAP was implemented, the number and location of active recovery wells on- and off-site have been adjusted to provide targeted recovery enhancements on the station property and in the near northeast. A Southwest Retention Basin Rebound Assessment was conducted in 2009, followed by three sequential rebound assessments and well conversions (recovery wells converted to monitoring-only wells) in 2010 (5 wells in the SW), 2011 (6 wells in the SW) and 2013/2014 (7 wells in the SW and 2 in the NE).

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SVE

Since the CAP was approved and implemented in 2009, there have been four SVE systems shut down. In 2009 one system in the northeast and one in the southwest were taken offline, and in 2013 two more northeast systems were approved for shutdown. Starting in 2014, SVE and groundwater recovery was initiated in SVE-2 in the station tank field area.

SECTION III - RECENT AND FUTURE FOCUS

On the station property (in the vicinity of the release area), the ongoing focus is shallow groundwater recovery and continued vapor recovery. Following the installation of three wells in the intersection of Jarrettsville Pike and Sweet Air Road/Paper Mill Road, continued sampling and geophysical surveys will identify additional recovery/remediation which may be warranted in this area.

In the Near Northeast, remediation is currently focused on continued recovery and supplemental delineation, with a rebound/remobilization test likely to be proposed. During the first quarter 2014 groundwater sampling event, all "C" and "D" zone wells with MTBE/Oxy5 above standard were located in the near northeast, with the exception of MW-56C in the Southwest (see **Figure 3**).

In the Southwest, a comprehensive rebound assessment is being considered based on the overall improved conditions in this part of the Site. It is anticipated that a work plan will be prepared and submitted to the MDE for its review and approval.

In the foreseeable future, potential adjustments to the overall remedial program at this Site may include some or all of the following:

- Supplemental groundwater recovery in the Near Northeast;
- Comprehensive rebound assessment in the southwest;
- Focused rebound assessment in the northeast;
- Modifications to the monitoring well sampling program;
- Modifications to the PSW sampling program;
- Modifications to the bottled water program; and
- Modifications to the remedial system components.

Any proposed modifications such as those listed above will be submitted to MDE in the form of a work plan for its review and advance approval.

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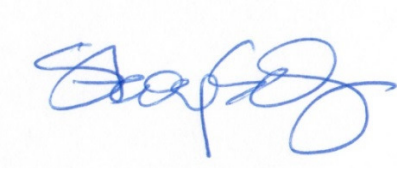
Please contact the undersigned with any questions or requests for additional information at 410.850.0404.

Sincerely,
KLEINFELDER



Stacey Schiding
Project Manager

Mark J. Schaaf, C.P.G.
Project Director

FIGURES

1 East Groundwater Concentration Map
2 West Groundwater Concentration Map
3 "C" and "D" Zone Wells Above Action Levels

cc: Mr. John J. Hoban - ExxonMobil Environmental Services Company (Kleinfelder File)
Ms. Ellen Jackson - Maryland Department of the Environment
Mr. Andrew Miller - Maryland Department of the Environment
Mr. Greg Martin - Roux Associates, Inc.
Mr. Carlos Bollar, Esquire - Archer & Greiner, P.C.

