Addendum #10 to
Field Sampling Plan for Part 2 of the Supplemental Groundwater Remedial Investigation
Former York Naval Ordnance Plant
1425 Eden Road, Springettsbury Township
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Prepared for Harley-Davidson Motor Company Operations, Inc.
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Groundwater RI Part 2 Comprehensive Sampling Round 1

Subsection 4.2.2 of the Field Sampling Plan for Part 2 of the Supplemental Groundwater Remedial Investigation (FSP) (GSC, April 2012) describes a sampling program to be performed after completion of the Part 2 drilling operation. This work will be performed in September, which will provide groundwater chemistry immediately after well construction, and will be used for the summary of the supplemental groundwater Remedial Investigation (RI) report, the FS, and the Groundwater Risk Assessment (GWRA).

A number of sampling programs have been combined to create a snapshot of groundwater chemistry for the project area. Groundwater from the new wells completed during the GWRI (Part 2) and from existing Key Wells are to be sampled. Collection Wells that are normally sampled in December will be sampled during this time. Monitoring and extraction wells that are included in the sampling program for the North Property Boundary Area (NPBA)/Bldg 3 monitored shutdown testing, as detailed in FSP Addendums 6 and 7, will be sampled at the same time, since that Phase 3 program was timed so that sampling efforts could be combined. A number of wells to the south of the Site listed and discussed in FSP Addendums 2 and 9, will be sampled in addition to new wells and 2011 Key Wells.

GSC's Quality Assurance Project Plan (QAPP), dated June 2012 will be followed. All wells are to be sampled for volatile organic compounds (VOCs). Selected wells will be sampled for 1,4-dioxane, cyanide, and total and hexavalent chrome. SVOCs will not be sampled. A discussion follows regarding SVOCs.

Also, as described in FSP Subsection 4.2.2.1, approximately 30 wells will be selected for sampling of groundwater and analysis of monitored natural attenuation (MNA) parameters.

Table 1 lists the wells to be sampled and the parameters for which the samples will be analyzed for each well. Also listed are whether it was a key well in 2011 and the rationale by which the well was selected. Following is a description of the groups of wells that were selected for this comprehensive round of sampling.

Wells Installed During GWRI Part 2

Thirty (30) wells were recently installed as part of the Groundwater RI Part 2 field effort or are proposed to be installed prior to completion of this sampling program, but because seven (7) wells have or will have Waterloo multilevel samplers installed, there will be 50 discrete sample locations. **Figure 1** shows the locations of wells installed during the GWRI Part 2 to be sampled, and Table 1 specifies the recently installed wells, and the wells in which Waterloo multi-level samplers have been or will be installed. This and all figures in this addendum show the interpreted isoconcentration plume map for TCE or TCA that was constructed for the GWRI (Part1) report to provide a general reference for distribution of the most common Site chemicals of concern (COC). The plume has not been updated to consider data collected during the GWRI (Part2) field work.

The protocol for sampling Waterloo multilevel samplers that provide good yields is relatively similar to the sampling protocol for other wells. However, development of Waterloo installations that sample zones producing very low yields has resulted in a number of concerns that require the development of a specific sampling protocol for these devices. That protocol is being developed, and will be made part of the FSP when completed.

2011 Key Wells

Fifty-five (55) sampling stations were selected for sampling during the Key Well sampling program in 2011. Key Well sampling was not conducted in 2012 because of the on-going groundwater investigation. The 2011 wells comprise a list of wells that monitor the source areas and plumes related to fYNOP for VOCs, 1,4-dioxane, cyanide and chromium, plus a selection of wells (19) that were recently installed during the supplemental RI Part 1 field effort, and for which it is important to establish trends. In addition, all groundwater extraction wells (14) were sampled and included in the Key Well count. This list of wells was repeated during this round of sampling, however many of these wells would have been selected for this round of sampling for other reasons. **Figure 1** shows the locations of Key Wells to be sampled.

NPBA/Bldg3 Footer Drain Monitored Shut Down

Twenty-eight (28) wells and stations are to be sampled in the NPBA and Bldg 3 area to evaluate chemistry changes as a result of cessation of pumping from extraction wells in the NPBA as described in Addendums 6 and 7. Sampling and analysis of these wells will provide a baseline for comparison to determine the differences in groundwater chemistry before and after cessation of groundwater pumping, and provide a basis for deciding whether to leave wells off or reactivate them. Twelve (12) of these wells are Key Wells and therefore are already on the list, including the nine (9) groundwater extraction wells. The Tate Spring (S-6) is included. The Bldg 3 Lift Station Toe Drain was plugged and cannot be sampled. New wells MW-142 S&D and MW-143 S&D are in the area of the NPBA, and will add to the baseline of groundwater chemistry data in this area. **Figure 2** shows the locations of NPBA/Bldg3 Footer Drain Monitored Shutdown wells to be sampled.

South Property Boundary Area (SPBA) and Wells South of the Site

Groundwater migration from the southeast corner of the fYNOP Site will be characterized by nineteen (19) wells. In addition to eight (8) Key Wells, four wells that had been constructed for the Cole Steel project and sampled for the first time in 2012 for the fYNOP project will be resampled. There are also three new wells (two are multi-level Waterloo installations) south of the Site that will be added to characterize the horizontal and vertical migration of the plume. In addition, six wells along the fYNOP south property boundary will be sampled to characterize the

groundwater migration pathway. **Figure 2** shows the locations of SPBA and wells to the south of the site to be sampled.

West of the Site/Levee Area

A major concern with respect to groundwater characterization is the area underlying and to the west of the West Parking Lot. This area is adequately covered by the twenty-five (25) 2011 Key wells and the eight (8) new wells in this area and on the levees (see **Figure 1**).

Monitored Natural Attenuation

Twenty-nine (29) wells have been selected for sampling to measure the concentrations of indicator parameters listed in Table 4.2-2 in the FSP and repeated in this addendum as **Table 2**. This table includes a description of the sample volume, container type, and sample preservative required for samples that will be submitted to TestAmerica Pittsburgh for laboratory analyses. In addition, bacterial species testing will be conducted by Microbial Insights of Rockford, Tennessee. Appendix A provides a sampling protocol, as well as additional background information on the specific testing method.

Wells were selected for MNA parameter sampling from the phyllite/quartzitic sandstone aquifer in the NPBA and from the carbonate aquifer within some of the suspected NAPL source areas, plus up gradient and down gradient of those source areas as shown on **Figure 3**:

- NPBA (7wells) – CW-4, MW-3, MW-9, MW-12, RW-2, MW-18S, MW-18D
- SPBA (6 wells) – MW-64S, MW-64-D, MW-141A, MW-110, Cole F, MW-150
- Evaluation within Conduits (3 wells) – MW-137A (295.5-296), MW-147A, CW-8
- Depth within the diffuse portion of the carbonate aquifer – MW-139A (305.5-306; 365.5-366; 454.5-455)
- Source/plume area characterization (5 wells) – CW-15A, MW-51S, MW-51D, MW-7, CW-13
- Levee (8 wells) – MW-98S, MW-98I, MW-99S, MW-99D, MW-100S, MW-100D, MW-146, MW-147A

In all cases wells selected for MNA testing were already selected for other reasons.

Chemical Parameters

New wells installed as part of the field work for the GWRI Part 2 were sampled in accordance with the sampling laid out in Addendum 1 of the FSP. In four cases with the new wells (MW-136A, MW-141A, MW-145A, MW-148A), a "preliminary" sample was taken at the end of well development for VOCs only. This sampling was followed by the full round of parameters listed in Addendum 1, which are called "Initial Sampling Parameters":

- VOCs via 8260B
- SVOCs via 8270C
- 1,4 Dioxane via 8270C SIM
- Dissolved and Total Metals via SW-846 6020/7470A
- Available Cyanide via EPA OIA-1677
- Total Cyanide via EPA 335.4
- Total and Dissolved hexavalent chromium (Cr+6) via 7196A

In eight cases (MW-137A, MW-138A, MW-139A, MW-140A, MW-142S, MW-142D, MW-143S, MW-143D) additional samples were collected for VOCs only to build a database on each new well, and check for stability of the VOC values, since these values will be used to make decisions regarding the need for further characterization and remedial actions.

The results of the recent groundwater chemistry of wells sampled during the GWRI Part2 field work are included in **Table 3**. Not all data on this table has been validated.

For this comprehensive round of sampling and analysis, the objectives are to:

- gather a "snapshot" of VOCs for selected wells including new wells installed during the Part II RI and Key Wells for the 2011 sampling, and to further characterize the horizontal and vertical extent of the CVOC plume. Any well that was selected for sampling for any of the discussed reasons will be sampled for VOCs by default.
- continue to monitor and characterize the extent of other "minor" contaminant compounds.
- sample for MNA parameters.

The sampling program for the NPBA was added to this effort for efficiency and cost saving, and has the added benefit of enlarging the "snapshot" data set.

A number of wells will be sampled for the first time during this large round of sampling. Those wells (MW-150, MW-151S, MW-151D, MW-152S, MW-152D, MW-136 [multiple depths], MW-155, MW-156) will be sampled for the full round of parameters listed in Addendum 1.

Following is a discussion of other "minor" contaminant compounds to be sampled:

- 1,4-Dioxane – From 2008 to present, 1,4-dioxane was detected in groundwater samples from 30 locations. Twenty of these locations exceeded PADEP's residential medium specific concentration (MSC) for used aquifer of 6.4 µg/l. Groundwater from wells MW-7, CW-15A, MW-49s, MW-87, MW-54, MW-113, MW-132, and MW-134 exceeded PADEP's nonresidential used aquifer MSC of 32 µg/l. Of the new wells drilled since 2008, groundwater samples from thirteen (13) wells had detections of 1,4-dioxane.

  Wells selected for 1,4-dioxane sampling during this round are the 8 wells that exceeded PADEP's nonresidential MSC plus the wells installed for GWRI (Part2) that had detections in the initial sampling. Three wells that were installed for the GWRI (Part2) were deepened and fitted with Waterloo multilevel samplers. Those wells are MW-137A, MW-139A and MW-140A. These new installations have not been sampled at the time of writing this addendum, but will be sampled for initial parameters in accordance with Addendum 1, which includes 1,4-dioxane. Those installations will not be resampled for 1,4-dioxane during this round of sampling. **Figure 4** shows the wells that will be analyzed for 1,4-dioxane. Since 1,4-dioxane is a preservative added to TCA, Figure 4 shows the TCA plume from the Groundwater RI (Part 1).
- Chromium – The highest concentration detected in groundwater samples from new wells was MW-137A at 22 µg/l total chromium and 19 µg/l dissolved chromium (the MSC is 100µg/l), indicating no new significant information expanding the extent of chromium for the project. Four wells that were sampled for chromium as part of the 2011 Key Well sampling (MW-7, MW-47, MW-51D, MW-51S) will be analyzed for total and dissolved hexavalent and total chromium. In addition, MW-137A will be resampled for a full suite of parameter listed in Addendum 1, since it was reconstructed with a Waterloo multilevel

sampler. That sampling will be completed prior to the September sampling and is not included in this plan.

- SVOCs excluding 1,4-dioxane – SVOC detections in groundwater exceeded PADEP residential MSCs in 6 locations since 2008. The only new well installed as part of the field effort of the GWRI Part 2 with an SVOC detection was MW-146, with an estimated concentration of diethylphthalate of 2 µg/l, which was an estimated concentration that was detected in the blank. The residential groundwater MSC for this compound is 29,000 µg/l. SVOCs continue to be of minimal concern as a contaminant at this site. No sampling for SVOCs will be conducted during this round of sampling.
- Cyanide – MW-2, near a known cyanide disposal area that was removed in the 1970s. MW-2 is a 2011 Key Well, and will be the only well sampled for cyanide.

Summary

This addendum provides a selection rationale and illustration of the wells to be sampled and the parameters for which individual wells will be analyzed during the September round of groundwater samples. **Table 1** summarizes most of the data used to select the wells and parameters. Sampling and analysis shall be consistent with the FSP and addendums and the QAPP. A total of 131 discrete sample locations (including the discrete depth intervals) are included. **Figure 5** displays all wells to be sampled. The wells have unique symbols to designate the primary reason the well is included. For instance, if a well was a 2011 Key Well, but also was a well to be sampled for monitor the NPBA shutdown program, the well will be shown as an NPBA well.

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References

GSC, 2011. Supplemental Remedial Investigation Groundwater Report (Part 1) Former York Naval Ordnance Plant, September.

GSC, 2012. Field Sampling Plan (FSP) for Part 2 of the Supplemental Groundwater Remedial Investigation, April.

GSC, 2012. Quality Assurance Project Plan – Former York Naval Ordnance Plant, June.

Tables

Table 1
Groundwater RI (Part 2)
Summary of Wells to be Sampled During Comprehensive Sampling Program

Location Type	Location ID	Area	Rock Type	Rationale	Sampling Program	Parameters						
						VOCs	SVOCs	MNA	Chromium	1,4-Dioxane	Cyanide	Metals Total/Dissolved
Monitoring Well	Cole (Flush)	SPBA	Carbonate	Off-site trend for VOC	S	X						
Monitoring Well	Cole Steel	SPBA	Carbonate	Off-site trend for VOC	S	X						
Monitoring Well	Cole B	SPBA	Carbonate	Off-site trend for VOC	S	X						
Monitoring Well	Cole D	Off-site/SPBA	Carbonate	Off-site trend for VOC	2011KW|S	X						
Monitoring Well	Cole F	Off-site/SPBA	Carbonate	Off-site trend for VOC	2011KW|S	X		X				
Monitoring Well	MW-4 (Cole)	SPBA	Carbonate	Off-site trend for VOC	2011KW|S	X						
Monitoring Well	GM-1D	SPBA	Carbonate	Off-site trend for VOC	S	X						
Collection Well	CW-1	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-1A	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-2	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-3	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-4	NPBA	Quartzite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X		X				
Collection Well	CW-5	NPBA	Quartzite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-6	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-7	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-7A	NPBA	Phyllite	Groundwater Extraction Well	2011KW|CW|NPBA_B3	X						
Collection Well	CW-8	TCA	Carbonate	Groundwater Extraction Well	2011KW|CW	X		X				
Collection Well	CW-9	WPL	Carbonate	Groundwater Extraction Well	2011KW|CW	X						
Collection Well	CW-13	WPL	Carbonate	Groundwater Extraction Well	2011KW|CW	X		X				
Collection Well	CW-15A	WPL	Carbonate	Groundwater Extraction Well	2011KW|CW	X		X		X		
Collection Well	CW-17	WPL	Carbonate	Groundwater Extraction Well	2011KW|CW	X						
Collection Well	CW-20	WPL	Carbonate	SW Corner issue/Boundary	2011KW	X						
Residential Well	RW-4 Folk	Off-site/NPBA	Phyllite	Off-site residential trend for VOC	2011KW|NPBA_B3	X						
Monitoring Well	MW-2	CN	Quartzite	Monitor CN area	2011KW	X					X	
Monitoring Well	MW-3	NPBA	Quartzite	Down-gradient edge of NPBA plume	NPBA_B3	X		X				
Monitoring Well	MW-7	WPL	Carbonate	Monitor GW downgradient of potential Cr source	2011KW	X		X	X	X		
Monitoring Well	MW-9	NPBA	Phyllite	NPBA Shutdown Test	NPBA_B3	X		X				
Monitoring Well	MW-11	NPBA	Phyllite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-12	NPBA	Phyllite	NPBA Shutdown Test	NPBA_B3	X		X				
Monitoring Well	MW-16D	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-16S	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-18D	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X		X				
Monitoring Well	MW-18S	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X		X				
Monitoring Well	MW-20D	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-20S	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-20M	NPBA	Quartzite	NPBA Shutdown Test	NPBA_B3	X						
Monitoring Well	MW-40D	SPBA	Carbonate	Monitor GW along SPBA	S	X						
Monitoring Well	MW-40S	SPBA	Carbonate	Monitor GW along SPBA	S	X						
Monitoring Well	MW-43D	SPBA	Carbonate	Monitor GW along SPBA	S	X						
Monitoring Well	MW-43S	SPBA	Carbonate	Monitor GW along SPBA	S	X						
Monitoring Well	MW-47	WPL	Carbonate	Monitor GW downgradient of potential Cr source	2011KW	X			X			
Monitoring Well	MW-49S	NBldg4	Carbonate	1,4-dioxane exceeds non-residential MSC	1,4_D	X				X		
Monitoring Well	MW-50D	WPL	Carbonate	VOC trend for CW-15A	2011KW	X						
Monitoring Well	MW-50S	WPL	Carbonate	VOC trend for CW-15A	2011KW	X						
Monitoring Well	MW-51D	WPL	Carbonate	VOC trend for CW-15A	2011KW	X		X	X			
Monitoring Well	MW-51S	WPL	Carbonate	VOC trend for CW-15A	2011KW	X		X	X			
Monitoring Well	MW-64D	SPBA	Carbonate	VOC trend for SPBA	2011KW|S	X		X				
Monitoring Well	MW-64S	SPBA	Overburden	VOC trend for SPBA	2011KW|S	X		X				
Monitoring Well	MW-75S	WPL	Carbonate	SW Corner issue/Boundary	2011KW	X						
Monitoring Well	MW-77	UST-T4	Overburden	VOC trend for UST-T4 area	2011KW	X						
Monitoring Well	MW-82	NPA	Carbonate	North Corner/Boundary	2011KW	X						
Monitoring Well	MW-85	SPBA	Carbonate		S	X						
Monitoring Well	MW-87	Bldg 58	Carbonate	Near potential VOC source	1,4_D	X				X		
Monitoring Well	MW-95	WPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-96D	WPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-96S	WPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-98D	WWPL	Phyllite	Supplemental RI well - build database for trend	2011KW	X						

Table 1
Groundwater RI (Part 2)
Summary of Wells to be Sampled During Comprehensive Sampling Program

						Parameters						
Location Type	Location ID	Area	Rock Type	Rationale	Sampling Program	VOCs	SVOCs	MNA	Chromium	1,4-Dioxane	Cyanide	Metals Total/Dissolved
Monitoring Well	MW-98I	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-98S	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-99D	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-99S	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-100D	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-100I	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-100S	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X		X				
Monitoring Well	MW-101D	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-101S	WWPL	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-102D	NETT	Quartzite	New Supplemental RI well - build database for trend	NETT	X						
Monitoring Well	MW-102S	NETT	Overburden	New Supplemental RI well - build database for trend	NETT	X						
Monitoring Well	MW-103D	NETT	???	New Supplemental RI well - build database for trend	NETT	X						
Monitoring Well	MW-103S	NETT	Overburden	New Supplemental RI well - build database for trend	NETT	X						
Monitoring Well	MW-106	WPL	Overburden	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-107	WPL	Overburden	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-108S	Off-site	Overburden	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-109S	Off-site	Overburden	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-110	Off-site	Carbonate	Supplemental RI well - build database for trend	2011KW|S	X		X				
Monitoring Well	MW-113	Bldg 58	Carbonate	New Supplemental RI well - build database for trend	1,4_D	X				X		
Monitoring Well	MW-116	Bldg 41	Carbonate	Supplemental RI well - build database for trend	2011KW	X						
Monitoring Well	MW-126	Bldg 58	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-127	Bldg 58	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-128	Bldg 58	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-129	Bldg 58	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-130	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-131	Bldg 2	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-132	Bldg 2	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-133	Bldg 2	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-134	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Monitoring Well	MW-135	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X				X		
Waterloo MLS	MW-136A (Int 1)	WPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X	X		X	X	X	X
Waterloo MLS	MW-136A (Int 2)	WPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X	X		X	X	X	X
Waterloo MLS	MW-136A (Int 3)	WPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X	X		X	X	X	X
Waterloo MLS	MW-136A (Int 4)	WPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X	X		X	X	X	X
Waterloo MLS	MW-136A (Int 5)	WPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X	X		X	X	X	X
Waterloo MLS	MW-137A (295.5-296)	TCA	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X		X				
Waterloo MLS	MW-137A (343-343.5)	TCA	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-137A (374.5-375)	TCA	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-137A (420-420.5)	TCA	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-137A (434.5-435)	TCA	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-138A	Bldg 58	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-139A (305.5-306)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X		X				
Waterloo MLS	MW-139A (334-334.5)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-139A (365.5-366)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X		X				
Waterloo MLS	MW-139A (422-422.5)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-139A (454.5-455)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-140A (209.5-210)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-140A (285-285.5)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-140A (323.5-324)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-140A (372-372.5)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-140A (407.5-408)	W Bld 2 Coridoor	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-141A	SPBA	Carbonate	GWRI Part 2 well-build database for trend	RI-2|S	X		X				
Monitoring Well	MW-142D	NPBA	Phyllite	GWRI Part 2 well-build database for trend	RI-2|NPBA_B3	X						
Monitoring Well	MW-142S	NPBA	Phyllite	GWRI Part 2 well-build database for trend	RI-2|NPBA_B3	X						
Monitoring Well	MW-143D	NPA	Carbonate	GWRI Part 2 well-build database for trend	RI-2|NPBA_B3	X						
Monitoring Well	MW-143S	NPA	Overburden	GWRI Part 2 well-build database for trend	RI-2|NPBA_B3	X						
Monitoring Well	MW-144	WWPL	Overburden	GWRI Part 2 well-build database for trend	RI-2	X						

Table 1
Groundwater RI (Part 2)
Summary of Wells to be Sampled During Comprehensive Sampling Program

Location Type	Location ID	Area	Rock Type	Rationale	Sampling Program	Parameters						
						VOCs	SVOCs	MNA	Chromium	1,4-Dioxane	Cyanide	Metals Total/Dissolved
Monitoring Well	MW-145A	WWPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-146	WWPL	Overburden	GWRI Part 2 well-build database for trend	RI-2	X		X				
Monitoring Well	MW-147A	WWPL	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X		X				
Waterloo MLS	MW-148A (72.5-73)	OS	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-148A (136-136.5)	OS	Carbonate	GWRI Part 2 well-build database for trend	RI-2	X						
Waterloo MLS	MW-148A (218.5-219)	OS	Phyllite	GWRI Part 2 well-build database for trend	RI-2	X						
Monitoring Well	MW-150	Off-site		GWRI Part 2 Initial Sampling	RI-2|S	X	X		X	X	X	X
Waterloo MLS	MW-151D	Off-site		GWRI Part 2 Initial Sampling	RI-2|S	X	X		X	X	X	X
Waterloo MLS	MW-151S	Off-site		GWRI Part 2 Initial Sampling	RI-2|S	X	X		X	X	X	X
Waterloo MLS	MW-152D	Off-site		GWRI Part 2 Initial Sampling	RI-2|S	X	X		X	X	X	X
Waterloo MLS	MW-152S	Off-site		GWRI Part 2 Initial Sampling	RI-2|S	X	X		X	X	X	X
Monitoring Well	MW-155	WWPL		GWRI Part 2 Initial Sampling	RI-2	X	X		X	X	X	X
Monitoring Well	MW-156	WWPL		GWRI Part 2 Initial Sampling	RI-2	X	X		X	X	X	X
Residential Well	RW-2	Off-site/NPBA		Off-site residential trend for VOC	2011KW|NPBA_B3	X		X				
Residential Well	RW-5	Off-site/South		Off-site trend for VOC	2011KW|S	X						
Lift Station	Softail Lift Station Footer	Softail		Bldg 3 Shutdown Test	2011KW|NPBA_B3	X						
Spring	TATE (S-6)	OS		NPBA Shutdown Test	2011KW|NPBA_B3	X						
					TOTAL	131	13	30	17	25	13	12

Location Type Abbreviation:

Sampling Program Abbreviations:
RI-2 - Well installed during the GWRI Part2 program
2011KW - Well Sampled during 2011 Key well sampling
NPBA_B3 - Well to be sampled for NPBA/Bldg 3 Monitored Shutdown Program
S - Well to be sampled for SPBA/South of Site Characterization
1,4_D - Selected to montor the elevated 1,4-dioxane plume
NETT - Monitoring of plume in North End Test Track (NETT)

