DRAFT Phase IV Final Inspection Report
RTN 4-3024222
Former Bird Machine Company Site
Walpole, MA

Submitted to:

Baker Hughes Incorporated
Houston, TX

Submitted by:

AMEC Environment & Infrastructure, Inc.
Westford, Massachusetts

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LIST OF ACRONYMS

AMEC	AMEC Environment & Infrastructure, Inc.
bgs	below ground surface
BHI	Baker Hughes Inc.
BMC	Bird Machine Company
BWSC	Bureau of Waste Site Cleanup
CAM	Compendium of Analytical Methods
CMR	Code of Massachusetts Regulations
COC	Contaminants of Concern
CSA	Comprehensive Site Assessment
cVOC	chlorinated Volatile Organic Compounds
DCB	1,4-dichlorobenzene
DCE	dichloroethene
DDA	Demolition Debris Area
DO	Dissolved Oxygen
EPC	Exposure Point Concentration
EPH	Extractable Petroleum Hydrocarbons
Fe2	Ferrous Iron
FIR	Final Inspection Report (310 CMR 40.0878)
ft	feet
H&S	Health and Safety
HASP	Health and Safety Plan
HSM	Health and Safety Manager
ISCO	In Situ Chemical Oxidation
LRA3	Lead Release Area 3
LSP	Licensed Site Professional
MassDEP	Massachusetts Department of Environmental Protection
MBA	Manufacturing Building Area
MCP	Massachusetts Contingency Plan
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MMCL	Massachusetts Maximum Contaminant Level for drinking water
MNA	Monitored Natural Attenuation
mV	millivolts
NAPL	Non-aqueous phase liquid
ND	Not Detected by laboratory analysis
NSR	No Significant Risk
OHM	Oil or Hazardous Material
OMM	Operation, Maintenance, and Monitoring
ORP	Oxidation-Reduction Potential
OSHA	U.S. Occupational Safety & Health Administration
OSWER	U.S Office of Solid Waste and Emergency Response
P&T	Pump and Treat
PID	Photoionization Detector
ppb	parts per billion (for groundwater, micrograms per liter)
PPE	Personnel Protective Equipment

List of ACRONYMS, continued

RAM	Release Abatement Measure
RAP	Remedial Action Plan
RC	Reportable Concentration
RD	Reductive Dechlorination
RIP	Remedy Implementation Plan
ROS	Remedy Operation Status
RTN	Release Tracking Number
SRS	South Rail Spur
SSO	Site Safety Officer
SVOC	semivolatile organic compound
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
VC	vinyl chloride
VOC	volatile organic compounds
Weston	Weston Solutions, Inc.

EXECUTIVE SUMMARY

On behalf of Baker Hughes, Inc. (BHI), AMEC Environment & Infrastructure, Inc. (AMEC) completed this Phase IV Final Inspection Report (FIR) for the former Bird Machine Company (BMC) Site located in Walpole, Massachusetts. BHI is submitting this FIR pursuant to 310 CMR 40.0870 of the Massachusetts Contingency Plan (MCP). This FIR documents the construction of a Comprehensive Remedial Action that is expected to be a Permanent Solution for the Site, and that was planned in the Phase IV Remedy Implementation Plan (RIP; AMEC 2012). A Permanent Solution will achieve a condition of No Significant Risk (NSR) for current and reasonably forseeable site uses. As documented in the Class C-2 Response Action Outcome (RAO) Statement submitted to the Massachusetts Department of Environmental Protection (MassDEP) on December 16, 2011, the Site already achieves the requirements of a Temporary Solution (AMEC 2011a).

Release Abatement Measures (RAMs) have been conducted at several locations to reduce the mass and concentrations of contaminants at the Site. The Phase II Comprehensive Site Assessment (CSA) reports (AMEC 2011b, AMEC 2011c) indicate that a condition of NSR exists for all areas of the Site except groundwater, where some monitoring well concentrations exceed drinking water criteria (Massachusetts Maximum Contaminant Levels or MMCLs). It is unlikely that groundwater at the Site will be used for drinking water, but the Site is within a Potential Drinking Water Source Area designated by the Town of Walpole (Walpole 2007). Considering this designation, groundwater at the Site is categorized as GW-1 under the MCP. The CSA reports found no current pathway between Site contaminants and the Town's water supply wells to the northeast, but the potential for contaminant movement from a portion of the Site warrants further monitoring. Background information including a description of RAMs and Site characteristics is summarized in Section 1 of this FIR.

Areas of groundwater contamination exceeding MMCLs have been identified for arsenic, chlorinated Volatile Organic Compounds (cVOCs), and 1,4-dichlorobenzene (DCB). Monitored Natural Attenuation (MNA) consists of active monitoring of natural processes to ensure attainment of cleanup goals, and was selected for implementation in Phase IV. MNA is considered an Active Remedial Monitoring Program under the MCP and has been designed and constructed to provide a Permanent Solution that achieves a condition of NSR. Section 2 of this FIR presents the results of interim investigations planned in the RIP, rationale for changes to the conceptual MNA well locations proposed in the RIP, and the construction details for the resulting monitoring system that was installed based on these data. The potential areas of groundwater contamination above MMCLs are illustrated in three dimensions using a plan view and cross-sections, and the Conceptual Site Model (CSM) is updated.

Section 3 of this FIR summarizes the Operation, Maintenance, and Monitoring (OMM) program based on the plan presented in the RIP, including sampling methods and locations, analytical parameters, and monitoring frequencies, along with data evaluation and reporting methods. Initially the program will include 42 water quality monitoring wells and 19 additional water level monitoring points (wells or surface water benchmarks) measured on a quarterly basis. Methods of determining MNA effectiveness and procedures for changing this program over time are summarized in Section 3, and a list of permits and regulatory approvals relating to the MNA system is provided.

This FIR documents that a remedial monitoring well network to support an Active Remedial Monitoring Program has been designed and constructed in accordance with the plans and specifications presented in the RIP. This program will be implemented under Phase V of the MCP, and the results of performance monitoring conducted through groundwater sampling and data evaluation will be presented in semiannual Remedial Monitoring Reports.

1.0 SITE BACKGROUND

AMEC completed this Phase IV FIR for the former BMC Site located in Walpole, Massachusetts on behalf of BHI. This document is submitted pursuant to 310 CMR 40.0878 of the MCP. This FIR documents construction and implementation of MNA, an Active Remedial Monitoring Program, which is the selected Permanent Solution for the Site. The Site location is indicated in Figure 1, and following is general information pertaining to the MCP status.

Release Tracking Number (RTN):	RTN 4-3024222
Tier Classification:	Tier IB
Site Address:	100 Neponset Street Walpole, Massachusetts 02071-1037
Person Undertaking Response Actions:	Baker Process Inc. 2929 Allen Pkwy Ste 2100 Houston TX 77019-7111 Contact: Mr. Chris Clodfelter Phone: 713-439-8329
Licensed Site Professional:	Kim M. Henry, LSP (License # 7122) AMEC Earth & Environmental 2 Robbins Road Westford, Massachusetts 01886 Phone: 978-692-9090

A Tier 1B Permit Application was submitted to the MassDEP on 1/10/08, including a revised Tier Classification and updated Phase I information combining several linked sites under the subject RTN. Tier 1B permit #W204776 for this RTN was effective on 2/28/08. The permit expires on 2/28/13 and must be renewed to continue conducting the remedial monitoring program presented in this FIR, unless Remedy Operation Status (ROS) is achieved in accordance with the MCP prior to that date.

This FIR is organized as follows:

- Section 1 – Site Background
- Section 2 – Contaminant Extent and MNA System
- Section 3 – Operation, Maintenance, and Monitoring Plan
- Section 4 – References

The remainder of Section 1 summarizes site characteristics, release history, and response actions. Contaminant extent and the MNA monitoring system are described in Section 2, including the results of interim investigations that were completed based on the RIP. Section 3 updates the Operation, Maintenance, and Monitoring (OMM) plan that was originally presented in the RIP and now, as modified herein, will be implemented under Phase V of the MCP. Section 4 provides references for this report.

1.1 Disposal Site Description

The Site, defined in the MCP as the area where the release "has come to be located," is in the central portion of the 108-acre Property. The approximate universal transverse mercator coordinates for the Site are 4,664,600 North and 312,700 East (World Geodetic System 1984/North American Datum 1983), based on the United States Geological Survey (USGS) Franklin Quadrangle Map, 1987. The Site Location Map, **Figure 1**, shows the regional location of the Site and positions of the nearest municipal water supply wells. Access to the property and Site is obtained via Neponset Street; this road and other Site features are depicted on an aerial photo in **Figure 2**. The Neponset River flows around the Site from the south to the northeast. Ruckaduck Pond is located to the west and was formerly used for water power, with dams maintaining an elevation several feet above the downstream river. An outlet from Ruckaduck Pond (formerly used to power a turbine) traverses the Site through an underground pipe, returning to the river on the east side.

As documented in the Phase II CSA, historical maps [including Sanborn Library, LLC Fire Insurance (Sanborn) Maps] were reviewed to determine the previous owner/operators of the property and the operations history. The Property appears to have been developed by 1832 with a "shingle mill" and two houses south of the Site, and a small pond in the present location of Ruckaduck Pond. A map dated 1852 indicates "Smith's Mill" and three houses in the same area. A map dated 1888 indicates the Walpole Emery Mill in the same area, and Old Colony Railroad in its present location along the western edge of the Site. Sanborn maps from 1918 indicate that a railroad spur and three "factory" buildings had been constructed, and an open channel or “tailrace” had been constructed downstream of one of the factory buildings to convey water used for powering machinery back to the Neponset River. The BMC reportedly started operations at the property in 1919.

The 1927 and 1944 Sanborn Fire Insurance Maps indicate larger industrial buildings at the property, including a machine shop, casting shed, lumber shed, assembling, welding shop, and office. A 1940 USGS Topographic Map contains more detailed topography in the vicinity of the Site, indicates the boundary of the Cedar Swamp, and shows Cedar Swamp Brook. Historical aerial photographs and facility plans from 1931 to 1978 indicate that the Neponset River was rerouted at different times to facilitate the expansion of buildings and the addition of new ones. The open tailrace channel was filled in and replaced with a buried 24-inch concrete pipe in 1966. The industrial buildings on the Property were expanded several times in the 1960s and 1970s.

BMC primarily manufactured and repaired industrial centrifuges on the Property. BHI acquired BMC in 1989. BMC became an operating unit within Baker Process, Inc., a wholly-owned subsidiary of Baker Hughes Incorporated. Baker Hughes Process Systems, Inc. is the present owner of the Property. Manufacturing operations at the Property were discontinued in 2004, and most buildings associated with the former BMC were demolished by 2008. There is typically one worker at the Property, a security guard. Current human receptors at the Site are limited to occasional trespassers. The Property is zoned Limited Manufacturing, which allows a wide range of commercial, institutional, and residential uses. The Property is also grandfathered for industrial use.

Existing site features are indicated in **Figure 3** and include: a fire pump house (building no. 9), garage (19), and guard shack (21); floors and frost walls of demolished buildings 1, 3, 5, 20, 22, and 23; frost walls of demolished buildings 4, 4A, 6A, 7A, 8, 8A, 12, and 15; and pavement around the former buildings except where it was removed for RAM excavations. Figure 3 also shows remaining subsurface drains that lead to outfalls in the Neponset River. These drains were connected to the former buildings (roof drains or sanitary lines) or to surface catch basins, a few of which still remain as indicated in the figure. Note that the drain line connecting the pond and the river was installed within a former masonry-lined tail race; the masonry was observed in place near the southeast wall of former building 1 during building demolitions, and may still exist on either side of the drain in other areas. Figure 3 shows several subsurface structures which were left in place following building demolition: a 10,000-gallon concrete wastewater sump that was cleaned and filled with sand; several sections of Transite pipe encased in concrete; a 5,000-gallon steel wastewater tank that was closed in place near former building 4 by filling with concrete; and a reinforced-concrete base for a wastewater pump station adjacent to the 5,000-gallon tank. The RAM excavation areas in Figure 3, and the areas above the structures left in place, have been filled to grade with sandy soil.

The area surrounding the property has a mixture of residential and recreational (undeveloped forests and wetlands) uses. There are 273 residences with an estimated 743 residents located within ½-mile of the Site (Weston, 2005). There are presently no inhabited houses or private water supply wells within 500 feet (ft) of the Site. There are no schools, daycare centers, playgrounds, or parks within 500 ft of the Site. The 1987 USGS Franklin quadrangle map depicts the Boyden School located approximately 0.35 mile southeast of the Property, and 0.5 miles southeast of the Site. The nearest public water supply wells are slightly over 1 mile northeast of the Site as indicated in Figure 1.