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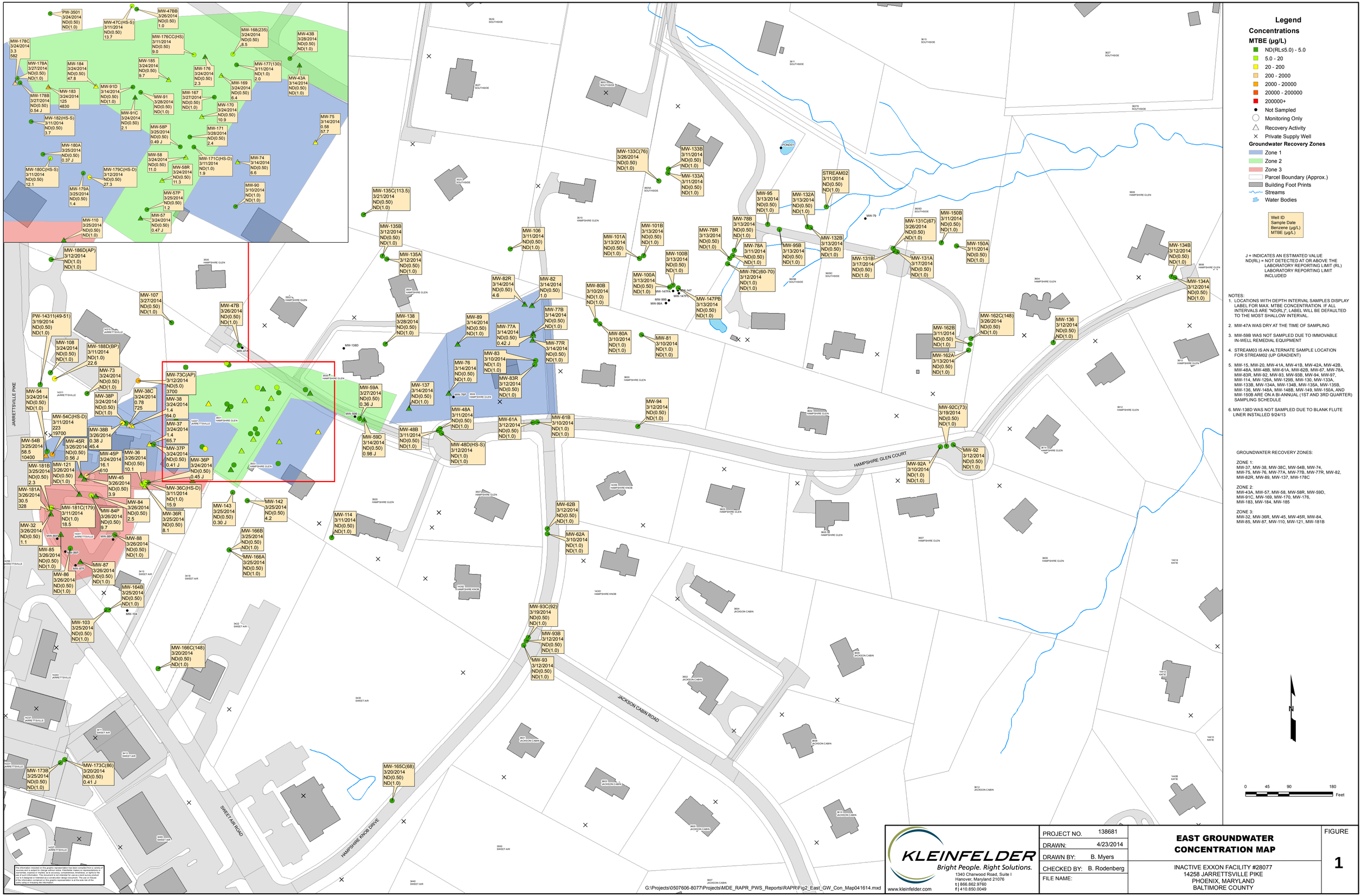
FIGURES



Legend

Concentrations

MTBE (µg/L)

- ND(RL≤5.0) - 5.0
- 5.0 - 20
- 20 - 200
- 200 - 2000
- 2000 - 20000
- 20000 - 200000
- 200000+
- Not Sampled
- Monitoring Only
- Recovery Activity
- Private Supply Well

Groundwater Recovery Zones

- Zone 1
- Zone 2
- Zone 3
- Parcel Boundary (Approx.)
- Building Foot Prints
- Streams
- Water Bodies

Well ID
Sample Date
Benzene (µg/L)
MTBE (µg/L)

J = INDICATES AN ESTIMATED VALUE
ND(RL) = NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT (RL)
LABORATORY REPORTING LIMIT INCLUDED

NOTES:

1. LOCATIONS WITH DEPTH INTERVAL SAMPLES DISPLAY LABEL FOR MAX. MTBE CONCENTRATION. IF ALL INTERVALS ARE "ND(RL)", LABEL WILL BE DEFAULTED TO THE MOST SHALLOW INTERVAL.
2. MW-47A WAS DRY AT THE TIME OF SAMPLING
3. MW-59B WAS NOT SAMPLED DUE TO IMMOVABLE IN-WELL REMEDIAL EQUIPMENT
4. STREAM03 IS AN ALTERNATE SAMPLE LOCATION FOR STREAM02 (UP GRADIENT)
5. MW-15, MW-20, MW-41A, MW-41B, MW-42A, MW-42B, MW-48A, MW-48B, MW-61A, MW-62B, MW-67, MW-78A, MW-83R, MW-92, MW-93, MW-93B, MW-94, MW-97, MW-114, MW-129A, MW-129B, MW-130, MW-133A, MW-133B, MW-134A, MW-134B, MW-135A, MW-135B, MW-136, MW-148A, MW-148B, MW-149, MW-150A, AND MW-150B ARE ON A BI-ANNUAL (1ST AND 3RD QUARTER) SAMPLING SCHEDULE
6. MW-138D WAS NOT SAMPLED DUE TO BLANK FLUTE LINER INSTALLED 9/24/13