TABLE 2
NATURAL ATTENUATION ANALYTICAL AND FIELD SCREENING PARAMETERS

Parameter	Method/Reference	Rationale	Sample Volume, Container, and Preservation	Field or Fixed-Base Laboatory
Organics				
Volatile Organic Compounds	SW-846 8260B	CVOCs are primary target analytes for monitoring natural attenuation.	40 mL, glass, HCl, cool, 4°C	Fixed-base
Bacterial				
Dehalococcoides (qDCH)	Census DNA®/Microbial Insights	Bacterial group capable of reductive dechlorination of PCE and TCE to ethene.	Bio-Flo filter/Falcon Tube, cool, 4°C	Fixed-base
Vinyl Chloride Reductase (bvcA)	Census DNA®/Microbial Insights	Detects a strain (BAV1) of Dehalococcoides responsible for reductive dechlorination of Vinyl Chloride to ethene.	Bio-Flo filter/Falcon Tube, cool, 4°C	Fixed-base
TCE Reductase (tceA)	Census DNA®/Microbial Insights	Indicates some strains of Dehalococcoides responsible for reductive dechlorination of TCE to cis-1,2 DCE.	Bio-Flo filter/Falcon Tube, cool, 4°C	Fixed-base
Vinyl Chloride Reductase (vcrA)	Census DNA®/Microbial Insights	Detects a strain (VS 5) of Dehalococcoides responsible for reductive dechlorination of cis-1,2DCE and Vinyl Chloride to ethene.	Bio-Flo filter/Falcon Tube, cool, 4°C	Fixed-base
Dehalobacter spp.	Census DNA®/Microbial Insights	Bacterial group capable of reductive dechlorination of PCE and TCE to cis-1,2 DCE and TCA to chloroethane.	Bio-Flo filter/Falcon Tube, cool, 4°C	Fixed-base
Inorganics				
Alkalinity, Total	SM20 2320B	General water quality parameter, assess buffering capacity of groundwater.	200 mL plastic or glass, cool, 4°C	Fixed-base
Chloride	EPA 300.0	General water quality parameter to assist in assessing potential contributions from road deicing salts. Final product of chlorinated solvent reduction.	50 mL plastic or glass, cool, 4°C	Fixed-base
Iron, Ferric	SW-846 6010B mod. (calculated)	Assess potential for vinyl chloride oxidation under ferric iron reducing conditions.	500 mL - 1 L plastic or glass, cool, 4°C, HNO_3 to pH<2, field filter	Fixed-base
Iron, Ferrous	SM20 3500 Fe B mod.	May serve as an indicator of anaerobic degradation of vinyl chloride and fuel compounds.	250 mL amber glass, cool, 4°C, HCl to pH<2, analyze immediately	Fixed-base
Iron, Dissolved	SW-846 6010B	Assess if anaerobic biological activity is solubilizing iron from aquifer soils.	500 mL - 1 L plastic or glass, cool, 4°C, HNO_3 to pH<2, field filter	Fixed-base
Manganese, Dissolved	SW-846 6010B	Assess if anaerobic biological activity is solubilizing manganese for aquifer soils.	500 mL - 1 L plastic or glass, cool, 4°C, HNO_3 to pH<2, field filter	Fixed-base
Nitrate	EPA 300.0	Substrate for microbial respiration if oxygen is depleted. Potential marker for contributions from sewers.	50 mL plastic or glass, cool, 4°C (48 hour max hold)	Fixed-base
Dissolved Organic Carbon	EPA 415.1 mod.	Assess availability of carbon to drive reductive dechlorination.	125 mL glass, cool, 4°C	Fixed-base
Sodium, Dissolved	SW-846 6010B	General water quality parameter to assist in assessing potential contributions from road deicing salts.	500 mL - 1 L plastic or glass, cool, 4°C, HNO_3 to pH<2	Fixed-base
Sulfate	EPA 300.0	Substrate for anaerobic microbial respiration.	50 mL plastic or glass, cool, 4°C	Fixed-base
Sulfide	SM20 4500 S_2 F/D or EPA 376.1/376.2	Assess anaerobic conditions supporting reductive dechlorination.	500 mL, glass, cool, 4°C, NaOH, ZnAc (no headspace)	Fixed-base
Dissolved Gases				
Ethene and Ethane	AM20GAX	Monitor daughter products of reductive dechlorination.	2 x 40 mL, glass, Na_3PO_4, cool, 4°C	Fixed-base
Methane and Carbon Dioxide	AM20GAX	Monitor respiration products associated with biodegradation.	2 x 40 mL, glass, Na_3PO_4, cool, 4°C	Fixed-base
Field Screening Parameters				
pH	QED MP-20 Multimeter and flow cell, or equivalent	Stabilization parameter for low-flow sampling, aerobic and anaerobic biological processes are pH sensitive.	Not applicable	Field
Temperature		Stabilization parameter for low-flow sampling, assist in monitoring influence of thermal treatment.	Not applicable	Field
Specific Conductance		Stabilization parameter for low-flow sampling, general water quality parameter.	Not applicable	Field
Oxidation-Reduction Potential		Stabilization parameter for low-flow sampling, assess aerobic and anaerobic nature of biodegradation of CVOCs.	Not applicable	Field
Dissolved Oxygen		Stabilization parameter for low-flow sampling, assess aerobic and anaerobic nature of biodegradation of CVOCs.	Not applicable	Field
Turbidity		Stabilization parameter for low-flow sampling.	Not applicable	Field

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1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4										
Cyanide, Total														
Cyanide, Total	200	200		1.4										
METAL														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
METAL (Dissolved)														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
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Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99										
1,2-Dichlorobenzene	600	600	600	280										
1,3-Dichlorobenzene	600	600												
1,4-Dichlorobenzene	75	75	75	0.42										

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2,4,5-Trichlorophenol	3700	10000		890										
2,4,6-Trichlorophenol	37	100		3.5										
2,4-Dichlorophenol	20	20		35										
2,4-Dimethylphenol	730	2000		270										
2,4-Dinitrophenol	73	200		30										
2,4-Dinitrotoluene	2.1	8.4		0.2										
2,6-Dinitrotoluene	37	100		0.042										
2-Chloronaphthalene	2900	8200		550										
2-Chlorophenol	40	40		71										
2-Methylnaphthalene	150	410		27										
2-Methylphenol	1800	5100		720										
2-Nitroaniline	110	310		150										
2-Nitrophenol	290	820												
3-& 4-Methylphenol				180										
3,3'-Dichlorobenzidine	1.5	5.8		0.11										
3-Nitroaniline	11	31												
4,6-Dinitro-2-Methylphenol	3.7	10		1.2										
4-Bromophenyl phenyl ether														
4-Chloro-3-Methyl-Phenol	180	510		1100										
4-Chloroaniline	3.3	13		0.32										
4-Chlorodiphenyl Ether														
4-Nitroaniline	33	130		3.3										
4-Nitrophenol	60	60												
Acenaphthene	2200	3800		400										
Acenaphthylene	2200	6100		400										
Anthracene	66	66		1300										
Benzo (A) Anthracene	0.29	3.6	0.2	0.029										
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029										
Benzo (b) Fluoranthene	0.29	1.2		0.029										
Benzo (g,h,i) Perylene	0.26	0.26												
Benzo (k) Fluoranthene	0.55	0.55		0.29										
Bis(2-Chloroethoxy) Methane	110	310		46										
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012										
Bis(2-Chloroisopropyl) Ether	300	300		0.31										
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8										
Butylbenzylphthalate	350	1400		14										
Carbazole	33	130												
Chrysene	1.9	1.9		2.9										
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029										
Dibenzofuran	37	100		5.8										
Diethylphthalate	29000	82000		11000										
Dimethylphthalate														
Di-n-Butylphthalate	3700	10000		670										
Di-n-octylphthalate	1500	3000		160										
Fluoranthene	260	260		630										

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Fluorene	1500	1900		220										
Hexachlorobenzene	1	1	1	0.042										
Hexachlorobutadiene	8.5	33		0.26										
Hexachlorocyclopentadiene	50	50	50	22										
Hexachloroethane	1	1		0.79										
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029										
Isophorone	100	100		67										
Naphthalene	100	100		0.14										
Nitrobenzene	73	200		0.12										
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093										
N-Nitrosodiphenylamine	130	530		10										
Pentachlorophenol	1	1	1	0.035										
Phenanthrene	1100	1100												
Phenol	2000	2000		4500										
Pyrene	130	130		87										
TOTAL VOC														
					112.8	5.07	116.8	84.8	23.9	1354	937	296.3	336.6	0.61
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,1-Dichloroethane	31	160		2.4	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,1-Dichloroethene	7	7	7	260	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,2,4-Trimethylbenzene	15	62		15										
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,2-Dichloroethane	5	5	5	0.15	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,2-Dichloropropane	5	5	5	0.38	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
1,3,5-Trimethylbenzene	13	53		87										
1,4-Dioxane	6.4	32		0.67	1000 U	200 U	800 U	400 U	200 U	8000 U	8000 U	2000 U	2000 U	200 U
2-Butanone	4000	4000		4900	25 U	5 U	20 U	10 U	5 U	200 U	200 U	50 U	50 U	5 U
2-Hexanone	11	44		34	25 U	5 U	20 U	10 U	5 U	200 U	200 U	50 U	50 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	25 U	5 U	20 U	10 U	5 U	200 U	200 U	50 U	50 U	5 U
Acetone	33000	92000		12000	25 U	5 U	20 U	10 U	5 U	200 U	200 U	50 U	50 U	5 U
Acrylonitrile	0.72	3.7		0.045	100 U	20 U	80 U	40 U	20 U	800 U	800 U	200 U	200 U	20 U
Benzene	5	5	5	0.39	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Bromochloromethane	90	90		83	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Bromodichloromethane	80	80		0.12	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Bromoform	80	80		7.9	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Bromomethane	10	10		7	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Carbon Disulfide	1500	6200		720	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Carbon Tetrachloride	5	5	5	0.39	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Chlorobenzene	100	100	100	72	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Chlorodibromomethane	80	80		0.15	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Chloroethane	230	900		21000	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U

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Chloroform	80	80		0.19	5 U	0.31 J	4 U	2 U	1 U	40 U	40 U	10 U	10 U	0.45 J
Chloromethane				190	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	34	1 U	47	25	3.9	340	350	79	110	1 U
cis-1,3-Dichloropropene	6.6	26		0.41	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Ethylbenzene	700	700	700	1.3	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Isopropylbenzene	840	3500		390										
Methyl tert-butyl ether	20	20		12	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Methylene chloride	5	5		9.9	2.8 J	1 U	1.1 J	2 U	1 U	40 U	17 J B	3.7 J	2.8 J B	1 U
Naphthalene	100	100		0.14										
Styrene	100	100	100	1100	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Tetrachloroethene	5	5	5	9.7	5 U	0.26 J	1.9 J	1.4 J	1 U	40 U	40 U	10 U	10 U	1 U
Toluene	1000	1000	1000	860	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	0.16 J
trans-1,2-Dichloroethene	100	100	100	86	5 U	1 U	4 U	0.47 J	1 U	40 U	40 U	10 U	10 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	5 U	1 U	4 U	2 U	1 U	40 U	40 U	10 U	10 U	1 U
Trichloroethene	5	5	5	0.44	76	4.5	63	57	20	1000	560	210	220	1 U
Vinyl Chloride	2	2	2	0.015	5 U	1 U	3.8 J	0.93 J	1 U	14 J	10 J	3.6 J	3.8 J	1 U
Xylenes (Total)	10000	10000	10000	190	15 U	3 U	12 U	6 U	3 U	120 U	120 U	30 U	30 U	3 U

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1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4										
Cyanide, Total														
Cyanide, Total	200	200		1.4										
METAL														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
METAL (Dissolved)														
Antimony	6	6	6	6										
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Vanadium	260	720		63										
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Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99										
1,2-Dichlorobenzene	600	600	600	280										
1,3-Dichlorobenzene	600	600												
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2,4,5-Trichlorophenol	3700	10000		890										
2,4,6-Trichlorophenol	37	100		3.5										
2,4-Dichlorophenol	20	20		35										
2,4-Dimethylphenol	730	2000		270										
2,4-Dinitrophenol	73	200		30										
2,4-Dinitrotoluene	2.1	8.4		0.2										
2,6-Dinitrotoluene	37	100		0.042										
2-Chloronaphthalene	2900	8200		550										
2-Chlorophenol	40	40		71										
2-Methylnaphthalene	150	410		27										
2-Methylphenol	1800	5100		720										
2-Nitroaniline	110	310		150										
2-Nitrophenol	290	820												
3-& 4-Methylphenol				180										
3,3'-Dichlorobenzidine	1.5	5.8		0.11										
3-Nitroaniline	11	31												
4,6-Dinitro-2-Methylphenol	3.7	10		1.2										
4-Bromophenyl phenyl ether														
4-Chloro-3-Methyl-Phenol	180	510		1100										
4-Chloroaniline	3.3	13		0.32										
4-Chlorodiphenyl Ether														
4-Nitroaniline	33	130		3.3										
4-Nitrophenol	60	60												
Acenaphthene	2200	3800		400										
Acenaphthylene	2200	6100		400										
Anthracene	66	66		1300										
Benzo (A) Anthracene	0.29	3.6	0.2	0.029										
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029										
Benzo (b) Fluoranthene	0.29	1.2		0.029										
Benzo (g,h,i) Perylene	0.26	0.26												
Benzo (k) Fluoranthene	0.55	0.55		0.29										
Bis(2-Chloroethoxy) Methane	110	310		46										
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012										
Bis(2-Chloroisopropyl) Ether	300	300		0.31										
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8										
Butylbenzylphthalate	350	1400		14										
Carbazole	33	130												
Chrysene	1.9	1.9		2.9										
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029										
Dibenzofuran	37	100		5.8										
Diethylphthalate	29000	82000		11000										
Dimethylphthalate														
Di-n-Butylphthalate	3700	10000		670										
Di-n-octylphthalate	1500	3000		160										
Fluoranthene	260	260		630										

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-20S 6/6/2013	MW-77 8/1/2012	MW-118 8/2/2012	MW-120 8/1/2012	MW-121 8/1/2012	MW-122 7/2/2012	MW-122 8/2/2012	MW-123 7/2/2012	MW-123 8/2/2012	MW-124 7/2/2012
Fluorene	1500	1900		220										
Hexachlorobenzene	1	1	1	0.042										
Hexachlorobutadiene	8.5	33		0.26										
Hexachlorocyclopentadiene	50	50	50	22										
Hexachloroethane	1	1		0.79										
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029										
Isophorone	100	100		67										
Naphthalene	100	100		0.14										
Nitrobenzene	73	200		0.12										
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093										
N-Nitrosodiphenylamine	130	530		10										
Pentachlorophenol	1	1	1	0.035										
Phenanthrene	1100	1100												
Phenol	2000	2000		4500										
Pyrene	130	130		87										
TOTAL VOC														
					237.4	3031	3059	13.8	14279	0	1.1	0	2.8	12346
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	5 U									
1,1,1-Trichloroethane	200	200	200	7500	5 U									
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	5 U									
1,1,2-Trichloroethane	5	5	5	0.24	5 U									
1,1-Dichloroethane	31	160		2.4	5 U									
1,1-Dichloroethene	7	7	7	260	5 U									
1,2,4-Trimethylbenzene	15	62		15		33 J	600	5 U	980	5 U	5 U	5 U	5 U	550
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	5 U									
1,2-Dichloroethane	5	5	5	0.15	5 U									
1,2-Dichloropropane	5	5	5	0.38	5 U									
1,3,5-Trimethylbenzene	13	53		87		13 J	210	5 U	230	5 U	5 U	5 U	5 U	240
1,4-Dioxane	6.4	32		0.67	1000 U									
2-Butanone	4000	4000		4900	25 U									
2-Hexanone	11	44		34	25 U									
4-Methyl-2-Pentanone	2900	8200		1000	25 U									
Acetone	33000	92000		12000	25 U									
Acrylonitrile	0.72	3.7		0.045	100 U									
Benzene	5	5	5	0.39	5 U	2000	39 J	7	480 J	5 U	5 U	5 U	5 U	1400
Bromochloromethane	90	90		83	5 U									
Bromodichloromethane	80	80		0.12	5 U									
Bromoform	80	80		7.9	5 U									
Bromomethane	10	10		7	5 U									
Carbon Disulfide	1500	6200		720	5 U									
Carbon Tetrachloride	5	5	5	0.39	5 U									
Chlorobenzene	100	100	100	72	5 U									
Chlorodibromomethane	80	80		0.15	5 U									
Chloroethane	230	900		21000	5 U									

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-20S 6/6/2013	MW-77 8/1/2012	MW-118 8/2/2012	MW-120 8/1/2012	MW-121 8/1/2012	MW-122 7/2/2012	MW-122 8/2/2012	MW-123 7/2/2012	MW-123 8/2/2012	MW-124 7/2/2012
Chloroform	80	80		0.19	1.1 J									
Chloromethane				190	5 U									
cis-1,2-Dichloroethene	70	70	70	28	4.1 J									
cis-1,3-Dichloropropene	6.6	26		0.41	5 U									
Ethylbenzene	700	700	700	1.3	5 U	140	600	5 U	1900	5 U	5 U	5 U	5 U	660
Isopropylbenzene	840	3500		390		24 J	78	5 U	89	5 U	5 U	5 U	5 U	57
Methyl tert-butyl ether	20	20		12	5 U	540	50 U	6.8	500 U	5 U	5 U	5 U	5 U	39
Methylene chloride	5	5		9.9	2.2 J B									
Naphthalene	100	100		0.14		41 J	22 J B *	5 U	500 U	5 U	1.1 J B *	5 U	2.8 J B *	1600
Styrene	100	100	100	1100	5 U									
Tetrachloroethene	5	5	5	9.7	10									
Toluene	1000	1000	1000	860	5 U	110	110	5 U	6900	5 U	5 U	5 U	5 U	4000
trans-1,2-Dichloroethene	100	100	100	86	5 U									
trans-1,3-Dichloropropene	6.6	26		0.41	5 U									
Trichloroethene	5	5	5	0.44	220									
Vinyl Chloride	2	2	2	0.015	5 U									
Xylenes (Total)	10000	10000	10000	190	15 U	130 J	1400	15 U	3700	15 U	15 U	15 U	15 U	3800

