2009 KEY WELL SAMPLING REPORT
FORMER YORK NAVAL ORDNANCE PLANT

SAIC Project 166345.00.08232.62.6062

Prepared for:

Harley-Davidson Motor Company Operations, Inc.
York, PA

January 20109

Science Applications International Corporation
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Respectfully submitted,

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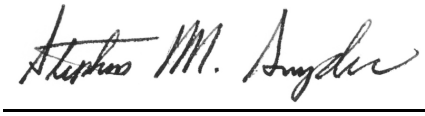

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LIST OF ACRONYMS

°C	-	degrees Celsius
µg/L	-	micrograms per liter
cis-1,2-DCE	-	cis-1,2-dichloroethene
1,1-DCA	-	1,1-dichloroethane
1,1-DCE	-	1,1-dichloroethene
EDDs	-	electronic data deliverables
EPBA	-	Eastern Property Boundary Area
EPA	-	United States Environmental Protection Agency
fbg	-	feet below grade
ft/ft	-	feet per foot
fYNOP	-	former York Naval Ordnance Plant
Harley-Davidson	-	Harley-Davidson Motor Company Operations, Inc.
MCL	-	maximum contaminant level
MDL	-	method detection limit
mg/L	-	milligrams per liter
MSCs	-	medium-specific concentrations
MS/MSD	-	matrix spike/matrix spike duplicate
NETT	-	North End of the Test Track
NPBA	-	Northeast Property Boundary Area
NTUs	-	nephelometric turbidity units
O&M	-	operations and maintenance
PADEP	-	Pennsylvania Department of Environmental Protection
PCE	-	tetrachloroethene
ppm	-	parts per million
QAPP	-	Quality Assurance Project Plan
QA/QC	-	quality assurance/quality control
QC	-	quality control
RI	-	remedial investigation
RLs	-	reporting limits
RPD	-	relative percent difference
SAIC	-	Science Applications International Corporation
SPBA	-	Southern Property Boundary Area
TCA	-	1,1,1-trichloroethane
TCE	-	trichloroethene
TCL	-	target compound list
UST	-	underground storage tank
VOC	-	volatile organic compound
WPL	-	West Parking Lot
WWPL	-	West of the West Parking Lot

1.0 INTRODUCTION

Science Applications International Corporation (SAIC) has prepared this report to summarize the results of the 2009 key well sampling event, including collection (pumping) and off-site wells, for the former York Naval Ordnance Plant (fYNOP). The fYNOP facility is located at the Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson) York facility in Springettsbury Township, York, Pennsylvania, as shown on Figure 1. This report provides the most recent sampling results (June-July 2009) and a limited analysis of historic results and observed trends. A more complete analysis considering the entire historical record in the data base, along with the recent sampling results, will be completed during the future Groundwater Extraction and Treatment System Annual Operation Report and the Supplemental Site-Wide Groundwater Remedial Investigation (RI) Report.

A key well sampling program was initiated in February 1992 in which a subset of wells was selected as key wells to be sampled for the following purposes:

- To establish a data base of groundwater quality.
- To monitor changes in groundwater chemistry across the site.

Each year, available information is reviewed, and as determined necessary, the key well sampling plan is amended to meet the goals of the program. In 2008, a separate "key well sampling round" and report were not completed but instead were substituted with two well sampling rounds that were completed for the Supplemental Site-Wide RI. Those two sampling rounds included additional wells normally sampled during the key well sampling and included totals of 162 (first round) and 130 (second round) groundwater sampling locations. Following the completion of the Supplemental Site-Wide RI well sampling rounds, the sample results were reviewed to determine which locations should be included in the 2009 key well sampling event. The number of locations sampled during the 2009 key well event was increased from the previous 47 wells (2007 key well sampling) to 112 locations during the 2009 event. Table 1 provides a list of the 112 locations that were sampled in 2009 including information such as the

general location of the monitoring location, portion of the aquifer monitored, rationale for inclusion, and year when the locations were added. Figure 2 identifies the location of each well at the site, as well as its classification as a groundwater extraction well (green circle with a cross and two quadrants filled in), designated key well (red circle with a red dot inside), or other groundwater monitoring well/location (black circle with a cross and all quadrants empty), as well as the groundwater treatment system features.

In addition to the collection of samples from the designated "key well" locations, 16 samples were collected from the collection wells and the lift station as a requirement of the O&M contract. The results from these samples are being included with this report; however, analysis of these data is beyond the scope of the Key Well Report, and analysis of the groundwater collection system sampling results will be completed and provided in the 2009 Groundwater Extraction and Treatment System Annual Operation Report and the Supplemental Site-Wide Groundwater Remedial Investigation (RI) Report (currently anticipated to be completed during the second quarter of 2010).

2.0 GROUNDWATER ELEVATION DATA

The depth to groundwater was measured at all available groundwater monitoring locations on June 4 and 5, 2009, which included 173 monitoring locations consisting of on-site monitoring wells, groundwater collection wells, piezometers, and off-site locations during this event. Using the depth-to-groundwater measurements and previously established elevation reference points at the monitoring locations, groundwater elevations were calculated. The depth-to-groundwater data and the calculated groundwater surface elevation data for the 2009 Key well event are provided on Table 2. During the groundwater measurement event, surface water stage measurements (included on Table 2) were made at two surface water stage monitoring locations established on the Codorus Creek, designated as Codorus 1 and Codorus 2, and corresponding surface water elevations were calculated.

The calculated groundwater elevations from June 4 and 5, 2009 (Table 2) were used to develop Figure 3, which presents the interpreted groundwater table surface elevation contours. Only groundwater elevations from "shallow" wells were used in preparing the interpreted groundwater table elevation contours. All of the calculated groundwater elevations are included on Figure 3, but the locations and elevations that were not used to prepare the interpreted groundwater table contours have been slightly shaded. The surface water monitoring locations and elevations are illustrated on Figure 3 for comparison purposes.

The configuration of the groundwater table at the site is generally consistent with previous monitoring, which has indicated a horizontal gradient toward the west-southwest. The groundwater table gradient determined from the June 2009 data is relatively steep beneath the eastern portion of the site, which is underlain by sandstone bedrock. The groundwater table gradient is relatively flat beneath the western portion of the site, which is underlain by limestone bedrock.

Figure 3 displays general areas of groundwater depression as depicted by closed contours around active collection (pumping) wells at the site. Estimated horizontal groundwater capture zones have also been illustrated on Figure 3 with green lines. At the downgradient sides of the capture

zone boundaries, a groundwater divide is created by active pumping of collection wells and lowering of the groundwater table. Groundwater on the inside of the capture zone boundary (i.e., toward the collection well) and in the upgradient direction from the capture zone will flow toward the collection well, while water on the outside of the capture zone boundary will not be directed toward the collection well and will continue to flow in the direction of the natural gradient.

The capture areas indicated on Figure 3 were estimated by SAIC using preexisting knowledge obtained from groundwater pumping tests performed during the initial design phase of the groundwater collection systems, along with site-specific data used in an evaluation of groundwater flow paths, a review of measured hydraulic gradients and the most recent groundwater monitoring data, and resulting interpreted groundwater table surface elevation contour map. The western extent of the capture zone for the west parking lot (WPL) collection wells is illustrated on Figure 3 with less confidence due to the limited number and density of monitoring wells located to the west of the property line. With the installation of monitoring wells along the Codorus Levee during the Supplemental Site-Wide RI, additional data are now available for evaluating the WPL capture zone and the groundwater interaction with the Codorus Creek that provide greater confidence to estimate the WPL collection well field capture zone. The northern limit of the estimated capture zone in the northeast property boundary area (NPBA) is suspected to extend possibly an additional 100 feet to the north, based on initial design pumping tests for this well field, but similarly, the lack of groundwater monitoring locations to the north contributes to the uncertainty.

The differences in groundwater elevations between multilevel piezometers or well pairs (26 locations) within nine areas across the site have been evaluated, and the results of this evaluation are provided on Table 3. In general, upward vertical gradients are present:

- Beneath the northern portion of the WPL.
- Along the approximate spring line, near sandstone contact (well pairs MW-70 and MW-86).

- West of the WPL area (well pairs along the Codorus Levee, MW-98 through MW-101).
- In the off-site wells east of the Eastern Property Boundary (well pairs MW-108 and MW-109).
- At one location (well pair MW-65) at the landfill area.

One location (MW-102) in the north end of the test track also reflects an upward gradient that may at times exhibit artesian conditions in the deep piezometer.

Downward vertical gradients are evident from the data collected for the piezometers located in:

- The southern WPL and the southeast corner of the south property boundary area (SPBA).
- Data at two locations at the NPBA (MW-18 and MW-20) indicate a downward gradient; however, a third location at the NPBA (MW-16) reflects an upward gradient that at times is evident by the presence of artesian conditions (i.e., flowing at the surface) in the deep piezometer.

A review of the groundwater contours depicted on Figure 3 indicates an area of groundwater mounding just north of Route 30 near well cluster MW-40S/D. A review of historical groundwater elevation data indicates that a very mild (0.001 to 0.002) groundwater gradient (sometimes up, sometimes down) typically exists at this monitoring location. However, the June 2009 groundwater elevation data suggest a greater than average (0.06) downward gradient existed at this location. This condition was also observed during June 2007 and December 2004 monitoring events. One possible explanation of this anomaly is that higher than normal recharge may be occurring periodically to the shallow groundwater in this area due to interconnections with the storm water basins that lie between Route 30 and Eden Road in this general vicinity. Significant rainfall had occurred during the days preceding the June 2009 monitoring event.

3.0 KEY WELL SAMPLING PROCESS

The key well sampling event was conducted between June 15 and July 16, 2009, subsequent to the site-wide groundwater level measurements and the sampling of extraction wells. SAIC utilized the following sample collection methodology:

1. Prior to the initiation of well purging activities, the depth to water was measured to the nearest 0.01 foot with an electronic water-indicating probe.

2. Prior to sample collection, the wells were purged using a well yield match purge technique as described in the Field Sampling Plan for Supplemental Remedial Investigations (SAIC, 2006) and summarized here. The purge rate was set at or below the well yield to minimize the drawdown of the water level in the well. During purging, water quality field parameters were measured and recorded every five minutes. Once the field parameters were observed to be stable for three consecutive readings, the sample was collected directly from the pump discharge tubing. If the well was a low-yield well, an attempt was made to purge at least one open interval (screen plus borehole volume) without exposing the entire filter pack or water-bearing zones, to reach stabilized field parameters, and then collect a sample. If the well cavitated before the desired volume was purged, the well was allowed to recharge, and the sample was collected as soon as sufficient volume was present in the well. All purge water was containerized and processed through the on-site groundwater treatment system via the Softail lift station.

   The following water quality field parameter criteria were used to determine stable conditions and acceptability for sample collection:

   - Temperature (±0.5^{o}C)
   - pH (±0.1 Standard Units)
   - Conductivity (±25 micromhos/centimeter)
   - Dissolved oxygen (±0.2 milligrams/liter),

- Turbidity (less than 50 nephelometric turbidity units [NTUs])

Decontamination of the pump between sampling locations was performed using a water and Alconox® solution wash with a deionized water rinse to prevent cross-contamination between wells and samples. Clean disposable gloves were used when handling the pump, sampling equipment, and during sample collection.

3. Groundwater samples were collected as soon as practical after purging was completed. The groundwater samples were collected from each monitoring well through new disposable polyethylene tubing used during purging or a disposable polyethylene bailer (if the well cavitated). Samples for dissolved metals were field-filtered using a single-use, disposable, in-line 0.45-micron filter.

4. Identification labels were immediately affixed to the sample containers. The containers were immediately placed in coolers and chilled to approximately 4 degrees Celsius (°C) for transport to TestAmerica under chain-of-custody protocol.

5. During the purging process, SAIC collected field water quality parameters every five minutes to determine when stable conditions had been achieved. SAIC documented the temperature, pH, conductivity, dissolved oxygen, and turbidity during the purge of each well sampled using a Horiba U-22 water quality instrument.

Groundwater samples were analyzed for specific parameters based on historic sampling results and the individual investigation areas. Target compound list (TCL) volatile organic compounds (VOCs) analysis by United States Environmental Protection Agency (EPA) Method 8260B was completed on 107 groundwater samples. Total and dissolved and dissolved metals were analyzed using EPA Method ICP MS SW846 6020 for arsenic (10 wells), beryllium (4 wells), chromium (9 wells), lead (23 wells), nickel (5 wells), antimony (3 wells), and cadmium (1 well). Additionally, groundwater from MW-113 was analyzed for mercury using Method ICP MS SW846 6020/SW846 7470A.

Hexavalent chromium was analyzed at nine wells using method SW846 7196A. Fourteen wells were analyzed for total cyanide (Method MCAWW 335.4) and free cyanide (Method SM18 4500-CN-1). Groundwater from six wells was analyzed for 1,4-dioxane using Method SW846 8270C SIM to achieve a lower detection limit at locations where either 1,4-dioxane or significant concentrations of TCA have been detected previously. All of the samples were submitted to TestAmerica's Pittsburgh location for analysis. The individual analyses completed at each monitoring location are provided on Table 4.

4.0 KEY WELL SAMPLING RESULTS

A summary of the analytical results from the June 2009 key well sampling is presented on Table 5. Graduated symbol posting maps for the total VOCs, trichloroethene (TCE), tetrachloroethene (PCE), dissolved chromium (Cr+3 and Cr+6), and hexavalent chromium are presented as Figures 4 through 8. Analytical data received from TestAmerica are handled in accordance with SAIC's Quality Assurance Project Plan (QAPP, July 2009). Ten percent of the laboratory data packages were evaluated for completeness, technical holding times, blanks, duplicates, laboratory control samples, matrix spike samples, surrogates, and calibration to standards. Electronic data deliverables (EDDs) from the laboratory are entered into the fYNOP data base, which is stored in the ARC IMS system and checked for completeness against the chain-of-custody record. Verified electronic analytical data with qualifiers are entered into the fYNOP data base. Electronic analytical data are stored on an SAIC server, as well as at the laboratory. Laboratory records are retained at TestAmerica for a period of five years after the report is issued.

4.1 NPBA Groundwater Chemistry

On-site monitoring wells (MW-10, MW-12, MW-16S, MW-18S, MW-18D, MW-20D, and MW-20S), off-site locations (RW-2, RW-4 Folk, S-6 Tate, and S-7 Herman), and collection wells (CW-1 through CW-7, CW-1A, and CW-7A) were sampled at the NPBA in the 2009 key well sampling event. The dominant VOC found in groundwater beneath the NPBA was TCE. This is consistent with historical data trends for this area. The results of laboratory analyses for these monitoring wells are summarized on Table 5.

Historical concentrations of TCE in five NPBA key wells are shown on Figure 9. A review of historical TCE concentrations indicates a generally decreasing concentration trend for the on-site monitoring wells MW-10 and MW-12. Monitoring wells MW-18D and MW-18S were installed in 1988, and the initial samples collected in April 1988 had a detection of 50 µg/L in MW-18D and was non-detect for TCE in MW-18S. These two wells were not sampled again until the

Supplemental Site-Wide RI sampling rounds in 2008 and during the 2009 key well sampling event. VOC concentrations in these two wells have increased significantly since the initial sampling in 1988, indicating that contaminated groundwater may be migrating beyond the NPBA collection well field in the portion of the aquifer being monitored by the MW-18 well cluster.

The TCE concentration in the off-site monitoring well (well RW-2, a former residential well) has remained low and relatively stable during the past 10 years. Prior to bringing the NPBA groundwater extraction system on-line in 1990, concentrations of TCE ranged from 544 to 2,090 micrograms per liter (μg/L) in RW-2. With the exception of one sampling event since 1998 (in 2002), TCE concentrations have been below 5 μg/L in RW-2. A review of historical analytical data for monitoring location RW-2 demonstrates effective capture of groundwater by the NPBA collection wells for groundwater that had been migrating from the NPBA to RW-2, based on the overall reduction of VOCs at this location. Other off-site locations in the NPBA that were sampled were RW-4, S-6 (Tate), and S-7 (Herman). TCE concentrations in all of the off-site sampling locations were below 5 μg/L. Total lead was detected at a concentration of 6.1 μg/L at the RW-4 Folk sampling location, which is above the Pennsylvania Department of Environmental Protection (PADEP) Act 2 medium-specific concentration (MSC) for residential used aquifers. Lead is not a contaminant of concern related to the Harley-Davidson property.

In the collection wells, the dominant VOC is TCE with concentrations ranging from 3.8 μg/L (CW-5) to 180 μg/L (CW-7A). PCE was detected above the MSC for residential used aquifers in CW-4 and CW-6.

Only metals were analyzed at wells MW-16S, MW-20D, and MW-20M in the NPBA. Lead was detected above the laboratory reporting limits in MW-16S and MW-20D. Arsenic, beryllium, lead, and nickel were detected above the laboratory reporting limits in MW-20M.

4.2 Trichloroethane (TCA) Tank Area Groundwater Chemistry

Seven monitoring wells (MW-32S, MW-32D, MW-34S, MW-34D, MW-35D, MW-54, and MW-55 [metals and cyanide only]) and collection well (CW-8) were sampled at the TCA Tank Area during in the 2009 key well sampling event. The TCA Tank Area is the site of a historic TCA spill which occurred prior to the initial sampling performed in 1989. The TCA release resulted in elevated concentrations of TCA (up to 100,000 µg/L at MW-32D in 1990) in the groundwater of this area. Groundwater extraction and treatment initiated at CW-8 in 1991 resulted in a rapid decrease in TCA concentrations in wells near the release, with adjacent monitoring wells exhibiting slow declines.

MW-32D and MW-54 were analyzed for 1,4-dioxane by Method SW846 8270C SIM to achieve a lower detection limit. Concentrations of 14 µg/L and 58 µg/L, respectively, were detected. The detected concentration at MW-54 exceeded the PADEP Act 2 MSCs for both nonresidential and residential used aquifers, where only the MSC for the residential used aquifers standard was exceeded at MW-32D.

As groundwater pump and treat progressed in the TCA Tank Area, the dominant VOC present in the area shifted from TCA to TCE. In 2009, TCE concentrations ranged from 13 µg/L (at MW-34S) to 590 µg/L (at MW-32D). Historical concentrations, along with the most recent TCE results from seven TCA Tank Area wells, are displayed graphically on Figure 10. The concentrations of TCE in the area wells generally appear to remain steady in the shallow wells, while increasing slightly in deeper wells.

Total lead and total and free cyanide were analyzed at location MW-55 near the TCA area in 2009 and were detected at a concentration above the MSC for residential used aquifers. Monitoring well MW-32S was analyzed for chromium and hexavalent chromium. Total and dissolved chromium were detected at concentrations below the regulatory standards at 17.3 µg/L and 16.2 µg/L, respectively. Both total and dissolved hexavalent chromium analysis results were non-detect.

4.3 WPL Groundwater Chemistry

Twenty-eight WPL monitoring wells (MW-5, MW-6, MW-7, MW-37S, MW-37D, MW-38D, MW-39S, MW-39D, MW-47, MW-49S, MW-49D, MW-50S, MW-50D, MW-51S, MW-51D, MW-74S, MW-74D, MW-75S, MW-75D, MW-93S, MW-93D, MW-95, MW-96S, MW96D, MW-97, MW-105, MW-106, and MW-107) and four collection wells (CW-9, CW-13, CW-15A, and CW-17) were sampled during this key well sampling event. The results of laboratory analyses are summarized on Table 4.

The dominant VOCs detected in the WPL monitoring wells are TCE (exceeded the PADEP Act 2 MSCs for both nonresidential and residential used aquifers in all WPL wells sampled except MW-5 and MW-6) and PCE (exceeded the same standards in all WPL wells sampled except for MW-5, MW6, MW-38D, MW-50S, MW-51D, MW-93S, and MW-95). Historically, PCE is more prevalent in the southwest corner of the WPL while TCE is more prevalent throughout all other areas in the WPL. Concentrations of the most prevalent VOC in this area (TCE) are graphed for the WPL key wells on Figures 11A, 11B, and 12. Additionally, concentrations of PCE in the southern WPL area monitoring wells are graphed on Figure 13. Most of the WPL monitoring wells exhibit a relatively flat or gradually decreasing TCE concentration trend. The exceptions to this trend are wells MW-49S and MW-49D that have decreased significantly since the initial sampling that was completed in 1992; MW-50D, where the TCE concentrations have increased since sampling began until 2005, when the concentrations started to decrease; and at MW-75D, where the PCE and TCE concentrations spiked between 2004 and 2006 but have returned to typical levels in 2009.

The following noteworthy observations for the WPL sampling locations were identified with the June 2009 sampling event chemistry data:

- Concentrations of TCE and PCE detected at the MW-75S and MW-75D well cluster represent two of the three highest detections at the site (MW-49D is the other). Since

the initial sampling event at these locations (September 1999), TCE and PCE concentrations at MW-75S have remained relatively consistent at the 5 to 30 parts per million (ppm) range (refer to Figures 12 and 13). During this same time period, TCE and PCE concentrations at MW-75D showed an increasing trend until 2006. Concentrations of TCE and PCE at MW-75D have increased slightly over the past year.

- Based on a review of the 2009 analytical data for well MW-75D, PCE is the most prevalent VOC at this location. Historically, PCE has comprised approximately 60 to 70 percent of the total VOC concentration; however, in the June 2007 event, PCE concentrations represented only 22 percent of the total VOCs (1,300 μg/L of 5,940 μg/L), while TCE concentrations represented 64 percent of the total VOC detection (3,800 μg/L of 5,940 μg/L). During the 2009 sampling event, the PCE concentration (2,900 μg/L) represented 70 percent of the total VOCs, and the TCE concentration (1,200 μg/L) represented 29 percent of the total VOCs, which is consistent with what had typically been observed.

- Wells MW-49S and D represent a second area of concentrated VOCs at the site. TCE is the most prevalent VOC at this location. Following installation of these wells in 1991, TCE was detected in MW-49D at concentrations of 9,200 μg/L (10/22/91) and 130,000 μg/L (10/30/91). Monitoring well MW-49D was not sampled again until 2008. The concentration decreased to 1,700 μg/L (10/6/08). In 2009, the sampling event concentration increased to 5,200 μg/L. Concentrations of TCE in the shallow groundwater at MW-49S had the same trends as MW-49D. Samples collected from MW-49S in October 1991 had TCE concentrations of 98,000 μg/L (10/22/91) and 91,000 μg/L (10/30/91). In the 2009 sampling event, the concentration of TCE was 2,300 μg/L. 1,4-dioxane, a stabilizer added to TCA, was detected at a concentration of 140 μg/L at MW-49S.

- Monitoring well MW-50D was installed in 1991, and TCE was detected at a concentration of 1,900 μg/L. TCE was detected at similar levels in 2000 (1,450 μg/L),

but this well was not sampled again until June 2004. The June 2004 sampling event revealed a significant increase in TCE (to 18,000 μg/L) in the deep groundwater at the MW-50D sampling location. Concentrations of TCE in the shallow groundwater at this monitoring location (at MW-50S) did not show similar magnitude changes (250 μg/L in 2000 to 520 μg/L in 2004). This information suggests that a plume of high concentration VOCs may have been drawn from the North Building 4 area (the closest known source area), through the deeper portion of the bedrock aquifer (MW-50D is screened from 160 to 170 feet below grade [fbg]), and toward groundwater extraction well CW-17. The VOC plume does not appear to be impacting the shallower portion of the bedrock aquifer at MW-50S (screened from 110 to 120 fbg) to the magnitude of the impact of the deeper portion of the aquifer. The 2009 TCE concentration at MW-50S was 100 μg/L, which has decreased significantly since 2004. The 2009 TCE detection at MW-50D (3,800 μg/L) indicates that the TCE concentrations have decreased since 2007 (6,900 μg/L) since the maximum historical detection was reported (18,000 μg/L) in June 2004.