1.2 Release History and Response Actions

The Site includes multiple RTNs due to the discovery of various releases at the property during recent investigations. Timing of releases is not well known, and the Site was used for manufacturing from at least 1832 to 2004. The RTNs were linked together to facilitate administrative compliance with MCP requirements. Three exposure areas were identified and evaluated in the October 2011 Phase II CSA Report (AMEC 2011b): the Manufacturing Building Area (MBA), the Lead Release Area 3 (LRA3), and the South Rail Spur (SRS). A separate exposure area was addressed in the December 2011 Phase II CSA Addendum (AMEC 2011c): the Demolition Debris Area (DDA). All four areas are indicated in Figure 2. Release Abatement Measures (RAMs) were conducted at several locations within the DDA, MBA, and LRA3 to reduce the mass and concentrations of contaminants at the Site. The CSAs indicate that a condition of No Significant Risk (NSR) exists for all areas of the Site except groundwater within the MBA, where some monitoring well concentrations exceed drinking water criteria.

The remaining contamination at MBA includes metals (primarily antimony, barium, lead, nickel, and zinc) and Extractable Petroleum Hydrocarbon (EPH) compounds in soil. The concentrations of metals and Semivolatile Organic Compounds (SVOCs) have been reduced significantly by soil excavation RAMs. The remaining elevated concentrations in soil are under and around the former locations of manufacturing buildings. These soil concentrations were found to pose No Significant Risk for current and future forseeable uses of the Site.

Groundwater sampling indicates elevated concentrations of arsenic and chlorinated Volatile Organic Compounds (cVOCs) in the area adjoining the river downgradient of the manufacturing buildings, and chlorobenzenes in a single well in the North Parking area. Groundwater concentrations in these areas exceed drinking water criteria. The updated extent of these exceedances is provided in Section 2 based on the results of investigations that were planned in the RIP. It is unlikely that groundwater at the Site will be used for drinking water, but the Site is within a Potential Drinking Water Source Area designated by the Town of Walpole (Walpole 2007). Considering this designation, groundwater at the Site is categorized as GW-1 under the MCP.

1.3 Hydrogeological Characteristics

The information in this subsection is summarized from the CSA reports; updated information is provided in Section 2. The southeastern portion of the Site includes extensive sand and gravel fill, at depths of up to eight feet where the Neponset River was rerouted. The water table beneath the Site occurs approximately 3 to 5 ft below ground surface (bgs) in either fill or sand. Depth to bedrock is about 26 ft bgs near the eastern edge of the MBA and shallower to the west. Bedrock is believed to provide a vertical control on flow as it is less transmissive than the shallow sand aquifer, and groundwater in the sand is expected to be discharging to the Neponset River during much of the year. Regionally bedrock slopes down to the northeast along the river valley. Granitic and sedimentary bedrock in this area is expected to vary in competency.

The direction of groundwater flow in the shallow aquifer above bedrock is generally east toward the Neponset River or its associated wetlands. The water table in the areas adjacent to the River is less than 1 foot bgs. The horizontal direction of groundwater flow is toward the River from both sides. The vertical direction of flow is upward, discharging to the River, where measurements were available on the west riverbank. Vertical flow in the vicinity of Ruckaduck Pond is expected to be downward since the dam impounds surface water at an elevation above the water table. Lateral groundwater seepage velocities in the sandy soils are estimated to be 0.1 to 0.9 feet per day in the MBA. The strength of vertical flow gradients is expected to change depending on the relative levels of the water table and the river, which can vary seasonally and in response to significant storm events. Depending on the competency of the bedrock at the site, it is likely that groundwater in the bedrock is hydraulically connected with groundwater in the overlying sandy soil.

There appears to be considerable variation in groundwater flow direction depending on water table conditions in specific areas of the MBA. Groundwater elevations were mapped for monitoring events in October 2006, July 2008, and April 2009 in the RIP, and based on river flow records these appear to represent a range of typical median, low, and high water tables, respectively. Significant changes in the water table surface are apparent between the three events, particularly in the southeast portion of the Site. Aside from precipitation and river flow, another difference between the events is that in 2006 the MBA buildings and pavement were still intact; in 2007 the buildings were demolished and some pavement removed resulting in the present Site conditions. Removal of the impervious structures may have affected infiltration patterns.

2.0 CONTAMINANT EXTENT & MNA SYSTEM

This section of the FIR documents the latest findings regarding the extent of groundwater contamination, and the system that has been constructed to provide a Permanent Solution through an Active Remedial Monitoring Program consisting of Monitored Natural Attenuation (MNA). An investigation of groundwater chemistry, geochemistry, bedrock depths, and hydraulic gradients was conducted following the plans in the RIP, to provide screening data to optimize the final monitoring well locations. The results of this investigation are provided in Section 2.1, and the resulting adjustments to the MNA well locations (from what was originally identified in the RIP) are described in Section 2.2. Construction details for the installed wells are presented in Section 2.3. Results from the initial round of MNA sampling are provided in Section 2.4, including potential areas of groundwater contamination above MMCLs illustrated with a map and cross-sections.

2.1 Screening Investigation Results

Screening data were collected as described in the RIP to refine the conceptual MNA well locations and other details of the monitoring system (AMEC 2012). These data included chemical concentrations in groundwater near MB-MW-374 and NP-MW-601 and in the expected discharge areas; vertical flow gradients in groundwater in these areas; and bedrock topography. Chemistry data and potential bedrock depths were collected using a Geoprobe to sample groundwater at 5-foot intervals within the aquifer until refusal. Samples were analyzed for COCs and geochemical indicators of the potential for microbial activity using a mobile laboratory and field test kits to obtain same-day results. These results were then used daily to adjust the planned extent of screening investigations. Existing monitoring wells in some areas of investigation were also sampled and analyzed using the mobile laboratory and test kits, to aid in tracking the extent of contamination. Water level measurements were collected during Geoprobe advancement, and also periodically from existing monitoring wells. Samples for laboratory analysis of arsenic concentrations were also collected; the results of these samples were obtained after the Geoprobe sampling equipment was demobilized from the site.

Data collection locations for the cVOC and DCB plumes were planned along: 1) a transect that follows the plume centerline (the flow path with the highest concentrations); 2) a perpendicular transect in the area of peak centerline concentrations; and 3) a perpendicular transect at or downgradient of the leading edge or discharge area. Sampling along these transects was planned at a nominal spacing of 100 feet, beginning near MB-MW-374 (for cVOCs) and NP-MW-601 (for DCB) and moving upgradient and downgradient from the starting point. The resulting Geoprobe locations and COC detections are illustrated in **Figure 4** using a colored dot centered on the maximum depth-wise detection at each Geoprobe location, and a dot size that is proportional to the magnitude of the detection. The Extent of Contamination Lines in Figure 4 have been revised from the RIP based on these detections as described in the bullets below. Complete field screening results for all analytes from the mobile laboratory are provided in tabular form in **Appendix A**.

- DCB extent is shown as an oval area extending from MW-601 (5.7 ppb) upgradient towards the non-detect (ND) at GW005D, and downgradient towards the NDs at GW008D. Other Geoprobe attempts at sampling near and upgradient of MW-601 (northeast and southwest of GW005D) were unsuccessful due to refusal. The aquifer is relatively thin in this area, and attempts at depth-wise sampling on 5-foot intervals were limited by refusal to single samples at GW003D, GW005D, and GW013F; and to two samples each at GW008D, GW009D, and GW014F. The single DCB detects below the MMCL that occurred to the south at GW042B (0.78 ppb @ 20-24' bgs) and GW049B (0.47 ppb @ 2-6' bgs) are consistent with previous low-level monitoring well detections in this area, and are not thought to be related to the MMCL exceedance at MW-601. TCB was also detected in MW-601 (45 ppb) at a level below the MMCL, but was not detected in any Geoprobe samples.

- Arsenic extent is shown as an oval extending upgradient from GW019C (306.5 ppb @ 6-9' bgs; 0.7 ppb @ 11-15' bgs) and GW020C (23 ppb @ 2-6' bgs), and downgradient to near MW-122 (5 ppb).

- PCE extent is drawn to include the recent and historic detects, and assuming that the elevations of well screens at MW-364/365 (which have not detected PCE) may place this location within the plume but screened above and below it. PCE at each location is below the water table and generally highest near refusal depths, i.e. there do not appear to be active sources leaching to the water table. The shallowest elevated PCE detects were at GW033A (33 ppb @ 11-15' bgs) and GW045B (56 ppb @ 11-15' bgs). Other than these two locations, the highest detections at individual Geoprobe locations were within a depth range of 20-25' bgs. TCE, DCE, and VC were generally detected at lower concentrations than PCE within the same areas, though TCE was greater than PCE at GW033A (58 ppb @ 11-15' bgs) and GW045B (65 ppb @ 11-15' bgs).

Apart from the primary COCs summarized in the bullets above, naphthalene was the only compound detected above MCP GW-1 criteria during field screening for VOCs. The naphthalene detection in the water table sample from GW047B (160 ppb @ 2-6' bgs) exceeded the GW-1 criteria of 140 ppb for this compound. The only other boring with this compound detected was GW019C, and the naphthalene detection in GW019C and in deeper samples from GW047B were all below 7 ppb. GW047B is slightly upgradient of the area where cVOCs require monitoring, as indicated in Figure 4.

Field screening results for MNA indicators are summarized in **Table 1**. The data in Table 1 are also charted in a bar graph to allow visual comparison of sample results; ORP data were divided by 10 and DO data were multiplied by 5 to improve visibility on the chart scale. The field screening data in Table 1 suggest that concentrations of sulfate (generally <20 mg/l) and nitrate (generally <1 mg/l) would not inhibit reductive dechlorination (RD), and ORP is generally low enough to be favorable. Chloride levels are highest at GW030, and next highest at GW040, which suggests degradation of cVOCs is occurring upgradient from these locations. Fe(II) is highest at GW040, and next highest at GW030 and GW032, which may be indicative of VC reduction. DO is somewhat higher than expected based on earlier MW results, especially in the shallow aquifer surrounding the DCB detection and on the east side of the river, but overall conditions appear conducive to anaerobic reduction of cVOCs.

Potential bedrock elevations are illustrated in **Figure 5** based on the Geoprobe refusal depths, and considering available auger drilling refusal depths from earlier borings in this area. The Geoprobe refusals generally agreed with the earlier auger drilling refusals. There is a suggestion of a southwest / northeast-trending valley where the Neponset River was originally located, between Geoprobes GW051A-34A-33A and MW-375/GW039A. A bedrock low occurs near GW042B and MW-364.

Synoptic water table measurements were collected at existing shallow and deep wells at the beginning and mid-point of the field investigations, on April 24 and 30, 2012. Shallow and deep water level contours were prepared for each date, and are provided in **Figures 6 and 7**. Compared to earlier maps described in the RIP, the shallow water table on these two dates appears intermediate between the "average" 2006 conditions and the "wet" 2009 conditions. The Neponset River flow on April 21, 2012 was steadily declining and at a rate between the 2006 and 2008 river flows based on the nearest stream gauge, as indicated in **Figure 8**. On April 22-24 there was a significant rain event that increased river flow by over an order of magnitude, and both the shallow and deep potentiometric surfaces are higher on April 24 compared to April 30, 2012. The deep water level maps have only eight available data points, but generally show a similar flow direction to the east. Comparison of shallow and deep maps for the same date suggest flat or slight downward gradients in the northern part of the site, stronger downward gradients in the southeast, and flat or slight upward gradients in the northeast near the lowest part of the river; arrows on Figures 6 and 7 show the gradient direction at well pairs. Water levels measured during Geoprobe drilling were found to vary significantly from known monitoring well levels in the same areas, and so were not included in this data evaluation.

2.2 Adjustments to MNA Well Locations

The proposed MNA remedy includes installing, sampling, evaluating, and reporting data from monitoring wells in the areas of groundwater contamination exceeding MMCLs. A conceptual design for MNA well locations was presented in the RIP and included 16 new well clusters consisting of shallow/deep pairs, 2 new bedrock monitoring wells, and 2 new shallow (unpaired) wells to augment the existing monitoring wells (AMEC 2012). MNA monitoring wells were proposed to be focused along the plume "centerlines" to collect data on contaminant mass changes and geochemical conditions in the areas of highest mass, and near the downgradient edges of discharge areas to confirm that the plume does not migrate beyond the Neponset River and its associated wetlands. Considering the goals of the RIP, the proposed MNA well locations were revised based on the screening results in Section 2.1, as described below and shown in **Figure 9**. This figure shows the final locations that were installed as described in Section 2.3.

2.2.1 DCB Monitoring Wells

The recent screening detection of DCB at MW-601 (5.7 ppb) is consistent with detects at this location extending back to 2009 that are slightly above the MCL of 5 ppb, as described in the RAP (AMEC 2011d). Geoprobe sampling was difficult in the area surrounding MW-601 due to drilling refusals. The shallow aquifer around MW-601 was sampled at two upgradient, two crossgradient, and two downgradient locations, and no other detections were obtained from the Geoprobe samples. Assuming the extent of contamination approaches these Geoprobe ND locations, MW-700 and MW-702 were installed as plume centerline wells, and MW-701 as a cross-gradient well, about 50-70 feet away from MW-601 as shown in Figure 9. Existing wells MW-602/603 are still proposed as a cross-gradient shallow/deep well pair to the north as was envisioned in the RIP. The new wells each have a single 10-foot long screen considering the shallow aquifer depth, except for MW-702 which includes 5-foot long shallow and deep screens and a 5-foot long bedrock well.