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-124 8/2/2012	MW-125 7/2/2012	MW-125 8/1/2012	MW-126 7/6/2012	MW-127 7/6/2012	MW-128 7/6/2012	MW-128 Dup 7/6/2012	MW-129 7/6/2012	MW-130 7/2/2012
1,4-Dioxane													
1,4-Dioxane	6.4	32		0.67				1.9 U	24	8.8		5.3	13
Cyanide, Free													
Cyanide, Free	200	200	200	1.4				2 U	2 U	2 U	2 U	2 U	2 U
Cyanide, Total													
Cyanide, Total	200	200		1.4				1.6 J	10 U	10 U	10 U	10 U	1.9 J
METAL													
Antimony	6	6	6	6				0.45 J	0.16 J	0.072 J	0.056 J	0.14 J	0.12 J B
Arsenic	10	10	10	0.045				0.39 J ^	0.72 J ^	0.43 J ^	1 U	2.4 ^	1 U
Barium	2000	2000	2000	2900				40	14	20	20	68	80
Beryllium	4	4	4	16				0.045 J	0.048 J	1 U	1 U	0.071 J	1 U
Cadmium	5	5	5	6.9				1 U	1 U	1 U	1 U	1 U	1 U
Chromium	100	100	100					1.1 J	1.5 J	1.2 J	1.4 J	2	6.8
Copper	1000	1000	1300	620				1.2 J	1.1 J	0.92 J	0.84 J	1.3 J	0.98 J
Hexavalent Chromium	100	100		0.031				4.6 J	3.3 J	10 U	10 U	4.6 J	3.93 J
Lead	5	5	15					0.054 J	0.1 J	0.1 J	1.8	0.69 J	0.13 J B
Mercury	2	2	2	0.63				0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	100		300				0.54 J	0.33 J	1 U	1 U	1.6	0.53 J
Selenium	50	50	50	78				1.1 J B	1.5 J B	1.5 J B	1.3 J B	2.2 J B	5 U
Silver	100	100		71				1 U	1 U	1 U	1 U	1 U	1 U
Thallium	2	2	2	0.16				0.39 J	0.075 J	0.068 J	0.049 J	0.067 J	0.053 J B
Vanadium	260	720		63				0.12 J	1 U	1 U	1 U	0.4 J	9.1 B
Zinc	2000	2000		4700				5.3	4.7 J	5.8	3.7 J	5.3	1.6 J
METAL (Dissolved)													
Antimony	6	6	6	6				0.58 J B	0.23 J B	0.14 J B	0.073 J B	0.14 J B	2 U
Arsenic	10	10	10	0.045				0.62 J B ^	0.55 J B ^	0.51 J B ^	0.64 J B ^	1.7 B ^	1 U
Barium	2000	2000	2000	2900				41	13	19	20	65	82
Beryllium	4	4	4	16				0.039 J	1 U	0.041 J	1 U	1 U	1 U
Cadmium	5	5	5	6.9				1 U	1 U	1 U	1 U	1 U	1 U
Chromium	100	100	100					1 J	1.2 J	1.4 J	1.1 J	0.89 J	1.9 J
Copper	1000	1000	1300	620				1.1 J	0.77 J	0.86 J	0.74 J	0.69 J	2.1 B
Hexavalent Chromium	100	100		0.031				10 U	10 U	10 U	10 U	10 U	10 U
Lead	5	5	15					0.12 J	0.025 J	0.047 J	0.028 J	0.021 J	0.019 J B
Mercury	2	2	2	0.63				0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	100		300				0.59 J	1 U	1 U	1 U	0.87 J	0.46 J
Selenium	50	50	50	78				3.2 J B	2.9 J B	5 U	2.7 J B	0.65 J B	5 U
Silver	100	100		71				1 U	1 U	1 U	1 U	1 U	1 U
Thallium	2	2	2	0.16				0.5 J	0.082 J	0.067 J	0.045 J	0.06 J	0.029 J
Vanadium	260	720		63				0.35 J	1 U	1 U	1 U	1 U	1 U
Zinc	2000	2000		4700				3.1 J	4.9 J	3.5 J	1.8 J	5.2	3.8 J B
Semi Volatile Organic Compound													
1,2,4-Trichlorobenzene	70	70	70	0.99				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
1,2-Dichlorobenzene	600	600	600	280				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
1,3-Dichlorobenzene	600	600						9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
1,4-Dichlorobenzene	75	75	75	0.42				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-124 8/2/2012	MW-125 7/2/2012	MW-125 8/1/2012	MW-126 7/6/2012	MW-127 7/6/2012	MW-128 7/6/2012	MW-128 Dup 7/6/2012	MW-129 7/6/2012	MW-130 7/2/2012
2,4,5-Trichlorophenol	3700	10000		890				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2,4,6-Trichlorophenol	37	100		3.5				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2,4-Dichlorophenol	20	20		35				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
2,4-Dimethylphenol	730	2000		270				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2,4-Dinitrophenol	73	200		30				48 U	48 U	48 U		48 U	49 U
2,4-Dinitrotoluene	2.1	8.4		0.2				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2,6-Dinitrotoluene	37	100		0.042				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2-Chloronaphthalene	2900	8200		550				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
2-Chlorophenol	40	40		71				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2-Methylnaphthalene	150	410		27				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
2-Methylphenol	1800	5100		720				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
2-Nitroaniline	110	310		150				48 U	48 U	48 U		48 U	49 U
2-Nitrophenol	290	820						9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
3-& 4-Methylphenol				180				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
3,3'-Dichlorobenzidine	1.5	5.8		0.11				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
3-Nitroaniline	11	31						48 U	48 U	48 U		48 U	49 U
4,6-Dinitro-2-Methylphenol	3.7	10		1.2				48 U	48 U	48 U		48 U	49 U
4-Bromophenyl phenyl ether								9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
4-Chloro-3-Methyl-Phenol	180	510		1100				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
4-Chloroaniline	3.3	13		0.32				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
4-Chlorodiphenyl Ether								9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
4-Nitroaniline	33	130		3.3				48 U	48 U	48 U		48 U	49 U
4-Nitrophenol	60	60						48 U	48 U	48 U		48 U	49 U
Acenaphthene	2200	3800		400				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Acenaphthylene	2200	6100		400				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Anthracene	66	66		1300				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Benzo (A) Anthracene	0.29	3.6	0.2	0.029				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Benzo (b) Fluoranthene	0.29	1.2		0.029				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Benzo (g,h,i) Perylene	0.26	0.26						1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Benzo (k) Fluoranthene	0.55	0.55		0.29				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Bis(2-Chloroethoxy) Methane	110	310		46				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Bis(2-Chloroisopropyl) Ether	300	300		0.31				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8				19 U	19 U	19 U		19 U	19 U
Butylbenzylphthalate	350	1400		14				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Carbazole	33	130						1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Chrysene	1.9	1.9		2.9				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Dibenzofuran	37	100		5.8				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Diethylphthalate	29000	82000		11000				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Dimethylphthalate								9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Di-n-Butylphthalate	3700	10000		670				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Di-n-octylphthalate	1500	3000		160				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Fluoranthene	260	260		630				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-124 8/2/2012	MW-125 7/2/2012	MW-125 8/1/2012	MW-126 7/6/2012	MW-127 7/6/2012	MW-128 7/6/2012	MW-128 Dup 7/6/2012	MW-129 7/6/2012	MW-130 7/2/2012
Fluorene	1500	1900		220				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Hexachlorobenzene	1	1	1	0.042				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Hexachlorobutadiene	8.5	33		0.26				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Hexachlorocyclopentadiene	50	50	50	22				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Hexachloroethane	1	1		0.79				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Isophorone	100	100		67				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Naphthalene	100	100		0.14				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Nitrobenzene	73	200		0.12				19 U	19 U	19 U		19 U	19 U
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
N-Nitrosodiphenylamine	130	530		10				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Pentachlorophenol	1	1	1	0.035				9.6 U	9.6 U	9.6 U		9.6 U	9.7 U
Phenanthrene	1100	1100						1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Phenol	2000	2000		4500				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
Pyrene	130	130		87				1.9 U	1.9 U	1.9 U		1.9 U	1.9 U
TOTAL VOC													
					23470	0	0	7.3	1870	669	730	296.8	2120
Volatile Organic Compound													
1,1,1,2-Tetrachloroethane	70	70		0.5				1 U	50 U	25 U	25 U	10 U	100 U
1,1,1-Trichloroethane	200	200	200	7500				1 U	50 U	25 U	25 U	10 U	100 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066				1 U	50 U	25 U	25 U	10 U	100 U
1,1,2-Trichloroethane	5	5	5	0.24				1 U	50 U	25 U	25 U	10 U	100 U
1,1-Dichloroethane	31	160		2.4				1 U	50 U	25 U	25 U	10 U	100 U
1,1-Dichloroethene	7	7	7	260				1 U	30 J	14 J	12 J	5.7 J	41 J
1,2,4-Trimethylbenzene	15	62		15	1200	5 U	5 U						
1,2-Dibromoethane	0.05	0.05	0.05	0.0065				1 U	50 U	25 U	25 U	10 U	100 U
1,2-Dichloroethane	5	5	5	0.15				1 U	50 U	25 U	25 U	10 U	100 U
1,2-Dichloropropane	5	5	5	0.38				1 U	50 U	25 U	25 U	10 U	100 U
1,3,5-Trimethylbenzene	13	53		87	490	5 U	5 U						
1,4-Dioxane	6.4	32		0.67				200 U	10000 U	5000 U	5000 U	2000 U	20000 U
2-Butanone	4000	4000		4900				5 U	250 U	130 U	130 U	50 U	500 U
2-Hexanone	11	44		34				5 U	250 U	130 U	130 U	50 U	500 U
4-Methyl-2-Pentanone	2900	8200		1000				5 U	250 U	130 U	130 U	50 U	500 U
Acetone	33000	92000		12000				5 U	250 U	130 U	130 U	50 U	500 U
Acrylonitrile	0.72	3.7		0.045				20 U	1000 U	500 U	500 U	200 U	2000 U
Benzene	5	5	5	0.39	2300	5 U	5 U	1 U	50 U	25 U	25 U	10 U	100 U
Bromochloromethane	90	90		83				1 U	50 U	25 U	25 U	10 U	100 U
Bromodichloromethane	80	80		0.12				1 U	50 U	25 U	25 U	10 U	100 U
Bromoform	80	80		7.9				1 U	50 U	25 U	25 U	10 U	100 U
Bromomethane	10	10		7				1 U	50 U	25 U	25 U	10 U	100 U
Carbon Disulfide	1500	6200		720				1 U	50 U	25 U	25 U	10 U	100 U
Carbon Tetrachloride	5	5	5	0.39				1 U	50 U	25 U	25 U	10 U	100 U
Chlorobenzene	100	100	100	72				1 U	50 U	25 U	25 U	10 U	100 U
Chlorodibromomethane	80	80		0.15				1 U	50 U	25 U	25 U	10 U	100 U
Chloroethane	230	900		21000				1 U	50 U	25 U	25 U	10 U	100 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-124 8/2/2012	MW-125 7/2/2012	MW-125 8/1/2012	MW-126 7/6/2012	MW-127 7/6/2012	MW-128 7/6/2012	MW-128 Dup 7/6/2012	MW-129 7/6/2012	MW-130 7/2/2012
Chloroform	80	80		0.19				1 U	50 U	25 U	25 U	10 U	100 U
Chloromethane				190				1 U	50 U	25 U	25 U	10 U	100 U
cis-1,2-Dichloroethene	70	70	70	28				2.6	590	210	240	200	690
cis-1,3-Dichloropropene	6.6	26		0.41				1 U	50 U	25 U	25 U	10 U	100 U
Ethylbenzene	700	700	700	1.3	960	5 U	5 U	1 U	50 U	25 U	25 U	10 U	100 U
Isopropylbenzene	840	3500		390	36 J	5 U	5 U						
Methyl tert-butyl ether	20	20		12	44 J *	5 U	5 U	1 U	50 U	25 U	25 U	10 U	100 U
Methylene chloride	5	5		9.9				1 U	17 J B	14 J B	13 J B	5.1 J B	64 J B
Naphthalene	100	100		0.14	540 B *	5 U	5 U						
Styrene	100	100	100	1100				1 U	50 U	25 U	25 U	10 U	100 U
Tetrachloroethene	5	5	5	9.7				0.2 J	33 J	11 J	15 J	10 U	25 J
Toluene	1000	1000	1000	860	8400	5 U	5 U	1 U	50 U	25 U	25 U	10 U	100 U
trans-1,2-Dichloroethene	100	100	100	86				1 U	50 U	25 U	25 U	19	100 U
trans-1,3-Dichloropropene	6.6	26		0.41				1 U	50 U	25 U	25 U	10 U	100 U
Trichloroethene	5	5	5	0.44				4.5	1200	420	450	67	1300
Vinyl Chloride	2	2	2	0.015				1 U	50 U	25 U	25 U	10 U	100 U
Xylenes (Total)	10000	10000	10000	190	9500	15 U	15 U	3 U	150 U	75 U	75 U	30 U	300 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-131 7/5/2012	MW-132 7/5/2012	MW-133 7/5/2012	MW-134 7/5/2012	MW-135 7/2/2012	MW-136A 7/10/2012	MW-136A 1/3/2013	MW-136A 1/15/2013	MW-136A 2/5/2013
1,4-Dioxane													
1,4-Dioxane	6.4	32		0.67	14	60	0.95 J	57	10				2.4 J
Cyanide, Free													
Cyanide, Free	200	200	200	1.4	2 U	2 U	2 U	2 U	2 U				2 U
Cyanide, Total													
Cyanide, Total	200	200		1.4	1.8 J	10 U	10 U	10	10 U				1 U
METAL													
Antimony	6	6	6	6	0.38 J B	0.44 J B	0.24 J B	0.24 J B	0.063 J B				4.5 B
Arsenic	10	10	10	0.045	1 U	1 U	1 U	1 U	0.52 J B				0.99 J
Barium	2000	2000	2000	2900	53	31	55	56	66				64 B
Beryllium	4	4	4	16	0.058 J	0.05 J	1 U	1 U	1 U				0.17 J
Cadmium	5	5	5	6.9	1 U	1 U	1 U	1 U	1 U				0.84 J
Chromium	100	100	100		1.9 J	1.6 J	2.4	1.5 J	6.5				8.4
Copper	1000	1000	1300	620	1.9 J	1.4 J	1.5 J	1.2 J	1.2 J				16
Hexavalent Chromium	100	100		0.031	4.57 J	5.8 J	3.9 J	5.2 J	12				10 U
Lead	5	5	15		0.3 J	0.055 J	0.13 J	0.064 J	0.041 J B				19
Mercury	2	2	2	0.63	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.055 J
Nickel	100	100		300	2.3	0.71 J	0.86 J	1	6.6				4.6
Selenium	50	50	50	78	5 U	5 U	5 U	5 U	5 U				5 U
Silver	100	100		71	0.048 J	0.037 J	1 U	1 U	0.04 J				1 U
Thallium	2	2	2	0.16	0.32 J B	0.33 J B	0.12 J B	0.11 J B	0.04 J B				0.22 J B
Vanadium	260	720		63	1 U	1 U	0.27 J	1 U	9 B				5 B
Zinc	2000	2000		4700	3.7 J B	5.8 B	5.4 B	2.5 J B	1.6 J				37
METAL (Dissolved)													
Antimony	6	6	6	6	0.38 J B	0.38 J B	0.19 J B	0.15 J B	2 U				1 J
Arsenic	10	10	10	0.045	1 U	1 U	1 U	1 U	1 U				1 U
Barium	2000	2000	2000	2900	49	28	51	55	71				49 B
Beryllium	4	4	4	16	1 U	1 U	1 U	1 U	1 U				1 U
Cadmium	5	5	5	6.9	1 U	1 U	1 U	1 U	1 U				0.15 J
Chromium	100	100	100		1.5 J	1.4 J	2	2.2	2				1.8 J
Copper	1000	1000	1300	620	1.9 J	1.3 J	1.5 J	1.5 J	2.5 B				1.2 J B
Hexavalent Chromium	100	100		0.031	3.3 J	10 U	3.29 J	5.8 J	10 U				10 U
Lead	5	5	15		0.16 J B	0.083 J B	0.097 J B	0.047 J B	0.034 J B				0.11 J
Mercury	2	2	2	0.63	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U
Nickel	100	100		300	1.7	0.75 J	0.81 J	0.92 J	8				1.1
Selenium	50	50	50	78	5 U	5 U	5 U	5 U	5 U				0.48 J
Silver	100	100		71	0.038 J	1 U	1 U	1 U	0.054 J				1 U
Thallium	2	2	2	0.16	0.35 J	0.31 J	0.12 J	0.088 J	0.037 J				0.039 J
Vanadium	260	720		63	1 U	0.41 J	0.59 J	0.45 J	1 U				1 U
Zinc	2000	2000		4700	3.7 J	4.6 J	5.6	4 J	6.2 B				5 B
Semi Volatile Organic Compound													
1,2,4-Trichlorobenzene	70	70	70	0.99	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
1,2-Dichlorobenzene	600	600	600	280	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
1,3-Dichlorobenzene	600	600			9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
1,4-Dichlorobenzene	75	75	75	0.42	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-131 7/5/2012	MW-132 7/5/2012	MW-133 7/5/2012	MW-134 7/5/2012	MW-135 7/2/2012	MW-136A 7/10/2012	MW-136A 1/3/2013	MW-136A 1/15/2013	MW-136A 2/5/2013
2,4,5-Trichlorophenol	3700	10000		890	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2,4,6-Trichlorophenol	37	100		3.5	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2,4-Dichlorophenol	20	20		35	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
2,4-Dimethylphenol	730	2000		270	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2,4-Dinitrophenol	73	200		30	48 U	48 U	49 U	48 U	48 U				54 U
2,4-Dinitrotoluene	2.1	8.4		0.2	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2,6-Dinitrotoluene	37	100		0.042	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2-Chloronaphthalene	2900	8200		550	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
2-Chlorophenol	40	40		71	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2-Methylnaphthalene	150	410		27	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
2-Methylphenol	1800	5100		720	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
2-Nitroaniline	110	310		150	48 U	48 U	49 U	48 U	48 U				54 U
2-Nitrophenol	290	820			9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
3-& 4-Methylphenol				180	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
3,3'-Dichlorobenzidine	1.5	5.8		0.11	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
3-Nitroaniline	11	31			48 U	48 U	49 U	48 U	48 U				54 U
4,6-Dinitro-2-Methylphenol	3.7	10		1.2	48 U	48 U	49 U	48 U	48 U				54 U
4-Bromophenyl phenyl ether					9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
4-Chloro-3-Methyl-Phenol	180	510		1100	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
4-Chloroaniline	3.3	13		0.32	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
4-Chlorodiphenyl Ether					9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
4-Nitroaniline	33	130		3.3	48 U	48 U	49 U	48 U	48 U				54 U
4-Nitrophenol	60	60			48 U	48 U	49 U	48 U	48 U				54 U
Acenaphthene	2200	3800		400	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Acenaphthylene	2200	6100		400	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Anthracene	66	66		1300	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Benzo (A) Anthracene	0.29	3.6	0.2	0.029	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Benzo (b) Fluoranthene	0.29	1.2		0.029	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Benzo (g,h,i) Perylene	0.26	0.26			1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Benzo (k) Fluoranthene	0.55	0.55		0.29	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Bis(2-Chloroethoxy) Methane	110	310		46	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Bis(2-Chloroisopropyl) Ether	300	300		0.31	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8	19 U	19 U	19 U	19 U	19 U				22 U
Butylbenzylphthalate	350	1400		14	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Carbazole	33	130			1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Chrysene	1.9	1.9		2.9	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Dibenzofuran	37	100		5.8	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Diethylphthalate	29000	82000		11000	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Dimethylphthalate					9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Di-n-Butylphthalate	3700	10000		670	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Di-n-octylphthalate	1500	3000		160	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Fluoranthene	260	260		630	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-131 7/5/2012	MW-132 7/5/2012	MW-133 7/5/2012	MW-134 7/5/2012	MW-135 7/2/2012	MW-136A 7/10/2012	MW-136A 1/3/2013	MW-136A 1/15/2013	MW-136A 2/5/2013
Fluorene	1500	1900		220	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Hexachlorobenzene	1	1	1	0.042	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Hexachlorobutadiene	8.5	33		0.26	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Hexachlorocyclopentadiene	50	50	50	22	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Hexachloroethane	1	1		0.79	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Isophorone	100	100		67	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Naphthalene	100	100		0.14	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Nitrobenzene	73	200		0.12	19 U	19 U	19 U	19 U	19 U				22 U
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
N-Nitrosodiphenylamine	130	530		10	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Pentachlorophenol	1	1	1	0.035	9.6 U	9.6 U	9.7 U	9.6 U	9.6 U				11 U
Phenanthrene	1100	1100			1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Phenol	2000	2000		4500	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
Pyrene	130	130		87	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U				2.2 U
TOTAL VOC													
					5200	7812	39.82	940	1613.4	25170	72930	23500	19360
Volatile Organic Compound													
1,1,1,2-Tetrachloroethane	70	70		0.5	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,1,1-Trichloroethane	200	200	200	7500	250 U	250 U	1 U	25 U	40 U	570 J	1600	1000 U	1000 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,1,2-Trichloroethane	5	5	5	0.24	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,1-Dichloroethane	31	160		2.4	250 U	92 J	0.27 J	25 U	9.4 J	1000 U	1000 U	1000 U	1000 U
1,1-Dichloroethene	7	7	7	260	250 U	160 J	1.2	9 J	17 J	1000 U	1000 U	1000 U	1000 U
1,2,4-Trimethylbenzene	15	62		15									
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,2-Dichloroethane	5	5	5	0.15	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,2-Dichloropropane	5	5	5	0.38	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
1,3,5-Trimethylbenzene	13	53		87									
1,4-Dioxane	6.4	32		0.67	50000 U	50000 U	200 U	5000 U	8000 U	200000 U	200000 U	200000 U	200000 U
2-Butanone	4000	4000		4900	1300 U	1300 U	5 U	130 U	200 U	5000 U	5000 U	5000 U	5000 U
2-Hexanone	11	44		34	1300 U	1300 U	5 U	130 U	200 U	5000 U	5000 U	5000 U	5000 U
4-Methyl-2-Pentanone	2900	8200		1000	1300 U	1300 U	5 U	130 U	200 U	5000 U	5000 U	5000 U	5000 U
Acetone	33000	92000		12000	1300 U	1300 U	5 U	130 U	200 U	5000 U	5000 U	5000 U	5000 U
Acrylonitrile	0.72	3.7		0.045	5000 U	5000 U	20 U	500 U	800 U	20000 U	20000 U	20000 U	20000 U
Benzene	5	5	5	0.39	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Bromochloromethane	90	90		83	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Bromodichloromethane	80	80		0.12	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Bromoform	80	80		7.9	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Bromomethane	10	10		7	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Carbon Disulfide	1500	6200		720	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Carbon Tetrachloride	5	5	5	0.39	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Chlorobenzene	100	100	100	72	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Chlorodibromomethane	80	80		0.15	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Chloroethane	230	900		21000	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-131 7/5/2012	MW-132 7/5/2012	MW-133 7/5/2012	MW-134 7/5/2012	MW-135 7/2/2012	MW-136A 7/10/2012	MW-136A 1/3/2013	MW-136A 1/15/2013	MW-136A 2/5/2013
Chloroform	80	80		0.19	250 U	250 U	0.2 J	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Chloromethane				190	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
cis-1,2-Dichloroethene	70	70	70	28	1100	3600	11	270	730	270 J	330 J	1000 U	1000 U
cis-1,3-Dichloropropene	6.6	26		0.41	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Ethylbenzene	700	700	700	1.3	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Isopropylbenzene	840	3500		390									
Methyl tert-butyl ether	20	20		12	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Methylene chloride	5	5		9.9	100 J B	160 J B	1 U	16 U	27 J B	330 J B	1000	400 J B	260 J
Naphthalene	100	100		0.14									
Styrene	100	100	100	1100	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Tetrachloroethene	5	5	5	9.7	250 U	250 U	0.15 J	41	420	14000	31000	15000	13000
Toluene	1000	1000	1000	860	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
trans-1,2-Dichloroethene	100	100	100	86	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
trans-1,3-Dichloropropene	6.6	26		0.41	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Trichloroethene	5	5	5	0.44	4000	3800	27	620	410	10000	39000	8100	6100
Vinyl Chloride	2	2	2	0.015	250 U	250 U	1 U	25 U	40 U	1000 U	1000 U	1000 U	1000 U
Xylenes (Total)	10000	10000	10000	190	750 U	750 U	3 U	75 U	120 U	3000 U	3000 U	3000 U	3000 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-137A 10/10/2012	MW-137A 1/15/2013	MW-138A 11/13/2012	MW-138A 1/7/2013	MW-139A 8/30/2012	MW-139A 9/25/2012	MW-139A 10/9/2012	MW-140A 9/25/2012	MW-140A 10/9/2012
1,4-Dioxane													
1,4-Dioxane	6.4	32		0.67	14		2.1 U		4			4.8	
Cyanide, Free													
Cyanide, Free	200	200	200	1.4	2 U		2 U		2 U			2 U	
Cyanide, Total													
Cyanide, Total	200	200		1.4	10 U		10 U		3.1 J			10 U	
METAL													
Antimony	6	6	6	6	0.026 J		1.5 J		0.29 J			0.58 J B	
Arsenic	10	10	10	0.045	2.9		7.3 B		0.63 J			0.78 J	
Barium	2000	2000	2000	2900	84 B		180		130			210	
Beryllium	4	4	4	16	1 U		1 U		1 U			1 U	
Cadmium	5	5	5	6.9	1 U		1 U		1 U			1 U	
Chromium	100	100	100		22		11		4.6			2.6	
Copper	1000	1000	1300	620	3.6		2.6		1.9 J			2	
Hexavalent Chromium	100	100		0.031	10 U		10 U		3.9 J			10 U	
Lead	5	5	15		0.31 J		1.2		0.64 J B			0.41 J B	
Mercury	2	2	2	0.63	0.2 U		0.2 U		0.2 U			0.2 U	
Nickel	100	100		300	3.6		0.77 J		3.6			0.63 J	
Selenium	50	50	50	78	6		4 J B		5 U			5 U	
Silver	100	100		71	1 U		1 U		1 U			1 U	
Thallium	2	2	2	0.16	0.25 J B		0.057 J B		1 U			0.043 J	
Vanadium	260	720		63	1 U		3.7		6.3 B			1 U	
Zinc	2000	2000		4700	22		19		10			11 B	
METAL (Dissolved)													
Antimony	6	6	6	6	0.041 J		1.1 J		0.17 J			0.17 J	
Arsenic	10	10	10	0.045	2.5		1 U		0.69 J B			1 U	
Barium	2000	2000	2000	2900	83		160		140 B			210	
Beryllium	4	4	4	16	1 U		1 U		1 U			1 U	
Cadmium	5	5	5	6.9	1 U		1 U		1 U			1 U	
Chromium	100	100	100		19		12		2.8 B			3.8	
Copper	1000	1000	1300	620	7		2		1.8 J B			1 J	
Hexavalent Chromium	100	100		0.031	10 U		10 U		2.4 J			10 U	
Lead	5	5	15		0.14 J		0.14 J		0.79 J B			1 U	
Mercury	2	2	2	0.63	0.2 U		0.2 U		0.2 U			0.2 U	
Nickel	100	100		300	3.4		0.67 J		1.7			0.56 J	
Selenium	50	50	50	78	6.3		5 U		5 U			5 U	
Silver	100	100		71	1 U		1 U		0.037 J			1 U	
Thallium	2	2	2	0.16	0.28 J B		0.13 J		1 U			0.19 J	
Vanadium	260	720		63	1.4 B		5.4		5.2 B			1 U	
Zinc	2000	2000		4700	46		6.3		8.2			7.5	
Semi Volatile Organic Compound													
1,2,4-Trichlorobenzene	70	70	70	0.99	9.6 U		10 U		9.6 U			9.6 U	
1,2-Dichlorobenzene	600	600	600	280	9.6 U		10 U		9.6 U			9.6 U	
1,3-Dichlorobenzene	600	600			9.6 U		10 U		9.6 U			9.6 U	
1,4-Dichlorobenzene	75	75	75	0.42	9.6 U		10 U		9.6 U			9.6 U	

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-137A 10/10/2012	MW-137A 1/15/2013	MW-138A 11/13/2012	MW-138A 1/7/2013	MW-139A 8/30/2012	MW-139A 9/25/2012	MW-139A 10/9/2012	MW-140A 9/25/2012	MW-140A 10/9/2012
2,4,5-Trichlorophenol	3700	10000		890	9.6 U		10 U		9.6 U			9.6 U	
2,4,6-Trichlorophenol	37	100		3.5	9.6 U		10 U		9.6 U			9.6 U	
2,4-Dichlorophenol	20	20		35	1.9 U		2.1 U		1.9 U			1.9 U	
2,4-Dimethylphenol	730	2000		270	9.6 U		10 U		9.6 U			9.6 U	
2,4-Dinitrophenol	73	200		30	48 U		52 U		48 U			48 U	
2,4-Dinitrotoluene	2.1	8.4		0.2	9.6 U		10 U		9.6 U			9.6 U	
2,6-Dinitrotoluene	37	100		0.042	9.6 U		10 U		9.6 U			9.6 U	
2-Chloronaphthalene	2900	8200		550	1.9 U		2.1 U		1.9 U			1.9 U	
2-Chlorophenol	40	40		71	9.6 U		10 U		9.6 U			9.6 U	
2-Methylnaphthalene	150	410		27	1.9 U		2.1 U		1.9 U			1.9 U	
2-Methylphenol	1800	5100		720	9.6 U		10 U		9.6 U			9.6 U	
2-Nitroaniline	110	310		150	48 U		52 U		48 U			48 U	
2-Nitrophenol	290	820			9.6 U		10 U		9.6 U			9.6 U	
3-& 4-Methylphenol				180	9.6 U		10 U		9.6 U			9.6 U	
3,3'-Dichlorobenzidine	1.5	5.8		0.11	9.6 U		10 U		9.6 U			9.6 U	
3-Nitroaniline	11	31			48 U		52 U		48 U			48 U	
4,6-Dinitro-2-Methylphenol	3.7	10		1.2	48 U		52 U		48 U			48 U	
4-Bromophenyl phenyl ether					9.6 U		10 U		9.6 U			9.6 U	
4-Chloro-3-Methyl-Phenol	180	510		1100	9.6 U		10 U		9.6 U			9.6 U	
4-Chloroaniline	3.3	13		0.32	9.6 U		10 U		9.6 U			9.6 U	
4-Chlorodiphenyl Ether					9.6 U		10 U		9.6 U			9.6 U	
4-Nitroaniline	33	130		3.3	48 U		52 U		48 U			48 U	
4-Nitrophenol	60	60			48 U		52 U		48 U			48 U	
Acenaphthene	2200	3800		400	1.9 U		2.1 U		1.9 U			1.9 U	
Acenaphthylene	2200	6100		400	1.9 U		2.1 U		1.9 U			1.9 U	
Anthracene	66	66		1300	1.9 U		2.1 U		1.9 U			1.9 U	
Benzo (A) Anthracene	0.29	3.6	0.2	0.029	1.9 U		2.1 U		1.9 U			1.9 U	
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029	1.9 U		2.1 U		1.9 U			1.9 U	
Benzo (b) Fluoranthene	0.29	1.2		0.029	1.9 U		2.1 U		1.9 U			1.9 U	
Benzo (g,h,i) Perylene	0.26	0.26			1.9 U		2.1 U		1.9 U			1.9 U	
Benzo (k) Fluoranthene	0.55	0.55		0.29	1.9 U		2.1 U		1.9 U			1.9 U	
Bis(2-Chloroethoxy) Methane	110	310		46	9.6 U		10 U		9.6 U			9.6 U	
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012	1.9 U		2.1 U		1.9 U			1.9 U	
Bis(2-Chloroisopropyl) Ether	300	300		0.31	1.9 U		2.1 U		1.9 U			1.9 U	
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8	19 U		21 U		19 U			19 U	
Butylbenzylphthalate	350	1400		14	9.6 U		10 U		9.6 U			9.6 U	
Carbazole	33	130			1.9 U		2.1 U		1.9 U			1.9 U	
Chrysene	1.9	1.9		2.9	1.9 U		2.1 U		1.9 U			1.9 U	
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029	1.9 U		2.1 U		1.9 U			1.9 U	
Dibenzofuran	37	100		5.8	9.6 U		10 U		9.6 U			9.6 U	
Diethylphthalate	29000	82000		11000	9.6 U		10 U		9.6 U			9.6 U	
Dimethylphthalate					9.6 U		10 U		9.6 U			9.6 U	
Di-n-Butylphthalate	3700	10000		670	9.6 U		10 U		9.6 U			9.6 U	
Di-n-octylphthalate	1500	3000		160	9.6 U		10 U		9.6 U			9.6 U	
Fluoranthene	260	260		630	1.9 U		2.1 U		1.9 U			1.9 U	