GROUNDWATER RECOVERY ZONES:

ZONE 1:
MW-37, MW-38, MW-38C, MW-54B, MW-74, MW-75, MW-76, MW-77A, MW-77B, MW-77R, MW-82, MW-82R, MW-89, MW-137, MW-178C

ZONE 2:
MW-43A, MW-57, MW-58, MW-58R, MW-59D, MW-91C, MW-169, MW-170, MW-176, MW-183, MW-184, MW-185

ZONE 3:
MW-32, MW-36R, MW-45, MW-45R, MW-84, MW-85, MW-87, MW-110, MW-121, MW-181B

N

0 45 90 180 Feet

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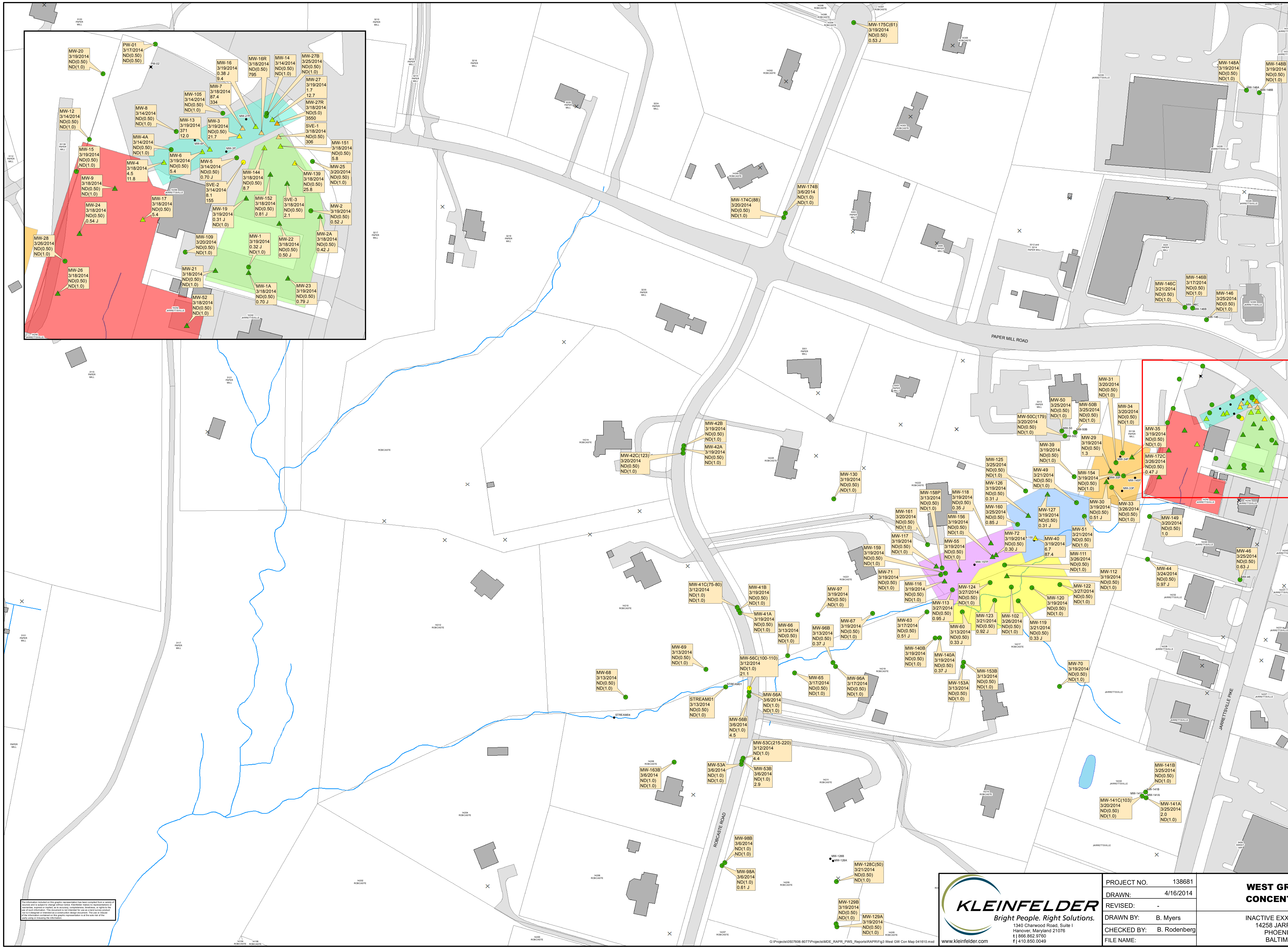
PROJECT NO.	138681
DRAWN:	4/23/2014
DRAWN BY:	B. Myers
CHECKED BY:	B. Rodenberg
FILE NAME:	