2.2.2 Arsenic Monitoring Wells

Arsenic detections in GW019C and GW020C upgradient from MW-122 were higher than expected. The detection at MW-122 was consistent with groundwater concentrations that have generally declined (except for the 2010 sample) at this location since 2008. MW-705 and MW-706 were installed as plume centerline wells at locations similar to the concept presented in the RIP. MW-703 was added as a cross-gradient well north of the maximum Geoprobe detect (GW019C). Also, monitoring well MW-371 near the northern extent will be added to the list of existing wells to be sampled for arsenic. This existing well had results below the MMCL dating to 2008, but has not been sampled recently for arsenic. MW-366 near the southern extent was ND for arsenic in the 2011 sampling round.

2.2.3 CVOC Monitoring Wells

The recent maximum concentrations of PCE detected in Geoprobe samples are slightly higher than 2011 groundwater monitoring data, but comparable to the results from earlier years. PCE at each location is below the water table and generally highest near refusal depths. The Geoprobe results show a shorter, broader, and slightly more northern extent of contamination compared to what was illustrated in the RIP. These results suggest that either there were several sources of contamination within the manufacturing buildings, or that fluctuations in groundwater flow directions have broadened the extent of contamination as it nears discharge points in the river.

Considering the goals of the RIP and the Geoprobe results, the conceptual locations of centerline wells were revised as indicated in Figure 9. New shallow/deep well pairs were installed at four locations within the plume based on the Geoprobe PCE results: 1) MW-714 near the 33 ppb detection at GW033A; 2) MW-711 near the 75 ppb detection at GW041B; 3) MW-710 downgradient of the 69 ppb detection GW030A, and; 4) MW-709 downgradient of the 56 ppb detection at GW045B. These last two locations are between the existing well pairs MW-124/129 and MW-362/363.

A bedrock well was also installed at MW-710 as envisioned in the RIP. Coring at MW-710 identified alternating layers of consolidated to unconsolidated conglomerate rock. After installation of a well within the uppermost layer of this material, a deeper bedrock well was constructed in competent rock below the first well.

In addition to these new well pairs, single well screens were installed at two locations to supplement existing wells within the PCE plume: 1) MW 708 between the existing well screens MW-364/365, at the depth of PCE detection in GW041B and GW042B, and; 2) MW-712 near MW-374, at the water table to “pair up” this deep well. A bedrock well, not included in the RIP, was also installed at MW-708 in consideration of the screening results which suggest a topographic low in the bedrock surface, as indicated in Figure 5.

New crossgradient wells include a shallow/deep pair to the south at MW-713, and a deep well to the north at MW-707. East of the river, new shallow/deep pairs at MW-704 and MW-715 were installed to supplement the existing shallow/deep pair MW-360/361. The easternmost well location envisioned in the RIP does not appear to be needed for monitoring the downgradient PCE extent based on the screening investigation results, which showed no detectable contamination along the east side of the river.

2.3 MNA Construction Details

Monitoring well construction and development activities were performed as described in the RIP and were documented using a field logbook to contain sufficient information to enable the activity to be reconstructed without relying on the memory of field personnel (AMEC 2012). Boring logs and well construction diagrams are provided in Appendix B. Construction methods are summarized below; for additional details please refer to the RIP.

Monitoring wells were constructed of 2-inch diameter threaded Schedule 40 polyvinyl chloride casing. Well screens have a slot size of 0.010 inches and a screen length of 5-10 feet. Screen intervals were as presented in the RIP, or as described in Section 2.2 based on the results of the Geoprobe vertical profile screening. A waterproof cap was installed on each well casing prior to placement of filter pack materials to prevent these materials from entering the well. A sand filter pack was placed in the boring to a depth of 2 feet above the top of the screen. A minimum 2-foot thick layer of bentonite chips or powder was placed above the filter pack. The remaining annular space in the boring was filled with bentonite grout to a depth of 1 foot bgs. A protective steel casing with a locking cap was cemented in place over each new completed well.

Bedrock borings were advanced using a core barrel until competent bedrock was reached. Competent bedrock is defined as having a Rock Quality Determination of greater than 75%. Rock cores were visually logged in accordance with ASTM D-5434-03, with particular attention on the identification of water-bearing fractures. For bedrock wells the screens were placed such that the entire screen is situated and sealed within competent bedrock. As further protection against the borehole acting as a conduit between the overburden and bedrock aquifers, the bentonite seal was at least six feet thick and straddled the bedrock-to-overburden interface.

Each new monitoring well was developed no sooner than 24 hours after installation by surging and pumping. After surging, a submersible pump was lowered into the well to pump out water and the associated fines. Water quality parameters and turbidity were measured or described (e.g., low, moderate, high is acceptable) at approximately even fluid withdrawal increments during the course of development. Development continued until at least three well volumes were removed, and was completed when parameters stabilized or when ten well volumes were removed.

2.4 MNA Initial Process Monitoring

MNA process monitoring was initiated as described in the RIP (AMEC 2012). This stage of monitoring is designed to confirm key MNA processes before transitioning to long-term performance monitoring. The transition to long-term monitoring may be based on trends observed in the data, identification of indicators which improve the efficiency of data collection, or other factors. Initial process monitoring will be performed on a quarterly basis as described in the RIP, until adjusted in a semiannual Phase V Status and Remedial Monitoring Report in accordance with 310 CMR 40.0892.

The revised MNA sampling locations illustrated in Figure 9 were sampled for primary COCs, geochemical indicators of transformation processes, and hydrogeologic parameters, as described in the RIP. The resulting COC detections are summarized in **Table 2**, and illustrated in **Figure 10** using a proportionally-sized colored dot centered on each detection. Updated extents of contamination based on the monitoring well data are also illustrated in Figure 10. Complete results for all laboratory analytes are provided in tabular form in **Appendix C**. Field results for MNA indicators are summarized in **Table 3**. The updated extent of contamination is described in Section 2.4.1, supported with geologic cross sections along the lines indicated in Figure 10. An updated bedrock surface map is presented in **Figure 11**, and **Figure 12** shows the results of synoptic water table measurements on June 27, 2012 using the new monitoring wells. Section 2.4.2 summarizes the Conceptual Site Model (CSM) based on the latest hydrogeological and chemistry measurements, and provides an initial evaluation of the MNA system.

2.4.1 Updated Contaminant Extent

2.4.1.1 Lateral Extent of Contamination

The updated lateral extent of DCB detected above the MMCL is shortened and narrowed in Figure 10 (compared to Figure 9) to include only MW-601 (5.4 ppb) and MW-702 (5.9 ppb); results for MW-700 and MW-701 were non-detect for DCB. The monitoring well concentrations for DCB were very similar to the Geoprobe results in terms of detections slightly above the MMCL of 5 ppb.

The updated lateral extent of arsenic detected above the MMCL is shortened and narrowed in Figure 10 to include only MW-706 (18 ppb), considering the detections below the 10 ppb MMCL at MW-703 (1.7 ppb), MW-705 (2.3 ppb), and LR-MW-122 (5.0 ppb), and the non-detect results at MB-MW-371. The monitoring well results for arsenic in this area are considerably lower than the Geoprobe results, and are consistent with earlier monitoring results for the downgradient LR-MW-122. These latest results suggest that the Geoprobe samples, though filtered, may have contained fine particulate or colloidal material and therefore would not be representative of dissolved ground water concentrations.

The updated lateral extent of PCE detected above the MMCL is slightly narrowed and longer in Figure 10 (compared to Figure 9) considering the detections below the 5 ppb MMCL in MW-714 (2.8 ppb), MW-708 (4.1 ppb), and MW-707 (2.9 ppb), and the detection in MW-704 (7.8 ppb). The monitoring well concentrations for PCE are consistent with, but slightly lower than, the Geoprobe results, with the notable exception of the detection at MW-704 which was not observed in GW025G at the same location.

2.4.1.2 Vertical Extent of Contamination

The vertical extent of groundwater contamination and subsurface geology are indicated in **Figures 13 to 16** using several cross-sections through the site, along the lines indicated in Figure 10. In general, sandy fill comprises the upper 10-feet of overburden material in all cross-sections. Beneath the fill layer, a 5-foot to 10-foot thick silty sand is present, which thins to a few feet in the west near bedrock highs. The silty sand overlies bedrock on the western half of the site, while to the east it is underlain by a silty sand and gravel in thicknesses of up to 20 feet. This coarser layer on the east overlies bedrock.

The bedrock surface in the mapped area is at a typical depth of 20 to 30 feet and slopes downward to the east. The majority of borings at the Site were not cored into rock, and drilling refusals are generally interpreted as the bedrock surface unless inconsistent with borings that were cored or hammered to confirm rock. Bedrock lows (about 45 ft bgs) are in the east-center of the Site, near monitoring wells MW-708 and MW-710. Bedrock cored during the latest monitoring well installations consisted of two distinct rock types, conglomerate and shale.

Bedrock at MW-702 to the north and MW-710 to the east consisted of alternating layers of consolidated to unconsolidated conglomerate containing a mixture of angular to rounded boulders and sand. The layers consisted of approximately 5-foot consolidated rock alternating with approximately 3-foot sections of unconsolidated boulders and sand. These alternating layers are consistent with highly fractured and weathered conglomerate material having been repeatedly faulted and folded. Bedrock at MW-708, a few hundred feet west of MW-710, consisted of slightly weathered shale in approximately 2-centimeter thick bedding layers. These layers were oriented vertically, suggesting previous faulting and folding in the area.

The updated vertical extent of DCB is indicated in cross-section A-A'. DCB was not detected in the shallow or deep wells around MW-601 (5.4 ppb), but was detected in the downgradient bedrock well MW-702 (5.9 ppb), and both detections exceed the MMCL of 5 ppb. TCB was also detected at similar levels below the MMCL in MW-601 and the bedrock well MW-702, as were other chlorobenzenes, but not in surrounding wells. The results suggest that chlorobenzene contamination above MMCLs in this area is limited, but has moved from the deep sand aquifer into bedrock. Vertical gradients in this area appear to be slight and to fluctuate between downward and upward, based on the April and June measurements.

Arsenic extent above the MMCL has been identified as a shallow contaminant based on the historic results for the shallow/deep well pair at LR-MW-122/121. This theory is supported by Geoprobe results at the plume centerline location GW019C, where the arsenic maximum occurred at the water table (6-9' bgs) and was at background in the next deeper (11-15' bgs) interval. No deep wells were installed in this area.

The updated vertical extent of PCE is indicated in cross-sections C-C', D-D', and E-E'. Note the horizontal scales differ on these cross-sections but the vertical scales are the same. Extent of contamination is drawn to include all well screens and Geoprobe depths where samples exceeded the MMCLs, though not all Geoprobe samples falling within the indicated extent exceeded these criteria. Compared to the depiction in the RIP, the vertical extent is similar in terms of the majority of contamination occurring 10 or more feet below the water table, and surfacing in the area of the river. More details are available regarding the bedrock surface, but the general orientation and depths are as expected, and groundwater within bedrock was not contaminated. Measured vertical gradients were generally upward along both sides of the river, and downward slightly further to the west.

2.4.1.3 Geochemistry and Dissolved Gases

Field test results for MNA indicators are summarized and charted in **Table 3** similar to the method used for screening investigation results in Table 1. The data in Table 3 suggest that concentrations of sulfate (generally <20 mg/l) and nitrate (generally <1 mg/l) would not inhibit reductive dechlorination (RD), and ORP is generally low enough to be favorable. DO is slightly higher than optimal for RD in several shallow wells near the DCB detections, but overall conditions appear conducive to anaerobic reduction of cVOCs. Chloride levels are highest at the deep screen for MW-709, the two bedrock screens for MW-710, and the shallow screen for MW-714; with the exception of MW-709 these results do not seem to correlate with possible degradation of cVOCs. Fe(II) is highest at the water table screens for MW-711, -712, and -713; these are all above and near the center of the cVOC extent.

Selected groundwater samples were analyzed for dissolved gases and results are included in Table 2. Methane, an indicator of microbial activity, was highest in the shallow screen for MW-709, and the deep screens for MW-709 and -711. Ethane, a daughter product of RD, was also relatively high in these three samples, and also in the deep screen at MW-710 which had the only detection of ethene. These results correlate well with the center of cVOC extent and relatively higher detections of PCE. These three indicator gases were not detected in the bedrock samples at MW-710. The bedrock and deep screens at MW-708 contained relatively low levels of methane, and ethane was detected only in the deep screen.

2.4.2 Updated CSM

The estimated areas of groundwater contamination exceeding MMCLs or background concentrations are indicated in Figures 10 and 13-16. Arsenic contamination is observed at the water table while DCB and PCE contamination is in the deepest part of the sand aquifer (up to 35 ft bgs). The Neponset River appears to be a groundwater discharge area based on measured horizontal and vertical gradients around the Site. PCE and TCE have been identified at one monitoring location east of the river, at higher concentrations in the shallow compared to the deep screen, and appear to be discharging to surface water in this area. Sediment and surface water concentrations in the river suggest that the contaminant discharge from groundwater to the river has not resulted in increasing concentrations of contaminants in the river. A CSA completed for the river where it borders the Site found a condition of No Significant Risk for river receptors (Weston 2007).