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-137A 10/10/2012	MW-137A 1/15/2013	MW-138A 11/13/2012	MW-138A 1/7/2013	MW-139A 8/30/2012	MW-139A 9/25/2012	MW-139A 10/9/2012	MW-140A 9/25/2012	MW-140A 10/9/2012
Fluorene	1500	1900		220	1.9 U		2.1 U		1.9 U			1.9 U	
Hexachlorobenzene	1	1	1	0.042	1.9 U		2.1 U		1.9 U			1.9 U	
Hexachlorobutadiene	8.5	33		0.26	1.9 U		2.1 U		1.9 U			1.9 U	
Hexachlorocyclopentadiene	50	50	50	22	9.6 U		10 U		9.6 U			9.6 U	
Hexachloroethane	1	1		0.79	9.6 U		10 U		9.6 U			9.6 U	
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029	1.9 U		2.1 U		1.9 U			1.9 U	
Isophorone	100	100		67	9.6 U		10 U		9.6 U			9.6 U	
Naphthalene	100	100		0.14	1.9 U		2.1 U		1.9 U			1.9 U	
Nitrobenzene	73	200		0.12	19 U		21 U		19 U			19 U	
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093	1.9 U		2.1 U		1.9 U			1.9 U	
N-Nitrosodiphenylamine	130	530		10	9.6 U		10 U		9.6 U			9.6 U	
Pentachlorophenol	1	1	1	0.035	9.6 U		10 U		9.6 U			9.6 U	
Phenanthrene	1100	1100			1.9 U		2.1 U		1.9 U			1.9 U	
Phenol	2000	2000		4500	1.9 U		2.1 U		1.9 U			1.9 U	
Pyrene	130	130		87	1.9 U		2.1 U		1.9 U			1.9 U	
TOTAL VOC													
					1257.5	1612	108.13	92.21	733.1	611.1	1462.1	3575	2510
Volatile Organic Compound													
1,1,1,2-Tetrachloroethane	70	70		0.5	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,1,1-Trichloroethane	200	200	200	7500	25 U	50 U	3 U	1 U	25 U	13 U	40 U	160	87
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,1,2-Trichloroethane	5	5	5	0.24	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,1-Dichloroethane	31	160		2.4	13 J	16 J	0.61 J	0.64 J	25 U	3.9 J	8.1 J	100	83
1,1-Dichloroethene	7	7	7	260	17 J	26 J	1.1 J	1.3	9.1 J	6.2 J	17 J	35 J	18 J
1,2,4-Trimethylbenzene	15	62		15									
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,2-Dichloroethane	5	5	5	0.15	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,2-Dichloropropane	5	5	5	0.38	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
1,3,5-Trimethylbenzene	13	53		87									
1,4-Dioxane	6.4	32		0.67	5000 U	10000 U	600 U	200 U	5000 U	2500 U	8000 U	20000 U	10000 U
2-Butanone	4000	4000		4900	130 U	250 U	15 U	5 U	130 U	63 U	200 U	500 U	250 U
2-Hexanone	11	44		34	130 U	250 U	15 U	5 U	130 U	63 U	200 U	500 U	250 U
4-Methyl-2-Pentanone	2900	8200		1000	130 U	250 U	15 U	5 U	130 U	63 U	200 U	500 U	250 U
Acetone	33000	92000		12000	130 U	250 U	15 U	5 U	130 U	63 U	200 U	500 U	250 U
Acrylonitrile	0.72	3.7		0.045	500 U	1000 U	60 U	20 U	500 U	250 U	800 U	2000 U	1000 U
Benzene	5	5	5	0.39	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Bromochloromethane	90	90		83	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Bromodichloromethane	80	80		0.12	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Bromoform	80	80		7.9	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Bromomethane	10	10		7	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Carbon Disulfide	1500	6200		720	25 U	50 U	3 U	1 U	12 J	13 U	40 U	100 U	50 U
Carbon Tetrachloride	5	5	5	0.39	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Chlorobenzene	100	100	100	72	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Chlorodibromomethane	80	80		0.15	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Chloroethane	230	900		21000	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-137A 10/10/2012	MW-137A 1/15/2013	MW-138A 11/13/2012	MW-138A 1/7/2013	MW-139A 8/30/2012	MW-139A 9/25/2012	MW-139A 10/9/2012	MW-140A 9/25/2012	MW-140A 10/9/2012
Chloroform	80	80		0.19	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Chloromethane				190	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
cis-1,2-Dichloroethene	70	70	70	28	820	1000	38	37	430	330	860	1100	900
cis-1,3-Dichloropropene	6.6	26		0.41	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Ethylbenzene	700	700	700	1.3	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Isopropylbenzene	840	3500		390									
Methyl tert-butyl ether	20	20		12	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Methylene chloride	5	5		9.9	11 J B	32 J	0.76 J	1 U	25 U	13 U	16 J B	100 U	22 J B
Naphthalene	100	100		0.14									
Styrene	100	100	100	1100	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Tetrachloroethene	5	5	5	9.7	14 J	13 J	0.66 J	0.42 J	42	31	110	580	300
Toluene	1000	1000	1000	860	25 U	50 U	3 U	0.85 J	25 U	13 U	40 U	100 U	50 U
trans-1,2-Dichloroethene	100	100	100	86	13 J	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
trans-1,3-Dichloropropene	6.6	26		0.41	25 U	50 U	3 U	1 U	25 U	13 U	40 U	100 U	50 U
Trichloroethene	5	5	5	0.44	360	510	67	52	240	240	440	1600	1100
Vinyl Chloride	2	2	2	0.015	9.5 J	15 J	3 U	1 U	25 U	13 U	11 J	100 U	50 U
Xylenes (Total)	10000	10000	10000	190	75 U	150 U	9 U	3 U	75 U	38 U	120 U	300 U	150 U

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Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-141A 11/21/2012	MW-141A 1/7/2013	MW-142D 11/12/2012	MW-142D 2/7/2013	MW-142D 5/31/2013	MW-142S 11/12/2012	MW-142S Dup 11/12/2012	MW-142S 2/7/2013	MW-142S 5/30/2013
1,4-Dioxane													
1,4-Dioxane	6.4	32		0.67									
Cyanide, Free													
Cyanide, Free	200	200	200	1.4		2 U	2 U			2 U	2 U		
Cyanide, Total													
Cyanide, Total	200	200		1.4		10 U	10 U			10 U	10 U		
METAL													
Antimony	6	6	6	6		0.4 J	4.4			2 U	0.075 J		
Arsenic	10	10	10	0.045		1 U	1.1 B			0.36 J B	0.83 J B		
Barium	2000	2000	2000	2900		88	140			44	39		
Beryllium	4	4	4	16		1 U	0.06 J			0.13 J	0.084 J		
Cadmium	5	5	5	6.9		1 U	1 U			1 U	1 U		
Chromium	100	100	100			2 U	3.4			1.7 J	1.5 J		
Copper	1000	1000	1300	620		0.91 J	4			0.42 J	0.32 J		
Hexavalent Chromium	100	100		0.031		10 U	10 U			9.4 J	4.4 J		
Lead	5	5	15			0.05 J B	3.8			1.2	1.4		
Mercury	2	2	2	0.63		0.2 U	0.2 U			0.2 U	0.2 U		
Nickel	100	100		300		0.61 J	2.2			0.53 J	0.43 J		
Selenium	50	50	50	78		2.4 J	2.5 J B			1.1 J B	2.2 J B		
Silver	100	100		71		1 U	1 U			1 U	1 U		
Thallium	2	2	2	0.16		0.12 J B	0.24 J B			0.17 J B	0.14 J B		
Vanadium	260	720		63		1 U	2.4 B			2.9 B	2.8 B		
Zinc	2000	2000		4700		2.5 J	28			13	13		
METAL (Dissolved)													
Antimony	6	6	6	6		0.4 J	1.7 J			2 U	2 U		
Arsenic	10	10	10	0.045		1 U	1 U			0.65 J	1 U		
Barium	2000	2000	2000	2900		92	18			39	42		
Beryllium	4	4	4	16		1 U	1 U			1 U	0.11 J		
Cadmium	5	5	5	6.9		1 U	1 U			1 U	1 U		
Chromium	100	100	100			2 U	1.1 J			1.1 J	1.6 J		
Copper	1000	1000	1300	620		0.85 J B	1.1 J			2 U	0.29 J		
Hexavalent Chromium	100	100		0.031		10 U	10 U			10 U	10 U		
Lead	5	5	15			0.051 J B	0.088 J			1.5	0.98 J		
Mercury	2	2	2	0.63		0.2 U	0.2 U			0.2 U	0.2 U		
Nickel	100	100		300		0.85 J B	0.51 J			0.26 J	0.48 J		
Selenium	50	50	50	78		5 U	1.4 J B			1.6 J B	5 U		
Silver	100	100		71		1 U	1 U			1 U	1 U		
Thallium	2	2	2	0.16		0.16 J B	0.2 J B			0.13 J B	0.14 J B		
Vanadium	260	720		63		1 U	2.4 B			1.8 B	2.8 B		
Zinc	2000	2000		4700		4.1 J B	8.8			6.1	8.9		
Semi Volatile Organic Compound													
1,2,4-Trichlorobenzene	70	70	70	0.99		9.7 U	10 U			10 U			
1,2-Dichlorobenzene	600	600	600	280		9.7 U	10 U			10 U			
1,3-Dichlorobenzene	600	600				9.7 U	10 U			10 U			
1,4-Dichlorobenzene	75	75	75	0.42		9.7 U	10 U			10 U			

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-141A 11/21/2012	MW-141A 1/7/2013	MW-142D 11/12/2012	MW-142D 2/7/2013	MW-142D 5/31/2013	MW-142S 11/12/2012	MW-142S Dup 11/12/2012	MW-142S 2/7/2013	MW-142S 5/30/2013
2,4,5-Trichlorophenol	3700	10000		890		9.7 U	10 U			10 U			
2,4,6-Trichlorophenol	37	100		3.5		9.7 U	10 U			10 U			
2,4-Dichlorophenol	20	20		35		1.9 U	2.1 U			2 U			
2,4-Dimethylphenol	730	2000		270		9.7 U	10 U			10 U			
2,4-Dinitrophenol	73	200		30		49 U	52 U			51 U			
2,4-Dinitrotoluene	2.1	8.4		0.2		9.7 U	10 U			10 U			
2,6-Dinitrotoluene	37	100		0.042		9.7 U	10 U			10 U			
2-Chloronaphthalene	2900	8200		550		1.9 U	2.1 U			2 U			
2-Chlorophenol	40	40		71		9.7 U	10 U			10 U			
2-Methylnaphthalene	150	410		27		1.9 U	2.1 U			2 U			
2-Methylphenol	1800	5100		720		9.7 U	10 U			10 U			
2-Nitroaniline	110	310		150		49 U	52 U			51 U			
2-Nitrophenol	290	820				9.7 U	10 U			10 U			
3-& 4-Methylphenol				180		9.7 U	10 U			10 U			
3,3'-Dichlorobenzidine	1.5	5.8		0.11		9.7 U	10 U			10 U			
3-Nitroaniline	11	31				49 U	52 U			51 U			
4,6-Dinitro-2-Methylphenol	3.7	10		1.2		49 U	52 U			51 U			
4-Bromophenyl phenyl ether						9.7 U	10 U			10 U			
4-Chloro-3-Methyl-Phenol	180	510		1100		9.7 U	10 U			10 U			
4-Chloroaniline	3.3	13		0.32		9.7 U	10 U			10 U			
4-Chlorodiphenyl Ether						9.7 U	10 U			10 U			
4-Nitroaniline	33	130		3.3		49 U	52 U			51 U			
4-Nitrophenol	60	60				49 U	52 U			51 U			
Acenaphthene	2200	3800		400		1.9 U	2.1 U			2 U			
Acenaphthylene	2200	6100		400		1.9 U	2.1 U			2 U			
Anthracene	66	66		1300		1.9 U	2.1 U			2 U			
Benzo (A) Anthracene	0.29	3.6	0.2	0.029		1.9 U	2.1 U			2 U			
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029		1.9 U	2.1 U			2 U			
Benzo (b) Fluoranthene	0.29	1.2		0.029		1.9 U	2.1 U			2 U			
Benzo (g,h,i) Perylene	0.26	0.26				1.9 U	2.1 U			2 U			
Benzo (k) Fluoranthene	0.55	0.55		0.29		1.9 U	2.1 U			2 U			
Bis(2-Chloroethoxy) Methane	110	310		46		9.7 U	10 U			10 U			
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012		1.9 U	2.1 U			2 U			
Bis(2-Chloroisopropyl) Ether	300	300		0.31		1.9 U	2.1 U			2 U			
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8		19 U	21 U			20 U			
Butylbenzylphthalate	350	1400		14		9.7 U	10 U			10 U			
Carbazole	33	130				1.9 U	2.1 U			2 U			
Chrysene	1.9	1.9		2.9		1.9 U	2.1 U			2 U			
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029		1.9 U	2.1 U			2 U			
Dibenzofuran	37	100		5.8		9.7 U	10 U			10 U			
Diethylphthalate	29000	82000		11000		9.7 U	10 U			10 U			
Dimethylphthalate						9.7 U	10 U			10 U			
Di-n-Butylphthalate	3700	10000		670		9.7 U	10 U			10 U			
Di-n-octylphthalate	1500	3000		160		9.7 U	10 U			10 U			
Fluoranthene	260	260		630		1.9 U	2.1 U			2 U			

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-141A 11/21/2012	MW-141A 1/7/2013	MW-142D 11/12/2012	MW-142D 2/7/2013	MW-142D 5/31/2013	MW-142S 11/12/2012	MW-142S Dup 11/12/2012	MW-142S 2/7/2013	MW-142S 5/30/2013
Fluorene	1500	1900		220		1.9 U	2.1 U			2 U			
Hexachlorobenzene	1	1	1	0.042		1.9 U	2.1 U			2 U			
Hexachlorobutadiene	8.5	33		0.26		1.9 U	2.1 U			2 U			
Hexachlorocyclopentadiene	50	50	50	22		9.7 U	10 U			10 U			
Hexachloroethane	1	1		0.79		9.7 U	10 U			10 U			
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029		1.9 U	2.1 U			2 U			
Isophorone	100	100		67		9.7 U	10 U			10 U			
Naphthalene	100	100		0.14		1.9 U	2.1 U			2 U			
Nitrobenzene	73	200		0.12		19 U	21 U			20 U			
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093		1.9 U	2.1 U			2 U			
N-Nitrosodiphenylamine	130	530		10		9.7 U	10 U			10 U			
Pentachlorophenol	1	1	1	0.035		9.7 U	10 U			10 U			
Phenanthrene	1100	1100				1.9 U	2.1 U			2 U			
Phenol	2000	2000		4500		1.9 U	2.1 U			2 U			
Pyrene	130	130		87		1.9 U	2.1 U			2 U			
TOTAL VOC													
					59.65	13.7	7.97	4.1	9.8	1.01	1.36	1.21	1.82
Volatile Organic Compound													
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	260	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	15	62		15									
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	13	53		87									
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2-Butanone	4000	4000		4900	5 U	0.72 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	33000	92000		12000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-141A 11/21/2012	MW-141A 1/7/2013	MW-142D 11/12/2012	MW-142D 2/7/2013	MW-142D 5/31/2013	MW-142S 11/12/2012	MW-142S Dup 11/12/2012	MW-142S 2/7/2013	MW-142S 5/30/2013
Chloroform	80	80		0.19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane				190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	1.5	0.48 J	7.8	4.1	9.8	0.75 J	0.82 J	0.85 J	1.5
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	840	3500		390									
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	5	5		9.9	0.15 J B	1 U	1 U	1 U	1 U	1 U	0.26 J B	1 U	1 U
Naphthalene	100	100		0.14									
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	9.7	34	6.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1000	1000	1000	860	1 U	1.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	5	0.44	24	4.6	0.17 J	1 U	1 U	0.26 J	0.28 J	0.36 J	0.32 J
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-143D 11/13/2012	MW-143D 2/7/2013	MW-143D 5/31/2013	MW-143S 11/13/2012	MW-143S 2/7/2013	MW-143S 5/30/2013	MW-144 11/20/2012	MW-145A 11/27/2012	MW-145A 2/5/2013	MW-146 11/27/2012
1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4	2 U			2 U			2 U		2 U	2 U
Cyanide, Total														
Cyanide, Total	200	200		1.4	10 U			10 U			67 B		1 U	10 U
METAL														
Antimony	6	6	6	6	0.39 J			0.34 J			0.2 J		0.22 J B	0.14 J
Arsenic	10	10	10	0.045	9.2 B			9.3 B			2.4		0.64 J	1 U
Barium	2000	2000	2000	2900	60			80			96		42 B	50
Beryllium	4	4	4	16	1 U			0.047 J			0.42 J		0.06 J	1 U
Cadmium	5	5	5	6.9	1 U			1 U			0.17 J		1 U	1 U
Chromium	100	100	100		12			13			10		6.6	4
Copper	1000	1000	1300	620	1.9 J			2.6			16		7.6	1.7 J
Hexavalent Chromium	100	100		0.031	10 U			10 U			40 U		10 U	10 U
Lead	5	5	15		0.61 J			0.96 J			14 B		1.3	0.24 J
Mercury	2	2	2	0.63	0.2 U			0.2 U			0.11 J		0.2 U	0.2 U
Nickel	100	100		300	0.86 J			7			14		2.9	1 U
Selenium	50	50	50	78	5 U			5 B			5 U		0.53 J	2 J
Silver	100	100		71	1 U			1 U			1 U		0.74 J	1 U
Thallium	2	2	2	0.16	0.02 J B			0.048 J B			0.16 J		0.099 J B	0.084 J
Vanadium	260	720		63	4.3			2.4			13 B		1.5 B	0.68 J
Zinc	2000	2000		4700	3.4 J			9.2			55		36	4.1 J
METAL (Dissolved)														
Antimony	6	6	6	6	0.21 J			0.27 J			0.04 J		0.2 J	2 U
Arsenic	10	10	10	0.045	1 U			1 U			1 U		0.48 J	1 U
Barium	2000	2000	2000	2900	46			63			58		38 B	49
Beryllium	4	4	4	16	1 U			1 U			1 U		1 U	1 U
Cadmium	5	5	5	6.9	1 U			1 U			1 U		1 U	1 U
Chromium	100	100	100		15			17			0.97 J		3.5	3.3
Copper	1000	1000	1300	620	2.4			2.5			0.97 J		0.55 J B	3.7
Hexavalent Chromium	100	100		0.031	10 U			10 U			10 U		10 U	10 U
Lead	5	5	15		1 U			0.14 J			0.04 J B		1 U	0.17 J B
Mercury	2	2	2	0.63	0.2 U			0.2 U			0.055 J		0.2 U	0.2 U
Nickel	100	100		300	0.85 J			6.1			1.6		0.75 J	1.3
Selenium	50	50	50	78	5 U			5 U			5 U		5 U	5 U
Silver	100	100		71	1 U			1 U			1 U		1 U	1 U
Thallium	2	2	2	0.16	0.019 J			0.041 J			0.047 J B		0.033 J	0.53 J
Vanadium	260	720		63	4.5			4.7			1.7 B		1 U	1 U
Zinc	2000	2000		4700	2.6 J			7.6			2.9 J		4.5 J B	3.6 J B
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99	10 U			10 U			10 U		11 U	10 U
1,2-Dichlorobenzene	600	600	600	280	10 U			10 U			10 U		11 U	10 U
1,3-Dichlorobenzene	600	600			10 U			10 U			10 U		11 U	10 U
1,4-Dichlorobenzene	75	75	75	0.42	10 U			10 U			10 U		11 U	10 U

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-143D 11/13/2012	MW-143D 2/7/2013	MW-143D 5/31/2013	MW-143S 11/13/2012	MW-143S 2/7/2013	MW-143S 5/30/2013	MW-144 11/20/2012	MW-145A 11/27/2012	MW-145A 2/5/2013	MW-146 11/27/2012
2,4,5-Trichlorophenol	3700	10000		890	10 U			10 U			10 U		11 U	10 U
2,4,6-Trichlorophenol	37	100		3.5	10 U			10 U			10 U		11 U	10 U
2,4-Dichlorophenol	20	20		35	2.1 U			2.1 U			2.1 U		2.1 U	2 U
2,4-Dimethylphenol	730	2000		270	10 U			10 U			10 U		11 U	10 U
2,4-Dinitrophenol	73	200		30	52 U			52 U			52 U		53 U	51 U
2,4-Dinitrotoluene	2.1	8.4		0.2	10 U			10 U			10 U		11 U	10 U
2,6-Dinitrotoluene	37	100		0.042	10 U			10 U			10 U		11 U	10 U
2-Chloronaphthalene	2900	8200		550	2.1 U			2.1 U			2.1 U		2.1 U	2 U
2-Chlorophenol	40	40		71	10 U			10 U			10 U		11 U	10 U
2-Methylnaphthalene	150	410		27	2.1 U			2.1 U			2.1 U		2.1 U	2 U
2-Methylphenol	1800	5100		720	10 U			10 U			10 U		11 U	10 U
2-Nitroaniline	110	310		150	52 U			52 U			52 U		53 U	51 U
2-Nitrophenol	290	820			10 U			10 U			10 U		11 U	10 U
3-& 4-Methylphenol				180	10 U			10 U			10 U		11 U	10 U
3,3'-Dichlorobenzidine	1.5	5.8		0.11	10 U			10 U			10 U		11 U	10 U
3-Nitroaniline	11	31			52 U			52 U			52 U		53 U	51 U
4,6-Dinitro-2-Methylphenol	3.7	10		1.2	52 U			52 U			52 U		53 U	51 U
4-Bromophenyl phenyl ether					10 U			10 U			10 U		11 U	10 U
4-Chloro-3-Methyl-Phenol	180	510		1100	10 U			10 U			10 U		11 U	10 U
4-Chloroaniline	3.3	13		0.32	10 U			10 U			10 U		11 U	10 U
4-Chlorodiphenyl Ether					10 U			10 U			10 U		11 U	10 U
4-Nitroaniline	33	130		3.3	52 U			52 U			52 U		53 U	51 U
4-Nitrophenol	60	60			52 U			52 U			52 U		53 U	51 U
Acenaphthene	2200	3800		400	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Acenaphthylene	2200	6100		400	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Anthracene	66	66		1300	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Benzo (A) Anthracene	0.29	3.6	0.2	0.029	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Benzo (b) Fluoranthene	0.29	1.2		0.029	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Benzo (g,h,i) Perylene	0.26	0.26			2.1 U			2.1 U			2.1 U		2.1 U	2 U
Benzo (k) Fluoranthene	0.55	0.55		0.29	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Bis(2-Chloroethoxy) Methane	110	310		46	10 U			10 U			10 U		11 U	10 U
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Bis(2-Chloroisopropyl) Ether	300	300		0.31	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8	21 U			21 U			21 U		21 U	20 U
Butylbenzylphthalate	350	1400		14	10 U			10 U			10 U		11 U	10 U
Carbazole	33	130			2.1 U			2.1 U			2.1 U		2.1 U	2 U
Chrysene	1.9	1.9		2.9	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Dibenzofuran	37	100		5.8	10 U			10 U			10 U		11 U	10 U
Diethylphthalate	29000	82000		11000	10 U			10 U			10 U		11 U	2 J B
Dimethylphthalate					10 U			10 U			10 U		11 U	10 U
Di-n-Butylphthalate	3700	10000		670	10 U			10 U			10 U		11 U	10 U
Di-n-octylphthalate	1500	3000		160	10 U			10 U			10 U		11 U	10 U
Fluoranthene	260	260		630	2.1 U			2.1 U			2.1 U		2.1 U	2 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-143D 11/13/2012	MW-143D 2/7/2013	MW-143D 5/31/2013	MW-143S 11/13/2012	MW-143S 2/7/2013	MW-143S 5/30/2013	MW-144 11/20/2012	MW-145A 11/27/2012	MW-145A 2/5/2013	MW-146 11/27/2012
Fluorene	1500	1900		220	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Hexachlorobenzene	1	1	1	0.042	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Hexachlorobutadiene	8.5	33		0.26	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Hexachlorocyclopentadiene	50	50	50	22	10 U			10 U			10 U		11 U	10 U
Hexachloroethane	1	1		0.79	10 U			10 U			10 U		11 U	10 U
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Isophorone	100	100		67	10 U			10 U			10 U		11 U	10 U
Naphthalene	100	100		0.14	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Nitrobenzene	73	200		0.12	21 U			21 U			21 U		21 U	20 U
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093	2.1 U			2.1 U			2.1 U		2.1 U	2 U
N-Nitrosodiphenylamine	130	530		10	10 U			10 U			10 U		11 U	10 U
Pentachlorophenol	1	1	1	0.035	10 U			10 U			10 U		11 U	10 U
Phenanthrene	1100	1100			2.1 U			2.1 U			2.1 U		2.1 U	2 U
Phenol	2000	2000		4500	2.1 U			2.1 U			2.1 U		2.1 U	2 U
Pyrene	130	130		87	2.1 U			2.1 U			2.1 U		2.1 U	2 U
TOTAL VOC														
					0.32	0	0	3.16	2.18	2.67	1.89	17.06	34.39	141.3
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,1-Dichloroethene	7	7	7	260	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.2 J
1,2,4-Trimethylbenzene	15	62		15										
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
1,3,5-Trimethylbenzene	13	53		87										
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	1000 U
2-Butanone	4000	4000		4900	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.8 J	5 U	25 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U
Acetone	33000	92000		12000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-143D 11/13/2012	MW-143D 2/7/2013	MW-143D 5/31/2013	MW-143S 11/13/2012	MW-143S 2/7/2013	MW-143S 5/30/2013	MW-144 11/20/2012	MW-145A 11/27/2012	MW-145A 2/5/2013	MW-146 11/27/2012
Chloroform	80	80		0.19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4.5	0.29 J	5 U
Chloromethane				190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
cis-1,2-Dichloroethene	70	70	70	28	1 U	1 U	1 U	1 U	1 U	1 U	0.51 J	1.6	3.4	27
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Isopropylbenzene	840	3500		390										
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Methylene chloride	5	5		9.9	0.32 J	1 U	1 U	0.35 J	1 U	1 U	0.24 J B	0.45 J B	1 U	2.1 J B
Naphthalene	100	100		0.14										
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Tetrachloroethene	5	5	5	9.7	1 U	1 U	1 U	0.81 J	0.78 J	0.77 J	0.23 J	0.95 J	4.7	40
Toluene	1000	1000	1000	860	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.56 J B	1 U	5 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Trichloroethene	5	5	5	0.44	1 U	1 U	1 U	2	1.4	1.9	0.91 J	7.2	26	70
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	15 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-147A 11/20/2012	MW-148A 136 - 136.5 2/21/2013	MW-148A 218.5 - 219 2/21/2013	MW-148A 72.5 - 73 2/21/2013	MW-148A 72.5 - 73 4/3/2013	MW-148A 136 - 136.5 4/3/2013	MW-148A 218.5 - 219 4/3/2013	MW-160 9/12/2012	CW-1 6/18/2012	CW-1 12/10/2012
1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4	2 U				2 U	2 U	2 U			
Cyanide, Total														
Cyanide, Total	200	200		1.4	10 U				10 U	10 U	10 U			
METAL														
Antimony	6	6	6	6	0.23 J				0.17 J B	0.39 J B	0.096 J B			
Arsenic	10	10	10	0.045	1 U				1 U	1	0.3 J			
Barium	2000	2000	2000	2900	46				75 B	110 B	86 B			
Beryllium	4	4	4	16	0.11 J				1 U	0.45 J	1 U			
Cadmium	5	5	5	6.9	1 U				1 U	1 U	1 U			
Chromium	100	100	100		8.8				1.1 J	4.4	6.3			
Copper	1000	1000	1300	620	2.7				1.9 J	5.3	3.3			
Hexavalent Chromium	100	100		0.031	1.9 J				10 U	50 U	50 U			
Lead	5	5	15		1.2 B				0.58 J B	7.8 B	0.78 J B			
Mercury	2	2	2	0.63	0.044 J				0.2 U	0.2 U	0.2 U			
Nickel	100	100		300	4.4				6.3	3.6	2.1			
Selenium	50	50	50	78	5 U				5 U	0.84 J	5 U			
Silver	100	100		71	1 U				1 U	0.15 J	0.3 J			
Thallium	2	2	2	0.16	0.092 J				0.16 J	0.089 J	0.025 J			
Vanadium	260	720		63	3.2 B				1 U	4.8	0.45 J			
Zinc	2000	2000		4700	12				9.9	23	16			
METAL (Dissolved)														
Antimony	6	6	6	6	0.1 J				0.14 J	0.37 J	2 U			
Arsenic	10	10	10	0.045	1 U				0.52 J	1 U	1 U			
Barium	2000	2000	2000	2900	38				81	88	74			
Beryllium	4	4	4	16	1 U				1 U	1 U	1 U			
Cadmium	5	5	5	6.9	1 U				1 U	1 U	1 U			
Chromium	100	100	100		1.1 J				0.91 J	0.98 J	0.89 J			
Copper	1000	1000	1300	620	0.64 J				4.7 B	2.7 B	1.9 J B			
Hexavalent Chromium	100	100		0.031	10 U				10 U	10 U	10 U			
Lead	5	5	15		0.044 J B				0.027 J	0.2 J	3.8			
Mercury	2	2	2	0.63	0.056 J				0.039 J	0.2 U	0.2 U			
Nickel	100	100		300	1.3				8.4 B	4.8 B	3.4 B			
Selenium	50	50	50	78	5 U				1.2 J	1.2 J	0.57 J			
Silver	100	100		71	1 U				1 U	1 U	1 U			
Thallium	2	2	2	0.16	0.07 J B				0.31 J	0.078 J	0.074 J			
Vanadium	260	720		63	1.8 B				4.5	4.5	3.4			
Zinc	2000	2000		4700	4.1 J				16	4.1 J	1.2 J			
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99	10 U				9.6 U	9.6 U	10 U			
1,2-Dichlorobenzene	600	600	600	280	10 U				9.6 U	9.6 U	10 U			
1,3-Dichlorobenzene	600	600			10 U				9.6 U	9.6 U	10 U			
1,4-Dichlorobenzene	75	75	75	0.42	10 U				9.6 U	9.6 U	10 U			