- The three highest site-wide detections (above laboratory reporting limits) for dissolved chromium were reported in northern WPL wells (MW-7, MW-47, and MW-51S) as illustrated on Figure 7. Dissolved chromium was detected at six other wells across the site. Concentrations of dissolved chromium ranged from 4.3 μg/L (MW-94) to 4,440 μg/L (MW-47). The three wells (MW-7, MW-51S, and MW-47) within the WPL had dissolved chromium detections of 113 μg/L, 301 μg/L, and 4,440 μg/L, respectively, above the MSC for used nonresidential aquifers.

- The only detections of dissolved hexavalent chromium at the site were reported for the same northern WPL wells (MW-7, MW-47, and MW-51S) as illustrated on Figure 8. The hexavalent chromium concentrations ranged between 140 μg/L (MW-7) and 4,400 μg/L (MW-47).

4.4 SPBA Groundwater Chemistry

Six on-site monitoring wells (MW-40S, MW-40D, MW-43S, MW-43D, MW-64S, and MW-64D) and six off-site wells (MW-108S, MW-108D, MW-109S, MW-109S, MW-110, and RW-5) were sampled during the 2009 key well sampling event in the area of the SPBA. The dominant VOC detected in groundwater beneath this area is TCE. This is consistent with historical sampling data collected from this area. The analytical results are provided on Table 4.

Concentrations of the most prevalent VOC in this area (TCE) are graphed and included as Figure 14. The highest concentrations of TCE in this area continue to be observed at MW-64D (located in the southeast corner of the property). A review of concentration trends since 1990 indicates that TCE concentrations are decreasing at locations MW-43D, MW-64S, and MW-64D where concentration of TCE historically have been the highest. MW-110 was installed in November 2007 and has been sampled three times with relatively consistent results, demonstrating a very slight increase. This apparent slight increase is most likely a result of seasonal or variability in sampling conditions and does not actually represent an increasing trend. Sampling data for wells MW-40D, MW-40S, MW-43S, MW-109S, and MW-109D indicate consistently low (or non-detectable) levels of TCE.

Three wells near the SPBA (MW-40S, MW-43S, and MW-64S) were sampled for metals during 2009. The total lead result for the sample from MW-40S was 62 µg/L, which exceeds the regulatory standards. The dissolved lead result for the sample from MW-40S is 0.02B µg/L (B data qualifier indicates the result was below the method reporting limit [RL] but above the method detection limit [MDL] resulting in an estimated value), which is below the regulatory standards. The metals and VOC sampling results presented for the SPBA are consistent with those from previous sampling events.

Off-site monitoring well RW-5 did not contain VOCs at levels above laboratory reporting limits. RW-5 had previously been a water supply well for an off-site facility, and historically, from August 1987 to July 1999, the well was sampled on a quarterly basis. During that time, TCE

concentrations had increased to a maximum concentration of 57 μg/L in June 1995. The facility served by this well (it was used exclusively for washing cars) was connected to public water in January 1999, and quarterly sampling of this well was discontinued. Annual sampling of RW-5 was resumed in June 2006. The five samples collected since sampling resumed at this location have not indicated the presence of VOCs above laboratory RLs.

MW-109S and MW-109D had concentrations of benzene and MTBE, which are constituents of gasoline and most likely are associated with the documented release from the Rutter's Gas Station located on the corner of Route 30 and North Sherman Street. Off-site monitoring wells MW-108S, MW-108D, MW-109S, and MW-109D have very low or non-detectable levels of TCE.

4.5 Eastern Property Boundary Area/Landfill Groundwater Chemistry

Six key monitoring wells (MW-2, MW-17, MW-65D [select metals], MW-66S [select metals and arsenic], MW-91, and MW-92) were sampled to monitor groundwater quality near Harley-Davidson's Eastern Property Boundary Area (EPBA). PCE is the dominant VOC detected in groundwater from wells MW-2, MW-91, and MW-92. TCE is the dominant VOC detected in groundwater sampled from MW-17 (monitors downgradient of the landfill). The analytical results are provided on Table 4. Historical concentrations of TCE and PCE are graphed and included as Figures 15 and 16, respectively.

Monitoring wells MW-65D and MW-66D were sampled for select metals including chromium and hexavalent chromium. There were no detections above the regulatory standards.

Groundwater from wells MW-2, MW-91, and MW-92 was analyzed for total and available cyanide.

Data trends observed for the annual key well sampling locations at the EPBA generally indicate decreasing concentration trends. A summary of the data trends observed for the eastern area is presented below:

- MW-2 is located next to a former cyanide disposal area near the eastern site property boundary. PCE and TCE were the only VOCs detected at this location in 2009, with PCE being the most dominant VOC. A review of Figures 15 and 16 indicates that both TCE and PCE concentrations exhibit a generally decreasing trend since monitoring began in 1986.

- MW-17 is located in the east-central portion of the site, downgradient and west of the landfill. The VOCs detected in the 2009 sample from this location were TCE (30 μg/L) and PCE (0.51 μg/L). TCE has exhibited a gradual decreasing concentration trend since it was initially detected at a maximum concentration of 254 μg/L in 1987.

- The 2009 total VOC concentrations reported for MW-91 and MW-92 (141.9 μg/L and 289.1 μg/L, respectively) are part of a generally decreasing concentration trend since sampling began in 2000.

- Groundwater from MW-2, MW-91, and MW-92 contained detectable concentrations of total and available cyanide (which is free cyanide, plus cyanide complexes that easily dissociate). The reported concentrations of cyanide in the MW-2 sample were 980 μg/L (total cyanide) and 100J μg/L (free cyanide). The MW-2 total cyanide is above MSC standards for residential used aquifers (200 μg/L). Free cyanide is below the regulatory thresholds.

4.6 West of the West Parking Lot Groundwater Chemistry Data

Ten monitoring wells were sampled west of the WPL (WWPL) (MW-98D, MW-98I, MW-8S, MW-99D, MW-99S, MW-100D, MW-100I, MW-100S, MW-101D, and MW-101S). All of these wells were installed in 2008 along the eastern side of the Codorus Creek Levee.

PCE and TCE are the dominant VOCs detected in groundwater in the WWPL wells. All wells were above PADEP MSCs and the maximum contaminant level (MCL) for TCE except MW-98D. Six of the ten wells exceeded the PADEP Act 2 MSC for PCE. Wells with samples not exceeding the regulatory limits for PCE are MW-98S, MW-98D, MW-101D (duplicate sample), and MW-101S. Detected PCE concentrations ranged from 2.6J μg/L (MW-98S) to 110 μg/L (MW-100I). Detected TCE concentrations ranged from 0.17J μg/L (MW-98D) to 180 μg/L (MW-100I). Total and free cyanide were detected at estimated concentrations below RLs in MW-98D (free cyanide only), MW-98I, and MW-98S.

4.7 North End of the Test Track (NETT) Groundwater Chemistry Data

Five monitoring wells were sampled in the NETT (MW-102D, MW-102S, MW-103D, MW-103S, and MW-104) and two spring samples (sample identifications: Spring at Bldg 14 S1 and Spring at Bldg 14 S2) from Building 14 along the eastern side of the NETT. The wells were installed in 2007 and 2008 during the Supplemental Site-Wide RI.

PCE and TCE were detected above the PADEP Act 2 MSCs in all of the monitoring wells sampled in the NETT. PCE values ranged from 7.1J μg/L (MW-102D) to 39 μg/L (MW-103S). TCE values ranged from 53 μg/L (MW-104) to 280 μg/L (MW-103S). Other VOCs detected in the NETT that exceeded the PADEP MSCs were methylene chloride (6.6 μg/L in MW-102D) and 1,1-dichloroethene (1,1-DCE) (62 μg/L in MW-102S).

The S1 sample was analyzed for total and dissolved antimony, while both S1 and S2 samples were analyzed for total and dissolved lead. Both the total and dissolved antimony results for

sample S1 exceeded the PADEP Act 2 MSC. Total lead in sample S1 also exceeded the PADEP Act 2 MSC. All of the other detections were below the regulatory standards.

4.8 Additional Site-Wide Groundwater Chemistry Data

Seventeen additional monitoring wells not summarized above were sampled as part of the 2009 key well sampling round to monitor groundwater quality at or near the Harley-Davidson facility. One well (MW-82) is located along the property line in the north-central portion of the facility, and well MW-85 is located along the property line in the south-central portion of the facility. Fourteen of the remaining fifteen wells (MW-52, MW-69, MW-77, MW-79, MW-81S, MW-81D, MW-87, MW-88, MW-94, MW-112, MW-113, MW-114, MW-115, MW-116, and MW-117) monitor groundwater beneath the central portion of the facility (MW-52 is located in the north-central portion of the facility). Noteworthy items from the sampling of these wells are summarized below:

- Well MW-69 monitors deep groundwater quality between the former firing ranges and is located approximately 400 feet north of Building 3. TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were detected below the PADEP MSCs in 2009. TCE was the predominant VOC at this location between 1999 (when sampling began) and 2004. However, data from each of the past three annual sampling events indicate that cis-1,2-DCE concentrations are now more dominant than TCE. The 2009 cis-1,2-DCE concentration (54 μg/L) is the highest reported for this location, while the 2009 estimated TCE concentration is the lowest (3.3J μg/L).

- Well MW-82 monitors deep groundwater quality along the north-central property line just north of the contractors' parking area. TCE was not detected above laboratory RLs from 2004 to 2007; however, in 2008, TCE was detected at 33 μg/L (4/25/08) and 39 (μg/L) (9/12/09). In the 2009 sampling event, TCE was detected at 27 μg/L. PCE was detected in MW-82 with a concentration of 1.6 μg/L.

- Well MW-85 monitors deep groundwater quality along the south-central property line along Route 30. No VOCs were detected above regulatory limits. Cis-1,2-DCE was detected at a concentration of 53 μg/L.

- Monitoring wells MW-87 and MW-113 monitor groundwater quality in the overburden (MW-87) and deep bedrock (MW-113) near the southeast corner of Building 2. Concentrations of cis-1,2-DCE and TCE make up the majority of the VOC detections at this location. Since sampling of MW-87 began in 1999, TCE concentrations have generally decreased from 2,300 to 1,700 μg/L. During this same time period, concentrations of cis-1,2-DCE have remained relatively stable (in the 740 to 1,100 μg/L range). MW-87 was analyzed for 1,4-dioxane (used as a stabilizer in TCA) and detected a concentration of 14 μg/L, which is above the PADEP MSC for residential used aquifers. TCE in MW-113 was detected at a concentration of 1,100 μg/L, and cis-1,2-DCE was detected at 660 μg/L. In both MW-87 and MW-113, there is a high percentage of TCE compared to cis-1,2-DCE.

- Monitoring wells MW-79 and MW-115 monitor groundwater quality in the overburden (MW-79) and deep bedrock (MW-115) at a location downgradient of the former Building 2 drum storage area. Vinyl chloride, 1,1-dichloroethane (1,1-DCA), and cis-1,2-DCE were the only parameters detected in MW-79. Monitoring well MW-115 was sampled for VOCs and metals. Lead, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, TCE, and vinyl chloride were all detected above the MSCs for residential used aquifers. PCE was detected at a concentration of 4.8 μg/L, slightly below the PADEP MSC of 5 μg/L.

- Monitoring wells MW-81S, MW-81D, and MW-114 monitor the shallow and deep groundwater quality near Building 92. Cis-1,2-DCE, TCE, and PCE were detected in the groundwater sampled from these wells. The sum of these three compounds in the shallow aquifer was 1,243 and 3,468 μg/L (in MW-81S and MW-81D, respectively), and the sum of these three dominant VOCs detected in the deep aquifer was 7,570 μg/L (MW-114). TCE has consistently been the dominant VOC detected at these locations.

- Well MW-88 monitors deep groundwater quality along the southern end of Building 2. TCE, PCE, 1,1-DCE, and cis-1,2-DCE are the VOCs detected above laboratory RLs at this location in 2009. During the sampling between 2000 and 2007, TCE concentrations have shown a generally decreasing trend (ranging from 230 to 42 μg/L). The sampling in 2008 and 2009 has increasing concentrations of TCE from 280 to 380 μg/L. The cis-1,2-DCE concentrations range from 5.2 to most recently 120 μg/L (2009).

- Well MW-52 monitors the overburden in the metal chip bin area in the north-central area of the plant near Building 67. Total and dissolved lead were the only parameters analyzed for at this location. Total lead was detected above its PADEP Act 2 MSC at a concentration of 16.1 μg/L. The dissolved lead result was below the PADEP limit.

- Well MW-77 monitors the area of the former underground storage tank (UST) in the T-4 area located east of Building 45. Gasoline and diesel USTs were located in this area. Fuel-related VOCs were detected, with benzene and MTBE detected above their respective PADEP Act 2 MSCs with concentrations of 2,000 μg/L and 610 μg/L, respectively.

- Well MW-94 monitors the overburden in the Building 2 East Corridor Former Cutting Oil Tank Area. The well was installed in 2008 during the Supplemental Site-Wide RI. Cis-1,2-DCE (180 μg/L), PCE (5.8 μg/L), and TCE (120 μg/L) were all detected at concentrations above their PADEP Act 2 MSCs. The sample from MW-94 was also analyzed for total and dissolved metals, and all detected analytes were below the respective regulatory limits.

- Monitoring wells MW-111 and MW-112 were installed to the east and southwest of the Softail Building (Building 3) in 2008 during the Supplemental Site-Wide RI. TCE was detected in MW-111 at a concentration of 4.9 μg/L, slightly below the RLs. TCE was detected slightly above the PADEP MSCs with a concentration of 6.2 μg/L in MW-112.

- Monitoring wells MW-116 and MW-117 were installed on the west and east side of Building 41, respectively. Cis-1,2-DCE (370 µg/L), methylene chloride (8J µg/L), PCE (39 µg/L), TCE (100 µg/L), and vinyl chloride (19J µg/L) were detected above the MSC for residential used aquifers in MW-116. 1,4-Dioxane was detected at 5.6 µg/L, which is equal to the PADEP MSC for used residential aquifers. TCE was detected above the MSC for residential used aquifers in MW-117 at a concentration of 22 µg/L.

4.7 Quality Assurance/Quality Control (QA/QC)

As part of the QA/QC process, EDDs from the laboratory are entered into the fYNOP data base, which is stored in the ARC IMS system and checked for completeness against the chain-of-custody record. Ten percent of the laboratory data packages are randomly selected for further validation review at SAIC to determine if laboratory qualifiers are properly applied. The data validation includes evaluation for completeness, technical holding times, blanks, duplicates, laboratory control samples, matrix spike samples, surrogates, and calibration to standards. Verified electronic analytical data with qualifiers are then entered into the fYNOP data base and stored on the SAIC server. Laboratory records are also retained at TestAmerica for a period of five years after the report is issued.

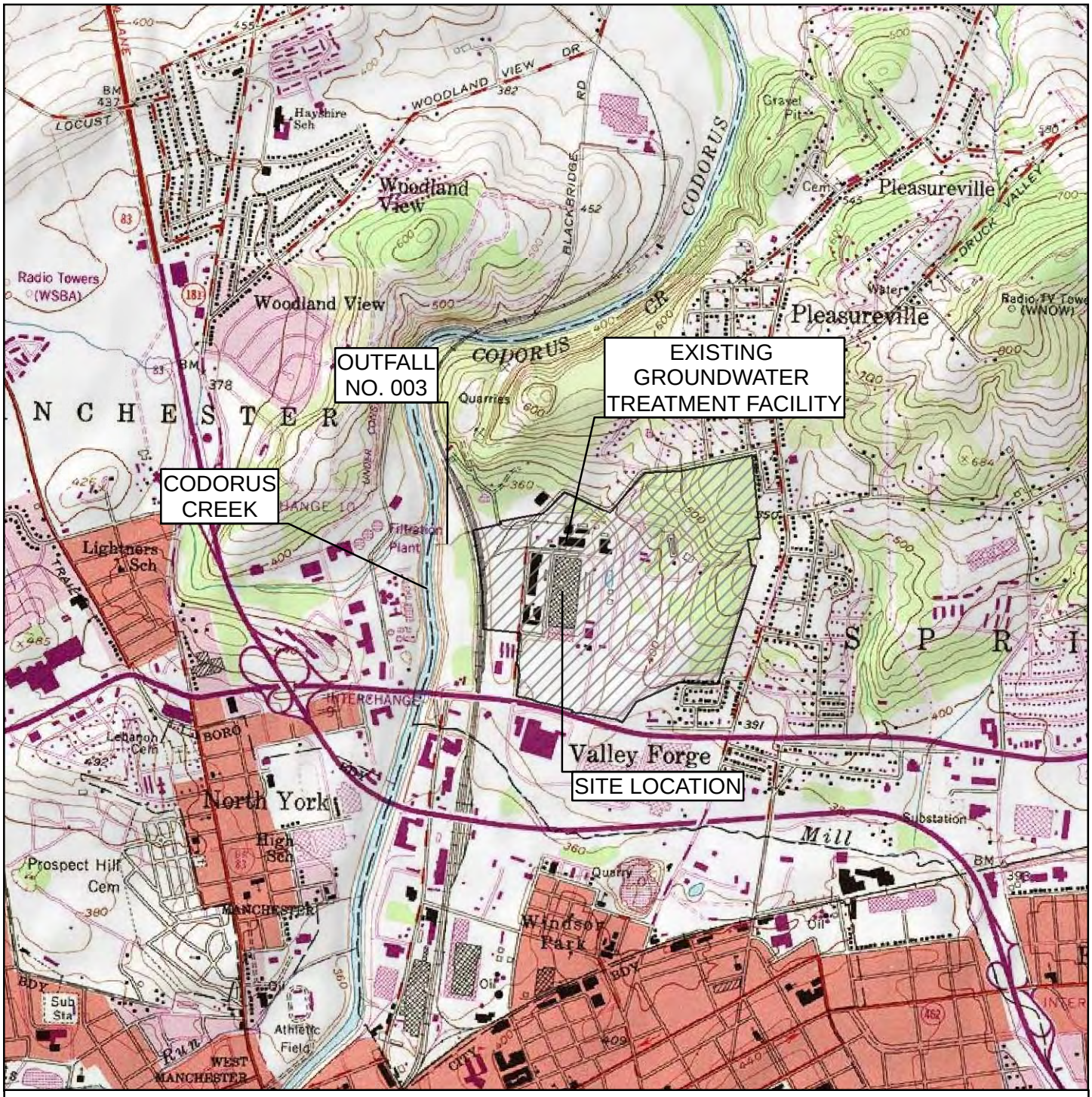
For quality control (QC) purposes, daily trip blanks for VOCs, duplicate samples (submitted blind), and matrix spike/matrix spike duplicate (MS/MSD) samples were collected and submitted for analysis. Four of the 23 trip blank samples contained detectable VOCs at a concentration above laboratory RLs for methylene chloride (Trip Blanks 18, 20, 21, and 22). Other VOCs detected were acetone and toluene. These trip blanks and associated laboratory sample delivery groups had not been included in the randomly selected 10 percent of the sampling event data packages and were therefore not qualified by SAIC. However, the investigative samples associated with those trip blanks that had detections were reviewed to determine the detected VOCs in the blanks were also detected in the investigative samples. Methylene chloride was detected at concentrations above laboratory RLs limits in investigative samples from MW-49D,

MW-37D, and MW-114. Methylene chloride is a recognized common laboratory contaminant. These samples were not re-qualified by SAIC.

Sampling precision is evaluated using duplicate samples and calculating a relative percent difference (RPD) between each field duplicate sample and its original laboratory sample. As detailed on Table 3-2 in the site-specific QAPP (SAIC, July 2009), an acceptable RPD value for both metals and VOCs in water samples is less than 30 percent. A review of the metals RPD values for the sample from MW-20D reveals the average for all metals and hexavalent chromium range from 0 to 3.0 percent; therefore, they are acceptable. The RPD value for MW-52, sampled only for lead, ranges from 0 (total lead) to 41.2 percent (dissolved lead). Sampling procedures were reviewed, and MW-52 was sampled with turbidity above 50 NTUs. The high turbidity may have contributed to the higher RPD; therefore, the data were not re-qualified by SAIC.

The RPD values for total VOCs (collected at MW-101D and MW-102D) ranged from 14.4 percent to 35.9 percent. When these values are compared to the QAPP acceptable RPD of less than 30 percent, two values were determined to be slightly above the guidance value. For the MW-101D sample, the PCE detection was 6 μg/L, and its duplicate result was 4.3 μg/L (for an RPD of 32 percent). The TCE detection was 24 μg/L, and its duplicate result was 16 μg/L (for an RPD of 40 percent). SAIC reviewed the field sampling procedure for this well and did not identify any issues that could have affected the PCE or TCE reproducibility. The MW-101D sample (and its duplicate) was collected on June 23, 2009, along with six other samples (from MW-12, MW-82, MW-95, MW-103D, MW-109D, and MW-117). The analytical laboratory did not report any problems with analytical reproducibility in the June 23 sample batch. These data should still be considered usable and were not re-qualified by SAIC.

FIGURES



NOTE: Map based on USGS 7.5 minute series York quadrangle.

0 1,000 2,000 4,000 '

1 inch = 2,000 feet

N
W E
S

YORK

QUADRANGLE LOCATION

FORMER YORK NAVAL ORDNANCE PLANT

1425 EDEN ROAD, YORK, PA 17402

SITE LOCATION MAP

drawn AGM	checked	approved	figure no. 1
date 10/20/08	date	date	
job no. 01-1633-00-9806-309		file no. Fig1site-loc.mxd	

initials	date	revision

SAIC From Science to Solutions

NPBA CONTROL BUILDING

NPBA GROUNDWATER CONVEYANCE PIPE TO TREATMENT PLANT

NPBA GROUNDWATER COLLECTION PIPE TO CONTROL BUILDING

TREATMENT SYSTEM DISCHARGE LINE

WPL COLLECTION PIPES TO TREATMENT PLANT

LIFT STATION

SOFTAIL DEWATERING SYSTEM

PARADISE RD

EDEN RD

U.S. RT 30

ARSENAL ROAD

N. SHERMAN ST

CODORUS CREEK

S-6 S-7

RW-1 RW-2 RW-3 Folk (RW-4)

CW-1 CW-1A CW-2 CW-3 CW-4 CW-5 CW-6 CW-7 CW-7A

MW-9 MW-10 MW-11 MW-12 MW-16D MW-16S MW-18D MW-18S MW-20D MW-20M MW-20S

MW-3 MW-5 MW-6 MW-7 MW-8 MW-9S MW-9D MW-10S MW-10D MW-11S MW-11D MW-12S MW-12D MW-13S MW-13D MW-14 MW-15 MW-17 MW-19 MW-22 MW-26 MW-27 MW-28 MW-29 MW-30 MW-31D MW-31S MW-32D MW-32S MW-33 MW-34D MW-34S MW-35D MW-35S MW-36D MW-36S MW-37D MW-37S MW-38D MW-39D MW-39S MW-40D MW-40S MW-41S MW-41D MW-42D MW-42M MW-43D MW-43S MW-45 MW-46 MW-47 MW-49D MW-49S MW-50D MW-50S MW-51D MW-51S MW-52 MW-53 MW-54 MW-55 MW-56 MW-57 MW-58 MW-64D MW-64S MW-65D MW-65S MW-66D MW-66S MW-67D MW-67S MW-68 MW-69 MW-70D MW-70S MW-74D MW-74S MW-75D MW-75S MW-77 MW-78 MW-79 MW-80 MW-81D MW-82 MW-83 MW-84 MW-85 MW-86D MW-86S MW-87 MW-88 MW-91 MW-92 MW-93D MW-93S MW-94 MW-95 MW-96D MW-96S MW-98D MW-98I MW-98S MW-99D MW-99S MW-100D MW-100I MW-100S MW-101D MW-101S MW-102D MW-102S MW-103D MW-103S MW-104 MW-105 MW-106 MW-107 MW-108D MW-108S MW-109D MW-109S MW-110 MW-111 MW-112 MW-113 MW-114 MW-115 MW-116 MW-117

WPL-SS-7 WPL-SS-8

CW-8 CW-9 CW-13 CW-14 CW-15 CW-15A CW-16 CW-17 CW-18 CW-20

BLD14-S1 BLD14-S2

RW-5

Legend

- Monitoring Well and Designation
- Extraction Well and Designation
- Key Well and Designation
- Spring
- Treatment System Features
- NPBA Area
- TCA Area
- WPL Area
- Codorus Creek
- Buildings
- Harley Davidson Property Boundary
- Roads and Curb Boundary
- Railroad

N

NOTE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs) from NuTec Survey conducted in 2006.