The CSAs for the Site (AMEC 2011b, AMEC 2011c) found no current pathway between Site contaminants and the Town's water supply wells located 1.2 miles to the northeast (Figure 1), but the potential for movement in this direction warrants further monitoring. The town supply wells draw water from surficial sands and gravel above bedrock, in the High Yield (>300 gpm) aquifer mapped by USGS northeast of the Site. The bedrock surface in the supply well area is 62 to 80 feet bgs, compared to 20 to 30 feet bgs at the Site; bedrock slopes downward to the northeast along the river valley. The potential for contaminant migration to the Town's supply wells would appear to be greatest for non-aqueous phase liquid (NAPL) chlorinated organic compounds which are denser than water, but NAPL has not been observed at the Site. The chlorinated organic compounds encountered at the BMC site have been in the dissolved phase rather than NAPL. In this dissolved form the density contrast has no affect on migration, compared to advection, dispersion, and other processes. Dissolved phase concentrations at the BMC site do not suggest the presence of NAPL.

No significant sources of groundwater contaminants are known to remain at the Site. Source control has occurred through soil excavation RAMs in the areas in and upgradient from arsenic and some cVOC groundwater contamination. The RAM around Building 6/6A, upgradient from arsenic detected in LR-MW-122, included the removal of soil having arsenic above background levels. The RAM around Building 7A/7C and LRA2, upgradient from cVOCs detected in LR-MW-129, included removing soil with metals and oily contamination that was not known to contain cVOCs. Above-ground structures and below-ground tanks associated with former manufacturing operations have been removed as of early 2008, and it is possible that these structures included source materials. Groundwater contaminants are generally found below the water table, which suggests that there are no continuing releases from the surface or shallow soils.

The installed well network and sampling procedures described in this report meet the design requirements identified in the RIP, based on the areas of contamination that have been identified in the investigations to date. Monitoring wells are focused along plume centerlines and discharge areas. Monitoring locations include shallow, deep, and bedrock screens as appropriate to measure changes in nature and extent of contaminants. Initial process monitoring will continue as described in Section 3 until sufficient data are available to support a transition to long-term monitoring.

3.0 OPERATION, MAINTENANCE, AND MONITORING [310 CMR 40.0874(3)(D)]

The MNA remedy consists of an Active Remedial Monitoring Program as defined at 310 CMR 40.0006. As such, the results of performance monitoring conducted through groundwater sampling and data evaluation will be presented in semiannual Remedial Monitoring Reports. In addition to active remedial monitoring, well road boxes and protective covers will be inspected and maintained as needed during sampling events. Monitoring wells will be redeveloped if needed based on observations during purging and sampling.

3.1 Monitoring Network Design and Operation

The locations of new and existing monitoring wells are indicated in Figure 10. Initial process monitoring will be conducted through quarterly sampling and measurements of water levels in the monitoring wells and river. Analytical parameters are summarized in **Table 4**. The groundwater flow setting appears to be relatively dynamic considering variability in levels of the adjacent river and pond; therefore additional water level measurements will be collected at two or more intervals following at least one major storm event during the first year of monitoring. Also considering this factor, the quarterly sampling events will be scheduled based on long-term precipitation forecasts to include a range of high and low-flow river conditions to evaluate the hydrogeologic response.

Groundwater sampling at wells and temporary screens will be performed with low-flow sampling techniques using a peristaltic pump. The pump will be equipped with dedicated polyethylene tubing. The pump intake will be lowered slowly into the well to the approximate center of the saturated screen section, and will remain at least two feet above the bottom of the well to prevent the disturbance of any sediment which may be present. The water level will be measured and recorded before starting the pump. Sampling records from previously sampled wells will be reviewed in order to determine initial flow rates, or purging will be started at flow rates of approximately 0.2 to 0.5 liters per minute. The flow rate will be adjusted to ensure that little or no drawdown (less than 0.3 feet) occurs in the well. If this level of drawdown cannot be sustained, the pumping rate will be reduced to the minimum capabilities of the pump to avoid pumping the well dry. The level of the water will not be allowed to drop below the intake on the pump to avoid the possible entrainment of air into the sample. If the recharge rate is very low, sampling shall commence as soon as the well has recharged to a sufficient level to purge one system volume (volume of pump and tubing) and then collect the appropriate volume of sample.

During the purging of the well, the field parameters (pH, temperature, conductivity, dissolved oxygen, redox potential and turbidity) will be monitored every 3 to 5 minutes, or as appropriate, using a flow-through cell, until the parameters stabilize. Field parameters will be considered stabilized when, for three consecutive readings, the temperature is within ± 3%, pH is within ± 0.1, dissolved oxygen is within ± 10% or changes less than 0.3 mg/L, redox potential is within ± 10 mV, conductivity is within ± 3%, and turbidity is within ± 10%. An attempt will be made to purge the well until turbidity of the purged water is less than 5 nephelometric turbidity units.

After purging is completed, groundwater samples will be pumped directly into the proper sample containers. All sample containers will be filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. Samples requiring dissolved constituent analysis will be collected by pumping water through a new 0.45 µm filter into the appropriate sample container using a peristaltic pump and new silicone tubing. Sample containers, preservatives, volumes, hold times, and shipping requirements are summarized in Table 4. Selection of wells for dissolved gas analysis will be based on results from the previous sampling round. Each sample will be labeled and placed into a cooler with ice for shipment to the laboratory. Sampling activities will be documented using pre-printed field data sheets to record well purging and any field screening results. Purge water will be collected until sampling is complete, then returned to the monitoring well in accordance with the MCP.

3.2 Evaluation of Effectiveness

MNA is expected to reduce concentrations of contaminants to below drinking water standards in the shallow sand aquifer at the Site, and to achieve or approach background levels. For the purpose of Presumptive Certainty in achieving or approaching background, in accordance with MassDEP Policy WSC-04-160, it is assumed that the background level of arsenic is approached at a level of 5 ppb which is one-half of the GW-1 criterion for this contaminant. Similarly for cVOCs and chlorobenzenes background would be approached at one-half of the GW-1 standards: 35 ppb for TCB; 2.5 ppb for PCE, TCE, or DCB; and 1 ppb for VC.

The principal MNA processes are expected to include desorption, dilution, and biodegradation, considering site conditions described in the CSA (AMEC 2011c). The Site has relatively fast groundwater flow with seepage velocities estimated in the range of 37 to 330 ft/yr through sandy material. Neponset River flow is estimated at 200 to 400 times greater than the groundwater discharge, based on estimates in the CSA. Anaerobic conditions and dechlorination products are observed in wells having organic contaminants. Because releases are believed to be at least decades old, plumes of contaminants likely have achieved steady state or declining concentrations. However, source removals in portions of the vadose and saturated zones during 2005 – 2008 may have affected hydrogeology and plume stability in some areas. Therefore, in the absence of any continuing sources, contaminants sorbed to the aquifer matrix are expected to continue desorbing to groundwater, biodegrading (for organics) in the aquifer, and discharging to the river. Plumes appear to be relatively dilute based on low ratios of contaminant maximum concentrations to solubilities (<0.08%), and plume widths are generally less than 200 feet.

MNA effectiveness will be demonstrated through declining contaminant concentrations and reduced plume size within a reasonable timeframe, and persistence of site conditions favorable to MNA processes. Data analysis will include graphic or tabular displays of the following measurements for COCs and geochemical indicators:

- plume extent (horizontal & vertical)
- concentrations versus time
- groundwater flow directions
- groundwater and surface water flow rates

Evaluation of progress in achieving cleanup goals can be difficult due to subsurface and/or measurement variability, and seasonal or storm-related variations in groundwater movement. Therefore, multiple lines of evidence will be used to reduce uncertainty in evaluating the overall effectiveness. The conceptual site model will be updated as needed to ensure that it considers all viable hypotheses for explaining the data.

Data analysis will include estimates of mass loss rates and remediation times, and an evaluation of plume stability. The evaluations will be presented in the semiannual Phase V Status and Remedial Monitoring Reports to be submitted in accordance with 310 CMR 40.0892. Reports will describe recent and cumulative monitoring results, any changes to monitoring since the previous report, progress in achieving cleanup goals, and any measures taken to correct conditions affecting performance.

3.3 Revisions and Contingency Remedies

MNA will be continued if evaluations of site data demonstrate that natural attenuation is occurring at rates that will achieve drinking water standards and approach background levels in a reasonable timeframe. In the RAP this timeframe was identified as up to 10 years for MNA, compared to about 4 years for ISCO and 8 years for P&T for organic contaminants. Determination of satisfactory reductions in concentrations will consider multiple lines of evidence including temporal trends in individual wells, estimates of mass reduction, and distribution of contaminants and geochemical conditions. A transition from initial process monitoring to long-term performance monitoring is expected within the first year, and this type of minor change in the monitoring program will be presented in a semiannual Phase V Status and Remedial Monitoring Report in accordance with 310 CMR 40.0892.

MNA could also require minor modifications if monitoring data reflect changing and variable conditions that make interpretation of data from the installed system difficult and effectiveness uncertain. For example, pulses of contaminants could be caused by seasonal hydrogeological or geochemical cycling or changes in MNA processes, and observation of these conditions might suggest the need for a change in monitoring frequency or in the positions of monitoring points. Minor changes to the MNA program such as locations, frequencies, or parameters would be presented in a semiannual Phase V Status Report as described above.

If MNA measurements suggest that some portions of the Site will not achieve a Permanent Solution, then supplemental MCP documents for design and construction of contingent remedies will be prepared. The following types of measurements will be considered as evidence of the need for contingent remedies:

- Contaminant concentrations exhibit an increasing trend not expected based on monitoring to date,
- Near-source wells exhibit large concentration increases indicative of a new or renewed release,
- Contaminants are identified in monitoring wells located outside the original plume boundary or other specified compliance boundary,
- Contaminant concentrations are not decreasing at the rate previously determined to be necessary to meet the remediation objectives,
- Changes in land and/or ground-water use will adversely affect the protectiveness of the MNA remedy, and
- Contaminants are identified in locations posing unacceptable risk to human or ecological receptors.

Multiple lines of evidence will be used to determine the need for contingent remedies, to account for the uncertainty associated with variability in subsurface conditions. The evaluations of these types of measurements will be conducted in accordance with USEPA guidance for performance monitoring of MNA (EPA 2004).

3.4 Control of OHM Spills and Accidents

Planned activities consist of groundwater sampling and analysis. Limited amounts of Oil or Hazardous Material (OHM) are expected to be associated with these activities, mainly consisting of petroleum or lubricants in vehicles or generators. Equipment containing OHM will be operated in paved areas to the extent possible. Safe engineering and construction practices will be implemented during for all phases of work, as described in the Health and Safety Plan in Section 5.0 of the RIP.

Spills of OHM will be reported and addressed in accordance with the MCP. Any impacted material resulting from a spill of machine oil or other hazardous substances will be placed in 55-gallon waste disposal drums or other approved containers for waste characterization, off-site transportation, and disposal. Equipment that comes in contact with contaminant residuals in soil or groundwater will be decontaminated before leaving the Site. Any wash water used will be managed as described in Section 3.5.

3.5 Waste Management

It is anticipated that minimal soil and water waste will be generated during field activities at the site. Excess groundwater collected during sampling will be poured back into the boring or well from which it was obtained as required by MassDEP. Development water that cannot be returned to the boring or well, and all decontamination water and spill wastes will be containerized and characterized for disposal at a licensed offsite waste facility. Waste characterization and disposal will be conducted within 90 days of waste generation.

3.6 Measures to Avoid Adverse Impacts

Field crews will traverse and work within wooded and wetland areas east of the Neponset River to sample four monitoring well locations. The sampling activity is expected to occur for 1-2 days about quarterly, for up to ten years. Work within wetland and riverfront areas will comply with an Order of Conditions from the Walpole Conservation Commission, which specifies best management practices to minimize adverse impacts to these sensitive areas.

3.7 Permits, Licenses, and Approvals

No federal permits or approvals are required to implement this plan. The work will be conducted under the direction of a Licensed Site Professional under the MCP as indicated in Section 1, and is subject to the Public Involvement requirements of the MCP. Copies of public notification letters are provided in Appendix D. The BWSC Transmittal Form and Phase IV Completion Statement required under the MCP will be provided in Appendix E in the paper copy of this FIR, following final eDEP submittal.

Site activities within 100-foot wetland buffers and 200-foot Riverfront Area buffers are subject to the wetland protection requirements of the Walpole Conservation Commission and will comply with their Order of Conditions. All waste materials generated during this RAM that cannot be reused will be transported to appropriately licensed disposal facilities, in accordance with state and federal regulations.

4.0 REFERENCES

AMEC 2012. Phase IV Remedy Implementation Plan, Former Bird Machine Company Site. Prepared by AMEC Earth & Environmental Inc. for Baker Hughes Inc. Final, March 2012.