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-147A 11/20/2012	MW-148A 136 - 136.5 2/21/2013	MW-148A 218.5 - 219 2/21/2013	MW-148A 72.5 - 73 2/21/2013	MW-148A 72.5 - 73 4/3/2013	MW-148A 136 - 136.5 4/3/2013	MW-148A 218.5 - 219 4/3/2013	MW-160 9/12/2012	CW-1 6/18/2012	CW-1 12/10/2012
2,4,5-Trichlorophenol	3700	10000		890	10 U				9.6 U	9.6 U	10 U			
2,4,6-Trichlorophenol	37	100		3.5	10 U				9.6 U	9.6 U	10 U			
2,4-Dichlorophenol	20	20		35	2 U				1.9 U	1.9 U	2.1 U			
2,4-Dimethylphenol	730	2000		270	10 U				9.6 U	9.6 U	10 U			
2,4-Dinitrophenol	73	200		30	51 U				48 U	48 U	52 U			
2,4-Dinitrotoluene	2.1	8.4		0.2	10 U				9.6 U	9.6 U	10 U			
2,6-Dinitrotoluene	37	100		0.042	10 U				9.6 U	9.6 U	10 U			
2-Chloronaphthalene	2900	8200		550	2 U				1.9 U	1.9 U	2.1 U			
2-Chlorophenol	40	40		71	10 U				9.6 U	9.6 U	10 U			
2-Methylnaphthalene	150	410		27	2 U				1.9 U	1.9 U	2.1 U			
2-Methylphenol	1800	5100		720	10 U				9.6 U	9.6 U	10 U			
2-Nitroaniline	110	310		150	51 U				48 U	48 U	52 U			
2-Nitrophenol	290	820			10 U				9.6 U	9.6 U	10 U			
3-& 4-Methylphenol				180	10 U				9.6 U	9.6 U	10 U			
3,3'-Dichlorobenzidine	1.5	5.8		0.11	10 U				9.6 U	9.6 U	10 U			
3-Nitroaniline	11	31			51 U				48 U	48 U	52 U			
4,6-Dinitro-2-Methylphenol	3.7	10		1.2	51 U				48 U	48 U	52 U			
4-Bromophenyl phenyl ether					10 U				9.6 U	9.6 U	10 U			
4-Chloro-3-Methyl-Phenol	180	510		1100	10 U				9.6 U	9.6 U	10 U			
4-Chloroaniline	3.3	13		0.32	10 U				9.6 U	9.6 U	10 U			
4-Chlorodiphenyl Ether					10 U				9.6 U	9.6 U	10 U			
4-Nitroaniline	33	130		3.3	51 U				48 U	48 U	52 U			
4-Nitrophenol	60	60			51 U				48 U	48 U	52 U			
Acenaphthene	2200	3800		400	2 U				1.9 U	1.9 U	2.1 U			
Acenaphthylene	2200	6100		400	2 U				1.9 U	1.9 U	2.1 U			
Anthracene	66	66		1300	2 U				1.9 U	1.9 U	2.1 U			
Benzo (A) Anthracene	0.29	3.6	0.2	0.029	2 U				1.9 U	1.9 U	2.1 U			
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029	2 U				1.9 U	1.9 U	2.1 U			
Benzo (b) Fluoranthene	0.29	1.2		0.029	2 U				1.9 U	1.9 U	2.1 U			
Benzo (g,h,i) Perylene	0.26	0.26			2 U				1.9 U	1.9 U	2.1 U			
Benzo (k) Fluoranthene	0.55	0.55		0.29	2 U				1.9 U	1.9 U	2.1 U			
Bis(2-Chloroethoxy) Methane	110	310		46	10 U				9.6 U	9.6 U	10 U			
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012	2 U				1.9 U	1.9 U	2.1 U			
Bis(2-Chloroisopropyl) Ether	300	300		0.31	2 U				1.9 U	1.9 U	2.1 U			
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8	20 U				19 U	19 U	21 U			
Butylbenzylphthalate	350	1400		14	10 U				9.6 U	9.6 U	10 U			
Carbazole	33	130			2 U				1.9 U	1.9 U	2.1 U			
Chrysene	1.9	1.9		2.9	2 U				1.9 U	1.9 U	2.1 U			
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029	2 U				1.9 U	1.9 U	2.1 U			
Dibenzofuran	37	100		5.8	10 U				9.6 U	9.6 U	10 U			
Diethylphthalate	29000	82000		11000	10 U				9.6 U	9.6 U	10 U			
Dimethylphthalate					10 U				9.6 U	9.6 U	10 U			
Di-n-Butylphthalate	3700	10000		670	10 U				9.6 U	9.6 U	10 U			
Di-n-octylphthalate	1500	3000		160	10 U				9.6 U	9.6 U	10 U			
Fluoranthene	260	260		630	2 U				1.9 U	1.9 U	2.1 U			

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-147A 11/20/2012	MW-148A 136 - 136.5 2/21/2013	MW-148A 218.5 - 219 2/21/2013	MW-148A 72.5 - 73 2/21/2013	MW-148A 72.5 - 73 4/3/2013	MW-148A 136 - 136.5 4/3/2013	MW-148A 218.5 - 219 4/3/2013	MW-160 9/12/2012	CW-1 6/18/2012	CW-1 12/10/2012
Fluorene	1500	1900		220	2 U				1.9 U	1.9 U	2.1 U			
Hexachlorobenzene	1	1	1	0.042	2 U				1.9 U	1.9 U	2.1 U			
Hexachlorobutadiene	8.5	33		0.26	2 U				1.9 U	1.9 U	2.1 U			
Hexachlorocyclopentadiene	50	50	50	22	10 U				9.6 U	9.6 U	10 U			
Hexachloroethane	1	1		0.79	10 U				9.6 U	9.6 U	10 U			
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029	2 U				1.9 U	1.9 U	2.1 U			
Isophorone	100	100		67	10 U				9.6 U	9.6 U	10 U			
Naphthalene	100	100		0.14	2 U				1.9 U	1.9 U	2.1 U			
Nitrobenzene	73	200		0.12	20 U				19 U	19 U	21 U			
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093	2 U				1.9 U	1.9 U	2.1 U			
N-Nitrosodiphenylamine	130	530		10	10 U				9.6 U	9.6 U	10 U			
Pentachlorophenol	1	1	1	0.035	10 U				9.6 U	9.6 U	10 U			
Phenanthrene	1100	1100			2 U				1.9 U	1.9 U	2.1 U			
Phenol	2000	2000		4500	2 U				1.9 U	1.9 U	2.1 U			
Pyrene	130	130		87	2 U				1.9 U	1.9 U	2.1 U			
TOTAL VOC														
					33.42	2.16	0.74	1.15	0.4	1.27	0.13	237.9	41.88	47
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,1-Dichloroethene	7	7	7	260	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,2,4-Trimethylbenzene	15	62		15								3.4 J		
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
1,3,5-Trimethylbenzene	13	53		87								5 U		
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U	200 U	200 U		200 U	200 U
2-Butanone	4000	4000		4900	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U
Acetone	33000	92000		12000	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U	20 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	180	1 U	1 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-147A 11/20/2012	MW-148A 136 - 136.5 2/21/2013	MW-148A 218.5 - 219 2/21/2013	MW-148A 72.5 - 73 2/21/2013	MW-148A 72.5 - 73 4/3/2013	MW-148A 136 - 136.5 4/3/2013	MW-148A 218.5 - 219 4/3/2013	MW-160 9/12/2012	CW-1 6/18/2012	CW-1 12/10/2012
Chloroform	80	80		0.19	0.39 J	1.8	0.57 J	0.75 J	0.2 J	1	1 U		1 U	1 U
Chloromethane				190	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	4.7	1 U	1 U	1 U	1 U	1 U	1 U		9.2	12
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	12	1 U	1 U
Isopropylbenzene	840	3500		390								1.2 J		
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Methylene chloride	5	5		9.9	0.23 J B	0.19 J	1 U	0.4 J B	0.2 J B	0.27 J B	0.13 J B		1 U	1 U
Naphthalene	100	100		0.14								4.3 J B		
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Tetrachloroethene	5	5	5	9.7	4.8	1 U	1 U	1 U	1 U	1 U	1 U		0.19 J	1 U
Toluene	1000	1000	1000	860	1 U	0.17 J	0.17 J	1 U	1 U	1 U	1 U	17	0.49 J	1 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Trichloroethene	5	5	5	0.44	23	1 U	1 U	1 U	1 U	1 U	1 U		32	35
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U	3 U	3 U	20	3 U	3 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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 5/29/2013	CW-1A 6/18/2012	CW-1A 12/10/2012	CW-1A 5/30/2013	CW-2 6/18/2012	CW-2 12/10/2012	CW-2 5/29/2013	CW-3 6/18/2012	CW-3 12/10/2012	CW-3 12/10/2012
1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4										
Cyanide, Total														
Cyanide, Total	200	200		1.4										
METAL														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
METAL (Dissolved)														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99										
1,2-Dichlorobenzene	600	600	600	280										
1,3-Dichlorobenzene	600	600												
1,4-Dichlorobenzene	75	75	75	0.42										

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Table 3
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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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 5/29/2013	CW-1A 6/18/2012	CW-1A 12/10/2012	CW-1A 5/30/2013	CW-2 6/18/2012	CW-2 12/10/2012	CW-2 5/29/2013	CW-3 6/18/2012	CW-3 12/10/2012	CW-3 12/10/2012
2,4,5-Trichlorophenol	3700	10000		890										
2,4,6-Trichlorophenol	37	100		3.5										
2,4-Dichlorophenol	20	20		35										
2,4-Dimethylphenol	730	2000		270										
2,4-Dinitrophenol	73	200		30										
2,4-Dinitrotoluene	2.1	8.4		0.2										
2,6-Dinitrotoluene	37	100		0.042										
2-Chloronaphthalene	2900	8200		550										
2-Chlorophenol	40	40		71										
2-Methylnaphthalene	150	410		27										
2-Methylphenol	1800	5100		720										
2-Nitroaniline	110	310		150										
2-Nitrophenol	290	820												
3-& 4-Methylphenol				180										
3,3'-Dichlorobenzidine	1.5	5.8		0.11										
3-Nitroaniline	11	31												
4,6-Dinitro-2-Methylphenol	3.7	10		1.2										
4-Bromophenyl phenyl ether														
4-Chloro-3-Methyl-Phenol	180	510		1100										
4-Chloroaniline	3.3	13		0.32										
4-Chlorodiphenyl Ether														
4-Nitroaniline	33	130		3.3										
4-Nitrophenol	60	60												
Acenaphthene	2200	3800		400										
Acenaphthylene	2200	6100		400										
Anthracene	66	66		1300										
Benzo (A) Anthracene	0.29	3.6	0.2	0.029										
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029										
Benzo (b) Fluoranthene	0.29	1.2		0.029										
Benzo (g,h,i) Perylene	0.26	0.26												
Benzo (k) Fluoranthene	0.55	0.55		0.29										
Bis(2-Chloroethoxy) Methane	110	310		46										
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012										
Bis(2-Chloroisopropyl) Ether	300	300		0.31										
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8										
Butylbenzylphthalate	350	1400		14										
Carbazole	33	130												
Chrysene	1.9	1.9		2.9										
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029										
Dibenzofuran	37	100		5.8										
Diethylphthalate	29000	82000		11000										
Dimethylphthalate														
Di-n-Butylphthalate	3700	10000		670										
Di-n-octylphthalate	1500	3000		160										
Fluoranthene	260	260		630										

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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 5/29/2013	CW-1A 6/18/2012	CW-1A 12/10/2012	CW-1A 5/30/2013	CW-2 6/18/2012	CW-2 12/10/2012	CW-2 5/29/2013	CW-3 6/18/2012	CW-3 12/10/2012	CW-3 12/10/2012
Fluorene	1500	1900		220										
Hexachlorobenzene	1	1	1	0.042										
Hexachlorobutadiene	8.5	33		0.26										
Hexachlorocyclopentadiene	50	50	50	22										
Hexachloroethane	1	1		0.79										
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029										
Isophorone	100	100		67										
Naphthalene	100	100		0.14										
Nitrobenzene	73	200		0.12										
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093										
N-Nitrosodiphenylamine	130	530		10										
Pentachlorophenol	1	1	1	0.035										
Phenanthrene	1100	1100												
Phenol	2000	2000		4500										
Pyrene	130	130		87										
TOTAL VOC														
					44	30.89	37.5	37.3	21.97	14.8	15.1	31.03	31.69	33.97
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	260	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	15	62		15										
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	13	53		87										
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
2-Butanone	4000	4000		4900	5 U	5 U	5 U	5 U	1 J	5 U	5 U	5 U	5 U	5 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	33000	92000		12000	5 U	3 J	5 U	5 U	5.2	5 U	5 U	8.2	3.5 J	5
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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 5/29/2013	CW-1A 6/18/2012	CW-1A 12/10/2012	CW-1A 5/30/2013	CW-2 6/18/2012	CW-2 12/10/2012	CW-2 5/29/2013	CW-3 6/18/2012	CW-3 12/10/2012	CW-3 12/10/2012
Chloroform	80	80		0.19	1 U	0.21 J	0.3 J	0.27 J	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane				190	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	11	0.74 J	1.4	1.2	3.9	4.8	4.1	16	21	21
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	840	3500		390										
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	5	5		9.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	100	100		0.14										
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	9.7	1 U	0.6 J	0.8 J	0.83 J	0.31 J	1 U	1 U	0.91 J	0.79 J	0.67 J
Toluene	1000	1000	1000	860	1 U	0.34 J	1 U	1 U	0.35 J	1 U	1 U	0.32 J	1 U	1 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	0.21 J	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	5	0.44	33	26	35	35	11	10	11	5.6	6.4	7.3
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-3 5/29/2013	CW-4 6/18/2012	CW-4 12/10/2012	CW-4 5/29/2013	CW-5 6/18/2012	CW-5 12/10/2012	CW-5 5/29/2013	CW-6 6/18/2012	CW-6 Dup 6/18/2012	CW-6 12/10/2012
1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4										
Cyanide, Total														
Cyanide, Total	200	200		1.4										
METAL														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
METAL (Dissolved)														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99										
1,2-Dichlorobenzene	600	600	600	280										
1,3-Dichlorobenzene	600	600												
1,4-Dichlorobenzene	75	75	75	0.42										

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-3 5/29/2013	CW-4 6/18/2012	CW-4 12/10/2012	CW-4 5/29/2013	CW-5 6/18/2012	CW-5 12/10/2012	CW-5 5/29/2013	CW-6 6/18/2012	CW-6 Dup 6/18/2012	CW-6 12/10/2012
2,4,5-Trichlorophenol	3700	10000		890										
2,4,6-Trichlorophenol	37	100		3.5										
2,4-Dichlorophenol	20	20		35										
2,4-Dimethylphenol	730	2000		270										
2,4-Dinitrophenol	73	200		30										
2,4-Dinitrotoluene	2.1	8.4		0.2										
2,6-Dinitrotoluene	37	100		0.042										
2-Chloronaphthalene	2900	8200		550										
2-Chlorophenol	40	40		71										
2-Methylnaphthalene	150	410		27										
2-Methylphenol	1800	5100		720										
2-Nitroaniline	110	310		150										
2-Nitrophenol	290	820												
3-& 4-Methylphenol				180										
3,3'-Dichlorobenzidine	1.5	5.8		0.11										
3-Nitroaniline	11	31												
4,6-Dinitro-2-Methylphenol	3.7	10		1.2										
4-Bromophenyl phenyl ether														
4-Chloro-3-Methyl-Phenol	180	510		1100										
4-Chloroaniline	3.3	13		0.32										
4-Chlorodiphenyl Ether														
4-Nitroaniline	33	130		3.3										
4-Nitrophenol	60	60												
Acenaphthene	2200	3800		400										
Acenaphthylene	2200	6100		400										
Anthracene	66	66		1300										
Benzo (A) Anthracene	0.29	3.6	0.2	0.029										
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029										
Benzo (b) Fluoranthene	0.29	1.2		0.029										
Benzo (g,h,i) Perylene	0.26	0.26												
Benzo (k) Fluoranthene	0.55	0.55		0.29										
Bis(2-Chloroethoxy) Methane	110	310		46										
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012										
Bis(2-Chloroisopropyl) Ether	300	300		0.31										
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8										
Butylbenzylphthalate	350	1400		14										
Carbazole	33	130												
Chrysene	1.9	1.9		2.9										
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029										
Dibenzofuran	37	100		5.8										
Diethylphthalate	29000	82000		11000										
Dimethylphthalate														
Di-n-Butylphthalate	3700	10000		670										
Di-n-octylphthalate	1500	3000		160										
Fluoranthene	260	260		630										

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-3 5/29/2013	CW-4 6/18/2012	CW-4 12/10/2012	CW-4 5/29/2013	CW-5 6/18/2012	CW-5 12/10/2012	CW-5 5/29/2013	CW-6 6/18/2012	CW-6 Dup 6/18/2012	CW-6 12/10/2012
Fluorene	1500	1900		220										
Hexachlorobenzene	1	1	1	0.042										
Hexachlorobutadiene	8.5	33		0.26										
Hexachlorocyclopentadiene	50	50	50	22										
Hexachloroethane	1	1		0.79										
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029										
Isophorone	100	100		67										
Naphthalene	100	100		0.14										
Nitrobenzene	73	200		0.12										
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093										
N-Nitrosodiphenylamine	130	530		10										
Pentachlorophenol	1	1	1	0.035										
Phenanthrene	1100	1100												
Phenol	2000	2000		4500										
Pyrene	130	130		87										
TOTAL VOC														
					34.6	84.57	71.7	82	14.44	5.69	8.5	134.2	121.8	127
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,1-Dichloroethane	31	160		2.4	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,1-Dichloroethene	7	7	7	260	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,2,4-Trimethylbenzene	15	62		15										
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5	5	0.15	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5	5	0.38	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
1,3,5-Trimethylbenzene	13	53		87										
1,4-Dioxane	6.4	32		0.67	200 U	400 U	400 U	200 U	200 U	200 U	200 U	1000 U	1000 U	1000 U
2-Butanone	4000	4000		4900	5 U	10 U	10 U	5 U	0.69 J	0.89 J	5 U	25 U	25 U	25 U
2-Hexanone	11	44		34	5 U	10 U	10 U	5 U	5 U	5 U	5 U	25 U	25 U	25 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	10 U	10 U	5 U	5 U	5 U	5 U	25 U	25 U	25 U
Acetone	33000	92000		12000	5.6	5.2 J	10 U	5 U	5	5 U	5 U	25 U	25 U	25 U
Acrylonitrile	0.72	3.7		0.045	20 U	40 U	40 U	20 U	20 U	20 U	20 U	100 U	100 U	100 U
Benzene	5	5	5	0.39	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Bromochloromethane	90	90		83	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Bromodichloromethane	80	80		0.12	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Bromoform	80	80		7.9	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Bromomethane	10	10		7	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Carbon Disulfide	1500	6200		720	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5	5	0.39	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Chlorobenzene	100	100	100	72	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Chlorodibromomethane	80	80		0.15	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Chloroethane	230	900		21000	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-3 5/29/2013	CW-4 6/18/2012	CW-4 12/10/2012	CW-4 5/29/2013	CW-5 6/18/2012	CW-5 12/10/2012	CW-5 5/29/2013	CW-6 6/18/2012	CW-6 Dup 6/18/2012	CW-6 12/10/2012
Chloroform	80	80		0.19	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Chloromethane				190	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	70	70	28	21	28	29	29	2.3	1.1	1.9	30	29	32
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Ethylbenzene	700	700	700	1.3	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Isopropylbenzene	840	3500		390										
Methyl tert-butyl ether	20	20		12	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Methylene chloride	5	5		9.9	1 U	0.49 J	2 U	1 U	1 U	1 U	1 U	1.2 J	1.8 J	5 U
Naphthalene	100	100		0.14										
Styrene	100	100	100	1100	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Tetrachloroethene	5	5	5	9.7	1.3	4.4	5.7	6	2.4	1.9	2.5	84	74	81
Toluene	1000	1000	1000	860	1 U	0.48 J	2 U	1 U	0.35 J	1 U	1 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Trichloroethene	5	5	5	0.44	6.7	46	37	47	3.7	1.8	4.1	19	17	14
Vinyl Chloride	2	2	2	0.015	1 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
Xylenes (Total)	10000	10000	10000	190	3 U	6 U	6 U	3 U	3 U	3 U	3 U	15 U	15 U	15 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-6 5/30/2013	CW-7 6/18/2012	CW-7 12/10/2012	CW-7 5/30/2013	CW-7A 6/18/2012	CW-7A 12/10/2012	CW-7A 5/29/2013	CW-8 6/18/2012	CW-8 12/10/2012	CW-8 6/17/2013
1,4-Dioxane														
1,4-Dioxane	6.4	32		0.67										
Cyanide, Free														
Cyanide, Free	200	200	200	1.4										
Cyanide, Total														
Cyanide, Total	200	200		1.4										
METAL														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
METAL (Dissolved)														
Antimony	6	6	6	6										
Arsenic	10	10	10	0.045										
Barium	2000	2000	2000	2900										
Beryllium	4	4	4	16										
Cadmium	5	5	5	6.9										
Chromium	100	100	100											
Copper	1000	1000	1300	620										
Hexavalent Chromium	100	100		0.031										
Lead	5	5	15											
Mercury	2	2	2	0.63										
Nickel	100	100		300										
Selenium	50	50	50	78										
Silver	100	100		71										
Thallium	2	2	2	0.16										
Vanadium	260	720		63										
Zinc	2000	2000		4700										
Semi Volatile Organic Compound														
1,2,4-Trichlorobenzene	70	70	70	0.99										
1,2-Dichlorobenzene	600	600	600	280										
1,3-Dichlorobenzene	600	600												
1,4-Dichlorobenzene	75	75	75	0.42										