0 200 400 800
SCALE IN FEET

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

GROUNDWATER TREATMENT SYSTEM LOCATION

drawn	checked	approved	figure no.
AGM			2
date 8/25/09	date	date	
job no. 165214.00.08674.00.5432.00.518		file no. Site_Map_20090825.mxd	

initials	date	revision

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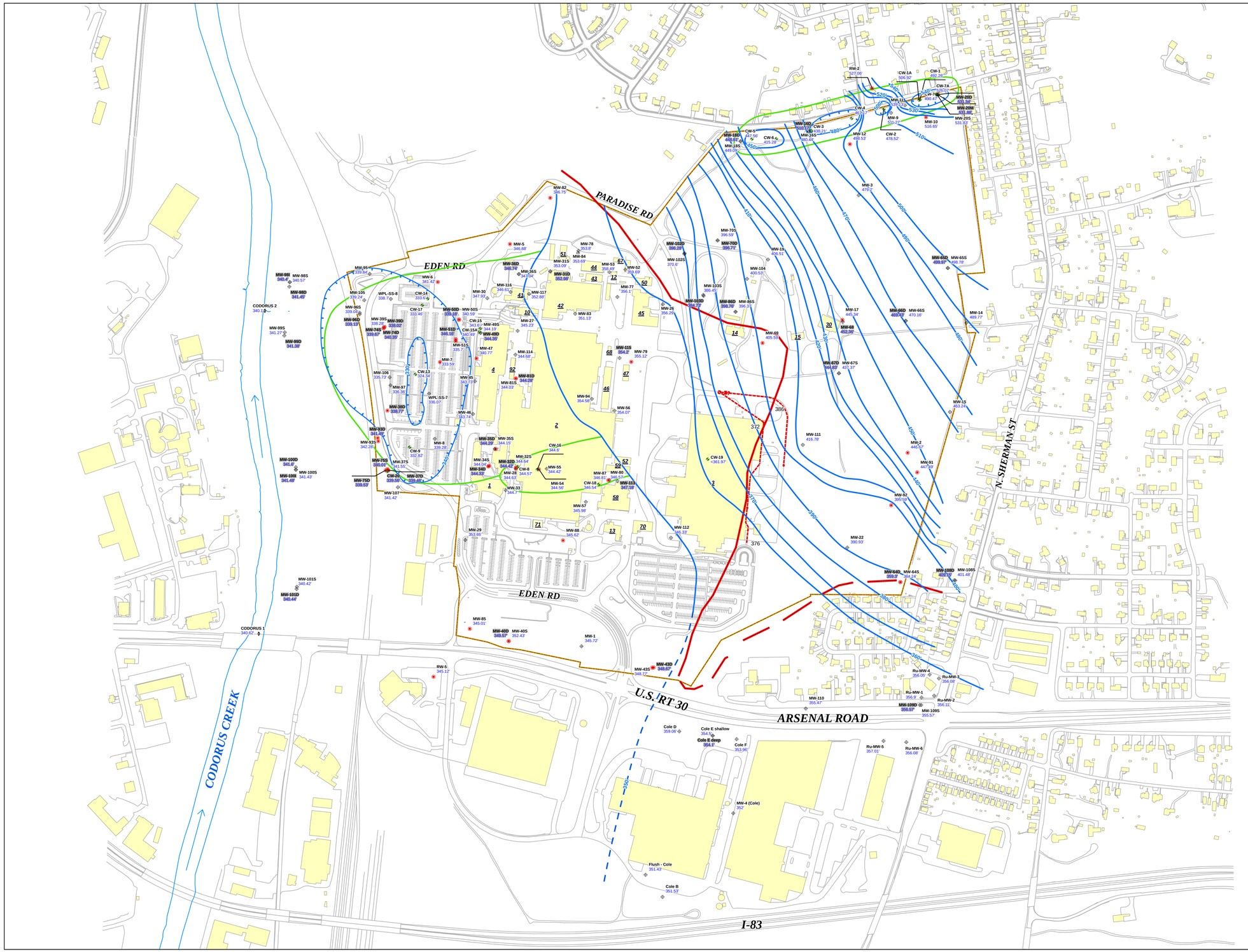

Groundwater Withdrawal: June 5, 2009

Well ID	Daily Flow (Gallons)	Average Daily Pumping Rate (GPM)
CW-1	3,334	2.3
CW-1A	293	0.2
CW-2	876	0.6
CW-3	3,995	2.8
CW-4	2,907	2.0
CW-5	3,680	2.6
CW-6	4,481	3.1
CW-7	2,174	1.5
CW-7A	1,664	1.2
CW-8	145,800	101.3
CW-9	100,743	70.0
CW-13	92,450	64.2
CW-14	--	--
CW-15A	4,758	3.3
CW-16	--	--
CW-17	102,741	71.3
CW-18	--	--
CW-19	--	--
Lift Station	14,590	10.1

Legend

- Monitoring Well and Designation
- Key Well and Designation
- Extraction Well and Designation
- Stream Gauge and Designation
- Estimated Capture Zone
- Groundwater Contour (Feet)
- Inferred Groundwater Contour (Feet)
- Groundwater Contour Sink (Feet)
- Bedrock Contact
- Groundwater Interceptor Trenches
- Cordorus Creek
- Roads and Curb Boundary
- Buildings
- Harley Davidson Property Boundary

N

NOTE:

1. *Base data (Buildings, Building Boundaries, Roads and Curbs, and Contour Lines, from NuTec Survey conducted in 2006)*
2. *Gauging data that was used was from the 6/4/09 and 6/5/09 gauging event.*
3. *The shallow groundwater elevation was used when contouring at well pairs (in black). Gray water levels are from deep wells and are presented for comparison only.*

0 300 600 1,200

SCALE IN FEET

FORMER YORK NAVAL ORDNANCE PLANT

1425 EDEN ROAD, YORK, PA 17402

GROUNDWATER SURFACE CONTOUR MAP JUNE 2009

drawn AGM	checked	approved	figure no.
date 7/28/09	date	date	3
job no. 166345.00.08232.62.6062.00.518		file no.	

initials	date	revision

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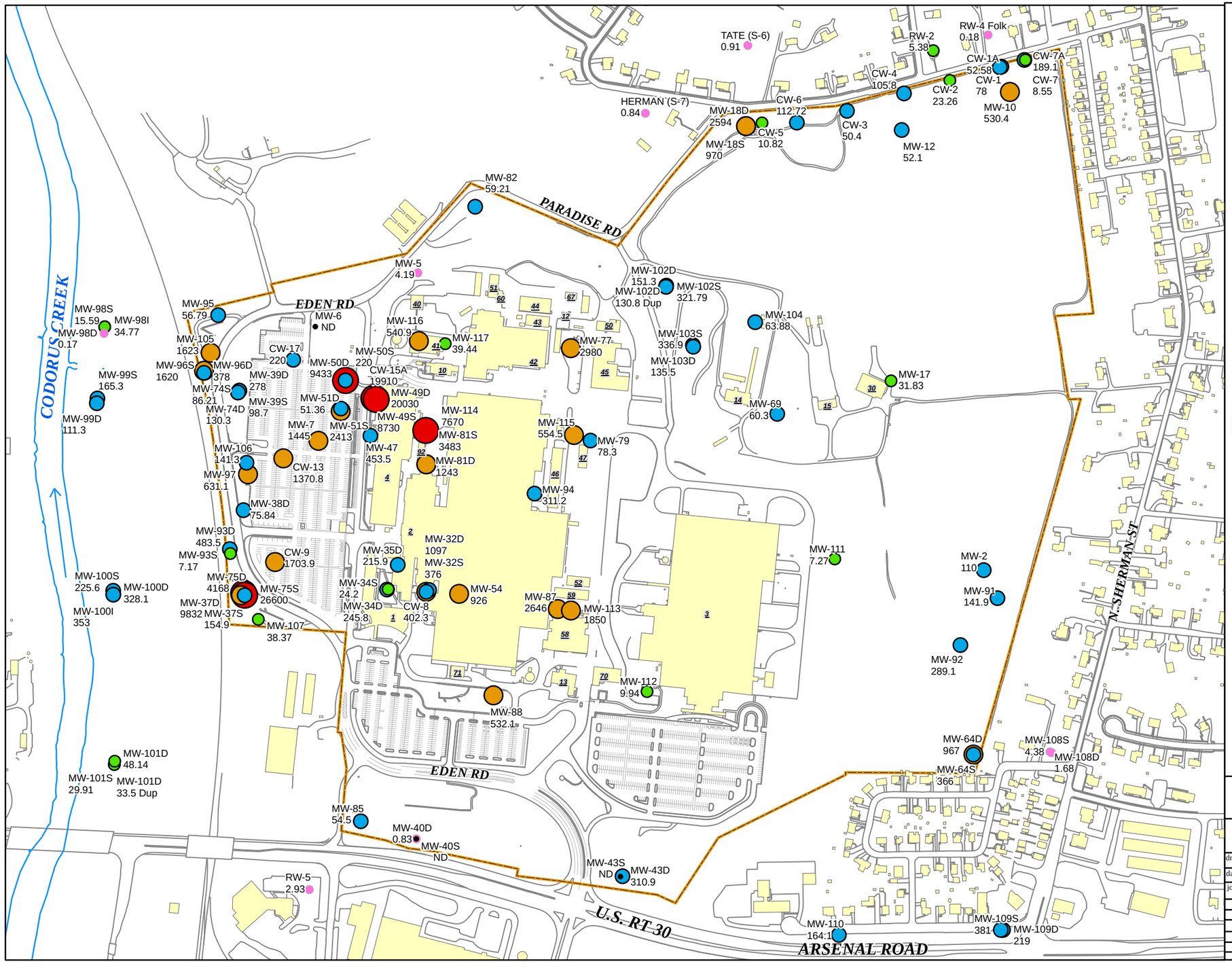


N

W E

S

Total VOCs in µg/l

- ND
- < 5.0
- 5.01 - 50.0
- 50.1 - 500.0
- 500.01 - 5000.
- >5000.01

- Cordorus Creek
- Buildings
- Harley Davidson Property Boundary
- Roads and Curb Boundary (2006)
- Parking (2006)

NOTE:
1. ND = Not detected above laboratory reporting limit.

450 225 0 450 Feet

1 inch = 450 feet

FORMER YORK NAVAL ORDNANCE PLANT

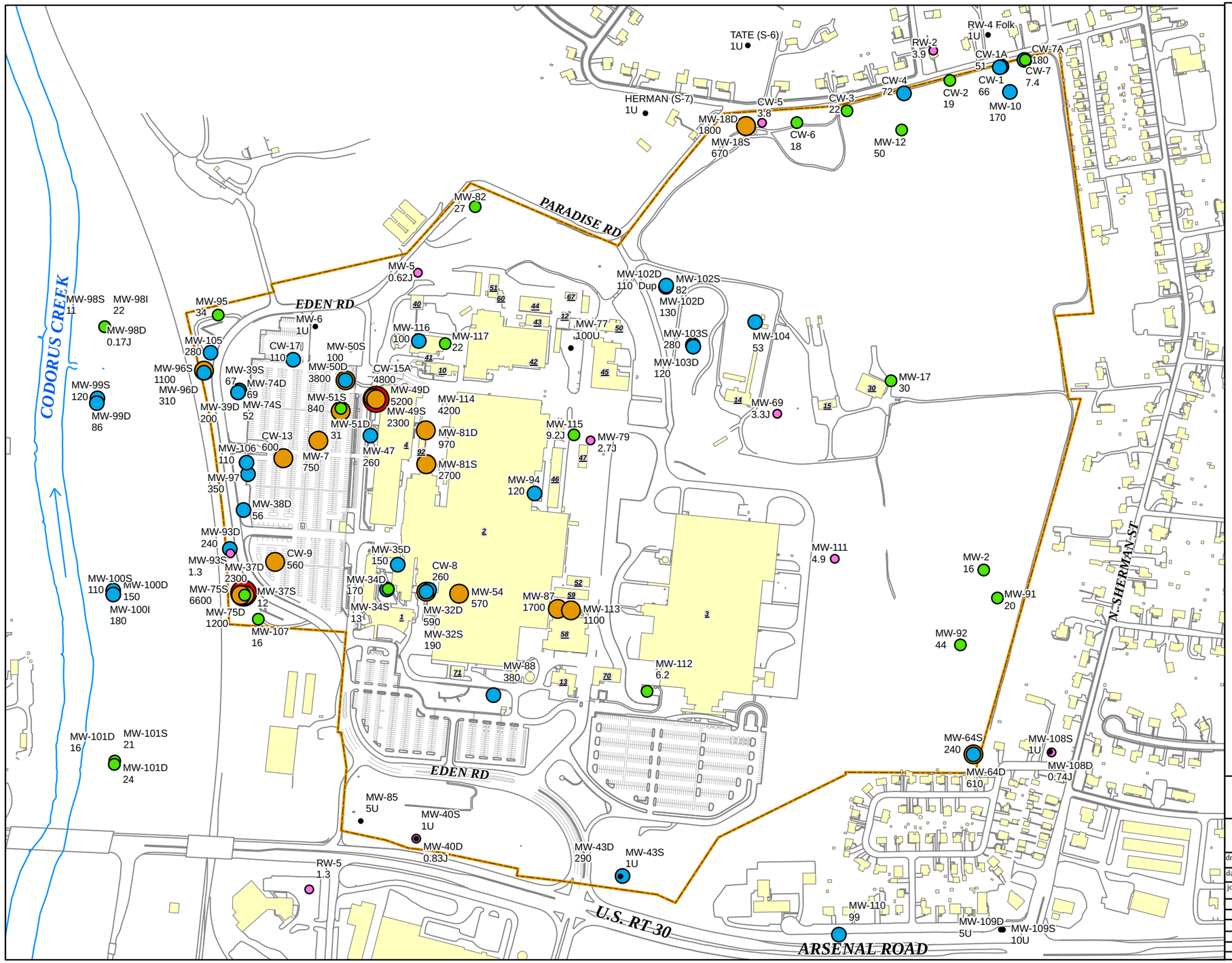
1425 EDEN ROAD, YORK, PA 17402

Key Well Chemistry Map
Total VOCs - June/July 2009

drawn AGM	checked	approved	figure no. 4
date 9/3/09	date	date	
job no. 166345.00.08232.62.6062.00.518		file no.	

initials	date	revision

SAIC From Science to Solutions



N

W E

S

Trichloroethene (TCE) in µg/l

- ND
- < 5.0
- 5.1 - 50.0
- 50.1 - 500.0
- 500.1 - 5000.0
- >5000.1

- Cordorus Creek
- Buildings
- Harley Davidson Property Boundary
- Roads and Curb Boundary (2006)
- Parking (2006)

NOTE:

1. *ND = Not detected above laboratory reporting limit.*
2. *U = Not detected above laboratory reporting limit.*
3. *J = Estimated result. Result is less than reporting limit but greater than the detection limit.*

450 225 0 450 Feet

1 inch = 450 feet

FORMER YORK NAVAL ORDNANCE PLANT

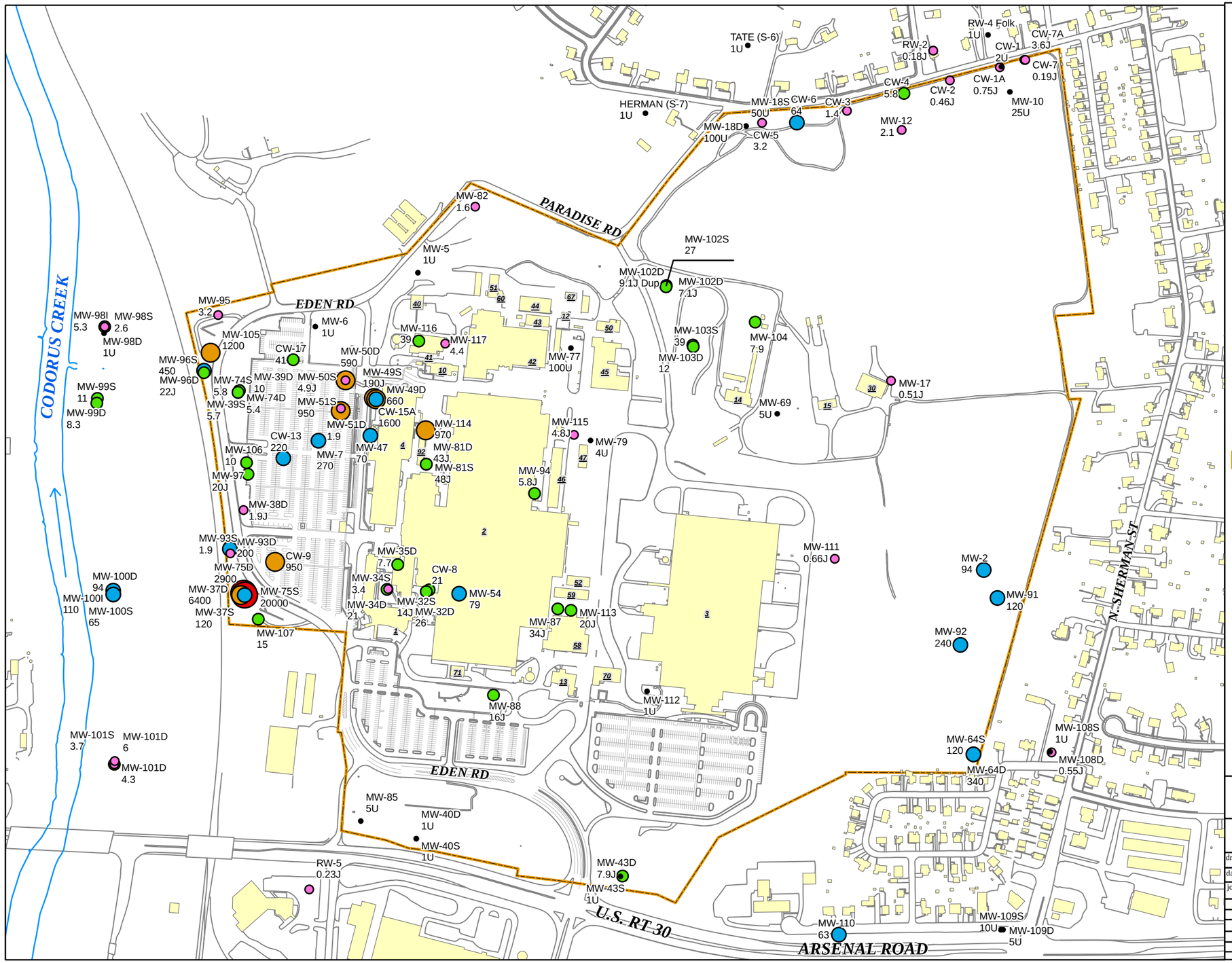
1425 EDEN ROAD, YORK, PA 17402

Key Well Chemistry Map
TCE - June/July 2009

drawn AGM	checked	approved	figure no.
date 9/3/09	date	date	5
job no. 166345.00.08232.62.6062.00.518		file no.	

initials	date	revision

SAIC From Science to Solutions



Tetrachloroethene (PCE) in µg/l

- ND
- < 5.0
- 5.1 - 50.0
- 50.1 - 500.0
- 500.1 - 5000.0
- >5000.1

Cordorus Creek
Buildings
Harley Davidson Property Boundary
Roads and Curb Boundary (2006)
Parking (2006)

NOTE:
1. *ND = Not detected above laboratory reporting limit.*
2. *U = Not detected above laboratory reporting limit.*
3. *J = Estimated result. Result is less than reporting limit but greater than the detection limit.*

450 225 0 450 Feet

1 inch = 450 feet

FORMER YORK NAVAL ORDNANCE PLANT

1425 EDEN ROAD, YORK, PA 17402

Key Well Chemistry Map PCE -June/July 2009

drawn AGM	checked	approved	figure no. 6
date 9/3/09	date	date	
job no. 166345.00.08232.62.6062.00.518	file no. PCE_20090903.mxd		

initials	date	revision

SAIC From Science to Solutions

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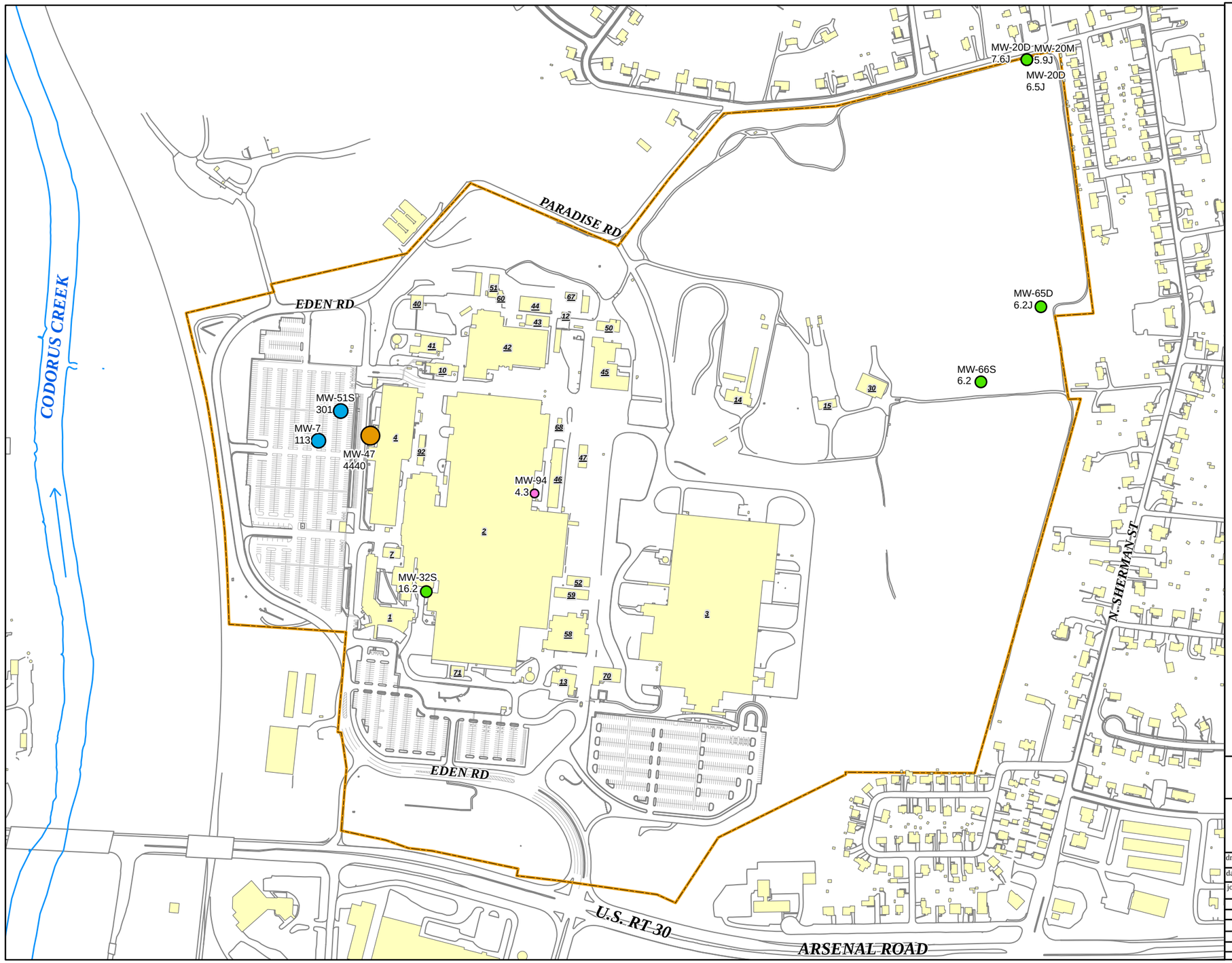