AMEC 2011a. Response Action Outcome Statement for RTN 4-3024222, Former Bird Machine Company Site. Prepared by AMEC Earth & Environmental Inc. for Baker Hughes Inc. Final, December 2011.

AMEC 2011b. Phase II Comprehensive Site Assessment Report for RTN 4-3024222, Former Bird Machine Company Site. Prepared by AMEC Earth & Environmental Inc. for Baker Hughes Inc. Final, October 2011.

AMEC 2011c. Phase II Comprehensive Site Assessment Addendum for RTN 4-3024222, Former Bird Machine Company Site. Prepared by AMEC Earth & Environmental Inc. for Baker Hughes Inc. Final, December 2011.

AMEC 2011d. Phase III Remedial Action Plan for RTN 4-3024222, Former Bird Machine Company Site. Prepared by AMEC Earth & Environmental Inc. for Baker Hughes Inc. Final, December 2011.

Walpole 2007. Letter from John Spillane, Chairman, Town of Walpole Board of Water & Sewer Commissioners, to Dina Kuykendall, BHI. October 25, 2007.

Weston 2005. Phase I Initial Site Investigation Report for RTN 3-0024222, Bird Machine Company Manufacturing Building Area. Prepared by Weston Solutions Inc. for Baker Process Inc. September 14, 2005.

Weston 2007. Phase II Comprehensive Site Assessment for Release of Hydrocarbons to the Neponset River Site, RTN 4-3023575. Prepared by Weston Solutions Inc. for Baker Process Inc. January 25, 2007.

Location: Depth (ft.):	GW003 2.5-6.5	GW005 8-12	GW008 10-14	GW008 19-23	GW009 6-10	GW009 15-19	GW013 12-16	GW014 8-12	GW014 15-17	GW019 6-9	GW019 11-15	GW020 2-6	GW022 2-6	GW022 11-15	GW022 17-21	GW024 2-6	GW024 11-15	GW025 2-6	GW025 11-15	GW025 17-21	GW026 2-6	GW026 11-15	GW026 19.5-23.5
CHLORIDE (mg/l)	5	5	5	10	5	10	0	0	0				no recharge	5	5	5	15	10	5		no recharge	10	0
Ferrous Iron (mg/l)	0	0.2	0	0	0		0	1	0.5				no recharge	0	0	0	0.2	0.2	0		no recharge	0.4	0
NITRATE (AS N) (mg/l)	0	0	0	0	0	0	0.6	0	0				no recharge	0	0	0	0	0	0		no recharge	0	0
SULFATE (mg/l)	2	8	9	6	10	4	2	9	4				no recharge	6	8	4	2	6	4		no recharge	0	12
DO (ppm) x5	14.7	32.7	40.35	27.5	31.3	30.05	35.05	35.2	36.45	29	27.05	42.25	0	28.45	18.65	33.6	40.25	0	54.45	17.9	0	16.45	21.5
ORP (mV) /10	-2.49	8.73	8.83	-4.66	4.64	2.47	9.79	7.8	6.99	-0.74	2.68	2.26	0	6.57	-1.26	4.12	7.9	0	11.88	-2.93	0	20.14	-0.26

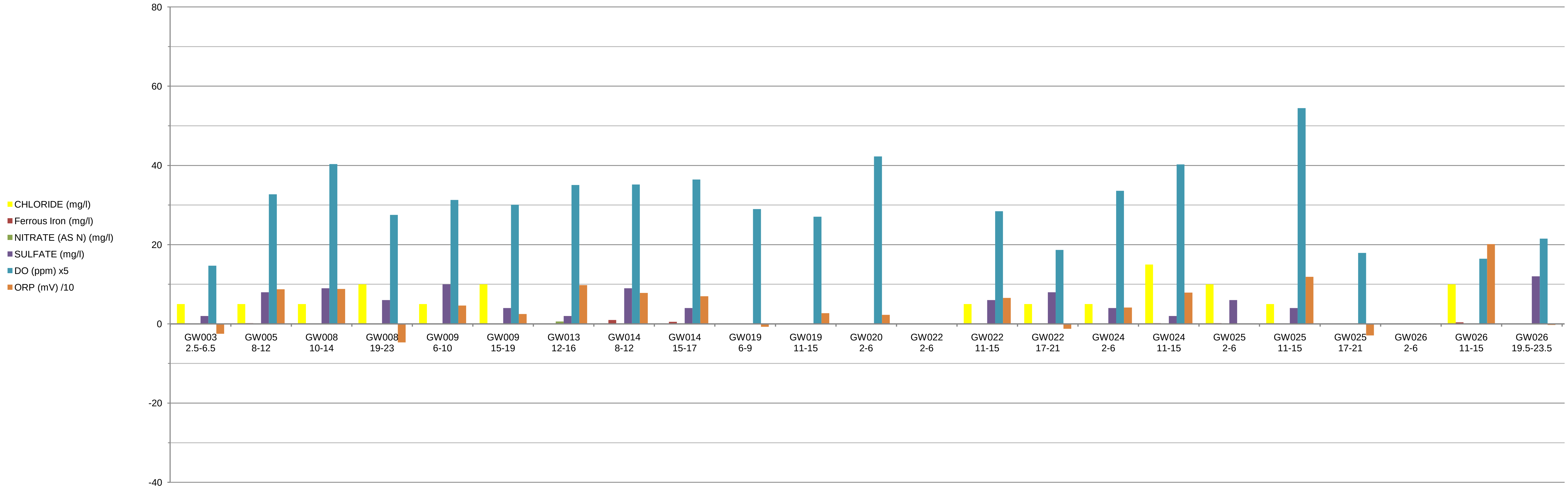
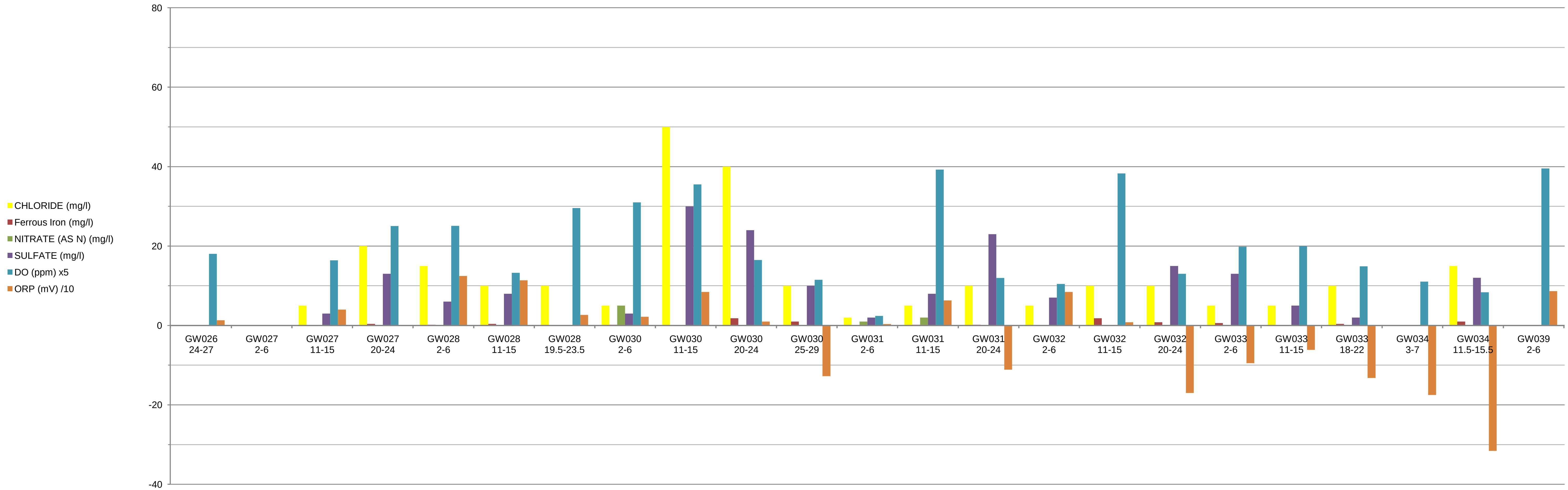
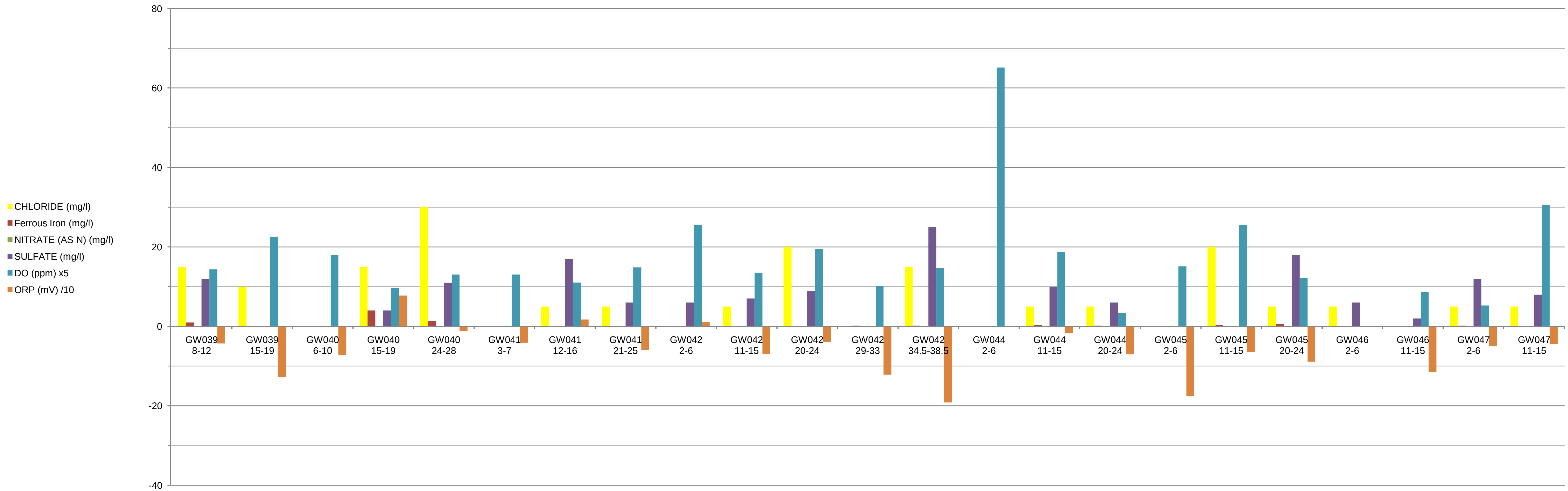