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-6 5/30/2013	CW-7 6/18/2012	CW-7 12/10/2012	CW-7 5/30/2013	CW-7A 6/18/2012	CW-7A 12/10/2012	CW-7A 5/29/2013	CW-8 6/18/2012	CW-8 12/10/2012	CW-8 6/17/2013
2,4,5-Trichlorophenol	3700	10000		890										
2,4,6-Trichlorophenol	37	100		3.5										
2,4-Dichlorophenol	20	20		35										
2,4-Dimethylphenol	730	2000		270										
2,4-Dinitrophenol	73	200		30										
2,4-Dinitrotoluene	2.1	8.4		0.2										
2,6-Dinitrotoluene	37	100		0.042										
2-Chloronaphthalene	2900	8200		550										
2-Chlorophenol	40	40		71										
2-Methylnaphthalene	150	410		27										
2-Methylphenol	1800	5100		720										
2-Nitroaniline	110	310		150										
2-Nitrophenol	290	820												
3-& 4-Methylphenol				180										
3,3'-Dichlorobenzidine	1.5	5.8		0.11										
3-Nitroaniline	11	31												
4,6-Dinitro-2-Methylphenol	3.7	10		1.2										
4-Bromophenyl phenyl ether														
4-Chloro-3-Methyl-Phenol	180	510		1100										
4-Chloroaniline	3.3	13		0.32										
4-Chlorodiphenyl Ether														
4-Nitroaniline	33	130		3.3										
4-Nitrophenol	60	60												
Acenaphthene	2200	3800		400										
Acenaphthylene	2200	6100		400										
Anthracene	66	66		1300										
Benzo (A) Anthracene	0.29	3.6	0.2	0.029										
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029										
Benzo (b) Fluoranthene	0.29	1.2		0.029										
Benzo (g,h,i) Perylene	0.26	0.26												
Benzo (k) Fluoranthene	0.55	0.55		0.29										
Bis(2-Chloroethoxy) Methane	110	310		46										
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012										
Bis(2-Chloroisopropyl) Ether	300	300		0.31										
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8										
Butylbenzylphthalate	350	1400		14										
Carbazole	33	130												
Chrysene	1.9	1.9		2.9										
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029										
Dibenzofuran	37	100		5.8										
Diethylphthalate	29000	82000		11000										
Dimethylphthalate														
Di-n-Butylphthalate	3700	10000		670										
Di-n-octylphthalate	1500	3000		160										
Fluoranthene	260	260		630										

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

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-6 5/30/2013	CW-7 6/18/2012	CW-7 12/10/2012	CW-7 5/30/2013	CW-7A 6/18/2012	CW-7A 12/10/2012	CW-7A 5/29/2013	CW-8 6/18/2012	CW-8 12/10/2012	CW-8 6/17/2013
Fluorene	1500	1900		220										
Hexachlorobenzene	1	1	1	0.042										
Hexachlorobutadiene	8.5	33		0.26										
Hexachlorocyclopentadiene	50	50	50	22										
Hexachloroethane	1	1		0.79										
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029										
Isophorone	100	100		67										
Naphthalene	100	100		0.14										
Nitrobenzene	73	200		0.12										
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093										
N-Nitrosodiphenylamine	130	530		10										
Pentachlorophenol	1	1	1	0.035										
Phenanthrene	1100	1100												
Phenol	2000	2000		4500										
Pyrene	130	130		87										
TOTAL VOC														
					173.8	9.69	5.3	5.7	85.2	91.6	84.2	387.6	414.8	570
Volatile Organic Compound														
1,1,1,2-Tetrachloroethane	70	70		0.5	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,1,1-Trichloroethane	200	200	200	7500	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	25	92
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,1,2-Trichloroethane	5	5	5	0.24	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,1-Dichloroethane	31	160		2.4	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	4 J	16 J
1,1-Dichloroethene	7	7	7	260	8 U	1 U	1 U	1 U	5 U	5 U	5 U	8.9 J	9.8 J	14 J
1,2,4-Trimethylbenzene	15	62		15										
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,2-Dichloroethane	5	5	5	0.15	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,2-Dichloropropane	5	5	5	0.38	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
1,3,5-Trimethylbenzene	13	53		87										
1,4-Dioxane	6.4	32		0.67	1600 U	200 U	200 U	200 U	1000 U	1000 U	1000 U	4000 U	4000 U	4000 U
2-Butanone	4000	4000		4900	40 U	5 U	5 U	5 U	25 U	25 U	25 U	100 U	100 U	100 U
2-Hexanone	11	44		34	40 U	5 U	5 U	5 U	25 U	25 U	25 U	100 U	100 U	100 U
4-Methyl-2-Pentanone	2900	8200		1000	40 U	5 U	5 U	5 U	25 U	25 U	25 U	100 U	100 U	100 U
Acetone	33000	92000		12000	40 U	2.9 J	5 U	5 U	25 U	25 U	25 U	100 U	100 U	100 U
Acrylonitrile	0.72	3.7		0.045	160 U	20 U	20 U	20 U	100 U	100 U	100 U	400 U	400 U	400 U
Benzene	5	5	5	0.39	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Bromochloromethane	90	90		83	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Bromodichloromethane	80	80		0.12	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Bromoform	80	80		7.9	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Bromomethane	10	10		7	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Carbon Disulfide	1500	6200		720	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Carbon Tetrachloride	5	5	5	0.39	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Chlorobenzene	100	100	100	72	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Chlorodibromomethane	80	80		0.15	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Chloroethane	230	900		21000	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-6 5/30/2013	CW-7 6/18/2012	CW-7 12/10/2012	CW-7 5/30/2013	CW-7A 6/18/2012	CW-7A 12/10/2012	CW-7A 5/29/2013	CW-8 6/18/2012	CW-8 12/10/2012	CW-8 6/17/2013
Chloroform	80	80		0.19	8 U	1.4	1.2	1.4	0.9 J	1 J	5 U	20 U	20 U	20 U
Chloromethane				190	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
cis-1,2-Dichloroethene	70	70	70	28	32	0.29 J	0.3 J	1 U	5 U	1.2 J	5 U	130	150	210
cis-1,3-Dichloropropene	6.6	26		0.41	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Ethylbenzene	700	700	700	1.3	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Isopropylbenzene	840	3500		390										
Methyl tert-butyl ether	20	20		12	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Methylene chloride	5	5		9.9	3.8 J	1 U	1 U	1 U	1.5 J	5 U	1.8 J	5.7 J	20 U	15 J
Naphthalene	100	100		0.14										
Styrene	100	100	100	1100	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Tetrachloroethene	5	5	5	9.7	120	0.17 J	1 U	1 U	1.8 J	2.4 J	1.4 J	33	46	43
Toluene	1000	1000	1000	860	8 U	0.43 J	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
trans-1,2-Dichloroethene	100	100	100	86	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
trans-1,3-Dichloropropene	6.6	26		0.41	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Trichloroethene	5	5	5	0.44	18	4.5	3.8	4.3	81	87	81	210	180	180
Vinyl Chloride	2	2	2	0.015	8 U	1 U	1 U	1 U	5 U	5 U	5 U	20 U	20 U	20 U
Xylenes (Total)	10000	10000	10000	190	24 U	3 U	3 U	3 U	15 U	15 U	15 U	60 U	60 U	60 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-9 6/18/2012	CW-9 12/10/2012	CW-9 6/17/2013	CW-13 6/18/2012	CW-13 12/10/2012	CW-13 6/17/2013	CW-15A 6/18/2012	CW-15A 12/10/2012	CW-15A 6/17/2013
1,4-Dioxane													
1,4-Dioxane	6.4	32		0.67									
Cyanide, Free													
Cyanide, Free	200	200	200	1.4									
Cyanide, Total													
Cyanide, Total	200	200		1.4									
METAL													
Antimony	6	6	6	6									
Arsenic	10	10	10	0.045									
Barium	2000	2000	2000	2900									
Beryllium	4	4	4	16									
Cadmium	5	5	5	6.9									
Chromium	100	100	100										
Copper	1000	1000	1300	620									
Hexavalent Chromium	100	100		0.031									
Lead	5	5	15										
Mercury	2	2	2	0.63									
Nickel	100	100		300									
Selenium	50	50	50	78									
Silver	100	100		71									
Thallium	2	2	2	0.16									
Vanadium	260	720		63									
Zinc	2000	2000		4700									
METAL (Dissolved)													
Antimony	6	6	6	6									
Arsenic	10	10	10	0.045									
Barium	2000	2000	2000	2900									
Beryllium	4	4	4	16									
Cadmium	5	5	5	6.9									
Chromium	100	100	100										
Copper	1000	1000	1300	620									
Hexavalent Chromium	100	100		0.031									
Lead	5	5	15										
Mercury	2	2	2	0.63									
Nickel	100	100		300									
Selenium	50	50	50	78									
Silver	100	100		71									
Thallium	2	2	2	0.16									
Vanadium	260	720		63									
Zinc	2000	2000		4700									
Semi Volatile Organic Compound													
1,2,4-Trichlorobenzene	70	70	70	0.99									
1,2-Dichlorobenzene	600	600	600	280									
1,3-Dichlorobenzene	600	600											
1,4-Dichlorobenzene	75	75	75	0.42									

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-9 6/18/2012	CW-9 12/10/2012	CW-9 6/17/2013	CW-13 6/18/2012	CW-13 12/10/2012	CW-13 6/17/2013	CW-15A 6/18/2012	CW-15A 12/10/2012	CW-15A 6/17/2013
2,4,5-Trichlorophenol	3700	10000		890									
2,4,6-Trichlorophenol	37	100		3.5									
2,4-Dichlorophenol	20	20		35									
2,4-Dimethylphenol	730	2000		270									
2,4-Dinitrophenol	73	200		30									
2,4-Dinitrotoluene	2.1	8.4		0.2									
2,6-Dinitrotoluene	37	100		0.042									
2-Chloronaphthalene	2900	8200		550									
2-Chlorophenol	40	40		71									
2-Methylnaphthalene	150	410		27									
2-Methylphenol	1800	5100		720									
2-Nitroaniline	110	310		150									
2-Nitrophenol	290	820											
3-& 4-Methylphenol				180									
3,3'-Dichlorobenzidine	1.5	5.8		0.11									
3-Nitroaniline	11	31											
4,6-Dinitro-2-Methylphenol	3.7	10		1.2									
4-Bromophenyl phenyl ether													
4-Chloro-3-Methyl-Phenol	180	510		1100									
4-Chloroaniline	3.3	13		0.32									
4-Chlorodiphenyl Ether													
4-Nitroaniline	33	130		3.3									
4-Nitrophenol	60	60											
Acenaphthene	2200	3800		400									
Acenaphthylene	2200	6100		400									
Anthracene	66	66		1300									
Benzo (A) Anthracene	0.29	3.6	0.2	0.029									
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029									
Benzo (b) Fluoranthene	0.29	1.2		0.029									
Benzo (g,h,i) Perylene	0.26	0.26											
Benzo (k) Fluoranthene	0.55	0.55		0.29									
Bis(2-Chloroethoxy) Methane	110	310		46									
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012									
Bis(2-Chloroisopropyl) Ether	300	300		0.31									
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8									
Butylbenzylphthalate	350	1400		14									
Carbazole	33	130											
Chrysene	1.9	1.9		2.9									
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029									
Dibenzofuran	37	100		5.8									
Diethylphthalate	29000	82000		11000									
Dimethylphthalate													
Di-n-Butylphthalate	3700	10000		670									
Di-n-octylphthalate	1500	3000		160									
Fluoranthene	260	260		630									

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-9 6/18/2012	CW-9 12/10/2012	CW-9 6/17/2013	CW-13 6/18/2012	CW-13 12/10/2012	CW-13 6/17/2013	CW-15A 6/18/2012	CW-15A 12/10/2012	CW-15A 6/17/2013
Fluorene	1500	1900		220									
Hexachlorobenzene	1	1	1	0.042									
Hexachlorobutadiene	8.5	33		0.26									
Hexachlorocyclopentadiene	50	50	50	22									
Hexachloroethane	1	1		0.79									
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029									
Isophorone	100	100		67									
Naphthalene	100	100		0.14									
Nitrobenzene	73	200		0.12									
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093									
N-Nitrosodiphenylamine	130	530		10									
Pentachlorophenol	1	1	1	0.035									
Phenanthrene	1100	1100											
Phenol	2000	2000		4500									
Pyrene	130	130		87									
TOTAL VOC													
					886.9	3172	1557	655.1	948.3	701.1	18190	31250	28920
Volatile Organic Compound													
1,1,1,2-Tetrachloroethane	70	70		0.5	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,1,1-Trichloroethane	200	200	200	7500	32	120	48 J	9 J	13	11	6200	11000	11000
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,1,2-Trichloroethane	5	5	5	0.24	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,1-Dichloroethane	31	160		2.4	5.5 J	100 U	50 U	13 U	5.4 J	5.1 J	500 U	150 J	140 J
1,1-Dichloroethene	7	7	7	260	9.4 J	100 U	50 U	7.9 J	11 J	7.7 J	1500	2500	1900
1,2,4-Trimethylbenzene	15	62		15									
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,2-Dichloroethane	5	5	5	0.15	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,2-Dichloropropane	5	5	5	0.38	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
1,3,5-Trimethylbenzene	13	53		87									
1,4-Dioxane	6.4	32		0.67	5000 U	20000 U	10000 U	2500 U	2500 U	2000 U	100000 U	100000 U	100000 U
2-Butanone	4000	4000		4900	130 U	500 U	250 U	63 U	63 U	50 U	2500 U	2500 U	2500 U
2-Hexanone	11	44		34	130 U	500 U	250 U	63 U	63 U	50 U	2500 U	2500 U	2500 U
4-Methyl-2-Pentanone	2900	8200		1000	130 U	500 U	250 U	63 U	63 U	50 U	2500 U	2500 U	2500 U
Acetone	33000	92000		12000	130 U	500 U	250 U	63 U	63 U	50 U	2500 U	2500 U	2500 U
Acrylonitrile	0.72	3.7		0.045	500 U	2000 U	1000 U	250 U	250 U	200 U	10000 U	10000 U	10000 U
Benzene	5	5	5	0.39	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Bromochloromethane	90	90		83	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Bromodichloromethane	80	80		0.12	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Bromoform	80	80		7.9	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Bromomethane	10	10		7	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Carbon Disulfide	1500	6200		720	25 U	100 U	50 U	13 U	13 U	10 U	160 J	500 U	500 U
Carbon Tetrachloride	5	5	5	0.39	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Chlorobenzene	100	100	100	72	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Chlorodibromomethane	80	80		0.15	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Chloroethane	230	900		21000	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-9 6/18/2012	CW-9 12/10/2012	CW-9 6/17/2013	CW-13 6/18/2012	CW-13 12/10/2012	CW-13 6/17/2013	CW-15A 6/18/2012	CW-15A 12/10/2012	CW-15A 6/17/2013
Chloroform	80	80		0.19	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Chloromethane				190	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
cis-1,2-Dichloroethene	70	70	70	28	66	100	110	280	400	320	6700	6200	7700
cis-1,3-Dichloropropene	6.6	26		0.41	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Ethylbenzene	700	700	700	1.3	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Isopropylbenzene	840	3500		390									
Methyl tert-butyl ether	20	20		12	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Methylene chloride	5	5		9.9	4 J	62 J	39 J	4.3 J	3.4 J	7.3 J	160 J	500 U	380 J
Naphthalene	100	100		0.14									
Styrene	100	100	100	1100	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Tetrachloroethene	5	5	5	9.7	480	1900	950	130	180	130	770	1600	1300
Toluene	1000	1000	1000	860	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
trans-1,2-Dichloroethene	100	100	100	86	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
trans-1,3-Dichloropropene	6.6	26		0.41	25 U	100 U	50 U	13 U	13 U	10 U	500 U	500 U	500 U
Trichloroethene	5	5	5	0.44	290	990	410	220	330	220	2700	9800	6500
Vinyl Chloride	2	2	2	0.015	25 U	100 U	50 U	3.9 J	5.5 J	10 U	500 U	500 U	500 U
Xylenes (Total)	10000	10000	10000	190	75 U	300 U	150 U	38 U	38 U	30 U	1500 U	1500 U	1500 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-17 6/18/2012	CW-17 12/10/2012	CW-17 6/17/2013	BDG58-SB-001 30 - 31 8/16/2012	Softail Lift Station Deep Foundation 12/10/2012
1,4-Dioxane									
1,4-Dioxane	6.4	32		0.67					
Cyanide, Free									
Cyanide, Free	200	200	200	1.4					
Cyanide, Total									
Cyanide, Total	200	200		1.4					
METAL									
Antimony	6	6	6	6					
Arsenic	10	10	10	0.045					
Barium	2000	2000	2000	2900					
Beryllium	4	4	4	16					
Cadmium	5	5	5	6.9					
Chromium	100	100	100						
Copper	1000	1000	1300	620					
Hexavalent Chromium	100	100		0.031					
Lead	5	5	15						
Mercury	2	2	2	0.63					
Nickel	100	100		300					
Selenium	50	50	50	78					
Silver	100	100		71					
Thallium	2	2	2	0.16					
Vanadium	260	720		63					
Zinc	2000	2000		4700					
METAL (Dissolved)									
Antimony	6	6	6	6					
Arsenic	10	10	10	0.045					
Barium	2000	2000	2000	2900					
Beryllium	4	4	4	16					
Cadmium	5	5	5	6.9					
Chromium	100	100	100						
Copper	1000	1000	1300	620					
Hexavalent Chromium	100	100		0.031					
Lead	5	5	15						
Mercury	2	2	2	0.63					
Nickel	100	100		300					
Selenium	50	50	50	78					
Silver	100	100		71					
Thallium	2	2	2	0.16					
Vanadium	260	720		63					
Zinc	2000	2000		4700					
Semi Volatile Organic Compound									
1,2,4-Trichlorobenzene	70	70	70	0.99					
1,2-Dichlorobenzene	600	600	600	280					
1,3-Dichlorobenzene	600	600							
1,4-Dichlorobenzene	75	75	75	0.42					

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-17 6/18/2012	CW-17 12/10/2012	CW-17 6/17/2013	BDG58-SB-001 30 - 31 8/16/2012	Softail Lift Station Deep Foundation 12/10/2012
2,4,5-Trichlorophenol	3700	10000		890					
2,4,6-Trichlorophenol	37	100		3.5					
2,4-Dichlorophenol	20	20		35					
2,4-Dimethylphenol	730	2000		270					
2,4-Dinitrophenol	73	200		30					
2,4-Dinitrotoluene	2.1	8.4		0.2					
2,6-Dinitrotoluene	37	100		0.042					
2-Chloronaphthalene	2900	8200		550					
2-Chlorophenol	40	40		71					
2-Methylnaphthalene	150	410		27					
2-Methylphenol	1800	5100		720					
2-Nitroaniline	110	310		150					
2-Nitrophenol	290	820							
3-& 4-Methylphenol				180					
3,3'-Dichlorobenzidine	1.5	5.8		0.11					
3-Nitroaniline	11	31							
4,6-Dinitro-2-Methylphenol	3.7	10		1.2					
4-Bromophenyl phenyl ether									
4-Chloro-3-Methyl-Phenol	180	510		1100					
4-Chloroaniline	3.3	13		0.32					
4-Chlorodiphenyl Ether									
4-Nitroaniline	33	130		3.3					
4-Nitrophenol	60	60							
Acenaphthene	2200	3800		400					
Acenaphthylene	2200	6100		400					
Anthracene	66	66		1300					
Benzo (A) Anthracene	0.29	3.6	0.2	0.029					
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029					
Benzo (b) Fluoranthene	0.29	1.2		0.029					
Benzo (g,h,i) Perylene	0.26	0.26							
Benzo (k) Fluoranthene	0.55	0.55		0.29					
Bis(2-Chloroethoxy) Methane	110	310		46					
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012					
Bis(2-Chloroisopropyl) Ether	300	300		0.31					
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8					
Butylbenzylphthalate	350	1400		14					
Carbazole	33	130							
Chrysene	1.9	1.9		2.9					
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029					
Dibenzofuran	37	100		5.8					
Diethylphthalate	29000	82000		11000					
Dimethylphthalate									
Di-n-Butylphthalate	3700	10000		670					
Di-n-octylphthalate	1500	3000		160					
Fluoranthene	260	260		630					

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-17 6/18/2012	CW-17 12/10/2012	CW-17 6/17/2013	BDG58-SB-001 30 - 31 8/16/2012	Softail Lift Station Deep Foundation 12/10/2012
Fluorene	1500	1900		220					
Hexachlorobenzene	1	1	1	0.042					
Hexachlorobutadiene	8.5	33		0.26					
Hexachlorocyclopentadiene	50	50	50	22					
Hexachloroethane	1	1		0.79					
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029					
Isophorone	100	100		67					
Naphthalene	100	100		0.14					
Nitrobenzene	73	200		0.12					
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093					
N-Nitrosodiphenylamine	130	530		10					
Pentachlorophenol	1	1	1	0.035					
Phenanthrene	1100	1100							
Phenol	2000	2000		4500					
Pyrene	130	130		87					
TOTAL VOC									
					302.8	279.8	226.7	53.52	0.5
Volatile Organic Compound									
1,1,1,2-Tetrachloroethane	70	70		0.5	10 U	10 U	5 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	6.9 J	8.4 J	5 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	10 U	10 U	5 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	10 U	10 U	5 U	1 U	1 U
1,1-Dichloroethane	31	160		2.4	4.1 J	4.3 J	4.5 J	1 U	1 U
1,1-Dichloroethene	7	7	7	260	6.5 J	7.1 J	6.8	1 U	1 U
1,2,4-Trimethylbenzene	15	62		15					
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	10 U	10 U	5 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	10 U	10 U	5 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	10 U	10 U	5 U	1 U	1 U
1,3,5-Trimethylbenzene	13	53		87					
1,4-Dioxane	6.4	32		0.67	2000 U	2000 U	1000 U	200 U	200 U
2-Butanone	4000	4000		4900	50 U	50 U	25 U	5.5	5 U
2-Hexanone	11	44		34	50 U	50 U	25 U	0.48 J	5 U
4-Methyl-2-Pentanone	2900	8200		1000	50 U	50 U	25 U	0.94 J	5 U
Acetone	33000	92000		12000	50 U	50 U	25 U	41	5 U
Acrylonitrile	0.72	3.7		0.045	200 U	200 U	100 U	20 U	20 U
Benzene	5	5	5	0.39	10 U	10 U	5 U	1 U	1 U
Bromochloromethane	90	90		83	10 U	10 U	5 U	1 U	1 U
Bromodichloromethane	80	80		0.12	10 U	10 U	5 U	1 U	1 U
Bromoform	80	80		7.9	10 U	10 U	5 U	1 U	1 U
Bromomethane	10	10		7	10 U	10 U	5 U	1 U	1 U
Carbon Disulfide	1500	6200		720	10 U	10 U	5 U	1.1	1 U
Carbon Tetrachloride	5	5	5	0.39	10 U	10 U	5 U	1 U	1 U
Chlorobenzene	100	100	100	72	10 U	10 U	5 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	10 U	10 U	5 U	1 U	1 U
Chloroethane	230	900		21000	10 U	10 U	5 U	1 U	1 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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-17 6/18/2012	CW-17 12/10/2012	CW-17 6/17/2013	BDG58-SB-001 30 - 31 8/16/2012	Softail Lift Station Deep Foundation 12/10/2012
Chloroform	80	80		0.19	10 U	10 U	5 U	1 U	1 U
Chloromethane				190	10 U	10 U	5 U	1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	88	97	87	1 U	1 U
cis-1,3-Dichloropropene	6.6	26		0.41	10 U	10 U	5 U	1 U	1 U
Ethylbenzene	700	700	700	1.3	10 U	10 U	5 U	1 U	1 U
Isopropylbenzene	840	3500		390					
Methyl tert-butyl ether	20	20		12	10 U	10 U	5 U	1 U	1 U
Methylene chloride	5	5		9.9	3.3 J	10 U	1.4 J	1 U	1 U
Naphthalene	100	100		0.14					
Styrene	100	100	100	1100	10 U	10 U	5 U	1 U	1 U
Tetrachloroethene	5	5	5	9.7	54	43	40	1 U	1 U
Toluene	1000	1000	1000	860	10 U	10 U	5 U	1 U	1 U
trans-1,2-Dichloroethene	100	100	100	86	10 U	10 U	5 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	10 U	10 U	5 U	1 U	1 U
Trichloroethene	5	5	5	0.44	140	120	87	4.5	0.5 J
Vinyl Chloride	2	2	2	0.015	10 U	10 U	5 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	190	30 U	30 U	15 U	3 U	3 U

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Softail Lift Station Deep Foundation 5/24/2013	Softail Lift Station Toe of Slope 1/3/2013	RW-2 5/29/2013	RW-4 Folk 5/30/2013	TATE (S-6) 5/29/2013	Cole (Flush) 9/25/2012
1,4-Dioxane										
1,4-Dioxane	6.4	32		0.67	1.9 U					
Cyanide, Free										
Cyanide, Free	200	200	200	1.4						
Cyanide, Total										
Cyanide, Total	200	200		1.4						
METAL										
Antimony	6	6	6	6						
Arsenic	10	10	10	0.045						
Barium	2000	2000	2000	2900						
Beryllium	4	4	4	16						
Cadmium	5	5	5	6.9						
Chromium	100	100	100							
Copper	1000	1000	1300	620						
Hexavalent Chromium	100	100		0.031						
Lead	5	5	15							
Mercury	2	2	2	0.63						
Nickel	100	100		300						
Selenium	50	50	50	78						
Silver	100	100		71						
Thallium	2	2	2	0.16						
Vanadium	260	720		63						
Zinc	2000	2000		4700						
METAL (Dissolved)										
Antimony	6	6	6	6						
Arsenic	10	10	10	0.045						
Barium	2000	2000	2000	2900						
Beryllium	4	4	4	16						
Cadmium	5	5	5	6.9						
Chromium	100	100	100							
Copper	1000	1000	1300	620						
Hexavalent Chromium	100	100		0.031						
Lead	5	5	15							
Mercury	2	2	2	0.63						
Nickel	100	100		300						
Selenium	50	50	50	78						
Silver	100	100		71						
Thallium	2	2	2	0.16						
Vanadium	260	720		63						
Zinc	2000	2000		4700						
Semi Volatile Organic Compound										
1,2,4-Trichlorobenzene	70	70	70	0.99						
1,2-Dichlorobenzene	600	600	600	280						
1,3-Dichlorobenzene	600	600								
1,4-Dichlorobenzene	75	75	75	0.42						