EAST GROUNDWATER CONCENTRATION MAP

INACTIVE EXXON FACILITY #28077
14258 JARRETTSVILLE PIKE
PHOENIX, MARYLAND
BALTIMORE COUNTY

FIGURE 1



Legend

Concentrations

MTBE (µg/L)

- ND(RL≤5.0) - 5.0
- 5.0 - 20
- 20 - 200
- 200 - 2000
- 2000 - 20000
- 20000 - 200000
- 200000+
- Not Sampled
- Monitoring Only
- Recovery Activity
- Private Supply Well

Groundwater Recovery Zones

- Zone A
- Zone B
- Zone C
- Zone D
- Dispenser Island
- DPE
- Zone E
- Parcel Boundary (Approx.)
- Building Foot Prints
- Streams
- Water Bodies

Well ID
Sample Date
Benzene (µg/L)
MTBE (µg/L)

J = ESTIMATED VALUE
ND(RL) = NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT(RL) LABORATORY REPORTING LIMIT INCLUDED

NOTES:

1. LOCATIONS WITH DEPTH INTERVAL SAMPLES DISPLAY LABEL FOR MAX. MTBE CONCENTRATION. IF ALL INTERVALS ARE "ND(RL)", LABEL WILL BE DEFAULTED TO THE MOST SHALLOW INTERVAL.
2. MW-155 WAS NOT SAMPLED DUE TO IMMOVABLE IN-WELL REMEDIAL EQUIPMENT
3. STREAM04 IS AN ALTERNATE SAMPLE LOCATION FOR STREAM01 (UPGRADIENT)
4. MW-15, MW-20, MW-41A, MW-41B, MW-42A, MW-42B, MW-48A, MW-48B, MW-61A, MW-62B, MW-67, MW-78A, MW-83R, MW-92, MW-93, MW-93B, MW-94, MW-97, MW-114, MW-129A, MW-129B, MW-130, MW-133A, MW-133B, MW-134A, MW-134B, MW-135A, MW-135B, MW-136, MW-148A, MW-148B, MW-149, MW-150A, AND MW-150B ARE ON A BI-ANNUAL (1ST AND 3RD QUARTER) SAMPLING SCHEDULE
5. MW-128A, MW-128B, MW-157P, AND PIEZOMETER ('P') MONITORING WELLS ARE NOT SAMPLED AND ARE USED FOR GROUNDWATER GAUGING ONLY

GROUNDWATER RECOVERY ZONES:

ZONE DISPENSER ISLAND:
MW-1A, MW-2A, MW-19, MW-21, MW-22, MW-23, MW-139, MW-151, MW-152, SVE-1, SVE-3

ZONE DPE:
MW-3, MW-4, MW-6, MW-7, MW-13, MW-16, MW-16R, MW-27, MW-27R

ZONE A:
MW-9, MW-17, MW-24, MW-26, MW-52

ZONE B:
MW-29, MW-30, MW-35, MW-154

ZONE C:
MW-40, MW-126, MW-127

ZONE D:
MW-112

ZONE E:
MW-55, MW-72, MW-116, MW-117, MW-118, MW-156

0 45 90 180 Feet

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PROJECT NO.	138681
DRAWN:	4/16/2014
REVISED:	-
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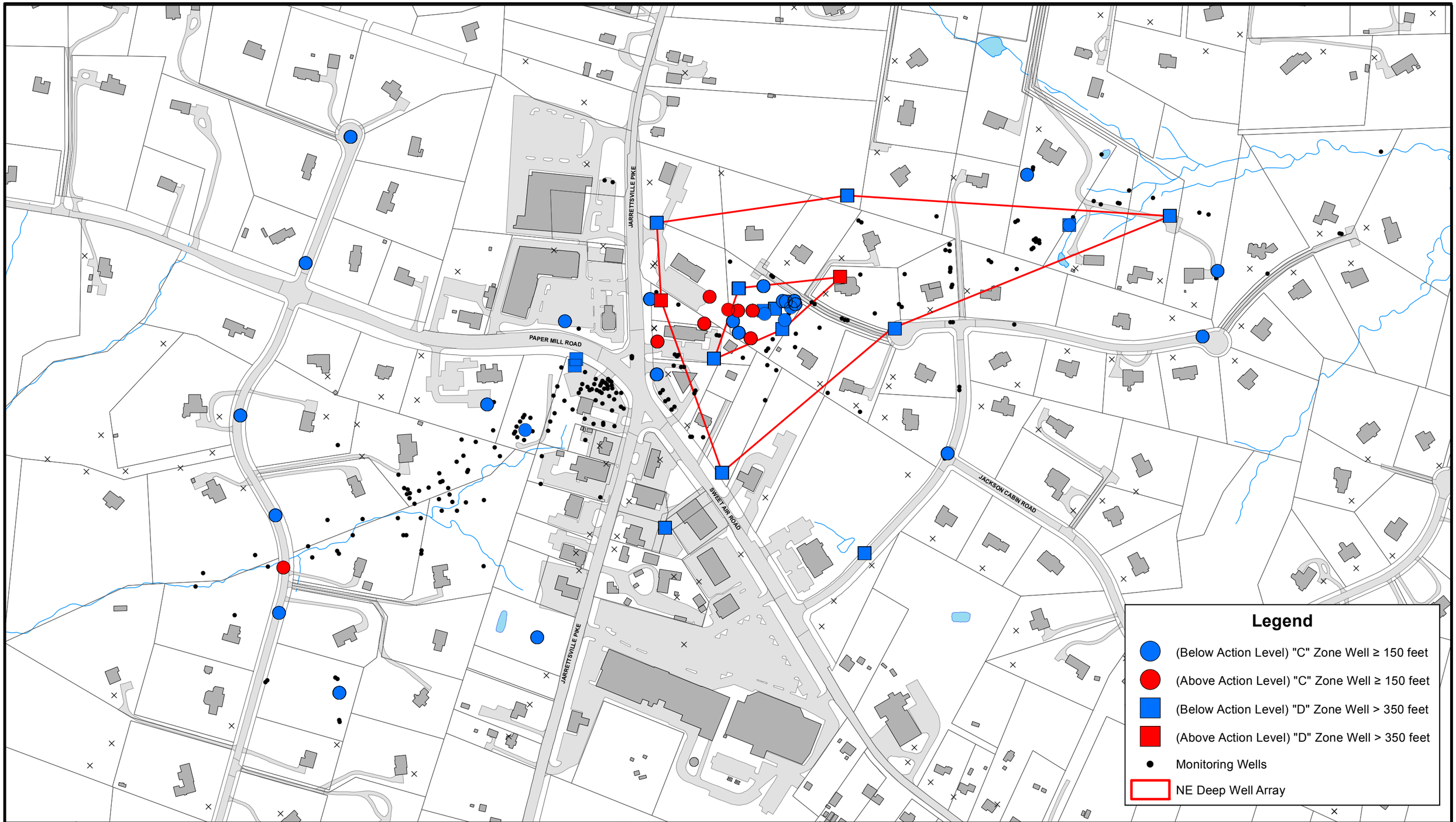
CHECKED BY:	B. Rodenberg
FILE NAME:	

WEST GROUNDWATER CONCENTRATION MAP

INACTIVE EXXON FACILITY #28077
14258 JARRETTSVILLE PIKE
PHOENIX, MARYLAND
BALTIMORE COUNTY

FIGURE 2



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0 150 300 600 900 1,200 Feet

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Cartography By: B. Myers | Date: 8/25/2014

C and D Zone Wells Above Action Levels

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Figure
3