Table 1. Field Test Results for Geoprobe Sampling

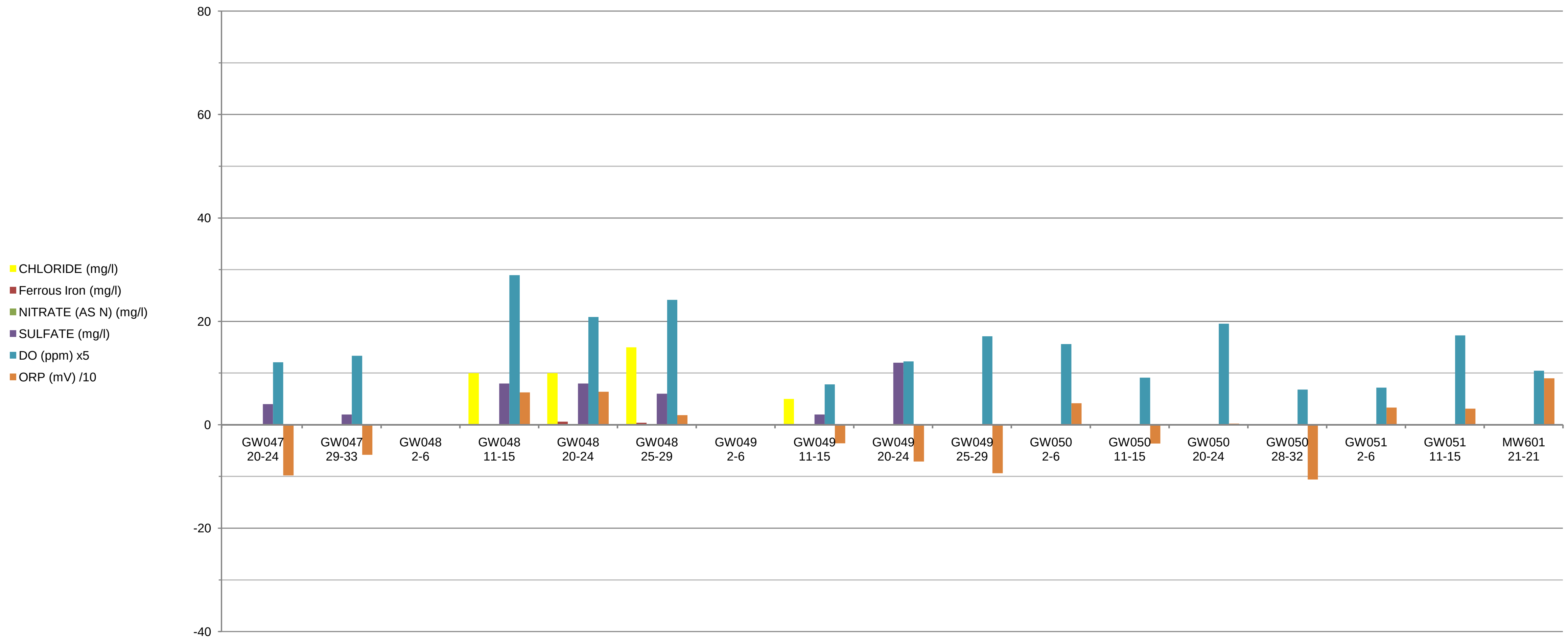
Location:	GW026	GW027	GW027	GW027	GW028	GW028	GW028	GW030	GW030	GW030	GW030	GW031	GW031	GW031	GW032	GW032	GW032	GW033	GW033	GW033	GW034	GW034	GW039
Depth (ft.):	24-27	2-6	11-15	20-24	2-6	11-15	19.5-23.5	2-6	11-15	20-24	25-29	2-6	11-15	20-24	2-6	11-15	20-24	2-6	11-15	18-22	3-7	11.5-15.5	2-6
CHLORIDE (mg/l)		Too Silty	5	20	15	10	10	5	50	40	10	2	5	10	5	10	10	5	5	10	Too Silty	15	Too Silty
Ferrous Iron (mg/l)		Too Silty	0	0.4	0.2	0.4	0	0.2	0	1.8	1	0	0.2	0.2	0	1.8	0.8	0.6	0	0.4	Too Silty	1	Too Silty
NITRATE (AS N) (mg/l)		Too Silty	0	0	0	0	0	5	0	0	0	1	2	0	0	0	0	0	0	0	Too Silty	0	Too Silty
SULFATE (mg/l)		Too Silty	3	13	6	8	0	3	30	24	10	2	8	23	7	0	15	13	5	2	Too Silty	12	Too Silty
DO (ppm) x5	18.05	0	16.4	25.05	25.1	13.25	29.55	31	35.5	16.5	11.5	2.4	39.25	11.95	10.45	38.3	13	19.85	19.95	14.9	11.05	8.35	39.55
ORP (mV) /10	1.33	0	4.01	0.07	12.46	11.38	2.65	2.18	8.46	1	-12.77	0.33	6.32	-11.12	8.43	0.8	-16.99	-9.5	-6.14	-13.21	-17.49	-31.61	8.65



Location:	GW039	GW039	GW040	GW040	GW040	GW041	GW041	GW041	GW042	GW042	GW042	GW042	GW042	GW044	GW044	GW044	GW045	GW045	GW045	GW046	GW046	GW047	GW047
Depth (ft.):	8-12	15-19	6-10	15-19	24-28	3-7	12-16	21-25	2-6	11-15	20-24	29-33	34.5-38.5	2-6	11-15	20-24	2-6	11-15	20-24	2-6	11-15	2-6	11-15
CHLORIDE (mg/l)	15	10	Too Silty	15	30		5	5	0	5	20	0	15	Too Silty	5	5	0	20	5	5	0	5	5
Ferrous Iron (mg/l)	1	0	Too Silty	4	1.4		0	0	0	0	0	0.2	0.2	Too Silty	0.4	0.2	0.1	0.4	0.6	0	0	0.2	0
NITRATE (AS N) (mg/l)	0	0	Too Silty	0	0		0	0	0	0	0	0	0	Too Silty	0	0	0	0	0	0	0	0	0
SULFATE (mg/l)	12	0	Too Silty	4	11		17	6	6	7	9	0	25	Too Silty	10	6	0	0	18	6	2	12	8
DO (ppm) x5	14.35	22.55	18	9.65	13.05	13.05	11.05	14.85	25.45	13.4	19.5	10.2	14.7	65.15	18.75	3.35	15.1	25.5	12.2	0	8.6	5.25	30.55
ORP (mV) /10	-4.29	-12.7	-7.25	7.77	-1.201	-4.1	1.72	-5.88	1.11	-6.88	-3.96	-12.14	-19.14	0.15	-1.73	-7.02	-17.46	-6.41	-8.85	0	-11.52	-4.94	-4.44



Location: Depth (ft.):	GW047 20-24	GW047 29-33	GW048 2-6	GW048 11-15	GW048 20-24	GW048 25-29	GW049 2-6	GW049 11-15	GW049 20-24	GW049 25-29	GW050 2-6	GW050 11-15	GW050 20-24	GW050 28-32	GW051 2-6	GW051 11-15	MW601 21-21
CHLORIDE (mg/l)	0	0	Too Silty	10	10	15	Dry	5	0								
Ferrous Iron (mg/l)	0	0	Too Silty	0	0.6	0.4	Dry	0	0								
NITRATE (AS N) (mg/l)	0	0	Too Silty	0	0	0	Dry	0	0								
SULFATE (mg/l)	4	2	Too Silty	8	8	6	Dry	2	12								
DO (ppm) x5	12.1	13.35	0	28.95	20.85	24.15	0	7.8	12.25	17.1	15.6	9.1	19.55	6.8	7.2	17.3	10.45
ORP (mV) /10	-9.78	-5.83	0	6.26	6.37	1.87	0	-3.6	-7.1	-9.38	4.16	-3.64	0.21	-10.59	3.31	3.13	8.99



		Location:	LR-MW-121	LR-MW-122	LR-MW-124	LR-MW-129	MB-MW-360	MB-MW-361	MB-MW-362
		Sample Date:	6/21/2012 12:50:00 PM	6/22/2012 8:00:00 AM	6/21/2012 3:50:00 PM	6/25/2012 2:05:00 PM	6/22/2012 1:25:00 PM	6/22/2012 11:20:00 AM	6/21/2012 11:15:00 AM
		Lab Sample ID:	L1211183-05	L1211183-10	L1211183-09	L1211356-01	L1211183-14	L1211183-12	L1211183-04
		Sample Type:	N	N	N	N	N	N	N
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l							
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	ND	ND	ND	ND	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	ND	ND	ND	ND	ND	**13**
Tetrachloroethene	5	ug/l	ND	ND	ND	ND	ND	ND	**51**
TRICHLOROETHENE	5	ug/l	ND	ND	ND	ND	ND	ND	**22**
Vinyl chloride	2	ug/l	ND	ND	**1.1**	ND	ND	ND	**4.2**
Dissolved Gases									
ETHANE	NA	ug/l							
ETHYLENE	NA	ug/l							
METHANE	NA	ug/l							

Notes:
ND = Not Detected
Green Fill = Detect > GW-1

		Location:	MB-MW-363	MB-MW-363	MB-MW-371	MB-MW-374	MW_122	MW-700S	MW-701S
		Sample Date:	6/21/2012 9:55:00 AM	6/21/2012 9:55:00 AM	7/3/2012 9:00:00 AM	6/19/2012 12:35:00 PM	5/4/2012 8:15:00 AM	6/21/2012 3:50:00 PM	6/26/2012 11:35:00 AM
		Lab Sample ID:	L1211183-01	L1211183-02	L1211816-01	L1211003-03	L1208272-01	L1211183-08	L1211356-12
		Sample Type:	N	FD	N	N	N	N	N
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l			ND		**5**		
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	ND	ND		ND		ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	ND		ND		ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	ND		ND		ND	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	ND		ND		ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	ND		ND		ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	ND		ND		ND	ND
ACETONE	6300	ug/l	ND	ND		ND		**22**	ND
CHLOROBENZENE	100	ug/l	ND	ND		ND		ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	ND		**3**		ND	ND
Tetrachloroethene	5	ug/l	ND	ND		**23**		ND	ND
TRICHLOROETHENE	5	ug/l	ND	ND		**6**		ND	ND
Vinyl chloride	2	ug/l	ND	ND		**1.4**		ND	ND
Dissolved Gases									
ETHANE	NA	ug/l							
ETHYLENE	NA	ug/l							
METHANE	NA	ug/l							

Notes:
ND = Not Detected
Green Fill = Detect > GW-1

		Location:	MW-702B	MW-702D	MW-702S	MW-703S	MW-704D	MW-704S	MW-705S
		Sample Date:	6/26/2012 10:15:00 AM	6/26/2012 9:05:00 AM	6/25/2012 4:10:00 PM	6/27/2012 8:30:00 AM	6/22/2012 10:25:00 AM	6/22/2012 11:35:00 AM	6/26/2012 2:45:00 PM
		Lab Sample ID:	L1211356-07	L1211356-06	L1211356-02	L1211509-01	L1211183-11	L1211183-15	L1211356-10
		Sample Type:	N	N	N	N	N	N	N
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l				**1.7**			**2.3**
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	**13**	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	**61**	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	600	ug/l	**2.7**	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	**2.2**	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	**5.9**	ND	ND	ND	ND	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	**2**	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	ND	ND	ND	ND	1.6	ND
Tetrachloroethene	5	ug/l	ND	ND	ND	ND	**2.3**	**7.8**	ND
TRICHLOROETHENE	5	ug/l	**1.5**	**1.3**	ND	ND	**1.2**	**4.9**	ND
Vinyl chloride	2	ug/l	ND	ND	ND	ND	ND	ND	ND
Dissolved Gases									
ETHANE	NA	ug/l							
ETHYLENE	NA	ug/l							
METHANE	NA	ug/l							

Notes:

ND = Not Detected

Green Fill = Detect > GW-1

		Location:	MW-705S	MW-706S	MW-707D	MW-708B	MW-708D	MW-709D	MW-709D
		Sample Date:	6/26/2012 2:45:00 PM	6/27/2012 9:15:00 AM	6/20/2012 3:35:00 PM	6/26/2012 8:50:00 AM	6/25/2012 3:35:00 PM	6/20/2012 10:35:00 AM	6/20/2012 10:35:00 AM
		Lab Sample ID:	L1211356-11	L1211509-02	L1211003-13	L1211356-05	L1211356-04	L1211003-08	L1211003-09
		Sample Type:	FD	N	N	N	N	N	FD
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l	**1.8**	18					
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	ND	ND	ND	ND	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	ND	ND	**1.8**	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	ND	**1.2**	ND	**1.8**	**2**	**2.3**
Tetrachloroethene	5	ug/l	ND	ND	**2.9**	ND	**4.1**	**7.4**	**8.9**
TRICHLOROETHENE	5	ug/l	ND	ND	**1.9**	ND	**1.2**	**2.4**	**2.7**
Vinyl chloride	2	ug/l	ND	ND	**1**	ND	**1**	**1.7**	**1.8**
Dissolved Gases									
ETHANE	NA	ug/l				ND	**1.34**	**2.42**	
ETHYLENE	NA	ug/l				ND	ND	ND	
METHANE	NA	ug/l				**11.9**	**94.4**	**445**	

Notes:
ND = Not Detected
Green Fill = Detect > GW-1

		Location:	MW-709S	MW-710B	MW-710D	MW-710M	MW-710S	MW-711D	MW-711S
		Sample Date:	6/20/2012 1:05:00 PM	6/25/2012 1:50:00 PM	6/21/2012 10:35:00 AM	6/21/2012 1:25:00 PM	6/21/2012 2:35:00 PM	6/20/2012 12:20:00 PM	6/20/2012 1:15:00 PM
		Lab Sample ID:	L1211003-11	L1211356-03	L1211183-03	L1211183-06	L1211183-07	L1211003-10	L1211003-12
		Sample Type:	N	N	N	N	N	N	N
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l							
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	**1.6**	ND	ND	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	ND	ND	ND	ND	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	ug/l	**10**	ND	ND	**4.6**	**10**	**9.3**	ND
Tetrachloroethene	5	ug/l	**35**	ND	ND	**18**	**7.8**	**46**	ND
TRICHLOROETHENE	5	ug/l	**27**	ND	ND	**7.5**	**11**	**14**	ND
Vinyl chloride	2	ug/l	**4.7**	ND	ND	**2**	**3**	**5.9**	ND
Dissolved Gases									
ETHANE	NA	ug/l	**6.11**	ND	ND	**9.62**		**15.8**	
ETHYLENE	NA	ug/l	ND	ND	ND	**3.19**		ND	
METHANE	NA	ug/l	**1110**	ND	ND	**111**		**411**	

Notes:

ND = Not Detected

Green Fill = Detect > GW-1

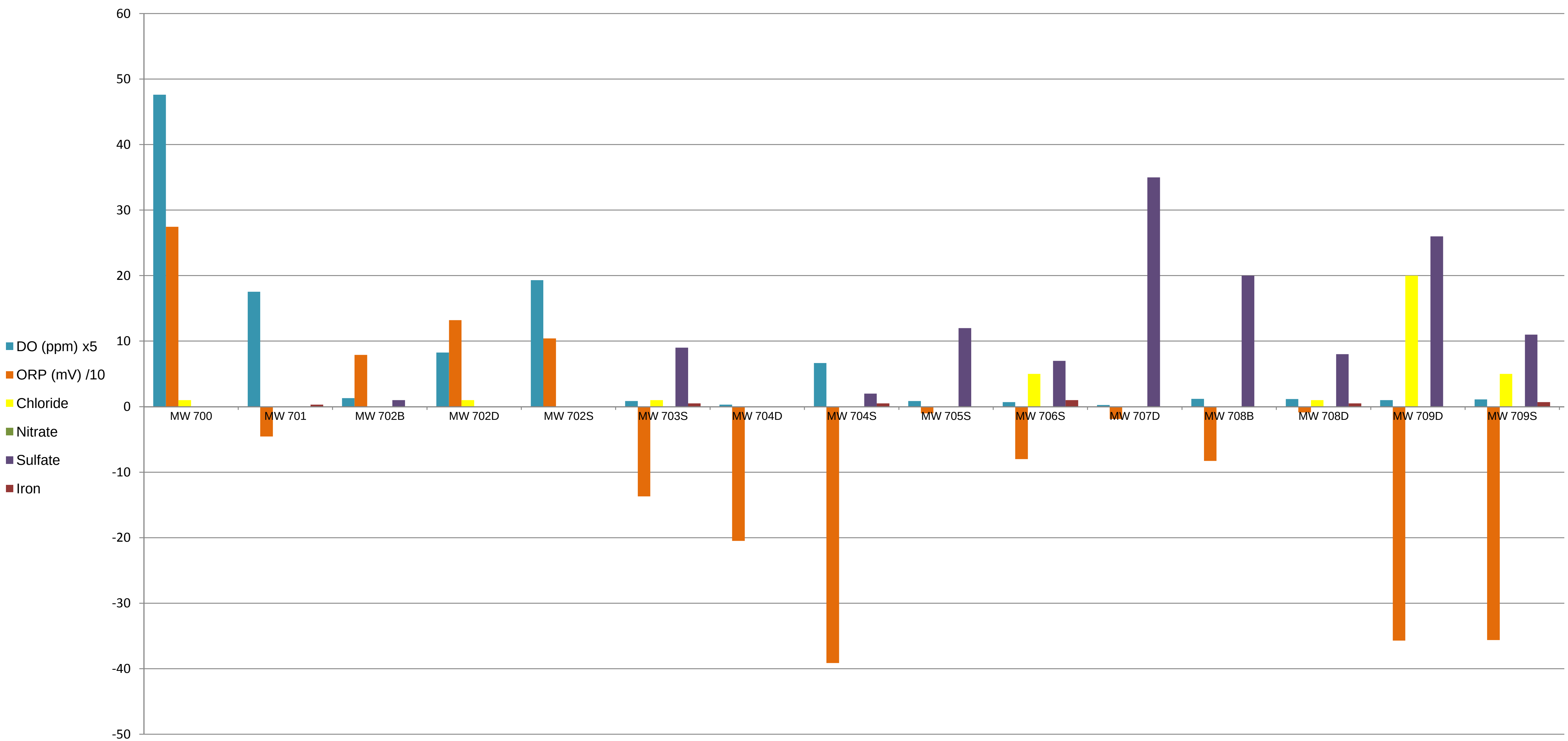
		Location:	MW-712S	MW-713D	MW-713D	MW-713S	MW-714D	MW-714S	MW-715D
		Sample Date:	6/19/2012 2:15:00 PM	6/20/2012 10:20:00 AM	6/20/2012 10:20:00 AM	6/19/2012 3:55:00 PM	6/19/2012 10:15:00 AM	6/18/2012 3:20:00 PM	6/22/2012 2:05:00 PM
		Lab Sample ID:	L1211003-05	L1211003-06	L1211003-07	L1211003-04	L1211003-02	L1211003-01	L1211183-16
		Sample Type:	N	FD	N	N	N	N	N
Analyte	GW-1	Units							
Dissolved Metals									
ARSENIC	10	ug/l							
Volatile Organics									
1,1-DICHLOROETHENE	7	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	ND	ND	ND	ND	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	**11**	**10**	ND	**2.2**	**1.5**	ND
Tetrachloroethene	5	ug/l	ND	**5.6**	**6**	ND	**2.8**	ND	ND
TRICHLOROETHENE	5	ug/l	ND	**7.4**	**7.2**	ND	**1.5**	ND	ND
Vinyl chloride	2	ug/l	ND	**2.6**	**2.8**	ND	ND	**1**	ND
Dissolved Gases									
ETHANE	NA	ug/l							
ETHYLENE	NA	ug/l							
METHANE	NA	ug/l							

Notes:
ND = Not Detected
Green Fill = Detect > GW-1

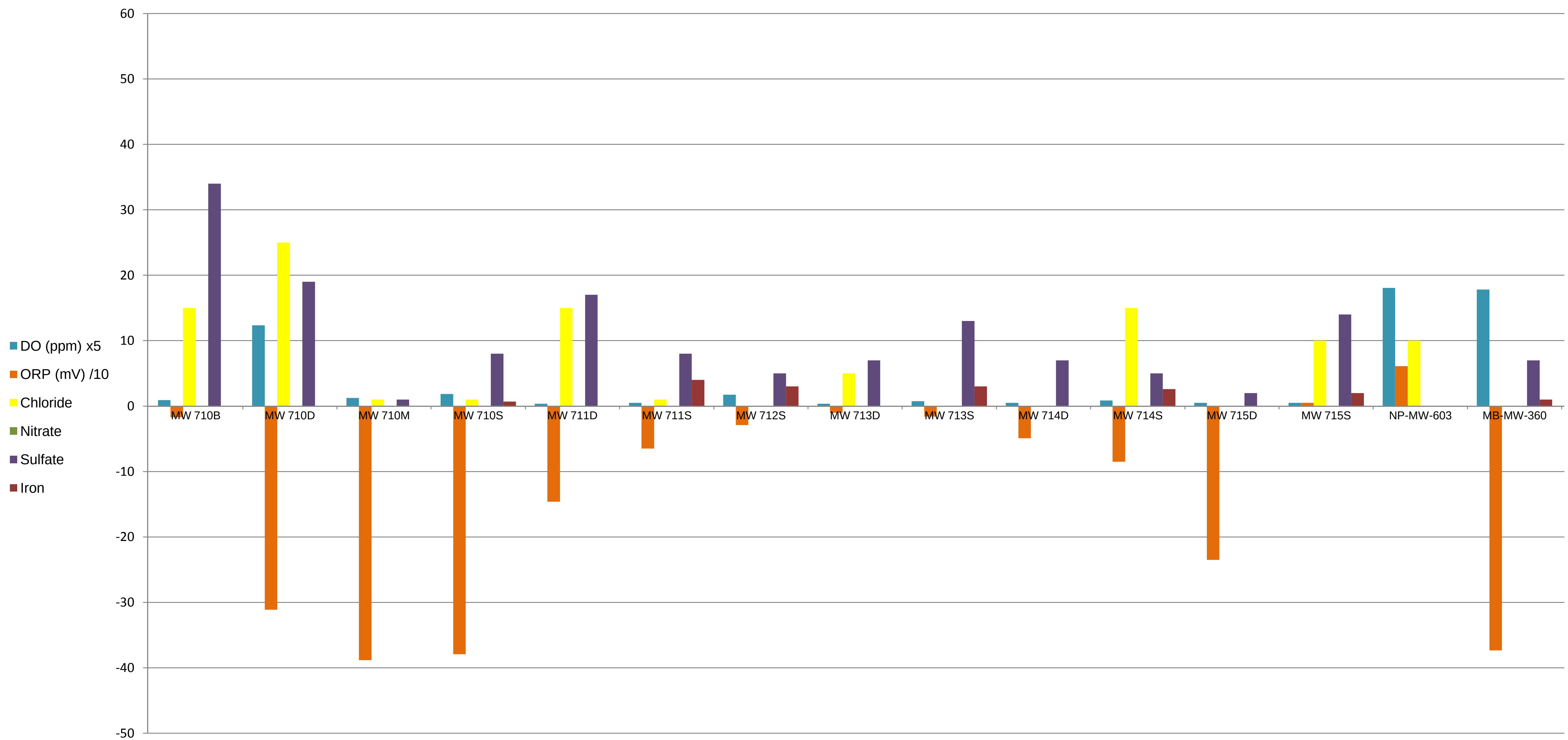
		Location:	MW-715S	NP-MW-601	NP-MW-602	NP-MW-603
		Sample Date:	6/22/2012 12:15:00 PM	6/26/2012 1:10:00 PM	6/26/2012 11:30:00 AM	6/27/2012 8:00:00 AM
		Lab Sample ID:	L1211183-13	L1211356-09	L1211356-08	L1211509-03
		Sample Type:	N	N	N	N
Analyte	GW-1	Units				
Dissolved Metals						
ARSENIC	10	ug/l				
Volatile Organics						
1,1-DICHLOROETHENE	7	ug/l	ND	ND	ND	ND
1,2,3-TRICHLOROBENZENE	NA	ug/l	ND	**12**	**3.7**	ND
1,2,4-TRICHLOROBENZENE	70	ug/l	ND	**50**	**2.2**	ND
1,2-DICHLOROBENZENE	600	ug/l	ND	**2.6**	ND	ND
1,3-DICHLOROBENZENE	40	ug/l	ND	**2.5**	ND	ND
1,4-DICHLOROBENZENE	5	ug/l	ND	**5.4**	ND	ND
ACETONE	6300	ug/l	ND	ND	ND	ND
CHLOROBENZENE	100	ug/l	ND	**1.7**	ND	ND
cis-1,2-Dichloroethene	70	ug/l	ND	ND	ND	ND
Tetrachloroethene	5	ug/l	ND	ND	ND	ND
TRICHLOROETHENE	5	ug/l	ND	**1.1**	ND	ND
Vinyl chloride	2	ug/l	ND	ND	ND	ND
Dissolved Gases						
ETHANE	NA	ug/l				
ETHYLENE	NA	ug/l				
METHANE	NA	ug/l				

Notes:
ND = Not Detected
Green Fill = Detect > GW-1

Location	MW 700	MW 701	MW 702B	MW 702D	MW 702S	MW 703S	MW 704D	MW 704S	MW 705S	MW 706S	MW 707D	MW 708B	MW 708D	MW 709D	MW 709S
DO (ppm) x5	47.6	17.55	1.3	8.25	19.3	0.85	0.3	6.65	0.85	0.7	0.25	1.2	1.15	1	1.1
ORP (mV) /10	27.45	-4.55	7.9	13.2	10.4	-13.7	-20.5	-39.12	-1.02	-8	-1.87	-8.29	-0.87	-35.71	-35.63
Chloride	1	0	0	1	0	1	0	0	0	5	0	0	1	20	5
Nitrate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sulfate	0	0	1	0	0	9	0	2	12	7	35	20	8	26	11
Iron	0	0.3	0	0	0	0.5	0	0.5	0	1	0	0	0.5	0	0.7



Location	MW 710B	MW 710D	MW 710M	MW 710S	MW 711D	MW 711S	MW 712S	MW 713D	MW 713S	MW 714D	MW 714S	MW 715D	MW 715S	NP-MW-603	MB-MW-360
DO (ppm) x5	0.9	12.35	1.25	1.85	0.35	0.5	1.75	0.35	0.75	0.5	0.85	0.5	0.5	18.05	17.8
ORP (mV) /10	-1.71	-31.11	-38.82	-37.92	-14.6	-6.5	-2.9	-1.02	-1.61	-4.9	-8.5	-23.5	0.49	6.1	-37.33
Chloride	15	25	1	1	15	1	0	5	0	0	15	0	10	10	0
Nitrate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sulfate	34	19	1	8	17	8	5	7	13	7	5	2	14	0	7
Iron	0	0	0	0.7	0	4	3	0	3	0	2.6	0	2	0	1



Location	MB-MW-361	NP-MW-602	NP-MW-601	LR-MW-129	LR-MW-122	LR-MW-124	LR-MW-121	MB-MW-362	MB-MW-363	MB-MW-371	MB-MW-374
DO (ppm) x5	3.65	23.75	1.85	1.5	6.9	0.4	0.65	0.6	0.85	1.25	0.65
ORP (mV) /10	-40.38	10.6	-1.64	2.5	1.1	-8.4	1.2	3.3	7	-3.5	-0.37
Chloride	5	5	10	0	5	0	15	5	10	1	5
Nitrate	0	0	0	0	0	0	0	0	0	0	0
Sulfate	1	1	7	5	0	0	23	21	7	5	11
Iron	0	1	0	0	0.8	3	0	0	0	0	1