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Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Softail Lift Station Deep Foundation 5/24/2013	Softail Lift Station Toe of Slope 1/3/2013	RW-2 5/29/2013	RW-4 Folk 5/30/2013	TATE (S-6) 5/29/2013	Cole (Flush) 9/25/2012
2,4,5-Trichlorophenol	3700	10000		890						
2,4,6-Trichlorophenol	37	100		3.5						
2,4-Dichlorophenol	20	20		35						
2,4-Dimethylphenol	730	2000		270						
2,4-Dinitrophenol	73	200		30						
2,4-Dinitrotoluene	2.1	8.4		0.2						
2,6-Dinitrotoluene	37	100		0.042						
2-Chloronaphthalene	2900	8200		550						
2-Chlorophenol	40	40		71						
2-Methylnaphthalene	150	410		27						
2-Methylphenol	1800	5100		720						
2-Nitroaniline	110	310		150						
2-Nitrophenol	290	820								
3-& 4-Methylphenol				180						
3,3'-Dichlorobenzidine	1.5	5.8		0.11						
3-Nitroaniline	11	31								
4,6-Dinitro-2-Methylphenol	3.7	10		1.2						
4-Bromophenyl phenyl ether										
4-Chloro-3-Methyl-Phenol	180	510		1100						
4-Chloroaniline	3.3	13		0.32						
4-Chlorodiphenyl Ether										
4-Nitroaniline	33	130		3.3						
4-Nitrophenol	60	60								
Acenaphthene	2200	3800		400						
Acenaphthylene	2200	6100		400						
Anthracene	66	66		1300						
Benzo (A) Anthracene	0.29	3.6	0.2	0.029						
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029						
Benzo (b) Fluoranthene	0.29	1.2		0.029						
Benzo (g,h,i) Perylene	0.26	0.26								
Benzo (k) Fluoranthene	0.55	0.55		0.29						
Bis(2-Chloroethoxy) Methane	110	310		46						
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012						
Bis(2-Chloroisopropyl) Ether	300	300		0.31						
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8						
Butylbenzylphthalate	350	1400		14						
Carbazole	33	130								
Chrysene	1.9	1.9		2.9						
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029						
Dibenzofuran	37	100		5.8						
Diethylphthalate	29000	82000		11000						
Dimethylphthalate										
Di-n-Butylphthalate	3700	10000		670						
Di-n-octylphthalate	1500	3000		160						
Fluoranthene	260	260		630						

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Softail Lift Station Deep Foundation 5/24/2013	Softail Lift Station Toe of Slope 1/3/2013	RW-2 5/29/2013	RW-4 Folk 5/30/2013	TATE (S-6) 5/29/2013	Cole (Flush) 9/25/2012
Fluorene	1500	1900		220						
Hexachlorobenzene	1	1	1	0.042						
Hexachlorobutadiene	8.5	33		0.26						
Hexachlorocyclopentadiene	50	50	50	22						
Hexachloroethane	1	1		0.79						
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029						
Isophorone	100	100		67						
Naphthalene	100	100		0.14						
Nitrobenzene	73	200		0.12						
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093						
N-Nitrosodiphenylamine	130	530		10						
Pentachlorophenol	1	1	1	0.035						
Phenanthrene	1100	1100								
Phenol	2000	2000		4500						
Pyrene	130	130		87						
TOTAL VOC										
					0.84	4.46	1.2	0.24	0.25	0
Volatile Organic Compound										
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	0.21 J	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	260	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	15	62		15						
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	13	53		87						
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U	200 U
2-Butanone	4000	4000		4900	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	33000	92000		12000	5 U	4.2 J	5 U	5 U	5 U	5 U
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U	1 U

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Softail Lift Station Deep Foundation 5/24/2013	Softail Lift Station Toe of Slope 1/3/2013	RW-2 5/29/2013	RW-4 Folk 5/30/2013	TATE (S-6) 5/29/2013	Cole (Flush) 9/25/2012
Chloroform	80	80		0.19	1 U	1 U	1 U	0.24 J	0.25 J	1 U
Chloromethane				190	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	840	3500		390						
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	5	5		9.9	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	100	100		0.14						
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	9.7	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1000	1000	1000	860	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	5	0.44	0.63 J	0.26 J	1.2	1 U	1 U	1 U
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U	3 U

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

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Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Cole B 9/25/2012	Cole Steel 9/25/2012	GM-1D 9/25/2012	Ru-MW-5 11/9/2012	Ru-MW-6 11/9/2012
1,4-Dioxane									
1,4-Dioxane	6.4	32		0.67					
Cyanide, Free									
Cyanide, Free	200	200	200	1.4					
Cyanide, Total									
Cyanide, Total	200	200		1.4					
METAL									
Antimony	6	6	6	6					
Arsenic	10	10	10	0.045					
Barium	2000	2000	2000	2900					
Beryllium	4	4	4	16					
Cadmium	5	5	5	6.9					
Chromium	100	100	100						
Copper	1000	1000	1300	620					
Hexavalent Chromium	100	100		0.031					
Lead	5	5	15						
Mercury	2	2	2	0.63					
Nickel	100	100		300					
Selenium	50	50	50	78					
Silver	100	100		71					
Thallium	2	2	2	0.16					
Vanadium	260	720		63					
Zinc	2000	2000		4700					
METAL (Dissolved)									
Antimony	6	6	6	6					
Arsenic	10	10	10	0.045					
Barium	2000	2000	2000	2900					
Beryllium	4	4	4	16					
Cadmium	5	5	5	6.9					
Chromium	100	100	100						
Copper	1000	1000	1300	620					
Hexavalent Chromium	100	100		0.031					
Lead	5	5	15						
Mercury	2	2	2	0.63					
Nickel	100	100		300					
Selenium	50	50	50	78					
Silver	100	100		71					
Thallium	2	2	2	0.16					
Vanadium	260	720		63					
Zinc	2000	2000		4700					
Semi Volatile Organic Compound									
1,2,4-Trichlorobenzene	70	70	70	0.99					
1,2-Dichlorobenzene	600	600	600	280					
1,3-Dichlorobenzene	600	600							
1,4-Dichlorobenzene	75	75	75	0.42					

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

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Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Cole B 9/25/2012	Cole Steel 9/25/2012	GM-1D 9/25/2012	Ru-MW-5 11/9/2012	Ru-MW-6 11/9/2012
2,4,5-Trichlorophenol	3700	10000		890					
2,4,6-Trichlorophenol	37	100		3.5					
2,4-Dichlorophenol	20	20		35					
2,4-Dimethylphenol	730	2000		270					
2,4-Dinitrophenol	73	200		30					
2,4-Dinitrotoluene	2.1	8.4		0.2					
2,6-Dinitrotoluene	37	100		0.042					
2-Chloronaphthalene	2900	8200		550					
2-Chlorophenol	40	40		71					
2-Methylnaphthalene	150	410		27					
2-Methylphenol	1800	5100		720					
2-Nitroaniline	110	310		150					
2-Nitrophenol	290	820							
3-& 4-Methylphenol				180					
3,3'-Dichlorobenzidine	1.5	5.8		0.11					
3-Nitroaniline	11	31							
4,6-Dinitro-2-Methylphenol	3.7	10		1.2					
4-Bromophenyl phenyl ether									
4-Chloro-3-Methyl-Phenol	180	510		1100					
4-Chloroaniline	3.3	13		0.32					
4-Chlorodiphenyl Ether									
4-Nitroaniline	33	130		3.3					
4-Nitrophenol	60	60							
Acenaphthene	2200	3800		400					
Acenaphthylene	2200	6100		400					
Anthracene	66	66		1300					
Benzo (A) Anthracene	0.29	3.6	0.2	0.029					
Benzo (a) Pyrene	0.2	0.2	0.2	0.0029					
Benzo (b) Fluoranthene	0.29	1.2		0.029					
Benzo (g,h,i) Perylene	0.26	0.26							
Benzo (k) Fluoranthene	0.55	0.55		0.29					
Bis(2-Chloroethoxy) Methane	110	310		46					
Bis(2-Chloroethyl) Ether	0.15	0.76		0.012					
Bis(2-Chloroisopropyl) Ether	300	300		0.31					
Bis(2-Ethylhexyl) Phthalate	6	6	6	4.8					
Butylbenzylphthalate	350	1400		14					
Carbazole	33	130							
Chrysene	1.9	1.9		2.9					
Dibenzo (a,h) Anthracene	0.029	0.36		0.0029					
Dibenzofuran	37	100		5.8					
Diethylphthalate	29000	82000		11000					
Dimethylphthalate									
Di-n-Butylphthalate	3700	10000		670					
Di-n-octylphthalate	1500	3000		160					
Fluoranthene	260	260		630					

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

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Cole B 9/25/2012	Cole Steel 9/25/2012	GM-1D 9/25/2012	Ru-MW-5 11/9/2012	Ru-MW-6 11/9/2012
Fluorene	1500	1900		220					
Hexachlorobenzene	1	1	1	0.042					
Hexachlorobutadiene	8.5	33		0.26					
Hexachlorocyclopentadiene	50	50	50	22					
Hexachloroethane	1	1		0.79					
Indeno (1,2,3-cd) Pyrene	0.29	3.6		0.029					
Isophorone	100	100		67					
Naphthalene	100	100		0.14					
Nitrobenzene	73	200		0.12					
N-Nitrosodi-N-Propylamine	0.094	0.37		0.0093					
N-Nitrosodiphenylamine	130	530		10					
Pentachlorophenol	1	1	1	0.035					
Phenanthrene	1100	1100							
Phenol	2000	2000		4500					
Pyrene	130	130		87					
TOTAL VOC									
					0	7.74	4.24	0.17	0.58
Volatile Organic Compound									
1,1,1,2-Tetrachloroethane	70	70		0.5	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	200	200	7500	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.84	4.3		0.066	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	31	160		2.4	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	7	7	7	260	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	15	62		15					
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5	5	5	0.15	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	5	5	5	0.38	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	13	53		87					
1,4-Dioxane	6.4	32		0.67	200 U	200 U	200 U	200 U	200 U
2-Butanone	4000	4000		4900	5 U	5 U	5 U	5 U	5 U
2-Hexanone	11	44		34	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	2900	8200		1000	5 U	5 U	5 U	5 U	5 U
Acetone	33000	92000		12000	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	0.72	3.7		0.045	20 U	20 U	20 U	20 U	20 U
Benzene	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U
Bromochloromethane	90	90		83	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	80	80		0.12	1 U	1 U	1 U	1 U	1 U
Bromoform	80	80		7.9	1 U	1 U	1 U	1 U	1 U
Bromomethane	10	10		7	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	1500	6200		720	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	5	5	0.39	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	100	100	100	72	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	80	80		0.15	1 U	1 U	1 U	1 U	1 U
Chloroethane	230	900		21000	1 U	1 U	1 U	1 U	1 U

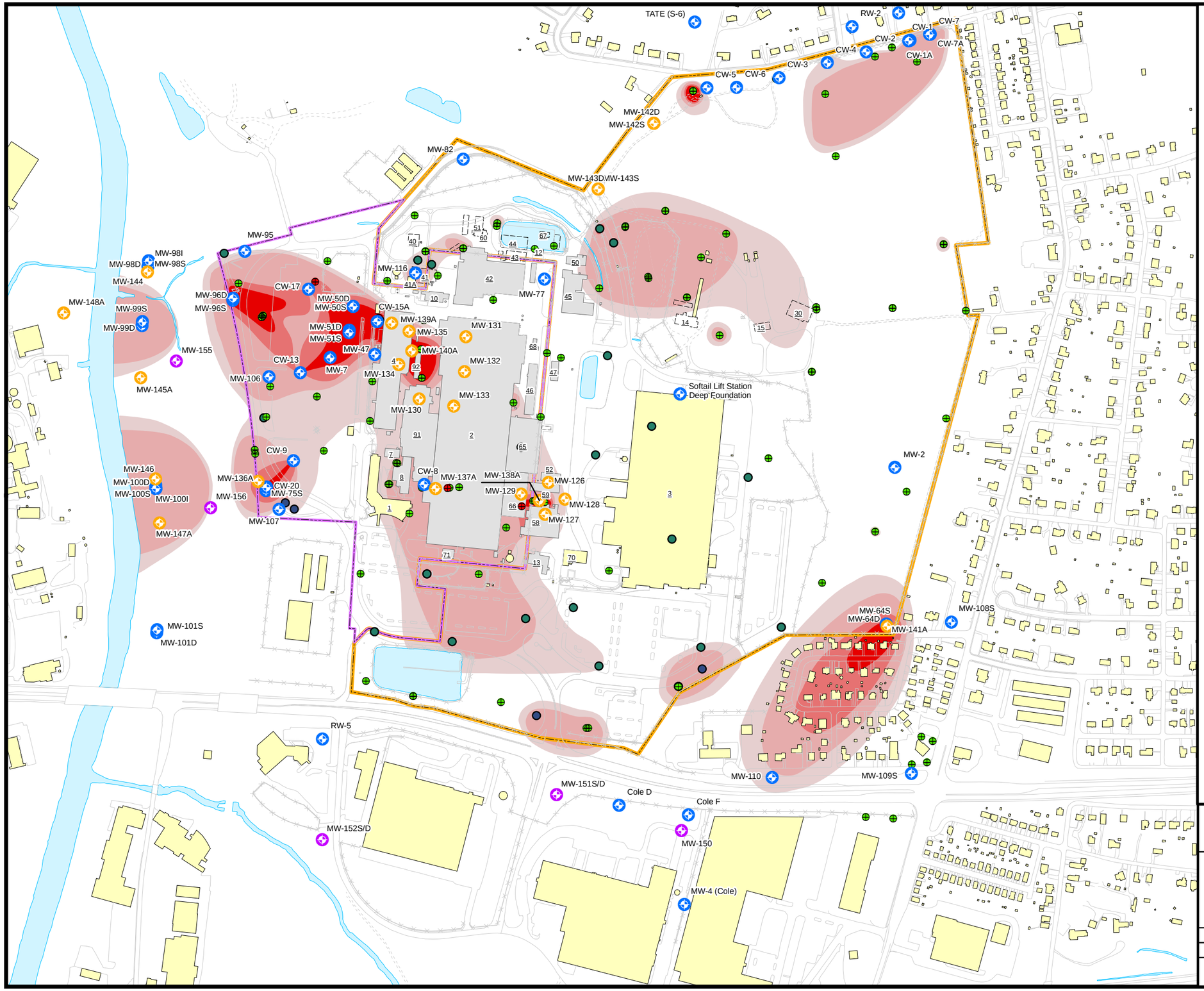
Blank results = analyte not analyzed. U = Not detected. J = Organics; estimated. Inorganics; blank contamination. B = Organics; blank contamination. Inorganics; estimated. E = Inorganics: matrix interference.

Table 3
Groundwater Data Summary - From 6/1/2012 to 7/31/2013
Former York Naval Ordnance Plant - York, PA

Location/ID Depth (ft.) 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)	Cole B 9/25/2012	Cole Steel 9/25/2012	GM-1D 9/25/2012	Ru-MW-5 11/9/2012	Ru-MW-6 11/9/2012
Chloroform	80	80		0.19	1 U	1 U	1 U	1 U	0.18 J
Chloromethane				190	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	70	70	70	28	1 U	2.3	1 U	1 U	1 U
cis-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	700	700	700	1.3	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	840	3500		390					
Methyl tert-butyl ether	20	20		12	1 U	1 U	1 U	1 U	1 U
Methylene chloride	5	5		9.9	1 U	1 U	1 U	1 U	1 U
Naphthalene	100	100		0.14					
Styrene	100	100	100	1100	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	5	5	5	9.7	1 U	0.24 J	3.9	1 U	1 U
Toluene	1000	1000	1000	860	1 U	1 U	1 U	0.17 J	0.4 J
trans-1,2-Dichloroethene	100	100	100	86	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.41	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	5	5	0.44	1 U	5.2	0.34 J	1 U	1 U
Vinyl Chloride	2	2	2	0.015	1 U	1 U	1 U	1 U	1 U
Xylenes (Total)	10000	10000	10000	190	3 U	3 U	3 U	3 U	3 U

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

Figures



Legend

- New Well Sampling Location
- Proposed Well Location
- 2011 Key Well Sample Location
- Abandoned Collection Well
- Abandoned Monitoring Well
- Collection Well
- Monitoring Well
- Residential Well
- Road (Paved)
- Road Curb
- Road (Unpaved)
- Walkway
- Fenceline
- Existing Building to Remain
- Demolished
- Demolished/Slab Removed
- Existing Water Feature
- West Campus Property Line
- Harley-Davidson Property
- TCE Concentration 50 ppb
- TCE Concentration 100 ppb
- TCE Concentration 500 ppb
- TCE Concentration 1000 ppb

Concentration contours incorporate an interpretation of the hydro-dynamics of the groundwater system based on concentration changes over time, natural gradients, observed responses to pumping, and known and suspected source areas.

Contour lines represent concentrations expected in the ground-water within the interconnected fractures and solution channels in the saturated zone.

Although historical chemistry data does not appear on this map, chemistry data from abandoned wells was considered in the construction of concentration contours. Concentration trend graphs were used to predict 2008 concentrations in abandoned wells.

N
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Scale (feet)
0 250 500 1,000

Figure 1

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

New/Proposed and 2011 Key Wells

DRAWN BY: AGM	CHECKED AND APPROVED BY:SMS	DATE:7/31/2013

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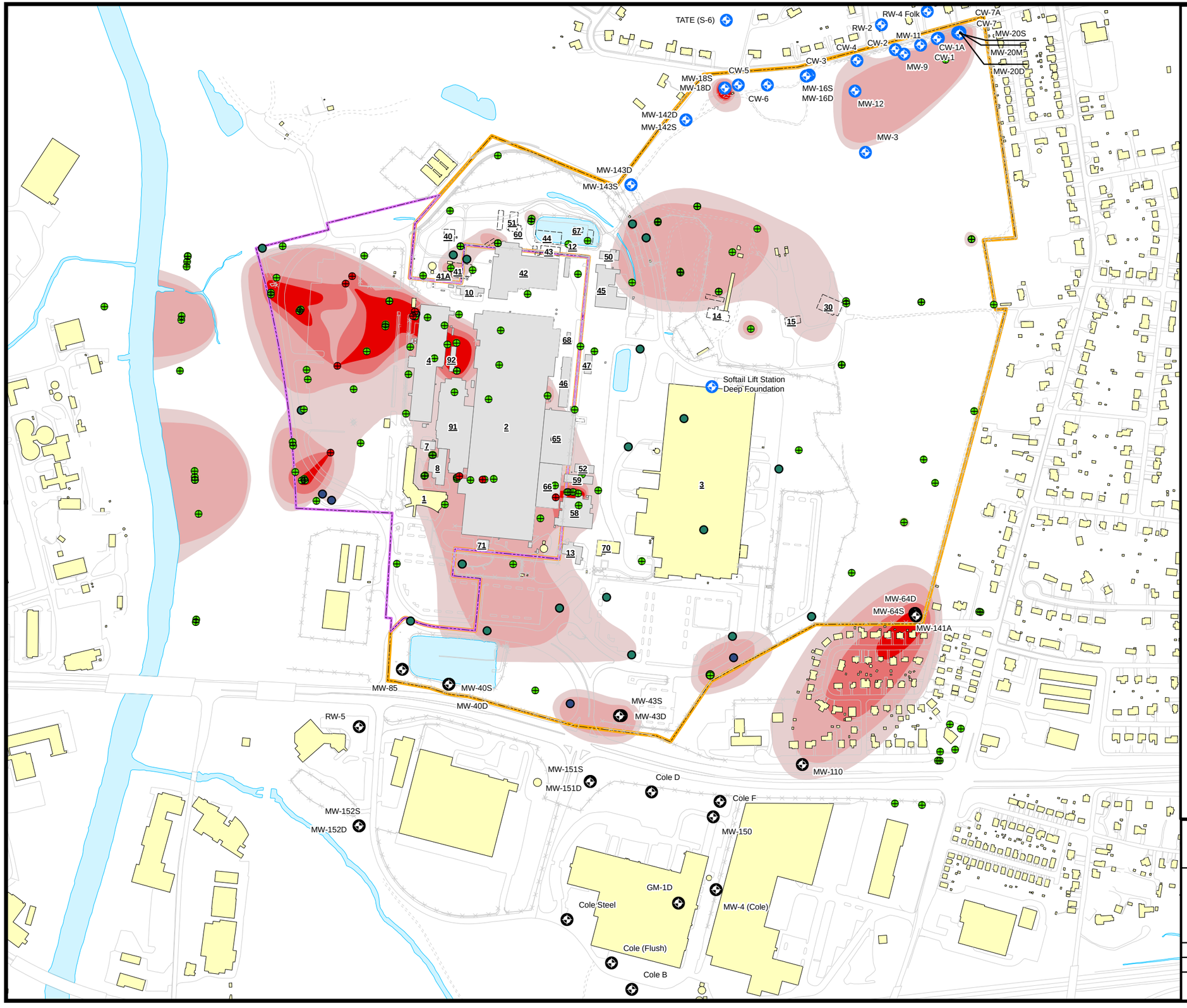

Legend

- 2013 NPBA/Building 3 Shutdown Test Sample Location
- South of Site Sample Location
- Abandoned Collection Well
- Abandoned Monitoring Well
- Collection Well
- Monitoring Well
- Residential Well
- Road (Paved)
- Road Curb
- Road (Unpaved)
- Walkway
- Fenceline
- Existing Building to Remain
- Demolished
- Demolished/Slab Removed
- Existing Water Feature
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N
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Scale (feet)

0 250 500 1,000

Figure 2

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

2013 NPBA/Building 3 Shutdown Test and SPBA/Wells South of Site Sampling

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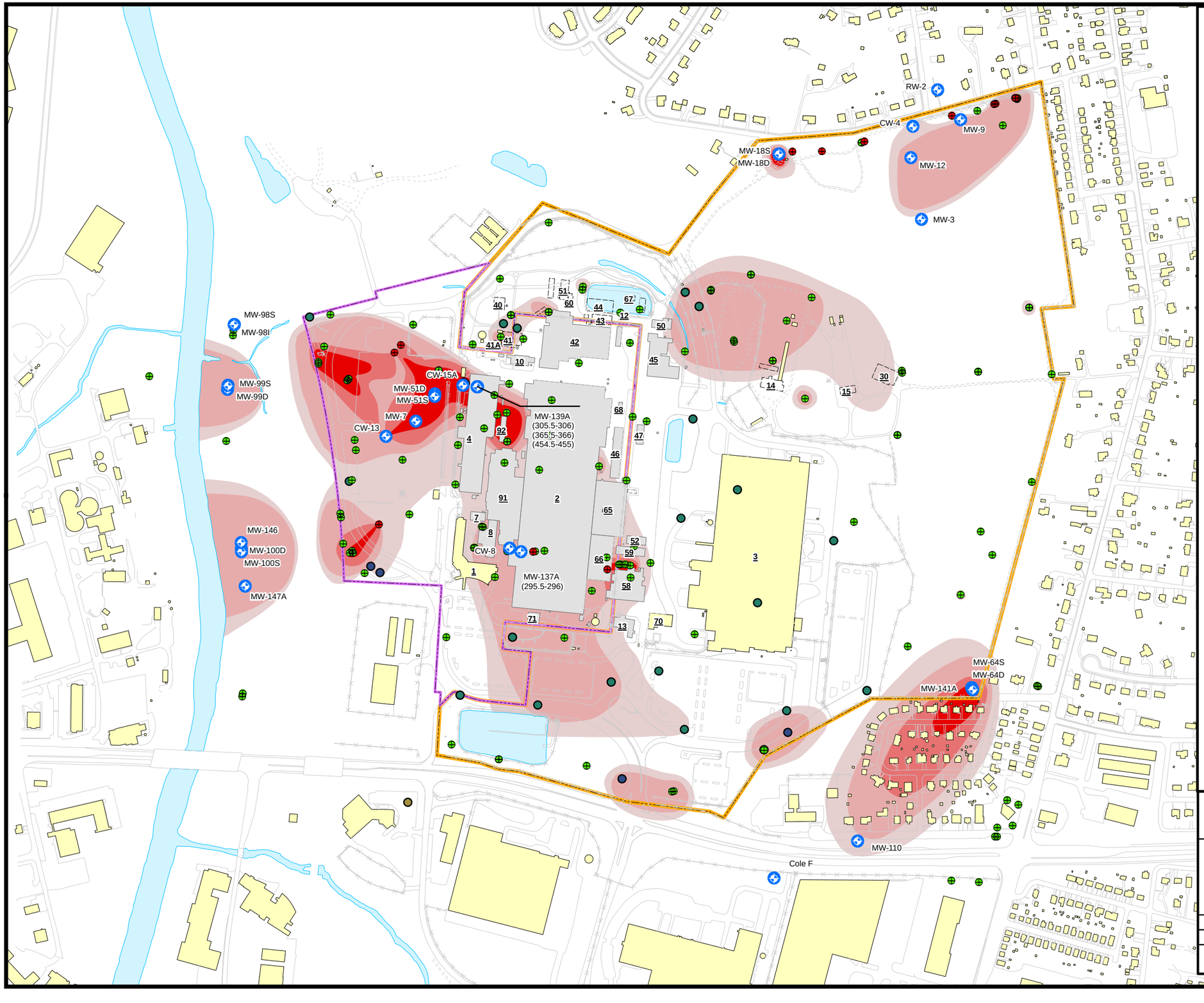