N
W E
S

Total Chromium (Cr+3 and Cr+6, dissolved) in µg/l

- ND

Chromium
VALUE

- < 5.0
- 5.1 - 50.0
- 50.1 - 500.0
- 500.1 - 5000.0
- >5000.1

- Cordorus Creek
- Buildings
- Harley Davidson Property Boundary
- Roads and Curb Boundary (2006)
- Parking (2006)

NOTE:
1. *ND = Not detected above laboratory reporting limit.*
2. *U = Not detected above laboratory reporting limit.*
3. *B = Estimated result. Result is less than reporting limit but greater than the detection limit.*

450 225 0 450 Feet

1 inch = 450 feet

FORMER YORK NAVAL ORDNANCE PLANT

1425 EDEN ROAD, YORK, PA 17402

Key Well Chemistry Map
Total Chromium (Cr^{+3} and Cr^{+6}, Dissolved Phase) June/July 2009

drawn AGM	checked	approved	figure no.
date 9/3/09	date	date	7
job no. 166345.00.08232.62.6062.00.518		file no. TotCh_20090903.mxd	

initials	date	revision

SAIC From Science to Solutions

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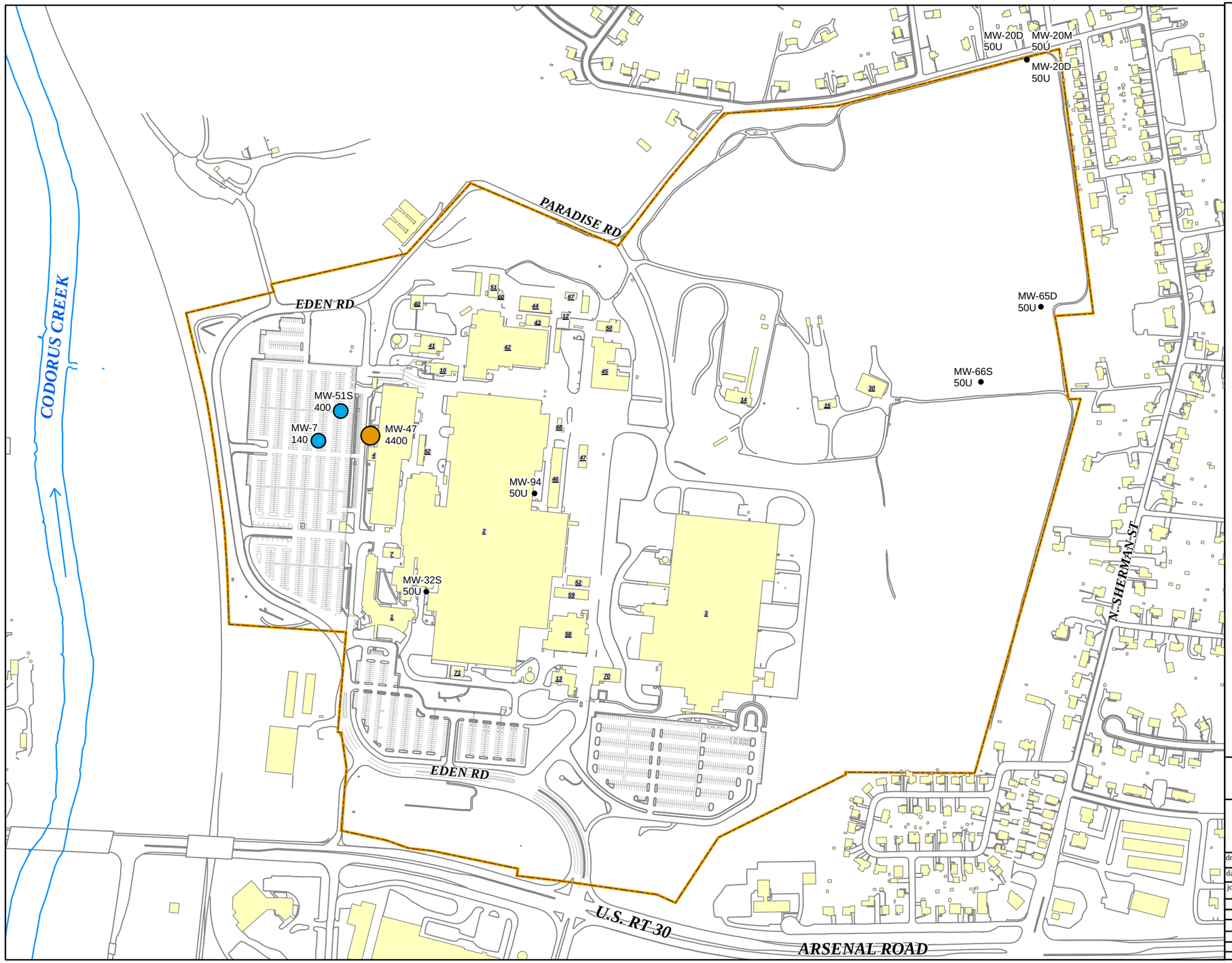

N

W E

S

Dissolved Hexavalent Chromium (Cr+6) in µg/l

- ND
- < 5.0
- 5.1 - 50.0
- 50.1 - 500.0
- 500.1 - 5000.0
- >5000.1

- Cordorus Creek
- Buildings
- Harley Davidson Property Boundary
- Roads and Curb Boundary (2006)
- Parking (2006)

NOTE:

1. *ND = Not detected above laboratory reporting limit.*
2. *U = Not detected above laboratory reporting limit.*
3. *B = Estimated result. Result is less than reporting limit but greater than the detection limit.*

450 225 0 450 Feet

1 inch = 450 feet

FORMER YORK NAVAL ORDNANCE PLANT

1425 EDEN ROAD, YORK, PA 17402

Key Well Chemistry Map
Dissolved Hexavalent Chromium
(Cr+6) in µg/l June/July 2009

drawn AGM	checked	approved	figure no.
date 9/3/09	date	date	8
job no. 166345.00.08232.62.6062.00.518		file no. Hex_20090903.mxd	

initials	date	revision

SAIC From Science to Solutions

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Figure 9
TCE in NPBA Key Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

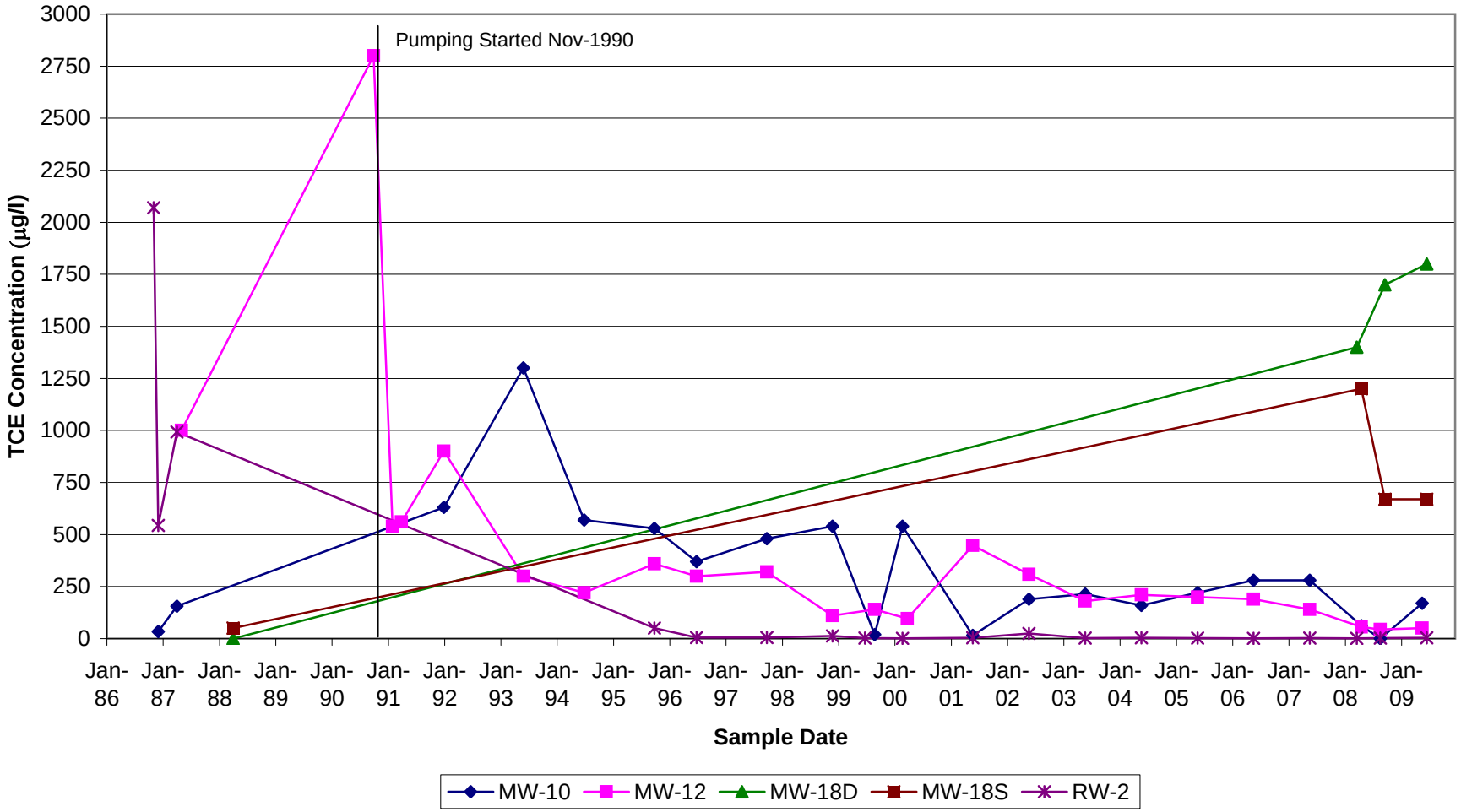


Figure 10
TCE in TCA Area Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

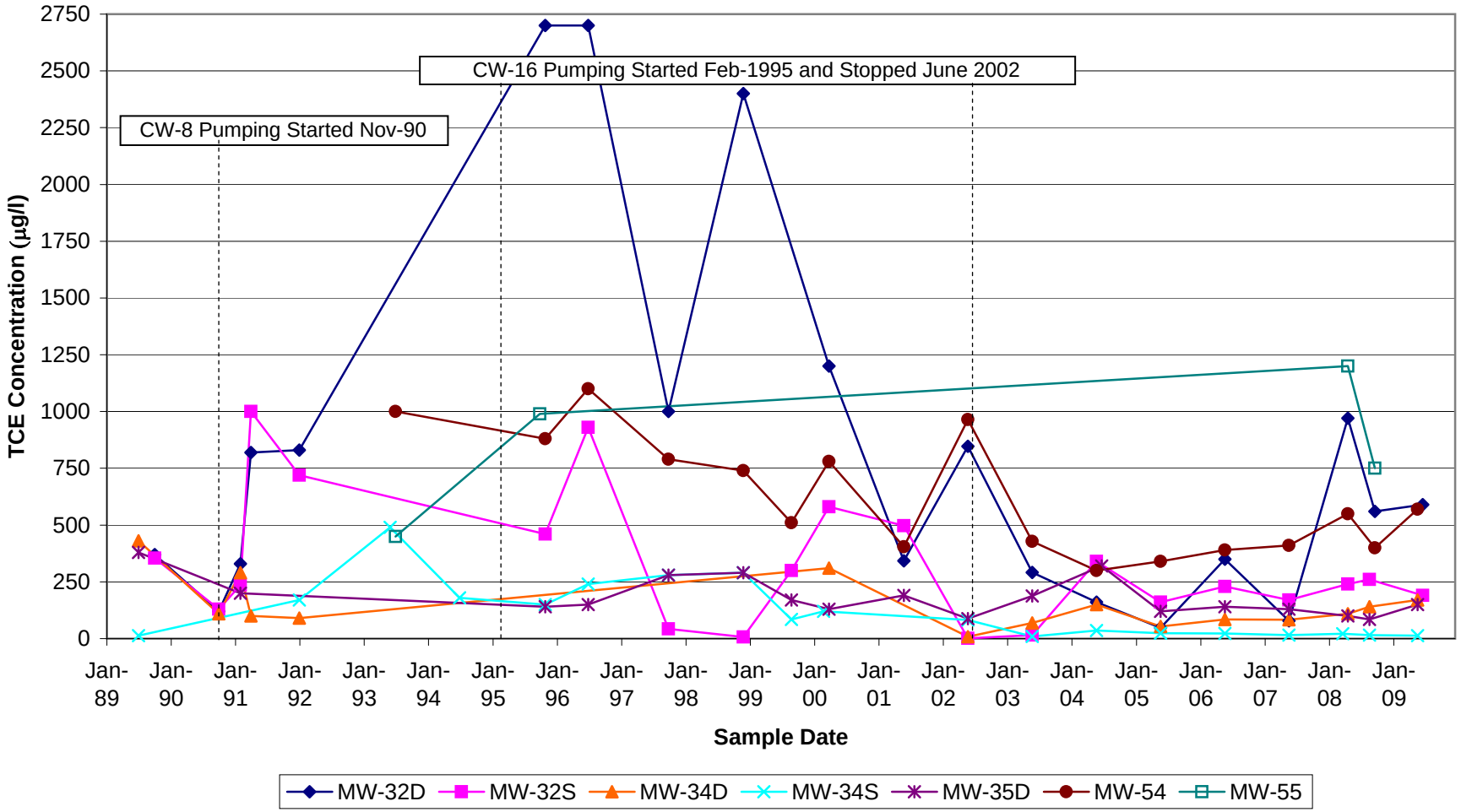


Figure 11A
TCE in Northern WPL Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

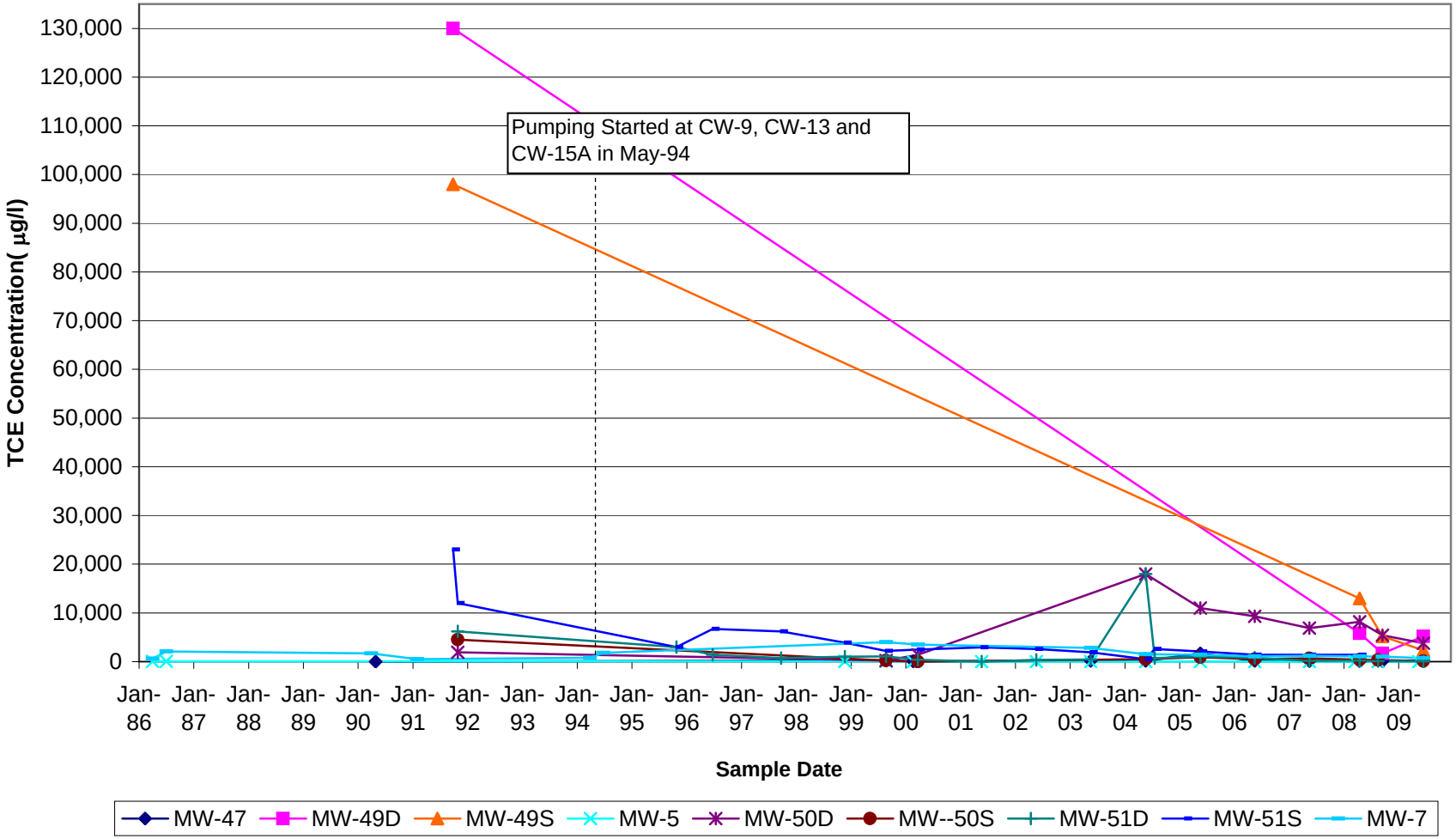


Figure 11B
TCE in Northern WPL Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

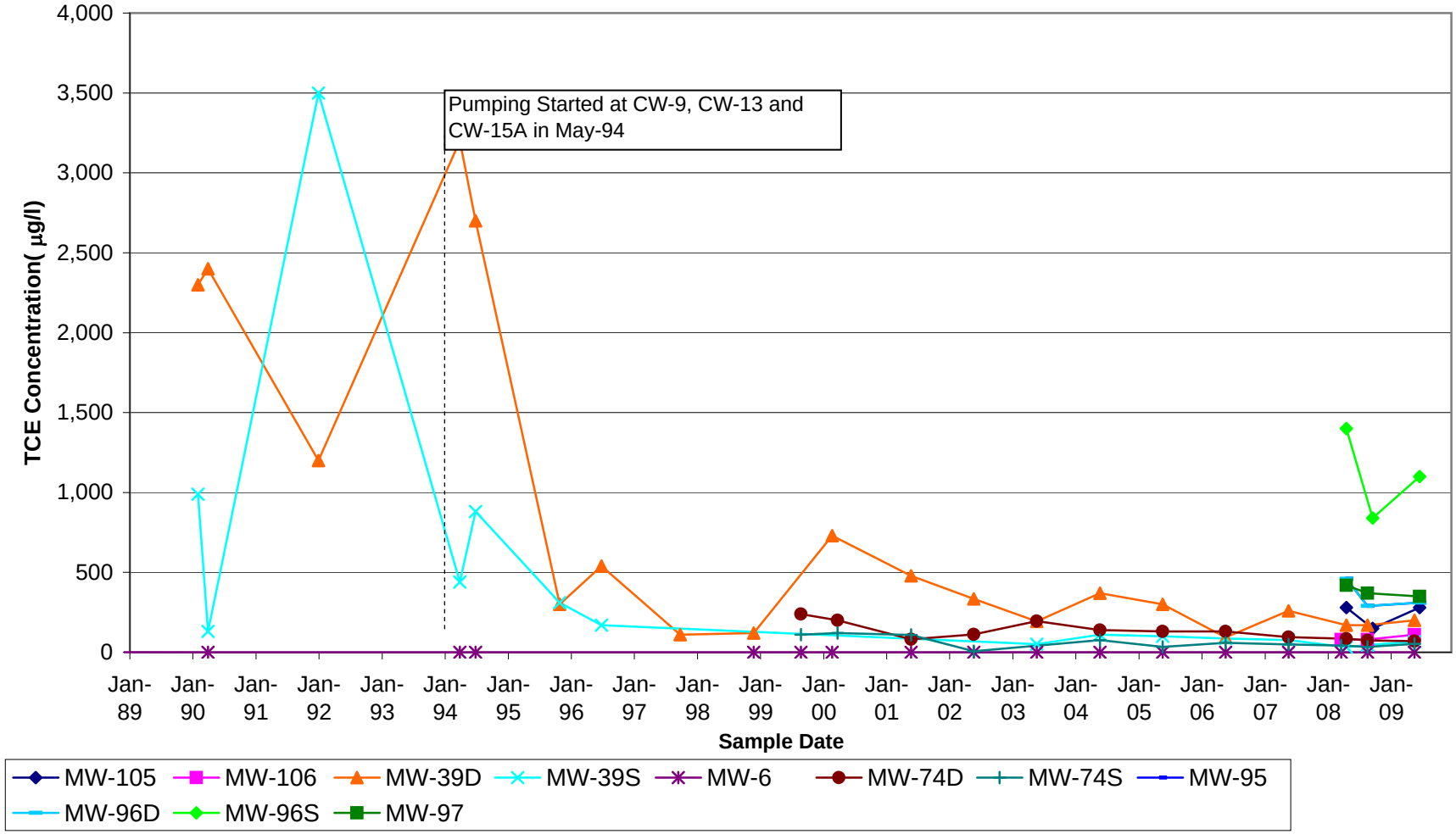


Figure 12
TCE in Southern WPL Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