Legend

- MNA Sample Location
- Abandoned Collection Well
- Abandoned Monitoring Well
- Collection Well
- Monitoring Well
- Residential Well
- Road (Paved)
- Road Curb
- Road (Unpaved)
- Walkway
- Fenceline
- Existing Building to Remain
- Demolished
- Demolished/Slab Removed
- Existing Water Feature
- West Campus Property Line
- Harley-Davidson Property
- TCE Concentration 50 ppb
- TCE Concentration 100 ppb
- TCE Concentration 500 ppb
- TCE Concentration 1000 ppb

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N
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Scale (feet)

0 250 500 1,000

Figure 3

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

Monitored Natural Attenuation Sample Locations

DRAWN BY: AGM	**CHECKED AND APPROVED BY:** JSR	**DATE:**3/5/2013

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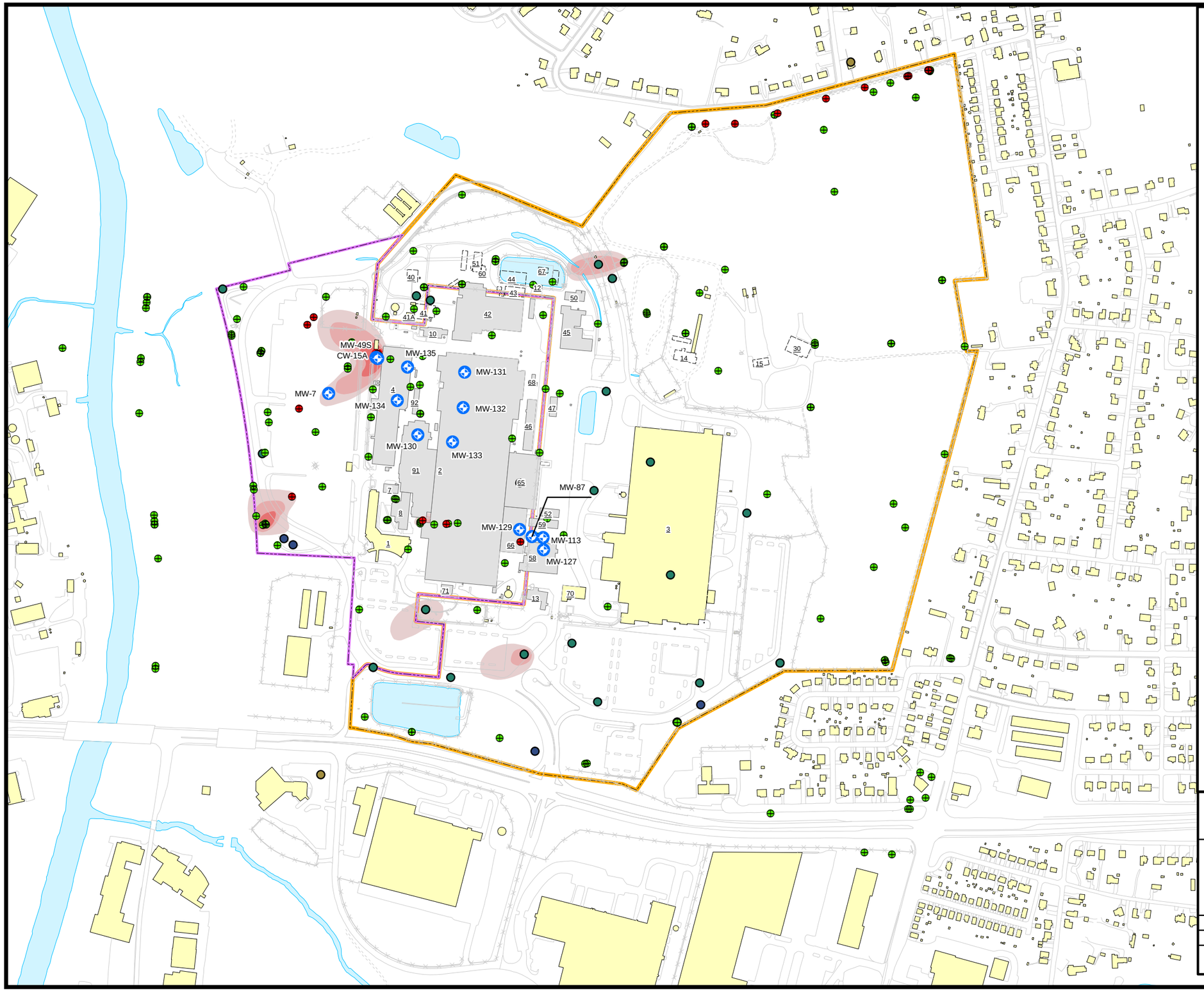
GROUNDWATER SCIENCES CORPORATION



Legend

- 1,4-Dioxane Sample Location
- Abandoned Collection Well
- Abandoned Monitoring Well
- Collection Well
- Monitoring Well
- Residential Well
- Road (Paved)
- Road Curb
- Road (Unpaved)
- Walkway
- Fenceline
- Existing Building to Remain
- Demolished
- Demolished/Slab Removed
- Existing Water Feature
- West Campus Property Line
- Harley-Davidson Property
- TCA Concentration 50 ppb
- TCA Concentration 100 ppb
- TCA Concentration 500 ppb
- TCA Concentration 1000 ppb

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Scale (feet)
0 250 500 1,000

Figure 4

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

1,4-Dioxane Sample Location

DRAWN BY: AGM	CHECKED AND APPROVED BY: SMS	DATE: 7/31/2013

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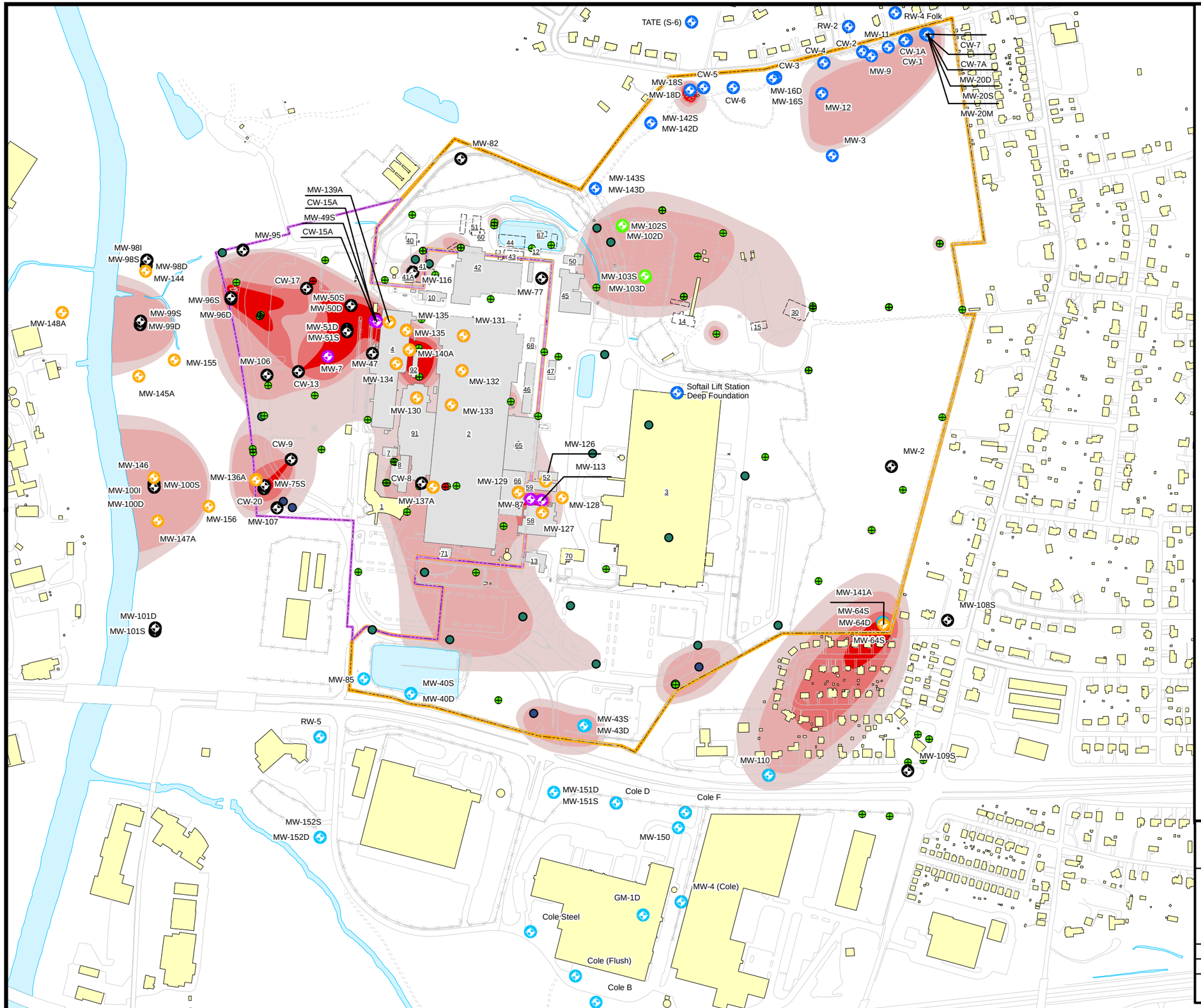

Legend

- 2013 NPBA/Building 3 Shutdown Test Sample Location
- Wells Installed During GW RI Part 2 Sample Location
- Wells South of Site Sample Location
- 1,4-Dioxane Sample Location
- 2013 NETT Sample Location
- 2011 Key Well Sample Location
- Abandoned Collection Well
- Abandoned Monitoring Well
- Collection Well
- Monitoring Well
- Residential Well
- Road (Paved)
- Road Curb
- Road (Unpaved)
- Walkway
- Fenceline
- Existing Building to Remain
- Demolished
- Demolished/Slab Removed
- Existing Water Feature
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- TCE Concentration 100 ppb
- TCE Concentration 500 ppb
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Although historical chemistry data does not appear on this map, chemistry data from abandoned wells was considered in the construction of concentration contours. Concentration trend graphs were used to predict 2008 concentrations in abandoned wells.

N
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Scale (feet)
0 250 500 1,000

Figure 5

Former York Naval Ordnance Plant

1425 Eden Road, York, PA 17402

Groundwater RI Part 2
Comprehensive Sampling Program

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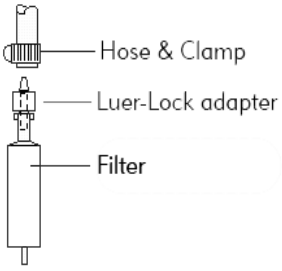
Appendix A

Sampling Protocol and Background Information on
Bacterial Sampling for Monitored Natural Attenuation Parameters

Bio-Flo – DNA Sampling Protocol

Sampling Instructions



1. Purge the well.
2. Prepare the pump (Peristaltic preferred, Grundfos, or air bladder) as normal. Use the clamp provided to ensure a leak-proof connection.
3. Remove the filter from the Falcon tube.
4. Attach the inlet of the filter with a 1/4" - 5/16" inner diameter (I.D.) tubing using the clamp to secure.
5. Place the filter within a receiving container so that the amount of water filtered can be measured accurately.
6. The amount of water filtered will vary depending upon the turbidity of the water. We recommend filtering 1-2 L.
7. Record the volume of water that passed through the filter, and then submit the filter for analysis. The water may then be discarded. Please cap the filter on both ends. The thinner end should be closed with the red rubber cap and the thicker end should be closed with the clear luer plug.

Note: If the filter clogs before 1L has been filtered, record how much water was passed through the first filter, and then collect an additional filter, also recording the volume of water that went through the second filter. In this case, both filters are then submitted for testing. For each location there should be **no more than 2 filters** used and there is no need to filter more than 2L of water.

Hold time for this analysis is 24-48 hours.

To Submit Sample:

1. Place the filter in the Falcon tube provided.
2. Affix the label to the Falcon tube and note the amount of water that passed through the filter, the well location, sampling date, and the analyses requested.

Shipping Instructions

Packaging Samples:

1. Samples should be shipped in a cooler with ice or blue ice for next day delivery. If regular ice is used, the ice should be double bagged.
2. A chain of custody form must be included with each shipment of samples. Access our chain of custody at www.microbe.com

Shipment for Weekday Delivery:

Samples for weekday delivery should be shipped to:

Sample Custodian
Microbial Insights, Inc.
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
(865) 573-8188

Shipment for Saturday Delivery:

Coolers to be delivered on Saturday must be sent to our FedEx Drop Location. To ensure proper handling the following steps must be taken:

1. FedEx shipping label should be marked under (6) Special Handling, check Hold Saturday.
2. The cooler must be taped with FedEx SATURDAY tape.
3. The shipping label must be filled out with the Drop Location address below. Our laboratory name must be on the address label.
4. You MUST ***notify by email*** customerservice@microbe.com with the tracking number of the package on Friday (prior to 4pm Eastern Time) to arrange for Saturday pickup. Please make sure you write "Saturday Delivery" in the subject line of the message. Without proper labeling and the tracking number, there is no guarantee that the samples will be collected.

Samples for Saturday delivery should be shipped to:

Microbial Insights, Inc.
FedEx Drop Location
10601 Murdock Road
Knoxville, TN 37932
(865) 300-8053

Note: Samples received for Saturday Delivery will be frozen immediately upon receipt by Microbial Insights staff to minimize changes in the microbial community.

2340 Stock Creek Blvd.
Rockford, TN 37853-3044
Phone: 865.573.8188
Fax: 865.573.8133
www.microbe.com

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Web: www.microbe.com

We appreciate your interest in Microbial Insights' CENSUS® analysis. CENSUS®, a molecular biological tool employing quantitative polymerase chain reaction (qPCR), allows site managers to cost-effectively detect and quantify specific microorganisms or functional genes deemed critical for successful bioremediation. Currently, Microbial Insights offers over 30 different CENSUS® assays for assessing biodegradation of a broad spectrum of contaminants ranging from petroleum hydrocarbons to chlorinated solvents.

We would like to take this opportunity to provide some background information for specific CENSUS® assays along with the Cost Proposal requested.

- ***Dehalcoccoides* (qDHC)**: The only bacterial group isolated to date that is capable of complete reductive dechlorination of PCE and TCE to ethene. In fact, the presence of *Dehalococcoides* has been associated with the full dechlorination to ethene at sites across North America and Europe (1).

Elevated *Dehalococcoides* concentrations (≥10^4 Dehalococcoides cells/mL) are associated with complete reductive dechlorination, but the range of chlorinated ethenes metabolized and cometabolized varies by strains within the *Dehalococcoides* genus. Since the accumulation of daughter products termed a DCE or vinyl chloride "stall" can be a concern, Microbial Insights offers a group of CENSUS® assays for quantification of *Dehalococcoides* functional genes encoding reductive dehalogenases to more definitively confirm the potential for reductive dechlorination of TCE, *cis*-DCE, and most importantly, vinyl chloride.

- **TCE Reductase (*tce*A):** The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Although the *tce*A gene is not universally distributed among all strains of *Dehalococcoides* and the absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field, detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
- **Vinyl Chloride Reductase (*bvc*A):** The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* str. BAV1 (2). While reports of detection frequency vary in the literature, *bvc*A is the only vinyl chloride reductase gene detected at some sites (3) and has been demonstrated as the most abundant and actively expressed vinyl chloride reductase gene in PCE column studies (4). In an internal study, ethene production was observed in 80% of the samples in which the *Dehalococcoides* population was greater than or equal to 10^4 cells/mL. The *bvc*A vinyl chloride reductase gene was detected in over 50% of these samples thus confirming the importance of the *bvc*A vinyl chloride reductase in the complete reductive dechlorination.
- **Vinyl Chloride Reductase (*vcr*A):** The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* strain VS (5). As with the *bvc*A vinyl chloride reductase gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (3, 5).

Microbial Insights is a molecular microbiology laboratory – we do not offer commercial bioaugmentation cultures or remediation products. We believe that each client deserves unbiased results that are both accurate and precise. Furthermore, we recognize the value of every client. No matter how large or small your project, we are committed to serving you at each step in the process, from assay selection through data interpretation.

We look forward to working with you.

References

1. Hendrickson, E.R., J. Payne, R.M. Young, M.G. Starr, M.P. Perry, S. Fahnestock, D.E. Ellis, and R.C. Eversole. 2002. Molecular analysis of *Dehalococcoides* 16S ribosomal DNA from chloroethene-contaminated sites throughout North America and Europe. Applied and Environmental Microbiology 68(2): 485-495.

2. Krajmalnik-Brown, R., T. Hölscher, I. N. Thomson, F. M. Saunders, K. M. Ritalahti, and F. E. Löffler. 2004. Genetic identification of a putative vinyl chloride reductase in *Dehalococcoides* sp. strain BAV1. Applied and Environmental Microbiology 70:6347–6351.

3. van der Zaan, B., F. Hannes, N. Hoekstra, H. Rijnaarts, W.M. de Vos, H. Smidt, and J. Gerritse. 2010. Correlation of *Dehalococcoides* 16S rRNA and chlorethene-reductive dehalogenase genes with geochemical conditions in chloroethene-contaminated groundwater. Applied and Environmental Microbiology 76(3):843-850.

4. Behrens, S., M.F., Azizian, P.J. McMurdie, A. Sabalowsky, M.E. Dolan, L. Semprini, and A.M. Spormann. 2008. Monitoring abundance and expression of *Dehalococcoides* species chloroethene-reductive dehalogenases in a tetrachloroethene-dechlorinating flow column. Applied and Environmental Microbiology 74(18):5695-5703.

5. Müller, J.A., B.M. Rosner, G. von Avendroth, G. Meshulam-Simon, P.L. McCarty, and A.M. Spormann. 2004. Molecular identification of the catabolic vinyl chloride reductase from *Dehalococcoides* sp. strain VS and its environmental distribution. Applied and Environmental Microbiology 70(8): 4880-4888.

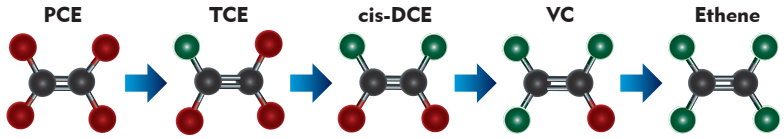
2340 Stock Creek Blvd.
Rockford, TN 37853-3044
Phone: 865.573.8188

CENSUS® - Reductive Dechlorination

mi CENSUS®
MOLECULAR BIOLOGICAL TOOL

Detect and quantify Dehalococcoides and other bacteria capable of reductive dechlorination

Under anaerobic conditions, certain bacteria can use chlorinated ethenes (PCE, TCE, DCE, and VC) as electron acceptors in a process called reductive dechlorination. The net result is the sequential dechlorination of PCE and TCE through daughter products DCE and VC to non-toxic ethene, which volatilizes or can be further metabolized.



Successful reductive dechlorination can be hindered by a few site-specific factors that cannot be evaluated with chemical and geochemical tests including:

- a lack of a key dechlorinating bacteria including *Dehalococcoides* spp., the only known bacteria that completely dechlorinates PCE and TCE to non-toxic ethene
- reasons for incomplete dechlorination and the accumulation of daughter products (DCE stall)

CENSUS® provides the most direct avenue to investigate the potentials and limitations to implementing corrective action plan decisions and to target a variety of organisms involved in the reductive dechlorination pathway.

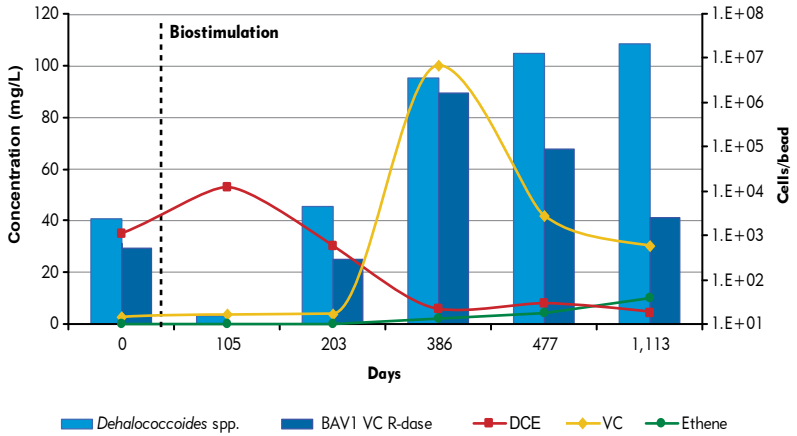
Target	Code	Contaminants	Environmental Relevance / Data Interpretation
Dehalococcoides	qDHC	PCE, TCE, DCE, VC	Only known group of bacteria capable of complete dechlorination of PCE and/or TCE to ethene Absence of *Dehalococcoides* suggests dechlorination of DCE and VC is improbable and accumulation of daughter products is likely The presence of *Dehalococcoides* even in low copy numbers indicates the potential for complete reductive dechlorination Higher copy numbers and the presence of daughter products suggest that dechlorination may be occurring
Dehalococcoides Functional Genes	qTCE qVC	TCE, VC	Functional genes encoding reductive dehalogenases for TCE and VC Presence of TCE reductase indicates the ability to reduce TCE to DCE and VC Presence of VC reductase indicates the potential for reductive dechlorination of VC to ethene Absence of VC reductase suggests that VC may accumulate
Dehalobacter	qDHB	PCA, TCA, PCE, TCE	Capable of dechlorination of PCE and TCE to cis-DCE Converts TCA, a common co-contaminant at PCE/TCA-impacted sites to chloroethane
Desulfuromonas	qDSM	PCE, TCE	Capable of dechlorination of PCE and TCE to cis-DCE using acetate as an electron donor
Desulfitobacterium	qDSB	PCE, TCE	Capable of dechlorination of PCE and TCE to cis-DCE
Total bacteria	qEBAC		Index of total bacterial biomass Domain level
Methanogens	qMGN		Methanogens utilize hydrogen and carbon dioxide to produce methane Compete with dechlorinating bacteria for available hydrogen
Iron and Sulfate Reducing Bacteria	qSRB/IRB		Targets delta-Proteobacteria Index of iron and sulfate reducing bacteria including *Geobacter, Pelobacter, Desulfovibrio, and Desulfuromonas*

When combined with chemical and geochemical groundwater monitoring programs, CENSUS® results provide a valuable tool to determine:

- the feasibility of bioremediation of PCE/TCE under MNA conditions
- the ability of bioremediation approaches to meet overall treatment goals
- the effectiveness of enhanced bioremediation (e.g. sodium lactate or vegetable oil injection) to promote reductive dechlorination

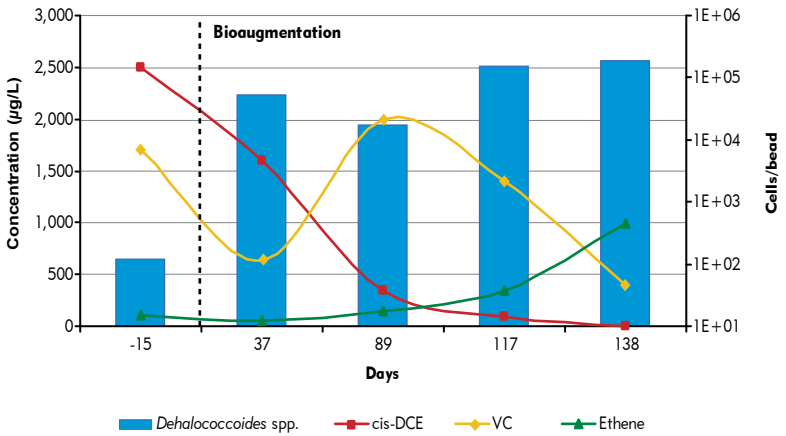
CENSUS®
MOLECULAR BIOLOGICAL TOOL

Biostimulation



- The relatively low *Dehalococcoides* (DHC) population (10^3 cells/bead) and the accumulation of the daughter product DCE indicated that monitored natural attenuation (MNA) would not meet remediation goals in an acceptable timeframe.
- Following HRC® injection to promote reductive dechlorination, the DHC population increased to 10^6–10^7 cells/bead with a corresponding decrease in DCE.
- Vinyl chloride (VC) concentrations temporarily increased due to the reductive dechlorination of DCE.
- As indicated by the high number of DHC and VC reductase genes however, microorganisms capable of reductive dechlorination of VC were present.
- VC concentrations decreased after the initial spike with a corresponding increase in ethene.

Bioaugmentation



- Initially, the *Dehalococcoides* (DHC) population was low (10^2 cells/bead) and daughter products had accumulated suggesting MNA would not provide complete reductive dechlorination of PCE.
- Following bioaugmentation, the DHC population increased by 3 orders of magnitude with a corresponding decrease in DCE.
- Vinyl chloride (VC) concentrations temporarily increased due to the reductive dechlorination of DCE.
- The continued detection of DHC, however, indicated the potential for complete reductive dechlorination.
- VC concentrations decreased with a corresponding increase in ethene production.

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