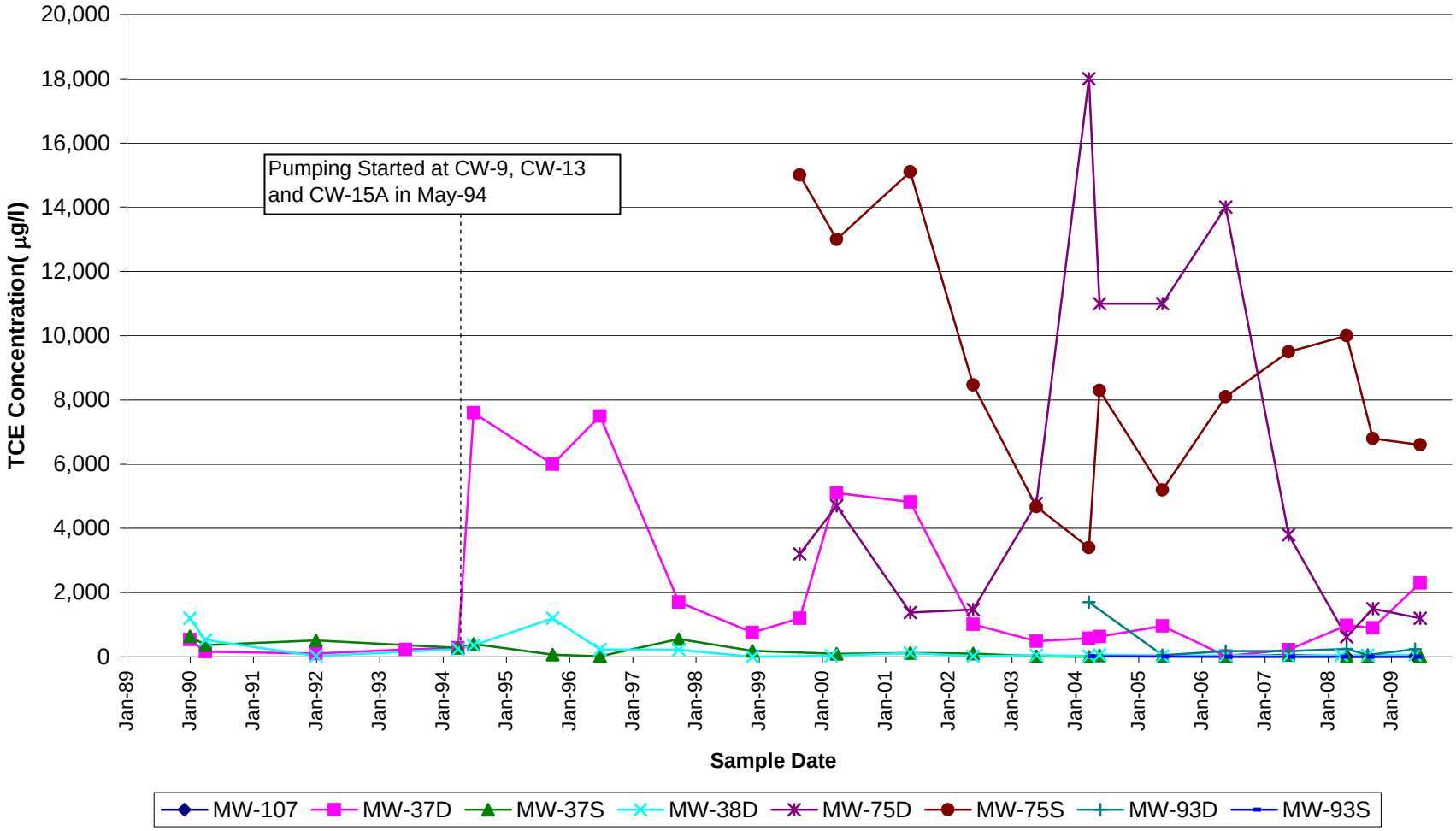


Figure 13
PCE in Southern WPL Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

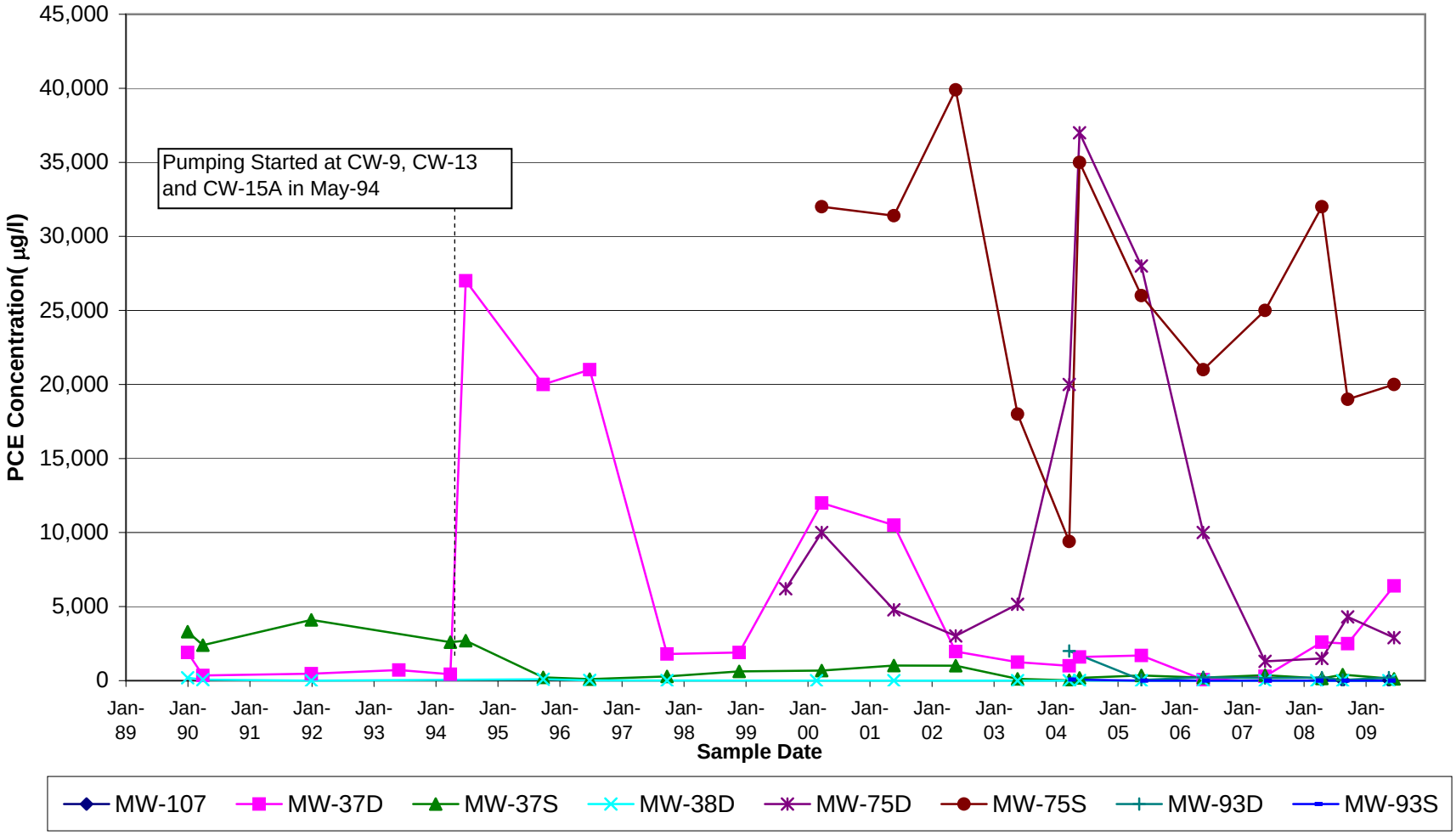


Figure 14
TCE in SPBA Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

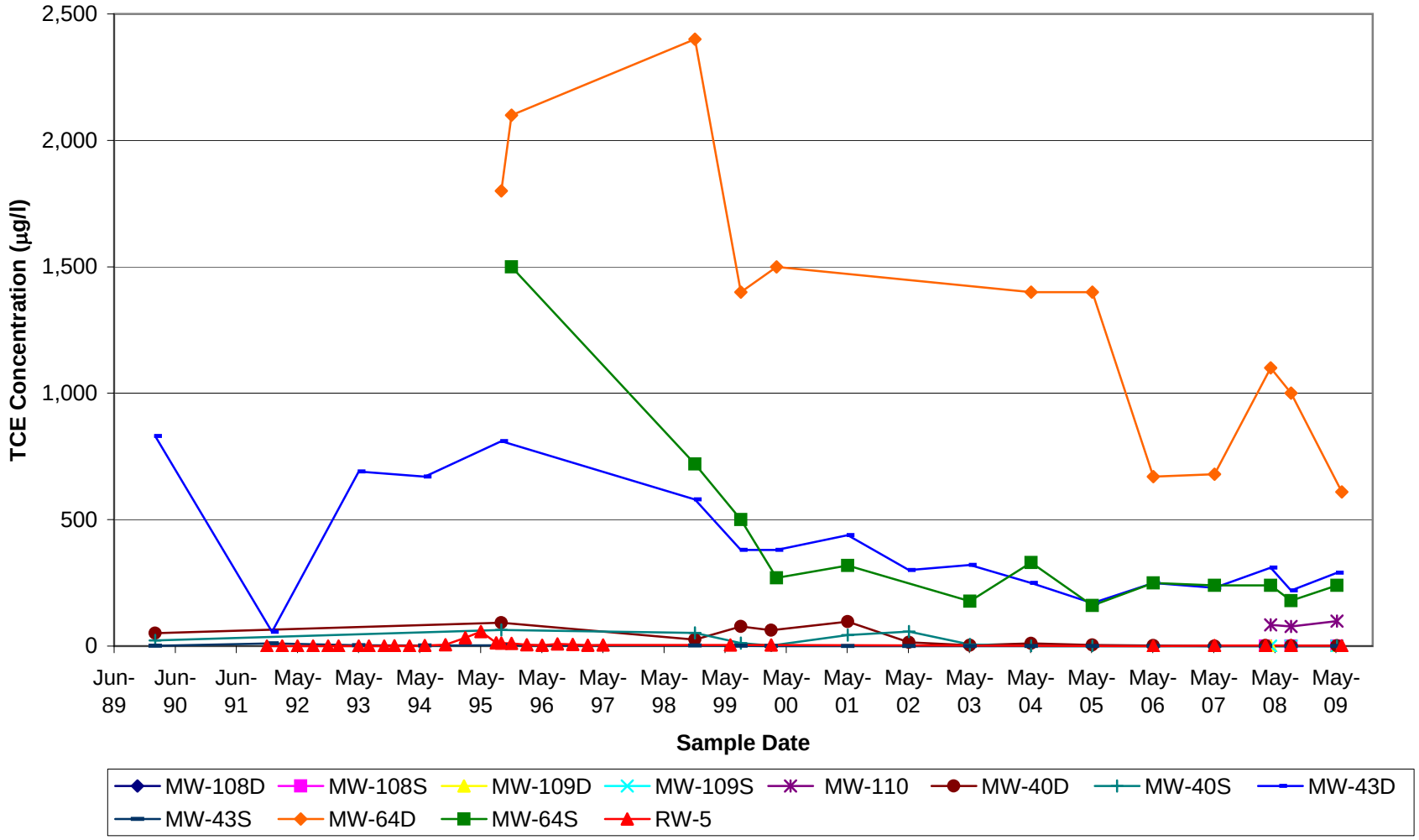


Figure 15
TCE in Eastern Area Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

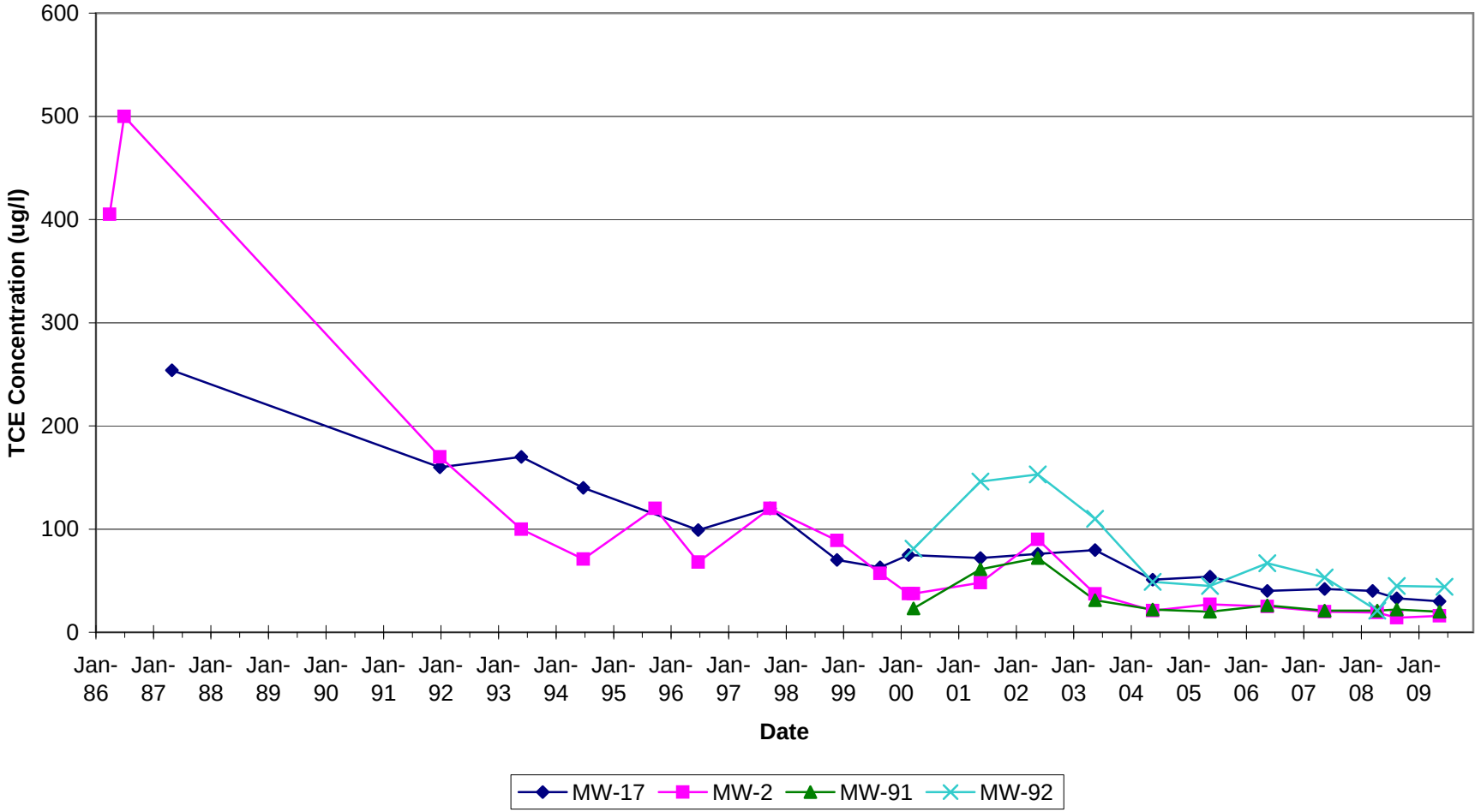
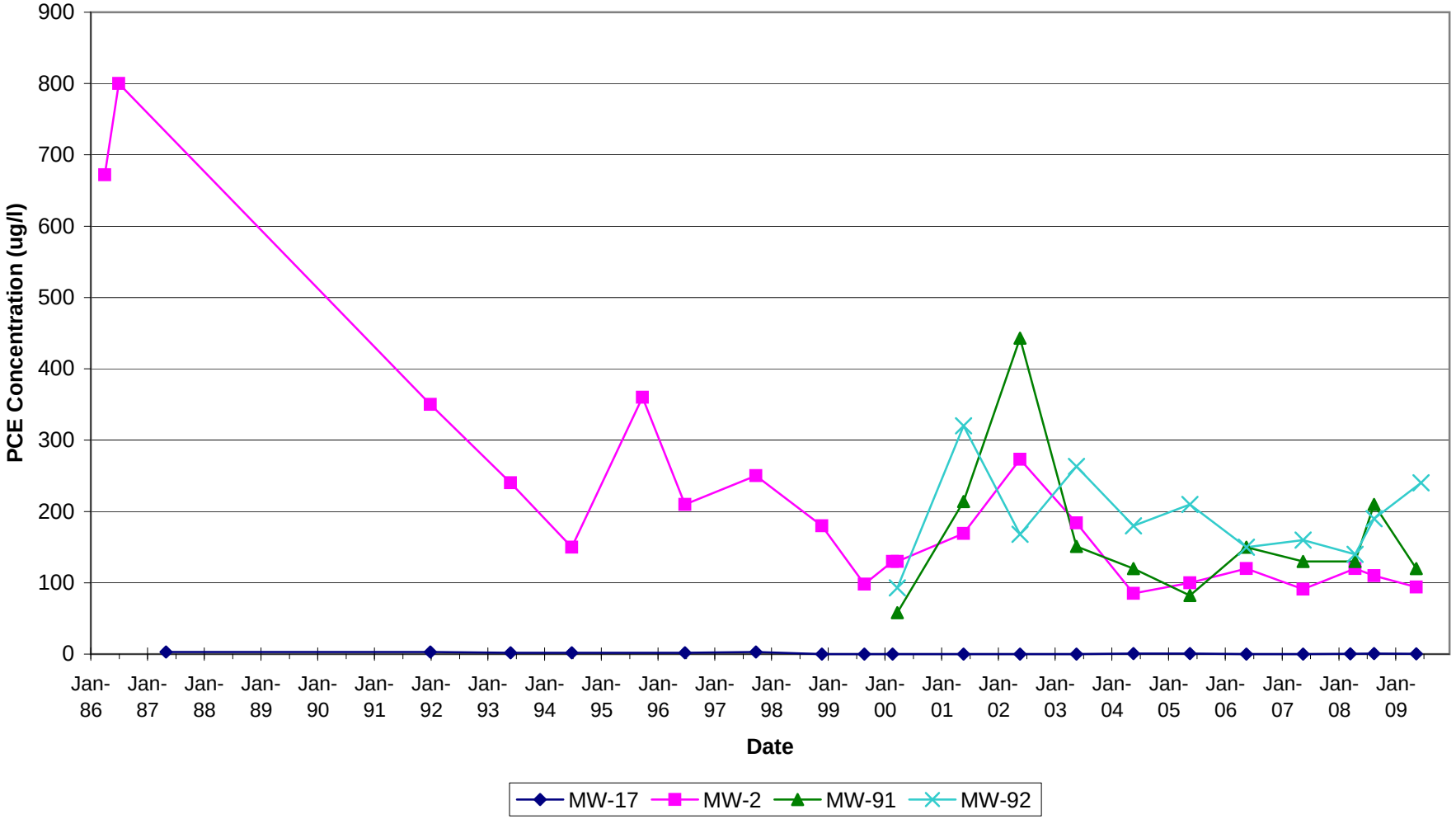


Figure 16
PCE in Eastern Area Monitoring Wells
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402



TABLES

TABLE 1
SUMMARY OF MONITORING POINTS SAMPLED IN 2009
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

Well ID	Area*	Aquifer	Rationale	Notes
RW-2	Off-site/NPBA	Unknown	Off-site residential trend for VOC	Key well
RW-4 Folk	Off-site/NPBA	Unknown	Off-site residential trend for VOC	Key well added in 2009
RW-5	Off-site	Unknown	Off-site residential trend for VOC	Key well added in 2006
S-6	Off-site/NPBA	Spring	Off-site trend for VOC	Added in 2009
S-7	Off-site/NPBA	Spring	Off-site trend for VOC	Added in 2009
MW-2	CN	Deep Bedrock	Monitor CN area	Key well
MW-5	WPL	Deep Bedrock	Upgradient of WPL	Key well
MW-6	WPL	Shallow Bedrock	VOC trend for WPL	Key well
MW-7	WPL	Shallow Bedrock	Monitor GW downgradient of potential Cr source	Key well added in 2003
MW-10	NPBA	Deep Bedrock	VOC trend for NPBA	Key well
MW-12	NPBA	Deep Bedrock	VOC trend for NPBA	Key well
MW-16S	NPBA	Shallow Bedrock	Select metals trend for NPBA	Key well added in 2009
MW-17	Bunkers/ELF	Shallow Bedrock	Monitor GW downgradient of landfill	Key well
MW-18D	NPBA	Deep Bedrock	VOC trend for NPBA	Key well added in 2009
MW-18S	NPBA	Shallow Bedrock	VOC trend for NPBA	Key well added in 2009
MW-20D	NPBA	Deep Bedrock	Metals trend for NPBA	Key well added in 2009
MW-20M	NPBA	Shallow Bedrock	Metals trend for NPBA	Key well added in 2009
MW-32D	TCA	Deep Bedrock	VOC trend for CW-8	Key well
MW-32S	TCA	Deep Bedrock	VOC trend for CW-8	Key well
MW-34D	TCA	Deep Bedrock	VOC trend for CW-8	Key well
MW-34S	TCA	Deep Bedrock	VOC trend for CW-8	Key well
MW-35D	TCA	Deep Bedrock	VOC trend for CW-8	Key well
MW-37D	WPL	Deep Bedrock	Monitor GW downgradient of WPL	Key well
MW-37S	WPL	Shallow Bedrock	Monitor GW downgradient of WPL	Key well
MW-38D	WPL	Deep Bedrock	Monitor GW downgradient of WPL	Key well
MW-39D	WPL	Deep Bedrock	Monitor GW downgradient of WPL	Key well
MW-39S	WPL	Shallow Bedrock	Monitor GW downgradient of WPL	Key well
MW-40D	SPBA	Deep Bedrock	Monitor GW along SPBA	Key well
MW-40S	SPBA	Shallow Bedrock	Monitor GW along SPBA	Key well
MW-43D	SPBA	Deep Bedrock	Monitor GW along SPBA	Key well
MW-43S	SPBA	Overburden	Monitor GW along SPBA	Key well
MW-47	WPL	Overburden	Monitor GW downgradient of potential Cr source	Key well added in 2003
MW-49D	WPL	Deep Bedrock	VOC trend for CW-15A	Key well added in 2009
MW-49S	WPL	Deep Bedrock	VOC and select metals trends for CW-15A	Key well added in 2009
MW-50D	WPL	Deep Bedrock	VOC trend for CW-15A	Key well added in 2004
MW-50S	WPL	Deep Bedrock	VOC trend for CW-15A	Key well added in 2004
MW-51D	WPL	Deep Bedrock	VOC trend for CW-15A	Key well
MW-51S	WPL	Shallow Bedrock	VOC trend for CW-15A	Key well
MW-52	MCB	Overburden	Lead trend for MCB area	Key well added in 2009
MW-54	TCA	Shallow Bedrock	VOC trend for CW-16/CW-8	Key well
MW-55	TCA	Shallow Bedrock	Lead trend for CW-16/CW-8	Key well added in 2009
MW-64D	SPBA	Shallow Bedrock	VOC trend for SPBA	Key well
MW-64S	SPBA	Overburden	VOC trend for SPBA	Key well
MW-66S	ELF	Shallow Bedrock	Select metals trend for ELF area	Key well added in 2009
MW-69	Bunkers	Deep Bedrock	Monitor GW downgradient of bunkers	Key well added in 2001
MW-74D	WPL	Deep Bedrock	Downgradient WPL	Key well added in 2001
MW-74S	WPL	Deep Bedrock	Downgradient WPL	Key well added in 2001
MW-75D	WPL	Deep Bedrock	SW Corner issue/Boundary	Key well added in 2001
MW-75S	WPL	Deep Bedrock	SW Corner issue/Boundary	Key well added in 2001
MW-77	UST-T4	Overburden	VOC trend for UST-T4 area	Key well added in 2009
MW-79	Bldg 2 DS	Overburden	Monitor GW downgradient of former Bldg 2 drum storage	Access restored 2005
MW-81D	Paint Shop	Deep Bedrock	Potential source area	Key well added in 2001
MW-81S	Paint Shop	Shallow Bedrock	Potential source area	Key well added in 2001
MW-82	NP	Deep Bedrock	North Corner/Boundary	Key well added in 2001
MW-85	SP	Deep Bedrock	SW Corner/Boundary	Key well added in 2001
MW-87	SB2	Overburden	Near potential VOC source	Key well added in 2001
MW-88	SB2	Deep Bedrock	SE corner of Bldg 2	Key well added in 2001
MW-91	EPBA/CN	Deep Bedrock	Monitor CN area	Key well added in 2001
MW-92	EPBA/CN	Deep Bedrock	Monitor CN area	Key well added in 2001
MW-93S	WPL	Shallow Bedrock	SW Corner issue/Boundary	Key well added in 2005
MW-93D	WPL	Deep Bedrock	SW Corner issue/Boundary	Key well added in 2005
MW-94	B2 FCOTA	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-95	WPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-96D	WPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-96S	WPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-97	WPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-98D	WWPL	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-98I	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-98S	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009

TABLE 1
SUMMARY OF MONITORING POINTS SAMPLED IN 2009
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

Well ID	Area*	Aquifer	Rationale	Notes
MW-99D	WWPL	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-99S	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-100D	WWPL	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-100I	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-100S	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-101D	WWPL	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-101S	WWPL	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-102D	NETT	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-102S	NETT	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-103D	NETT	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-103S	NETT	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-104	NETT	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-105	WPL	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-106	WPL	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-107	WPL	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-108D	Off-site	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-108S	Off-site	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-109D	Off-site	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-109S	Off-site	Overburden	New Supplemental RI well - build database for trend	Key well added in 2009
MW-110	Off-site	Shallow Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-111	Softail	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-112	Softail	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-113	SB2	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-114	Paint Shop	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-115	Bldg 2 DS	Deep Bedrock	New Supplemental RI well - build database for trend	Key well added in 2009
MW-116	Bldg 41	Overburden	New well - build database for trend	Key well added in 2009
MW-117	Bldg 41	Overburden	New well - build database for trend	Key well added in 2009
Spring at Bldg 14 S-1	Bunkers	Spring	Select metals trend bunker	Added in 2009
Spring at Bldg 14 S-2	Bunkers	Spring	Lead trend for Firing Range	Added in 2009

*** Area Legend**

B2S = Bldg. 2, South
Bldg 2 DS = Bldg. 2, Drum Storage
B2 FCOTA = Bldg 2 Former Cutting Oil Tank Area
CN = Cyanide Spill area
ELF = Eastern Landfill
EPBA = Eastern Property Boundary Area
MCB = Metal Chip Bin Area
NETT = North End of the Test Track
NP = North Plant
NPBA = North Property Boundary Area
SB2 = South Bldg. 2
SP = South Plant/Perimeter
SPBA = South Property Boundary Area
UST = UST - T4 Area
WPL = West Parking Lot
WWPL = West of the West Parking Lot

TABLE 2

SITE-WIDE GROUNDWATER LEVELS AND ELEVATION DATA

FORMER YORK NAVAL ORDNANCE PLANT

1425 Eden Road, York PA 17402

Monitoring Location	Date	Time	Reference Elevation (ft. AMSL)	Depth (ft.)	Water Level (ft. AMSL)
CODORUS 1	6/4/2009	7:20	379.69	39.07	340.62
CODORUS 2	6/4/2009	6:55	341.63	1.81	340.1
Cole B	6/4/2009	7:41	363.75	12.22	351.53
Cole D	6/4/2009	7:54	370.15	11.09	359.06
Cole E deep	6/4/2009	7:52	369.17	15.07	354.1
Cole E shallow	6/4/2009	7:51	369.54	15.04	354.5
Cole F	6/4/2009	7:49	370.39	16.43	353.96
Flush - Cole	6/4/2009	7:37	361.92	10.49	351.43
MW-4 (Cole)	6/4/2009	7:45	367.21	15.21	352
CW-1*	6/5/2009	8:11	570.07	77.81	492.26
CW-1A*	6/5/2009	8:08	568.28	61.36	506.92
CW-2*	6/5/2009	7:53	556.95	78.43	478.52
CW-3*	6/5/2009	7:37	518.66	80.45	438.21
CW-4*	6/5/2009	7:50	541.55	74.38	467.17
CW-5*	6/5/2009	7:28	470.34	22.78	447.56
CW-6*	6/5/2009	7:32	484.67	69.39	415.28
CW-7*	6/5/2009	8:14	573.78	83.31	490.47
CW-7A*	6/5/2009	8:15	573.91	47.84	526.07
CW-8*	6/4/2009	13:08	362.7	18.13	344.57
CW-9*	6/4/2009	8:25	356.82	24	332.82
CW-13*	6/4/2009	9:10	358.85	34.51	324.34
CW-14	6/4/2009	9:33	358.92	25.32	333.6
CW-15	6/4/2009	12:23	361.48	17.88	343.6
CW-15A*	6/4/2009	12:26	361.4	20.91	340.49
CW-16	6/4/2009	16:04	364.6	20	344.6
CW-17*	6/4/2009	9:25	358.7	25.24	333.46
CW-18	6/4/2009	13:45	364.72	18.18	346.54
CW-19	6/4/2009	14:40	384.94	D	D
CW-20	6/4/2009	8:07	361.49	21.93	339.56
Kinsley Well	6/4/2009	10:11	465.83	71.36	394.47
MW-1	6/4/2009	10:50	380.73	35.01	345.72
MW-2	6/5/2009	9:16	508.88	62.21	446.67
MW-3	6/5/2009	8:46	541.1	61.9	479.2
MW-5	6/4/2009	11:45	369.71	22.83	346.88
MW-6	6/4/2009	9:35	359.62	18.2	341.42
MW-7	6/4/2009	8:52	359.48	25.89	333.59
MW-8	6/4/2009	8:32	358.09	18.81	339.28
MW-9	6/5/2009	7:56	558.78	47.51	511.27
MW-10	6/5/2009	8:04	567.8	51.15	516.65
MW-11	6/5/2009	7:58	563.08	23.95	539.13
MW-12	6/5/2009	7:45	535.93	37.4	498.53
MW-14	6/5/2009	8:56	519.54	29.77	489.77
MW-15	6/5/2009	9:12	524.09	60.85	463.24
MW-16D	6/5/2009	7:35	516.51	6.34	510.17
MW-16S	6/5/2009	7:35	516.6	36.16	480.44

Note:

A= Location was artesian.
D= Location was dry.
*= Active extraction well.
DDC= Gauged on different date due to inaccessibility.
OG= Water was over the gauge.

TABLE 2

SITE-WIDE GROUNDWATER LEVELS AND ELEVATION DATA

FORMER YORK NAVAL ORDNANCE PLANT

1425 Eden Road, York PA 17402

Monitoring Location	Date	Time	Reference Elevation (ft. AMSL)	Depth (ft.)	Water Level (ft. AMSL)
MW-17	6/5/2009	9:48	456.86	11.52	445.34
MW-18D	6/5/2009	7:23	464.19	15.58	448.61
MW-18S	6/5/2009	7:24	464.12	15.03	449.09
MW-19	6/5/2009	7:15	427.36	20.85	406.51
MW-20D	6/5/2009	8:17	573.85	42.51	531.34
MW-20M	6/5/2009	8:18	574.19	42.31	531.88
MW-20S	6/5/2009	8:20	574.05	42.22	531.83
MW-22	6/5/2009	9:58	447.57	56.64	390.93
MW-26	6/4/2009	14:46	376.46	20.17	356.29
MW-27	6/4/2009	12:19	361.29	16.06	345.23
MW-28	6/4/2009	13:02	362.91	18.28	344.63
MW-29	6/4/2009	6:20	364.77	11.12	353.65
MW-30	6/4/2009	12:16	362.26	14.33	347.93
MW-31D	6/4/2009	11:50	369.3	16.32	352.98
MW-31S	6/4/2009	11:49	369.28	16.19	353.09
MW-32D	6/4/2009	13:04	362.57	18.15	344.42
MW-32S	6/4/2009	13:05	362.44	17.8	344.64
MW-33	6/4/2009	13:22	363.94	19.24	344.7
MW-34D	6/4/2009	13:13	361	16.67	344.33
MW-34S	6/4/2009	13:12	361	16.96	344.04
MW-35D	6/4/2009	13:19	360.6	16.31	344.29
MW-35S	6/4/2009	13:17	360.49	16.34	344.15
MW-36D	6/4/2009	11:52	370.96	24.22	346.74
MW-36S	6/4/2009	11:53	370.95	23.91	347.04
MW-37D	6/4/2009	8:11	359.11	19.65	339.46
MW-37S	6/4/2009	8:12	359.13	17.58	341.55
MW-38D	6/4/2009	9:17	358.62	19.85	338.77
MW-39D	6/4/2009	9:40	360.21	22.19	338.02
MW-39S	6/4/2009	9:41	360.14	21.86	338.28
MW-40D	6/4/2009	10:37	374.65	25.08	349.57
MW-40S	6/4/2009	10:37	374.69	22.26	352.43
MW-43D	6/4/2009	11:09	380.08	31.41	348.67
MW-43S	6/4/2009	11:10	379.76	30.99	348.77
MW-45	6/4/2009	12:32	359.91	16.18	343.73
MW-46	6/4/2009	12:34	359.19	15.45	343.74
MW-47	6/4/2009	12:30	360.57	19.8	340.77
MW-49D	6/4/2009	12:28	361.44	17.09	344.35
MW-49S	6/4/2009	12:29	361.45	17.26	344.19
MW-50D	6/4/2009	8:59	360.41	21.23	339.18
MW-50S	6/4/2009	9:00	360.4	19.81	340.59
MW-51D	6/4/2009	9:06	360.43	14.27	346.16
MW-51S	6/4/2009	9:08	360.19	24.49	335.7
MW-52	6/4/2009	4:19	367.39	7.7	359.69
MW-53	6/4/2009	14:53	367.15	8.66	358.49
MW-54	6/4/2009	12:45	365.26	20.7	344.56

Note:

A= Location was artesian.
D= Location was dry.
*= Active extraction well.
DDC= Gauged on different date due to inaccessibility.
OG= Water was over the gauge.

TABLE 2

SITE-WIDE GROUNDWATER LEVELS AND ELEVATION DATA

FORMER YORK NAVAL ORDNANCE PLANT

1425 Eden Road, York PA 17402

Monitoring Location	Date	Time	Reference Elevation (ft. AMSL)	Depth (ft.)	Water Level (ft. AMSL)
MW-55	6/4/2009	12:48	365.22	20.8	344.42
MW-56	6/4/2009	14:10	371.83	17.76	354.07
MW-57	6/4/2009	13:34	364.54	18.56	345.98
MW-64D	6/5/2009	10:02	416.43	57.13	359.3
MW-64S	6/5/2009	10:03	416.34	32.1	384.24
MW-65D	6/5/2009	8:36	546.8	46.83	499.97
MW-65S	6/5/2009	8:37	546.82	48.04	498.78
MW-66D	6/5/2009	9:03	506.92	37.49	469.43
MW-66S	6/5/2009	9:04	506.73	36.57	470.16
MW-67D	6/5/2009	9:51	446.26	1.43	444.83
MW-67S	6/5/2009	9:53	446.26	8.89	437.37
MW-68	6/5/2009	9:44	458.06	5.7	452.36
MW-69	6/5/2009	7:00	411.9	6.31	405.59
MW-70D	6/5/2009	7:08	413.26	16.55	396.71
MW-70S	6/5/2009	7:10	413.2	16.61	396.59
MW-74D	6/4/2009	9:42	359.79	19.44	340.35
MW-74S	6/4/2009	9:43	359.85	20.18	339.67
MW-75D	6/4/2009	8:09	359.85	20.32	339.53
MW-75S	6/4/2009	8:10	359.03	19.02	340.01
MW-77	6/4/2009	15:39	379.48	23.38	356.1
MW-78	6/4/2009	15:35	367.08	13.28	353.8
MW-79	6/4/2009	14:13	375.84	20.72	355.12
MW-80	6/4/2009	13:40	370.29	23.72	346.57
MW-81D	6/4/2009	16:23	359.89	15.61	344.28
MW-81S	6/4/2009	16:22	360.12	16.09	344.03
MW-82	6/4/2009	11:22	384.27	37.52	346.75
MW-83	6/4/2009	15:45	363.69	12.56	351.13
MW-84	6/4/2009	15:30	366.97	13.28	353.69
MW-85	6/4/2009	10:45	371.54	26.53	345.01
MW-86D	6/5/2009	6:54	406.56	7.8	398.76
MW-86S	6/5/2009	6:55	406.5	10.13	396.37
MW-87	6/4/2009	13:44	370.64	23.83	346.81
MW-88	6/4/2009	13:27	367.93	22.31	345.62
MW-91	6/5/2009	9:18	501.18	53.69	447.49
MW-92	6/5/2009	10:09	476.87	81.28	395.59
MW-93D	6/4/2009	8:16	360.14	18.65	341.49
MW-93S	6/4/2009	8:14	360.76	18.48	342.28
MW-94	6/4/2009	14:19	365.03	10.45	354.58
MW-95	6/4/2009	9:50	358.72	18.88	339.84
MW-96D	6/4/2009	9:55	361	21.87	339.13
MW-96S	6/4/2009	9:56	361.21	22.17	339.04
MW-97	6/4/2009	9:19	357.39	21.03	336.36
MW-98D	6/4/2009	7:05	361.41	19.96	341.45
MW-98I	6/4/2009	7:07	360.78	20.38	340.4
MW-98S	6/4/2009	7:09	360.77	20.2	340.57

Note:

A= Location was artesian.

D= Location was dry.

*= Active extraction well.

DDC= Gauged on different date due to inaccessibility.

OG= Water was over the gauge.

TABLE 2

SITE-WIDE GROUNDWATER LEVELS AND ELEVATION DATA

FORMER YORK NAVAL ORDNANCE PLANT

1425 Eden Road, York PA 17402

Monitoring Location	Date	Time	Reference Elevation (ft. AMSL)	Depth (ft.)	Water Level (ft. AMSL)
MW-99D	6/4/2009	6:51	359.91	18.53	341.38
MW-99S	6/4/2009	6:53	360.37	19.1	341.27
MW-100D	6/4/2009	6:44	362.14	20.54	341.6
MW-100I	6/4/2009	6:42	361.81	20.33	341.48
MW-100S	6/4/2009	6:40	362.28	20.85	341.43
MW-101D	6/4/2009	6:32	356.22	15.78	340.44
MW-101S	6/4/2009	6:34	356.54	16.12	340.42
MW-102D	6/5/2009	6:38	401.71	5.43	396.28
MW-102S	6/5/2009	6:40	401.95	31.35	370.6
MW-103D	6/5/2009	6:47	397.62	12.89	384.73
MW-103S	6/5/2009	6:49	397.96	11.51	386.45
MW-104	6/5/2009	7:18	428.72	28.19	400.53
MW-105	6/4/2009	9:59	362.05	22.81	339.24
MW-106	6/4/2009	9:15	360.15	24.42	335.73
MW-107	6/4/2009	8:18	363.56	22.14	341.42
MW-108D	6/5/2009	10:26	426.35	17.2	409.15
MW-108S	6/5/2009	10:25	425.46	23.98	401.48
MW-109D	6/5/2009	10:33	389.12	32.55	356.57
MW-109S	6/5/2009	10:46	388.39	32.82	355.57
MW-110	6/5/2009	10:40	378.36	22.89	355.47
MW-111	6/5/2009	6:27	433.63	16.85	416.78
MW-112	6/4/2009	14:36	393.52	47.19	346.33
MW-113	6/4/2009	13:38	371.02	23.84	347.18
MW-114	6/4/2009	16:19	360.71	16.03	344.68
MW-115	6/4/2009	14:16	373.3	19.1	354.2
MW-116	6/4/2009	12:14	364.59	17.98	346.61
MW-117	6/4/2009	11:57	365.19	12.31	352.88
Ru-MW-1	6/5/2009	10:50	389.69	32.79	356.9
Ru-MW-2	6/5/2009	10:52	391.5	35.39	356.11
Ru-MW-3	6/5/2009	10:54	395.86	39.78	356.08
Ru-MW-4	6/5/2009	11:03	394.17	38.12	356.05
Ru-MW-5	6/5/2009	11:20	378.8	21.79	357.01
Ru-MW-6	6/5/2009	11:15	383.28	27.2	356.08
RW-2	6/5/2009	9:39	548.27	21.21	527.06
RW-5	6/4/2009	10:25	375.54	30.42	345.12
SOFTAIL LIFT STATION	6/5/2009	6:31	392.6	25.04	367.56
WPL-SS-7	6/4/2009	8:40	357.78	21.71	336.07
WPL-SS-8	6/4/2009	9:46	364.4	25.7	338.7

Note:

A= Location was artesian.
D= Location was dry.
*= Active extraction well.
DDC= Gauged on different date due to inaccessibility.
OG= Water was over the gauge.

TABLE 3
HYDRAULIC GRADIENT DATA
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

WELL ID	ELEV. TOC (FT. AMSL.)	SCREENED INTERVAL	MID-POINT SCREENED INTERVAL	MID-POINT ELEV (FT. AMSL.)	DIFFERENCE BETWEEN MID-POINTS	DEPTH TO WATER (FT.)	SWL ELEV (FT. AMSL.	DIFFERENCE BETWEEN SWL ELEV	VERTICAL GRADIENT (FT/FT)
Northeast Property Boundary Area									
MW-16S	516.60	98-110	104.00	412.60	-91.59	36.18	480.42	-29.75	0.325
MW-16D	516.51	190-201	195.50	321.01		6.34	510.17		
MW-18S	464.12	45-65	55.00	409.12	-79.93	15.03	449.09	0.48	-0.006
MW-18D	464.19	130-140	135.00	329.19		15.58	448.61		
MW-20S	574.05	28-61	44.50	529.55	-114.70	42.22	531.83	0.49	-0.004
MW-20D	573.85	153-165	159.00	414.85		42.51	531.34		
Northern - West Parking Lot									
MW-39S	360.14	3-30	16.50	343.64	-59.93	21.86	338.28	0.26	-0.004
MW-39D	360.21	53-100	76.50	283.71		22.19	338.02		
MW-49S	361.45	135-155	145.00	216.45	-23.01	17.26	344.19	-0.16	0.007
MW-49D	361.44	158-178	168.00	193.44		17.09	344.35		
MW-50S	360.40	104-120	112.00	248.40	-51.49	19.81	340.59	1.41	-0.027
MW-50D	360.41	157-170	163.50	196.91		21.23	339.18		
MW-51S	360.19	29-51	40.00	320.19	-63.76	24.49	335.70	-10.46	0.164
MW-51D	360.43	88-120	104.00	256.43		14.27	346.16		
MW-74S	359.85	183-193	188.00	171.85	-49.56	20.18	339.67	-0.68	0.014
MW-74D	359.79	225-250	237.50	122.29		19.44	340.35		
MW-96S	361.21	29-39	34.00	327.21	-48.71	22.17	339.04	-0.09	0.002
MW-96D	361.00	77.5-87.5	82.50	278.50		21.87	339.13		
Southern - West Parking Lot									
MW-37S	359.13	11-33	22.00	337.13	-111.02	17.58	341.55	2.09	-0.019
MW-37D	359.11	125-141	133.00	226.11		19.65	339.46		
MW-75S	359.03	168-173	170.50	188.53	-38.68	19.02	340.01	0.48	-0.012
MW-75D	359.85	205-215	210.00	149.85		20.32	339.53		
MW-93S	360.76	26.2-41.2	33.70	327.06	-106.62	18.48	342.28	0.79	-0.007
MW-93D	360.14	134.7-144.7	139.70	220.44		18.65	341.49		
Southeast Corner - Southern Property Boundary Area									
MW-64S	416.34	35-40	37.50	378.84	-34.91	32.10	384.24	24.94	-0.714
MW-64D	416.43	70-75	72.50	343.93		57.13	359.30		
Landfill Area - Eastern Property Boundary Area									
MW-65S	546.82	75-85	80.00	466.82	-17.32	48.04	498.78	-1.19	0.069
MW-65D	546.80	92.3-102.3	97.30	449.50		46.83	499.97		
MW-66S	506.73	50-60	55.00	451.73	-36.81	36.57	470.16	0.73	-0.020
MW-66D	506.92	84.5-99.5	92.00	414.92		37.49	469.43		
Approximate Spring Line - Near Sandstone Contact									
MW-43S	379.76	19-48	33.50	346.26	-51.68	30.99	348.77	0.09	-0.002
MW-43D	380.08	79-92	85.50	294.58		31.40	348.68		
MW-70S	413.20	18-33	25.50	387.70	-47.44	16.61	396.59	-0.12	0.003
MW-70D	413.26	68-78	73.00	340.26		16.55	396.71		
MW-86S	406.50	12-27	19.50	387.00	-55.44	10.13	396.37	-2.39	0.043
MW-86D	406.56	70-80	75.00	331.56		7.80	398.76		

TABLE 3
HYDRAULIC GRADIENT DATA
Former York Naval Ordnance Plant
1425 Eden Road, York PA 17402

WELL ID	ELEV. TOC (FT. AMSL.)	SCREENED INTERVAL	MID-POINT SCREENED INTERVAL	MID-POINT ELEV (FT. AMSL.)	DIFFERENCE BETWEEN MID-POINTS	DEPTH TO WATER (FT.)	SWL ELEV (FT. AMSL.	DIFFERENCE BETWEEN SWL ELEV	VERTICAL GRADIENT (FT/FT)
West of West Parking Lot - Codorus Creek Levee									
MW-98S	360.77	61-68	64.50	296.27	-37.99	20.20	340.57	0.17	-0.004
MW-98I	360.78	100-105	102.50	258.28	-47.87	20.38	340.40	-1.05	0.022
MW-98D	361.41	131-171	151.00	210.41		19.96	341.45		
MW-99S	360.37	64.3-74.3	69.30	291.07	-68.16	19.10	341.27	-0.11	0.002
MW-99D	359.91	132-142	137.00	222.91		18.53	341.38		
MW-100S	362.28	46-51	48.50	313.78	-15.47	20.85	341.43	-0.05	0.003
MW-100I	361.81	61-66	63.50	298.31	-45.17	20.33	341.48	-0.12	0.003
MW-100D	362.14	104-114	109.00	253.14		20.54	341.60		
MW-101S	356.54	20-40	30.00	326.54	-70.32	16.12	340.42	-0.02	0.000
MW-101D	356.22	85-115	100.00	256.22		15.78	340.44		
North End of the Test Track									
MW-102S	401.95	45-65	55	346.95	-32.24	31.35	370.6	-25.68	0.797
MW-102D	401.71	75-99	87	314.71		5.43	396.28		
MW-103S	397.96	67.5-87.5	77.5	320.46	-34.54	11.51	386.45	1.72	-0.050
MW-103D	397.62	96.7-106.7	111.7	285.92		12.89	384.73		
Off Site Wells - Eastern Property Boundary									
MW-108S	425.46	25.1-55.1	40.1	385.36	-69.81	23.98	401.48	-7.67	0.110
MW-108D	426.35	72-149	110.8	315.55		17.2	409.15		
MW-109S	388.39	45-65	55	333.39	-38.27	32.82	355.57	-1	0.026
MW-109D	389.12	88-100	94	295.12		32.55	356.57		

Notes:
A negative vertical gradient value indicates a downward vertical gradient.
A positive vertical gradient value indicates an upward vertical gradient.
Depth to water data collected on June 4 and 5, 2009.
Top of casing (TOC) elevations re-established in March 2007.

Table 4

2009 Key Well List

Former York Naval Ordnance Plant

1425 Eden Road, York PA 17402

Monitoring Location	2009 Parameters											
	VOC	Metals									Cyanide	1,4-Dioxane
		Arsenic	Berylium	Chromium	Hex Cr	Lead	Nickel	Antimony	Cadmium	Mercury		
CW-1	X											
CW-2	X											
CW-3	X											
CW-4	X											
CW-5	X											
CW-6	X											
CW-7	X											
CW-7A	X											
CW-8	X											
CW-9	X											
CW-13	X											
CW-15A	X											X
CW-17	X					X						
CW-1A	X											
MW-2	X										X	
MW-5	X											
MW-6	X											
MW-7	X			X	X							
MW-10	X											
MW-12	X											
MW-16S		X				X						
MW-17	X											
MW-18D	X					X						
MW-18S	X					X						
MW-20D		X	X	X	X	X	X	X				
MW-20M		X	X	X	X	X	X	X				
MW-32D	X											X
MW-32S	X			X	X							
MW-34D	X											
MW-34S	X											
MW-35D	X											
MW-37D	X											
MW-37S	X											
MW-38D	X											
MW-39D	X											
MW-39S	X											
MW-40D	X											
MW-40S	X					X						
MW-43D	X											
MW-43S	X					X						
MW-47	X			X	X							
MW-49D	X											
MW-49S	X	X				X						X
MW-50D	X											
MW-50S	X					X						
MW-51D	X											
MW-51S	X			X	X						X	
MW-52						X						
MW-54	X											X
MW-55						X					X	
MW-64D	X											
MW-64S	X	X				X						
MW-65D				X	X		X					
MW-66S		X		X	X	X						
MW-69	X											
MW-74D	X											
MW-74S	X											
MW-75D	X											
MW-75S	X											
MW-77	X											
MW-79	X										X	
MW-81D	X											
MW-81S	X											
MW-82	X											
MW-85	X											
MW-87	X					X						X
MW-88	X											
MW-91	X										X	
MW-92	X										X	

Table 4

2009 Key Well List

Former York Naval Ordnance Plant

1425 Eden Road, York PA 17402

Monitoring Location	2009 Parameters											
		Metals										
	VOC	Arsenic	Berylium	Chromium	Hex Cr	Lead	Nickel	Antimony	Cadmium	Mercury	Cyanide	1,4-Dioxane
MW-93D	X											
MW-93S	X											
MW-94	X	X	X	X	X	X	X					
MW-95	X											
MW-96D	X											
MW-96S	X											
MW-97	X											
MW-98D	X										X	
MW-98I	X										X	
MW-98S	X										X	
MW-99D	X											
MW-99S	X											
MW-100D	X											
MW-100I	X											
MW-100S	X											
MW-101D	X											
MW-101S	X											
MW-102D	X											
MW-102S	X											
MW-103D	X											
MW-103S	X											
MW-104	X					X						
MW-105	X											
MW-106	X											
MW-107	X											
MW-108D	X											
MW-108S	X	X	X			X	X		X			
MW-109D	X											
MW-109S	X											
MW-110	X											
MW-111	X										X	
MW-112	X											
MW-113	X	X				X				X		
MW-114	X											
MW-115	X	X				X						
MW-116	X											X
MW-117	X										X	X
RW-2	X											
RW-4 FOLK	X					X					X	
RW-5	X											
S-6	X										X	
S-7	X										X	
Spring at Bldg 14 S1						X		X				
Spring at Bldg 14 S2						X						
Totals: 113	104	10	4	9	9	23	5	3	1	1	14	7

Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	CW-1 6/15/2009	CW-1A 6/15/2009	CW-2 6/15/2009	CW-3 6/15/2009	CW-4 6/15/2009	CW-5 6/15/2009	CW-6 6/16/2009	CW-7 6/16/2009	CW-7A 6/16/2009	CW-8 6/16/2009	CW-9 6/15/2009	CW-13 6/15/2009	CW-15A 6/15/2009	CW-17 6/15/2009
1,4-Dioxane																		
1,4-Dioxane	5.6	24		6.1													99	
Cyanide, Free																		
Cyanide, Free	200	200	200	730														
Cyanide, Total																		
Cyanide, Total	200	200		730														
METAL																		
Antimony	6	6	6	15														
Arsenic	10	10	10	0.045														
Beryllium	4	4	4	73														
Cadmium	5	5	5	18														
Chromium	100	100	100															
Hexavalent Chromium	100	100		110														
Lead	5	5	15															1.1
Mercury	2	2	2	0.57														
Nickel	100	100		730														
METAL (Dissolved)																		
Antimony	6	6	6	15														
Arsenic	10	10	10	0.045														
Beryllium	4	4	4	73														
Cadmium	5	5	5	18														
Chromium	100	100	100															
Hexavalent Chromium	100	100		110														
Lead	5	5	15															0.58 B
Mercury	2	2	2	0.57														
Nickel	100	100		730														
TOTAL VOC																		
					78	52.58	23.26	50.4	105.8	10.82	112.72	8.55	189.1	402.3	1703.9	1370.8	19910	220
VOC																		
1,1,1,2-Tetrachloroethane	70	70		0.52	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,1,1-Trichloroethane	200	200	200	9100	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	11	66	14 J	6300	11
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,1,2-Trichloroethane	5	5	5	0.24	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,1-Dichloroethane	27	110		2.4	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	2.9 J	6.9 J	25 U	110 J	3.2 J
1,1-Dichloroethene	7	7	7	340	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	7.9 J	16 J	12 J	1500	10 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,2-Dichloroethane	5	5	5	0.15	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,2-Dichloropropane	5	5	5	0.39	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
1,4-Dioxane	5.6	24		6.1	400 U	400 U	200 U	200 U	600 U	200 U	400 U	200 U	2000 U	2000 U	5000 U	5000 U	50000 U	2000 U
2-Butanone	4000	4000		7100	20 U	20 U	10 U	10 U	30 U	10 U	20 U	10 U	100 U	100 U	250 U	250 U	2500 U	100 U
2-Hexanone					20 U	20 U	10 U	10 U	30 U	10 U	20 U	10 U	100 U	100 U	250 U	250 U	2500 U	100 U
4-Methyl-2-Pentanone	190	410		2000	20 U	20 U	10 U	10 U	30 U	10 U	20 U	10 U	100 U	100 U	250 U	250 U	2500 U	100 U
Acetone	3700	10000		22000	20 U	20 U	10 U	10 U	30 U	10 U	20 U	10 U	100 U	100 U	250 U	250 U	2500 U	100 U
Acrylonitrile	0.63	2.7		0.045	40 U	40 U	20 U	20 U	60 U	20 U	40 U	20 U	200 U	200 U	500 U	500 U	5000 U	200 U
Benzene	5	5	5	0.41	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Bromochloromethane	90	90			2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Bromodichloromethane	100	100		0.12	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Bromoform	80	80		8.5	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Bromomethane	10	10		8.7	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Carbon Disulfide	1900	4100		1000	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Carbon Tetrachloride	5	5	5	0.2	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Chlorobenzene	100	100	100	91	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Chlorodibromomethane	80	80		0.15	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Chloroethane	230	900		21000	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Chloroform	80	80		0.19	2 U	2 U	1 U	1 U	3 U	0.22 J	2 U	0.67 J	10 U	10 U	25 U	25 U	250 U	10 U
Chloromethane	30	30		190	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U

Note
Blank results indicate analyte was not analyzed for.
U= Not detected.
J= Organics; estimated. Inorganics; blank contamination.
B= Organics; blank contamination. Inorganics; estimated.
E= Inorganics: matrix interference.

Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	CW-1 6/15/2009	CW-1A 6/15/2009	CW-2 6/15/2009	CW-3 6/15/2009	CW-4 6/15/2009	CW-5 6/15/2009	CW-6 6/16/2009	CW-7 6/16/2009	CW-7A 6/16/2009	CW-8 6/16/2009	CW-9 6/15/2009	CW-13 6/15/2009	CW-15A 6/15/2009	CW-17 6/15/2009
cis-1,2-Dichloroethene	70	70	70	370	12	0.83 J	3.8	27	28	3.6	30	0.29 J	10 U	95	94	500	5600	51
cis-1,3-Dichloropropene	6.6	26		0.43	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Ethylbenzene	700	700	700	1.5	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Methyl tert-butyl ether	20	20		12	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Methylene chloride	5	5		4.8	2 U	2 U	1 U	1 U	3 U	1 U	0.72 J B	1 U	5.5 J B	4.5 J B	11 J	8.8 J	250 U	3.8 J B
Styrene	100	100	100	1600	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Tetrachloroethene	5	5	5	0.11	2 U	0.75 J	0.46 J	1.4	5.8	3.2	64	0.19 J	3.6 J	21	950	220	1600	41
Toluene	1000	1000	1000	2300	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
trans-1,2-Dichloroethene	100	100	100	110	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
trans-1,3-Dichloropropene	6.6	26		0.43	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	25 U	250 U	10 U
Trichloroethene	5	5	5	1.7	66	51	19	22	72	3.8	18	7.4	180	260	560	600	4800	110
Vinyl Chloride	2	2	2	0.016	2 U	2 U	1 U	1 U	3 U	1 U	2 U	1 U	10 U	10 U	25 U	16 J	250 U	10 U
Xylenes (Total)	10000	10000	10000	200	6 U	6 U	3 U	3 U	9 U	3 U	6 U	3 U	30 U	30 U	75 U	75 U	750 U	30 U

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1,4-Dioxane																		
1,4-Dioxane	5.6	24		6.1														14
Cyanide, Free																		
Cyanide, Free	200	200	200	730	100 J													
Cyanide, Total																		
Cyanide, Total	200	200		730	980													
METAL																		
Antimony	6	6	6	15											3.6	2.9	0.46 B J	
Arsenic	10	10	10	0.045							1 U				1.2	0.85 B	17.3	
Beryllium	4	4	4	73											0.16 B	0.13 B	9.2	
Cadmium	5	5	5	18														
Chromium	100	100	100					114							13.6 J	14.4 J	52	
Hexavalent Chromium	100	100		110				170 J							50 U	50 U	50 U	
Lead	5	5	15								5.8		0.93 B	1.8	45.6	42	248	
Mercury	2	2	2	0.57														
Nickel	100	100		730											5.5	5.9	181	
METAL (Dissolved)																		
Antimony	6	6	6	15											0.77 B J	0.8 B J	0.33 B J	
Arsenic	10	10	10	0.045							1 U				0.44 B	0.66 B	1 U	
Beryllium	4	4	4	73											1 U	1 U	0.16 B	
Cadmium	5	5	5	18														
Chromium	100	100	100					113							6.5 J	7.6 J	5.9 J	
Hexavalent Chromium	100	100		110				140							50 U	50 U	50 U	
Lead	5	5	15								0.043 B		0.038 B	0.053 B	0.071 B	0.14 B	0.45 B	
Mercury	2	2	2	0.57														
Nickel	100	100		730											3.8	4.1	12.9	
TOTAL VOC																		
					110	4.19	0	1504	530.4	52.1	0	31.83	2594	970	0	0	0	1097
VOC																		
1,1,1,2-Tetrachloroethane	70	70		0.52	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,1,1-Trichloroethane	200	200	200	9100	5 U	0.3 J	1 U	59	25 U	2 U		1 U	100 U	50 U				25 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,1,2-Trichloroethane	5	5	5	0.24	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,1-Dichloroethane	27	110		2.4	5 U	1 U	1 U	12 J	25 U	2 U		1 U	100 U	50 U				11 J
1,1-Dichloroethene	7	7	7	340	5 U	1 U	1 U	59	25 U	2 U		1 U	100 U	50 U				42
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,2-Dichloroethane	5	5	5	0.15	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,2-Dichloropropane	5	5	5	0.39	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
1,4-Dioxane	5.6	24		6.1	1000 U	200 U	200 U	10000 U	5000 U	400 U		200 U	20000 U	10000 U				5000 U
2-Butanone	4000	4000		7100	50 U	0.77 J	10 U	500 U	250 U	20 U		10 U	1000 U	500 U				250 U
2-Hexanone					50 U	10 U	10 U	500 U	250 U	20 U		10 U	1000 U	500 U				250 U
4-Methyl-2-Pentanone	190	410		2000	50 U	10 U	10 U	500 U	250 U	20 U		10 U	1000 U	500 U				250 U
Acetone	3700	10000		22000	50 U	10 U	10 U	500 U	250 U	20 U		10 U	1000 U	500 U				250 U
Acrylonitrile	0.63	2.7		0.045	100 U	20 U	20 U	1000 U	500 U	40 U		20 U	2000 U	1000 U				500 U
Benzene	5	5	5	0.41	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Bromochloromethane	90	90			5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Bromodichloromethane	100	100		0.12	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Bromoform	80	80		8.5	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Bromomethane	10	10		8.7	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Carbon Disulfide	1900	4100		1000	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Carbon Tetrachloride	5	5	5	0.2	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Chlorobenzene	100	100	100	91	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Chlorodibromomethane	80	80		0.15	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Chloroethane	230	900		21000	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Chloroform	80	80		0.19	5 U	1 U	1 U	50 U	25 U	2 U		0.87 J	100 U	50 U				25 U
Chloromethane	30	30		190	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U

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cis-1,2-Dichloroethene	70	70	70	370	5 U	2.5	1 U	300	340	2 U		0.45 J	770	300				390
cis-1,3-Dichloropropene	6.6	26		0.43	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Ethylbenzene	700	700	700	1.5	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Methyl tert-butyl ether	20	20		12	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Methylene chloride	5	5		4.8	5 U	1 U	1 U	54 B	8.4 J	2 U		1 U	100 U	50 U				25 U
Styrene	100	100	100	1600	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Tetrachloroethene	5	5	5	0.11	94	1 U	1 U	270	25 U	2.1		0.51 J	100 U	50 U				26
Toluene	1000	1000	1000	2300	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
trans-1,2-Dichloroethene	100	100	100	110	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
trans-1,3-Dichloropropene	6.6	26		0.43	5 U	1 U	1 U	50 U	25 U	2 U		1 U	100 U	50 U				25 U
Trichloroethene	5	5	5	1.7	16	0.62 J	1 U	750	170	50		30	1800	670				590
Vinyl Chloride	2	2	2	0.016	5 U	1 U	1 U	50 U	12 J	2 U		1 U	24 J	50 U				38
Xylenes (Total)	10000	10000	10000	200	15 U	3 U	3 U	150 U	75 U	6 U		3 U	300 U	150 U				75 U

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1,4-Dioxane																			
1,4-Dioxane	5.6	24		6.1															
Cyanide, Free																			
Cyanide, Free	200	200	200	730															
Cyanide, Total																			
Cyanide, Total	200	200		730															
METAL																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100		17.3													4470	
Hexavalent Chromium	100	100		110	50 U													5100	
Lead	5	5	15												62		1		
Mercury	2	2	2	0.57															
Nickel	100	100		730															
METAL (Dissolved)																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100		16.2													4440	
Hexavalent Chromium	100	100		110	50 U													4400	
Lead	5	5	15												0.02 B		1 U		
Mercury	2	2	2	0.57															
Nickel	100	100		730															
TOTAL VOC																			
					376	245.8	24.2	215.9	9832	154.9	75.84	278	98.7	0.83	0	310.9	0	453.5	20030
VOC																			
1,1,1,2-Tetrachloroethane	70	70		0.52	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,1,1-Trichloroethane	200	200	200	9100	90	2.6 J	1 U	5 U	710	8.3 J	0.64 J	10 U	2 U	1 U	1 U	20 U	1 U	10 U	4900
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,1,2-Trichloroethane	5	5	5	0.24	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,1-Dichloroethane	27	110		2.4	10 J	5 U	1 U	1.9 J	200 U	10 U	1.3 J	10 U	2 U	1 U	1 U	20 U	1 U	10 U	1600
1,1-Dichloroethene	7	7	7	340	16	4.2 J	0.3 J	3.1 J	72 J	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	11	640
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,2-Dichloroethane	5	5	5	0.15	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,2-Dichloropropane	5	5	5	0.39	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
1,4-Dioxane	5.6	24		6.1	3000 U	1000 U	200 U	1000 U	40000 U	2000 U	400 U	2000 U	400 U	200 U	200 U	4000 U	200 U	2000 U	80000 U
2-Butanone	4000	4000		7100	150 U	50 U	10 U	50 U	2000 U	100 U	20 U	100 U	20 U	10 U	10 U	200 U	10 U	100 U	4000 U
2-Hexanone					150 U	50 U	10 U	50 U	2000 U	100 U	20 U	100 U	20 U	10 U	10 U	200 U	10 U	100 U	4000 U
4-Methyl-2-Pentanone	190	410		2000	150 U	50 U	10 U	50 U	2000 U	100 U	20 U	100 U	20 U	10 U	10 U	200 U	10 U	100 U	4000 U
Acetone	3700	10000		22000	150 U	50 U	10 U	50 U	2000 U	100 U	20 U	100 U	20 U	10 U	10 U	200 U	10 U	100 U	4000 U
Acrylonitrile	0.63	2.7		0.045	300 U	100 U	20 U	100 U	4000 U	200 U	40 U	200 U	40 U	20 U	20 U	400 U	20 U	200 U	8000 U
Benzene	5	5	5	0.41	15 UJ	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Bromochloromethane	90	90			15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Bromodichloromethane	100	100		0.12	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Bromoform	80	80		8.5	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Bromomethane	10	10		8.7	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Carbon Disulfide	1900	4100		1000	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Carbon Tetrachloride	5	5	5	0.2	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Chlorobenzene	100	100	100	91	15 UJ	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Chlorodibromomethane	80	80		0.15	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Chloroethane	230	900		21000	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Chloroform	80	80		0.19	15 U	5 U	3.5	2.3 J	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Chloromethane	30	30		190	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U

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cis-1,2-Dichloroethene	70	70	70	370	56	48	4	50	240	11	16	68	26	1 U	1 U	13 J	1 U	110	6800
cis-1,3-Dichloropropene	6.6	26		0.43	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Ethylbenzene	700	700	700	1.5	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Methyl tert-butyl ether	20	20		12	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Methylene chloride	5	5		4.8	15 U	5 U	1 U	5 U	110 J	3.6 J B	2 U	10 U	2 U	1 U	1 U	20 U	1 U	2.5 J	230 J
Styrene	100	100	100	1600	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Tetrachloroethene	5	5	5	0.11	14 J	21	3.4	7.7	6400	120	1.9 J	10	5.7	1 U	1 U	7.9 J	1 U	70	660
Toluene	1000	1000	1000	2300	15 UJ	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
trans-1,2-Dichloroethene	100	100	100	110	15 U	5 U	1 U	0.9 J	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
trans-1,3-Dichloropropene	6.6	26		0.43	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Trichloroethene	5	5	5	1.7	190	170	13	150	2300	12	56	200	67	0.83 J	1 U	290	1 U	260	5200
Vinyl Chloride	2	2	2	0.016	15 U	5 U	1 U	5 U	200 U	10 U	2 U	10 U	2 U	1 U	1 U	20 U	1 U	10 U	400 U
Xylenes (Total)	10000	10000	10000	200	45 U	15 U	3 U	15 U	600 U	30 U	6 U	30 U	6 U	3 U	3 U	60 U	3 U	30 U	1200 U

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1,4-Dioxane																			
1,4-Dioxane	5.6	24		6.1	140							58							
Cyanide, Free																			
Cyanide, Free	200	200	200	730					6.6 B J				2.2 B J						
Cyanide, Total																			
Cyanide, Total	200	200		730					12				10 U						
METAL																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045	5.8										0.45 B		1 U		
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100						304 J							17.3	11.9		
Hexavalent Chromium	100	100		110					410							50 U	50 UJ		
Lead	5	5	15		2.8		2 J			16.1	16.1		5.8 J		0.92 B J		0.82 B		
Mercury	2	2	2	0.57															
Nickel	100	100		730												10.2			
METAL (Dissolved)																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045	4.3										1 U		1 U		
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100						301							6.2 J	6.2		
Hexavalent Chromium	100	100		110					400							50 U	50 U		
Lead	5	5	15		0.07 B		0.049 B J			0.12 B	0.079 B		0.037 B J		0.05 B J		0.17 B J		
Mercury	2	2	2	0.57															
Nickel	100	100		730												7.1			
TOTAL VOC																			
					8730	9433	223.2	51.36	2413	0	0	926	0	967	366	0	0	60.3	130.3
VOC																			
1,1,1,2-Tetrachloroethane	70	70		0.52	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,1,1-Trichloroethane	200	200	200	9100	850	160 J	10 U	1 U	37 J			50 U		50 U	15 U			5 U	1.6 J
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,1,2-Trichloroethane	5	5	5	0.24	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,1-Dichloroethane	27	110		2.4	800	860	1.9 J	0.55 J	75 U			17 J		50 U	15 U			5 U	5 U
1,1-Dichloroethene	7	7	7	340	390 J	360	3.2 J	2.3	59 J			100		50 U	15 U			5 U	2.3 J
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,2-Dichloroethane	5	5	5	0.15	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,2-Dichloropropane	5	5	5	0.39	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
1,4-Dioxane	5.6	24		6.1	80000 U	50000 U	2000 U	200 U	15000 U			10000 U		10000 U	3000 U			1000 U	1000 U
2-Butanone	4000	4000		7100	4000 U	2500 U	100 U	10 U	750 U			500 U		500 U	150 U			50 U	50 U
2-Hexanone					4000 U	2500 U	100 U	10 U	750 U			500 U		500 U	150 U			50 U	50 U
4-Methyl-2-Pentanone	190	410		2000	4000 U	2500 U	100 U	10 U	750 U			500 U		500 U	150 U			50 U	50 U
Acetone	3700	10000		22000	4000 U	2500 U	100 U	10 U	750 U			500 U		500 U	150 U			50 U	50 U
Acrylonitrile	0.63	2.7		0.045	8000 U	5000 U	200 U	20 U	1500 U			1000 U		1000 U	300 U			100 U	100 U
Benzene	5	5	5	0.41	400 U	250 U	10 U	1 U	75 U			50 U		50 UJ	15 U			5 U	5 U
Bromochloromethane	90	90			400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Bromodichloromethane	100	100		0.12	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Bromoform	80	80		8.5	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Bromomethane	10	10		8.7	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Carbon Disulfide	1900	4100		1000	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Carbon Tetrachloride	5	5	5	0.2	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Chlorobenzene	100	100	100	91	400 U	250 U	10 U	1 U	75 U			50 U		50 UJ	15 U			5 U	5 U
Chlorodibromomethane	80	80		0.15	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Chloroethane	230	900		21000	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Chloroform	80	80		0.19	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Chloromethane	30	30		190	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U

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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-49S 7/14/2009	MW-50D 7/14/2009	MW-50S 7/1/2009	MW-51D 7/7/2009	MW-51S 7/1/2009	MW-52 7/13/2009	MW-52 Dup 7/13/2009	MW-54 6/30/2009	MW-55 6/30/2009	MW-64D 7/6/2009	MW-64S 6/30/2009	MW-65D 6/22/2009	MW-66S 7/7/2009	MW-69 7/2/2009	MW-74D 6/25/2009
cis-1,2-Dichloroethene	70	70	70	370	4200	3600	110	15	460			140		50 U	15 U			54	52
cis-1,3-Dichloropropene	6.6	26		0.43	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Ethylbenzene	700	700	700	1.5	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Methyl tert-butyl ether	20	20		12	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Methylene chloride	5	5		4.8	400 U	250 U	3.2 J B	1 U	40 J B			20 J		17 J B	6 J			3 J	5 U
Styrene	100	100	100	1600	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Tetrachloroethene	5	5	5	0.11	190 J	590	4.9 J	1.9	950			79		340	120			5 U	5.4
Toluene	1000	1000	1000	2300	400 U	250 U	10 U	0.29 J	75 U			50 U		50 UJ	15 U			5 U	5 U
trans-1,2-Dichloroethene	100	100	100	110	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
trans-1,3-Dichloropropene	6.6	26		0.43	400 U	250 U	10 U	1 U	75 U			50 U		50 U	15 U			5 U	5 U
Trichloroethene	5	5	5	1.7	2300	3800	100	31	840			570		610	240			3.3 J	69
Vinyl Chloride	2	2	2	0.016	400 U	63 J	10 U	0.32 J	27 J			50 U		50 U	15 U			5 U	5 U
Xylenes (Total)	10000	10000	10000	200	1200 U	750 U	30 U	3 U	220 U			150 U		150 U	45 U			15 U	15 U

Note
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Table 5
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June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-74S 6/22/2009	MW-75D 7/13/2009	MW-75S 7/14/2009	MW-77 7/8/2009	MW-79 6/22/2009	MW-81D 7/13/2009	MW-81S 7/13/2009	MW-82 6/23/2009	MW-85 7/1/2009	MW-87 7/9/2009	MW-88 6/26/2009	MW-91 6/25/2009	MW-92 7/8/2009	MW-93D 6/26/2009	MW-93S 6/17/2009
1,4-Dioxane																			
1,4-Dioxane	5.6	24		6.1										19					
Cyanide, Free																			
Cyanide, Free	200	200	200	730					2.1 B J							3.3 B J	14		
Cyanide, Total																			
Cyanide, Total	200	200		730					10 U							25	13		
METAL																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100																
Hexavalent Chromium	100	100		110															
Lead	5	5	15											0.52 B					
Mercury	2	2	2	0.57															
Nickel	100	100		730															
METAL (Dissolved)																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100																
Hexavalent Chromium	100	100		110															
Lead	5	5	15											1 U					
Mercury	2	2	2	0.57															
Nickel	100	100		730															
TOTAL VOC																			
					86.21	4168	26600	2980	78.3	1243	3483	59.21	54.5	2646	532.1	141.9	289.1	483.5	7.17
VOC																			
1,1,1,2-Tetrachloroethane	70	70		0.52	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1,1-Trichloroethane	200	200	200	9100	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	32 J	7.7 J	10 U	10 U	9.8 J	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1-Dichloroethane	27	110		2.4	0.68 J	200 U	2000 U	100 U	21	50 U	15 J	0.21 J	5 U	100 U	25 U	10 U	10 U	4.1 J	0.66 J
1,1-Dichloroethene	7	7	7	340	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	40 J	8.4 J	10 U	10 U	6.6 J	1 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,2-Dichloroethane	5	5	5	0.15	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,2-Dichloropropane	5	5	5	0.39	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,4-Dioxane	5.6	24		6.1	400 U	40000 U	400000 U	20000 U	800 U	10000 U	25000 U	200 U	1000 U	20000 U	5000 U	2000 U	2000 U	2500 U	200 U
2-Butanone	4000	4000		7100	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
2-Hexanone					20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
4-Methyl-2-Pentanone	190	410		2000	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
Acetone	3700	10000		22000	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
Acrylonitrile	0.63	2.7		0.045	40 U	4000 U	40000 U	2000 U	80 U	1000 U	2500 U	20 U	100 U	2000 U	500 U	200 U	200 U	250 U	20 U
Benzene	5	5	5	0.41	2 U	200 U	2000 U	2000	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromochloromethane	90	90			2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromodichloromethane	100	100		0.12	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromoform	80	80		8.5	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromomethane	10	10		8.7	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Carbon Disulfide	1900	4100		1000	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Carbon Tetrachloride	5	5	5	0.2	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chlorobenzene	100	100	100	91	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chlorodibromomethane	80	80		0.15	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chloroethane	230	900		21000	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chloroform	80	80		0.19	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	0.41 J
Chloromethane	30	30		190	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U

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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-74S 6/22/2009	MW-75D 7/13/2009	MW-75S 7/14/2009	MW-77 7/8/2009	MW-79 6/22/2009	MW-81D 7/13/2009	MW-81S 7/13/2009	MW-82 6/23/2009	MW-85 7/1/2009	MW-87 7/9/2009	MW-88 6/26/2009	MW-91 6/25/2009	MW-92 7/8/2009	MW-93D 6/26/2009	MW-93S 6/17/2009
cis-1,2-Dichloroethene	70	70	70	370	27	68 J	2000 U	100 U	53	230	720	29	53	840	120	10 U	10 U	23	2.9
cis-1,3-Dichloropropene	6.6	26		0.43	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Ethylbenzene	700	700	700	1.5	2 U	200 U	2000 U	110	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Methyl tert-butyl ether	20	20		12	2 U	200 U	2000 U	610	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Methylene chloride	5	5		4.8	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	1.5 J B	100 U	25 U	1.9 J	5.1 J	12 U	1 U
Styrene	100	100	100	1600	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Tetrachloroethene	5	5	5	0.11	5.8	2900	20000	100 U	4 U	43 J	48 J	1.6	5 U	34 J	16 J	120	240	200	1.9
Toluene	1000	1000	1000	2300	2 U	200 U	2000 U	100	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
trans-1,2-Dichloroethene	100	100	100	110	0.73 J	200 U	2000 U	100 U	1.6 J	50 U	120 U	1.4	5 U	100 U	25 U	10 U	10 U	12 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Trichloroethene	5	5	5	1.7	52	1200	6600	100 U	2.7 J	970	2700	27	5 U	1700	380	20	44	240	1.3
Vinyl Chloride	2	2	2	0.016	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Xylenes (Total)	10000	10000	10000	200	6 U	600 U	6000 U	160 J	12 U	150 U	380 U	3 U	15 U	300 U	75 U	30 U	30 U	38 U	3 U

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1,4-Dioxane																		
1,4-Dioxane	5.6	24		6.1														
Cyanide, Free																		
Cyanide, Free	200	200	200	730						2.4 B J	4.3 B J	3.1 B J						
Cyanide, Total																		
Cyanide, Total	200	200		730						10 U	7.3 B	9.9 B						
METAL																		
Antimony	6	6	6	15														
Arsenic	10	10	10	0.045	1 U													
Beryllium	4	4	4	73	1 U													
Cadmium	5	5	5	18														
Chromium	100	100	100		10.4 J													
Hexavalent Chromium	100	100		110	50 U													
Lead	5	5	15		0.36 B													
Mercury	2	2	2	0.57														
Nickel	100	100		730	5.9													
METAL (Dissolved)																		
Antimony	6	6	6	15														
Arsenic	10	10	10	0.045	1 U													
Beryllium	4	4	4	73	1 U													
Cadmium	5	5	5	18														
Chromium	100	100	100		4.3													
Hexavalent Chromium	100	100		110	50 U													
Lead	5	5	15		0.14 B													
Mercury	2	2	2	0.57														
Nickel	100	100		730	3.5													
TOTAL VOC																		
					311.2	56.79	378	1620	631.1	0.17	35.16	15.59	111.3	165.3	328.1	353	225.6	48.14
VOC																		
1,1,1,2-Tetrachloroethane	70	70		0.52	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,1,1-Trichloroethane	200	200	200	9100	10 U	1 U	25 U	50 U	25 U	1 U	0.39 J	1 U	2.9 J	3.6 J	4.2 J	3.9 J	3 J	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,1-Dichloroethane	27	110		2.4	10 U	0.39 J	25 U	50 U	5.1 J	1 U	0.38 J	0.19 J	5 U	5 U	2.3 J	1.6 J	10 U	0.48 J
1,1-Dichloroethene	7	7	7	340	10 U	1 U	25 U	50 U	25 U	1 U	0.39 J	1 U	3.1 J	2.7 J	5.4 J	4.2 J	3.6 J	0.56 J
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,2-Dichloroethane	5	5	5	0.15	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,2-Dichloropropane	5	5	5	0.39	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
1,4-Dioxane	5.6	24		6.1	2000 U	200 U	5000 U	10000 U	5000 U	200 U	200 U	200 U	1000 U	1000 U	2000 U	2000 U	2000 U	200 U
2-Butanone	4000	4000		7100	100 U	10 U	250 U	500 U	250 U	10 U	10 U	10 U	50 U	50 U	100 U	100 U	100 U	10 U
2-Hexanone					100 U	10 U	250 U	500 U	250 U	10 U	10 U	10 U	50 U	50 U	100 U	100 U	100 U	10 U
4-Methyl-2-Pentanone	190	410		2000	100 U	10 U	250 U	500 U	250 U	10 U	10 U	10 U	50 U	50 U	100 U	100 U	100 U	10 U
Acetone	3700	10000		22000	100 U	10 U	250 U	500 U	250 U	10 U	10 U	10 U	50 U	50 U	100 U	100 U	100 U	10 U
Acrylonitrile	0.63	2.7		0.045	200 U	20 U	500 U	1000 U	500 U	20 U	20 U	20 U	100 U	100 U	200 U	200 U	200 U	20 U
Benzene	5	5	5	0.41	10 U	1 U	25 UJ	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Bromochloromethane	90	90			10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Bromodichloromethane	100	100		0.12	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Bromoform	80	80		8.5	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Bromomethane	10	10		8.7	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Carbon Disulfide	1900	4100		1000	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Carbon Tetrachloride	5	5	5	0.2	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Chlorobenzene	100	100	100	91	10 U	1 U	25 UJ	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Chlorodibromomethane	80	80		0.15	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Chloroethane	230	900		21000	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Chloroform	80	80		0.19	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1.1
Chloromethane	30	30		190	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U

Note
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U= Not detected.
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B= Organics; blank contamination. Inorganics; estimated.
E= Inorganics: matrix interference.

Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-94 7/8/2009	MW-95 6/23/2009	MW-96D 7/6/2009	MW-96S 7/2/2009	MW-97 7/1/2009	MW-98D 6/17/2009	MW-98I 6/18/2009	MW-98S 6/17/2009	MW-99D 6/25/2009	MW-99S 6/26/2009	MW-100D 7/1/2009	MW-100I 6/30/2009	MW-100S 7/2/2009	MW-101D 6/23/2009
cis-1,2-Dichloroethene	70	70	70	370	180	19	46	53	240	1 U	6.7	1.8	11	28	69	49	40	16
cis-1,3-Dichloropropene	6.6	26		0.43	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Ethylbenzene	700	700	700	1.5	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Methyl tert-butyl ether	20	20		12	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Methylene chloride	5	5		4.8	2.5 J	1 U	25 U	17 J B	16 J	1 U	1 U	1 U	5 U	5 U	3.2 J B	4.3 J	4 J	1 U
Styrene	100	100	100	1600	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Tetrachloroethene	5	5	5	0.11	5.8 J	3.2	22 J	450	20 J	1 U	5.3	2.6	8.3	11	94	110	65	6
Toluene	1000	1000	1000	2300	10 U	1 U	25 UJ	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
trans-1,2-Dichloroethene	100	100	100	110	2.9 J	0.2 J	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Trichloroethene	5	5	5	1.7	120	34	310	1100	350	0.17 J	22	11	86	120	150	180	110	24
Vinyl Chloride	2	2	2	0.016	10 U	1 U	25 U	50 U	25 U	1 U	1 U	1 U	5 U	5 U	10 U	10 U	10 U	1 U
Xylenes (Total)	10000	10000	10000	200	30 U	3 U	75 U	150 U	75 U	3 U	3 U	3 U	15 U	15 U	30 U	30 U	30 U	3 U

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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-101D Dup 6/23/2009	MW-101S 6/18/2009	MW-102D 7/2/2009	MW-102D Dup 7/2/2009	MW-102S 6/24/2009	MW-103D 6/23/2009	MW-103S 6/29/2009	MW-104 6/24/2009	MW-105 7/9/2009	MW-106 6/24/2009	MW-107 6/24/2009	MW-108D 6/17/2009	MW-108S 6/22/2009
1,4-Dioxane																	
1,4-Dioxane	5.6	24		6.1													
Cyanide, Free																	
Cyanide, Free	200	200	200	730													
Cyanide, Total																	
Cyanide, Total	200	200		730													
METAL																	
Antimony	6	6	6	15													
Arsenic	10	10	10	0.045													1 U
Beryllium	4	4	4	73													0.19 B
Cadmium	5	5	5	18													1 U
Chromium	100	100	100														
Hexavalent Chromium	100	100		110													
Lead	5	5	15									0.87 B					1.2
Mercury	2	2	2	0.57													
Nickel	100	100		730													5.7
METAL (Dissolved)																	
Antimony	6	6	6	15													
Arsenic	10	10	10	0.045													1 U
Beryllium	4	4	4	73													0.21 B
Cadmium	5	5	5	18													1 U
Chromium	100	100	100														
Hexavalent Chromium	100	100		110													
Lead	5	5	15									1 U					1 U
Mercury	2	2	2	0.57													
Nickel	100	100		730													4.3
TOTAL VOC																	
					33.5	29.91	151.3	130.8	321.79	135.5	336.9	63.88	1623	141.3	38.37	1.68	4.38
VOC																	
1,1,1,2-Tetrachloroethane	70	70		0.52	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	9100	1 U	0.46 J	10 U	10 U	97	5 U	5.1 J	1 U	23 J	1.7 J	2.3	1 U	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,1-Dichloroethane	27	110		2.4	0.3 J	1 U	10 U	10 U	17	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	340	1 U	0.35 J	10 U	10 U	62	5 U	10 U	1 U	50 U	5 U	0.55 J	1 U	1 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.39	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
1,4-Dioxane	5.6	24		6.1	200 U	200 U	2000 U	2000 U	600 U	1000 U	2000 U	200 U	10000 U	1000 U	200 U	200 U	200 U
2-Butanone	4000	4000		7100	10 U	10 U	100 U	100 U	30 U	50 U	100 U	10 U	500 U	50 U	10 U	10 U	1.1 J
2-Hexanone					10 U	10 U	100 U	100 U	30 U	50 U	100 U	10 U	500 U	50 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	190	410		2000	10 U	10 U	100 U	100 U	30 U	50 U	100 U	10 U	500 U	50 U	10 U	10 U	10 U
Acetone	3700	10000		22000	10 U	10 U	100 U	100 U	30 U	50 U	100 U	10 U	500 U	50 U	10 U	10 U	3.1 J
Acrylonitrile	0.63	2.7		0.045	20 U	20 U	200 U	200 U	60 U	100 U	200 U	20 U	1000 U	100 U	20 U	20 U	20 U
Benzene	5	5	5	0.41	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Bromochloromethane	90	90			1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Bromodichloromethane	100	100		0.12	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Bromoform	80	80		8.5	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Bromomethane	10	10		8.7	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Carbon Disulfide	1900	4100		1000	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.2	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	91	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Chloroform	80	80		0.19	0.9 J	0.9 J	10 U	10 U	3 U	5 U	10 U	0.91 J	50 U	5 U	0.42 J	0.39 J	1 U
Chloromethane	30	30		190	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U

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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-101D Dup 6/23/2009	MW-101S 6/18/2009	MW-102D 7/2/2009	MW-102D Dup 7/2/2009	MW-102S 6/24/2009	MW-103D 6/23/2009	MW-103S 6/29/2009	MW-104 6/24/2009	MW-105 7/9/2009	MW-106 6/24/2009	MW-107 6/24/2009	MW-108D 6/17/2009	MW-108S 6/22/2009
cis-1,2-Dichloroethene	70	70	70	370	12	3.5	7.6 J	8.5 J	36	3.5 J	10	1.5	120	18	4.1	1 U	1 U
cis-1,3-Dichloropropene	6.6	26		0.43	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.5	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Methyl tert-butyl ether	20	20		12	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Methylene chloride	5	5		4.8	1 U	1 U	6.6 J	3.2 J B	0.79 J	5 U	2.8 J	0.57 J	50 U	1.6 J	1 U	1 U	1 U
Styrene	100	100	100	1600	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	0.11	4.3	3.7	7.1 J	9.1 J	27	12	39	7.9	1200	10	15	0.55 J	1 U
Toluene	1000	1000	1000	2300	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	0.18 J
trans-1,2-Dichloroethene	100	100	100	110	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Trichloroethene	5	5	5	1.7	16	21	130	110	82	120	280	53	280	110	16	0.74 J	1 U
Vinyl Chloride	2	2	2	0.016	1 U	1 U	10 U	10 U	3 U	5 U	10 U	1 U	50 U	5 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	200	3 U	3 U	30 U	30 U	9 U	15 U	30 U	3 U	150 U	15 U	3 U	3 U	3 U

Note
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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-109D 6/23/2009	MW-109S 6/26/2009	MW-110 6/24/2009	MW-111 6/29/2009	MW-112 6/19/2009	MW-113 7/6/2009	MW-114 7/15/2009	MW-115 6/30/2009	MW-116 7/8/2009	MW-117 6/23/2009	RW-2 7/16/2009	RW-4 Folk 6/18/2009	RW-5 7/8/2009
1,4-Dioxane																	
1,4-Dioxane	5.6	24		6.1									5.6	1			
Cyanide, Free																	
Cyanide, Free	200	200	200	730				1.8 B J						26 J		2.3 B J	
Cyanide, Total																	
Cyanide, Total	200	200		730				10 U						31		10 U	
METAL																	
Antimony	6	6	6	15													
Arsenic	10	10	10	0.045						1.0 U		5.8					
Beryllium	4	4	4	73													
Cadmium	5	5	5	18													
Chromium	100	100	100														
Hexavalent Chromium	100	100		110													
Lead	5	5	15							0.27 B		5.6 J				6.1 J	
Mercury	2	2	2	0.57						0.20 U							
Nickel	100	100		730													
METAL (Dissolved)																	
Antimony	6	6	6	15													
Arsenic	10	10	10	0.045						1.0 U		5.4					
Beryllium	4	4	4	73													
Cadmium	5	5	5	18													
Chromium	100	100	100														
Hexavalent Chromium	100	100		110													
Lead	5	5	15							1.0 U		0.021 B J				2.3 J	
Mercury	2	2	2	0.57						0.2 U							
Nickel	100	100		730													
TOTAL VOC																	
					219	381	164.1	7.27	9.94	1850	7670	554.5	540.9	39.44	5.38	0.18	2.93
VOC																	
1,1,1,2-Tetrachloroethane	70	70		0.52	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	9100	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	27	110		2.4	5 U	10 U	5 U	1 U	1 U	100 U	200 U	130	4.9 J	0.39 J	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	340	5 U	10 U	5 U	1 U	1 U	34 J	200 U	17	25 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.39	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
1,4-Dioxane	5.6	24		6.1	1000 U	2000 U	1000 U	200 U	200 U	20000 U	40000 U	3000 U	5000 U	200 U	200 U	200 U	200 U
2-Butanone	4000	4000		7100	50 U	100 U	50 U	10 U	10 U	1000 U	2000 U	150 U	250 U	10 U	10 U	10 U	10 U
2-Hexanone					50 U	100 U	50 U	10 U	10 U	1000 U	2000 U	150 U	250 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	190	410		2000	50 U	100 U	50 U	10 U	10 U	1000 U	2000 U	150 U	250 U	10 U	10 U	10 U	10 U
Acetone	3700	10000		22000	50 U	100 U	50 U	10 U	10 U	1000 U	2000 U	150 U	250 U	10 U	10 U	10 U	10 U
Acrylonitrile	0.63	2.7		0.045	100 U	200 U	100 U	20 U	20 U	2000 U	4000 U	300 U	500 U	20 U	20 U	20 U	20 U
Benzene	5	5	5	0.41	100	200	5 U	1 U	1 U	100 UJ	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Bromochloromethane	90	90			5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Bromodichloromethane	100	100		0.12	5 U	10 U	5 U	1 U	0.59 J	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Bromoform	80	80		8.5	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Bromomethane	10	10		8.7	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1900	4100		1000	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.2	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	91	5 U	10 U	5 U	1 U	1 U	100 UJ	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Chloroethane	230	900		21000	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Chloroform	80	80		0.19	5 U	10 U	1.1 J	1 U	2.9	100 U	200 U	15 U	25 U	0.65 J	1.3	0.18 J	1 U
Chloromethane	30	30		190	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U

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cis-1,2-Dichloroethene	70	70	70	370	5 U	10 U	5 U	1.1	0.25 J	660	2400	290	370	12	1 U	1 U	1.4
cis-1,3-Dichloropropene	6.6	26		0.43	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.5	10	25	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether	20	20		12	27	26	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Methylene chloride	5	5		4.8	5 U	10 U	1 J	1 U	1 U	36 J B	100 J	15 U	8 J	1 U	1 U	1 U	1 U
Styrene	100	100	100	1600	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	0.11	5 U	10 U	63	0.66 J	1 U	20 J	970	4.8 J	39	4.4	0.18 J	1 U	0.23 J
Toluene	1000	1000	1000	2300	5 U	10 U	5 U	1 U	1 U	100 UJ	200 U	15 U	25 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	100	100	110	5 U	10 U	5 U	1 U	1 U	100 U	200 U	3.5 J	25 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43	5 U	10 U	5 U	1 U	1 U	100 U	200 U	15 U	25 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	5	1.7	5 U	10 U	99	4.9	6.2	1100	4200	9.2 J	100	22	3.9	1 U	1.3
Vinyl Chloride	2	2	2	0.016	5 U	10 U	5 U	1 U	1 U	100 U	200 U	100	19 J	1 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	200	82	130	15 U	0.61 J	3 U	300 U	600 U	45 U	75 U	3 U	3 U	3 U	3 U

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Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	Spring at Bldg 14 S1 6/24/2009	Spring at Bldg 14 S2 6/24/2009	TATE (S-6) 6/26/2009	HERMAN (S-7) 6/26/2009
1,4-Dioxane								
1,4-Dioxane	5.6	24		6.1				
Cyanide, Free								
Cyanide, Free	200	200	200	730			2.3 B J	1.8 B J
Cyanide, Total								
Cyanide, Total	200	200		730			10 U	10 U
METAL								
Antimony	6	6	6	15	15.4 J			
Arsenic	10	10	10	0.045				
Beryllium	4	4	4	73				
Cadmium	5	5	5	18				
Chromium	100	100	100					
Hexavalent Chromium	100	100		110				
Lead	5	5	15		30.4	0.033 B		
Mercury	2	2	2	0.57				
Nickel	100	100		730				
METAL (Dissolved)								
Antimony	6	6	6	15	15.2			
Arsenic	10	10	10	0.045				
Beryllium	4	4	4	73				
Cadmium	5	5	5	18				
Chromium	100	100	100					
Hexavalent Chromium	100	100		110				
Lead	5	5	15		1.3	0.81 B		
Mercury	2	2	2	0.57				
Nickel	100	100		730				
TOTAL VOC								
					0	0	0.91	0.84
VOC								
1,1,1,2-Tetrachloroethane	70	70		0.52			1 U	1 U
1,1,1-Trichloroethane	200	200	200	9100			1 U	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067			1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24			1 U	1 U
1,1-Dichloroethane	27	110		2.4			1 U	1 U
1,1-Dichloroethene	7	7	7	340			1 U	1 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065			1 U	1 U
1,2-Dichloroethane	5	5	5	0.15			1 U	1 U
1,2-Dichloropropane	5	5	5	0.39			1 U	1 U
1,4-Dioxane	5.6	24		6.1			200 U	200 U
2-Butanone	4000	4000		7100			10 U	10 U
2-Hexanone							10 U	10 U
4-Methyl-2-Pentanone	190	410		2000			10 U	10 U
Acetone	3700	10000		22000			10 U	10 U
Acrylonitrile	0.63	2.7		0.045			20 U	20 U
Benzene	5	5	5	0.41			1 U	1 U
Bromochloromethane	90	90					1 U	1 U
Bromodichloromethane	100	100		0.12			1 U	1 U
Bromoform	80	80		8.5			1 U	1 U
Bromomethane	10	10		8.7			1 U	1 U
Carbon Disulfide	1900	4100		1000			1 U	1 U
Carbon Tetrachloride	5	5	5	0.2			1 U	1 U
Chlorobenzene	100	100	100	91			1 U	1 U
Chlorodibromomethane	80	80		0.15			1 U	1 U
Chloroethane	230	900		21000			1 U	1 U
Chloroform	80	80		0.19			0.91 J	0.84 J
Chloromethane	30	30		190			1 U	1 U

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Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	Spring at Bldg 14 S1 6/24/2009	Spring at Bldg 14 S2 6/24/2009	TATE (S-6) 6/26/2009	HERMAN (S-7) 6/26/2009
cis-1,2-Dichloroethene	70	70	70	370			1 U	1 U
cis-1,3-Dichloropropene	6.6	26		0.43			1 U	1 U
Ethylbenzene	700	700	700	1.5			1 U	1 U
Methyl tert-butyl ether	20	20		12			1 U	1 U
Methylene chloride	5	5		4.8			1 U	1 U
Styrene	100	100	100	1600			1 U	1 U
Tetrachloroethene	5	5	5	0.11			1 U	1 U
Toluene	1000	1000	1000	2300			1 U	1 U
trans-1,2-Dichloroethene	100	100	100	110			1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43			1 U	1 U
Trichloroethene	5	5	5	1.7			1 U	1 U
Vinyl Chloride	2	2	2	0.016			1 U	1 U
Xylenes (Total)	10000	10000	10000	200			3 U	3 U

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