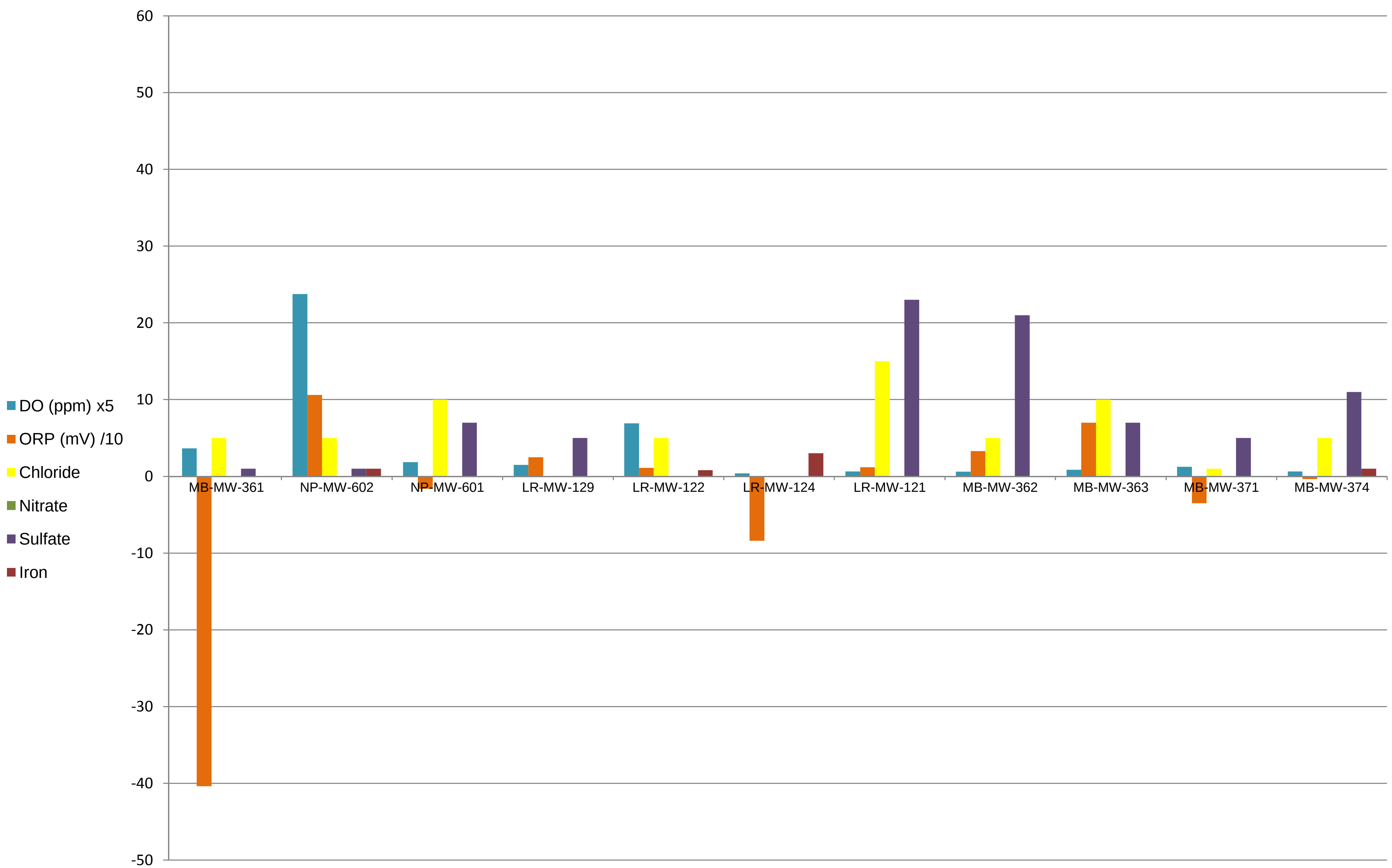


Table 4. MNA Sampling Parameters and Container Types

Analytes	Method	Sample Volume	Containers (number, size, and type)	Preservation Requirements (chemical, temperature, light protection)	Maximum Holding Time (preparation/ analysis)
Arsenic MWs: 121, 122, 371, 703, 705, 706					
Arsenic	SW-846 6020/6010B	100 mL	500 mL polyethylene container	HNO3 to pH<2	6 months from collection
DCB & cVOC MWs: 124, 129, 360-363, 374, 601-603, 700S, 701S, 702S/D/B, 704S/D, 707D, 708D/B, 709S/D, 710S/M/D/B, 711S/D, 712S, 713S/D, 714S/D, 715S/D (Dissolved gases in eight selected wells based on PCE and geochemistry results)					
VOCs	SW-846 8260B	40 mL	Glass, 4x 40 ml septum sealed vials	HCl pH <2, Cool to 4°C (<6°C, but not frozen) protect from light, no headspace	14 days from collection
Ferrous Iron	Hach method 8146 test kit	35 mL	N/A (onsite field test using kit)		Same day as collection
Chloride	SW-846 9057	250 mL	250 mL polyethylene container	H2SO4 pH <2 Cool to 4°C (<6°C, but not frozen)	28 days from collection
Nitrate, Sulfate	IC Method E300	250 mL	250 mL polyethylene container	Cool to 4°C (<6°C, but not frozen)	48 hours for Nitrate and 28 days from collection for Sulfate
Ethene, Ethane. Methane	Kerr Method	40 mL	Glass, 4x 40 ml septum sealed vials	H2SO4 pH <2 Cool to 4°C (<6°C, but not frozen)	7 days for extraction and 40 days from extraction till analysis.

Appendix A – Mobile Laboratory Field Screening Data for Geoprobe Samples

Appendix A
Mobile Laboratory Field Screening Data for Geoprobe Samples

			Location:	GW003	GW005	GW008		GW009			GW013	GW014		GW019		GW022		GW024		GW025		
			Sample Date:	4/25/2012	4/27/2012	4/25/2012	4/26/2012	4/25/2012	4/25/2012		4/25/2012	4/27/2012	4/27/2012	5/3/2012	5/3/2012	5/1/2012	5/1/2012	5/2/2012	5/2/2012	5/1/2012	5/1/2012	5/1/2012
			Depth (ft):	2.5-6.5	8-12	10-14	19-23	6-10	15-19		12-16	8-12	15-17	11-15	6-9	11-15	17-21	2-6	11-15	2-6	11-15	17-21
			Lab Sample ID:	SEI-31	SEI-45	SEI-32	SEI-33	SEI-28	SEI-29	SEI-29-FD	SEI-26	SEI-43	SEI-44	SEI-84	SEI-85	SEI-65	SEI-66	SEI-67	SEI-68	SEI-62	SEI-63	SEI-64
			Sample Type:	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	1,1,1-Trichloroethane	ug/l	200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2-TRICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHANE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHENE	ug/l	7	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**3.9**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dichloropropane	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.7 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.29 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLORINATED FLUOROCARBON (FREON 113)	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROBENZENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROMETHANE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	cis-1,2-Dichloroethene	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	cis-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DIBROMOCHLOROMETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.29 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**5**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	O-XYLENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.31 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TOLUENE	ug/l	1000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,2-Dichloroethene	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TRICHLOROETHENE	ug/l	5	2 U	2 U	2 U	**0.25 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Vinyl chloride	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	XYLENE, P-, M-	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix A
Mobile Laboratory Field Screening Data for Geoprobe Samples

			Location:	GW026			GW027			GW028			GW030				GW031			GW032		
			Sample Date:	5/1/2012	5/1/2012	5/1/2012	4/30/2012	4/30/2012	4/30/2012	4/30/2012	4/30/2012	5/2/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/26/2012	4/23/2012	4/23/2012	4/23/2012
			Depth (ft):	2-6	19.5-23.5	24-27	11-15	2-6	20-24	2-6	11-15	19.5-23.5	2-6	11-15	20-24	25-29	2-6	11-15	20-24	2-6	11-15	20-24
			Lab Sample ID:	SEI-59	SEI-60	SEI-61	SEI-57	SEI-56	SEI-58	SEI-54	SEI-55	SEI-69	SEI-3	SEI-4	SEI-5	SEI-8	SEI-1	SEI-2	SEI-42	SEI-6	SEI-7	SEI-9
			Sample Type:	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	1,1,1-Trichloroethane	ug/l	200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2-TRICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.44 J**
	1,1-DICHLOROETHANE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.36 J**	2 U	2 U	2 U	**0.2 J**	2 U	2 U	2 U
	1,1-DICHLOROETHENE	ug/l	7	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2**	**0.92 J**	2 U	2 U	**0.3 J**	2 U	2 U	**0.47 J**
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dichloropropane	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLORINATED FLUOROCARBON (FREON 113)	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROBENZENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROMETHANE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	cis-1,2-Dichloroethene	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.33 J**	**18**	**13**	2 U	2 U	**5**	2 U	**1.2 J**	**2**
	cis-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DIBROMOCHLOROMETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	O-XYLENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**69**	**41**	2 U	2 U	**8**	2 U	2 U	**22**
	TOLUENE	ug/l	1000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,2-Dichloroethene	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.67 J**	**0.49 J**	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.52 J**	2 U	2 U	2 U	2 U	2 U	2 U
	TRICHLOROETHENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**36**	**22**	2 U	2 U	**8.3**	2 U	2 U	**7.8**
	Vinyl chloride	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**8.8**	**5.5**	2 U	2 U	**1.7 J**	2 U	**1.4 J**	**1.1 J**
	XYLENE, P-, M-	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix A
Mobile Laboratory Field Screening Data for Geoprobe Samples

			Location:	GW033				GW034		GW039			GW040			GW041		
			Sample Date:	4/23/2012	4/24/2012	4/24/2012		4/24/2012	4/24/2012	4/24/2012	4/26/2012	4/26/2012		4/24/2012	4/24/2012	4/24/2012	4/24/2012	4/24/2012
			Depth (ft):	2-6	11-15	18-22		3-7	11.5-15.5	15-19	2-6	8-12	24-28	6-10	15-19	3-7	12-16	21-25
			Lab Sample ID:	SEI-10	SEI-11	SEI-13	SEI-13-FD	SEI-18	SEI-19	SEI-20	SEI-40	SEI-41	SEI-17	SEI-14	SEI-15	SEI-23	SEI-24	SEI-25
			Sample Type:	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	1,1,1-Trichloroethane	ug/l	200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2-TRICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHANE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.22 J**	**0.26 J**
	1,1-DICHLOROETHENE	ug/l	7	2 U	**0.74 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2 J**
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dichloropropane	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BENZENE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.58 J**
	BROMODICHLOROMETHANE	ug/l	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.29 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLORINATED FLUOROCARBON (FREON 113)	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROBENZENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROMETHANE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	cis-1,2-Dichloroethene	ug/l	70	2 U	**78**	**19**	**20**	2 U	**0.47 J**	2 U	2 U	2 U	**1.6 J**	2 U	**1.1 J**	2 U	**0.34 J**	**14**
	cis-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DIBROMOCHLOROMETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	O-XYLENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	2 U	**33**	**29**	**30**	2 U	2 U	2 U	2 U	2 U	**2 J**	2 U	**0.23 J**	2 U	**1.1 J**	**75**
	TOLUENE	ug/l	1000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,2-Dichloroethene	ug/l	100	2 U	**2.2**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.37 J**
	trans-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TRICHLOROETHENE	ug/l	5	2 U	**58**	**15**	**16**	2 U	2 U	2 U	2 U	2 U	**1.9 J**	2 U	2 U	2 U	**0.42 J**	**24**
	Vinyl chloride	ug/l	2	2 U	**4**	**3.9**	**4.5**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.8 J**	2 U	2 U	**7.9**
	XYLENE, P-, M-	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix A
Mobile Laboratory Field Screening Data for Geoprobe Samples

			Location:	GW042						GW044			GW045			GW046		GW047			
			Sample Date:	4/26/2012	4/26/2012	4/26/2012		4/26/2012	4/26/2012	4/27/2012	4/27/2012	4/27/2012	4/27/2012	4/27/2012	4/27/2012	5/3/2012	5/3/2012	5/3/2012	5/3/2012	5/3/2012	5/3/2012
			Depth (ft):	2-6	11-15	20-24		29-33	34.5-38.5	2-6	11-15	20-24	2-6	11-15	20-24	2-6	11-15	2-6	11-15	20-24	29-33
			Lab Sample ID:	SEI-34	SEI-35	SEI-36	SEI-36-FD	SEI-38	SEI-39	SEI-46	SEI-47	SEI-48	SEI-51	SEI-52	SEI-53	SEI-78	SEI-79	SEI-74	SEI-75	SEI-76	SEI-77
			Sample Type:	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	1,1,1-Trichloroethane	ug/l	200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2-TRICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHANE	ug/l	70	2 U	2 U	**2.2**	**2.2**	2 U	2 U	2 U	2 U	2 U	2 U	**0.72 J**	2 U	2 U	2 U	**0.54 J**	**0.25 J**	2 U	2 U
	1,1-DICHLOROETHENE	ug/l	7	2 U	2 U	**4.5**	**4.7**	2 U	2 U	2 U	2 U	2 U	2 U	**3.6**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**5.8**	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROETHANE	ug/l	5	2 U	2 U	**0.67 J**	**0.77 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dichloropropane	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1 J**	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	2 U	2 U	**0.78 J**	**0.76 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BENZENE	ug/l	5	2 U	2 U	**0.46 J**	**0.46 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.4 J**	2 U	**0.89 J**	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLORINATED FLUOROCARBON (FREON 113)	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROBENZENE	ug/l	100	2 U	2 U	**1.4 J**	**1.3 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROMETHANE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	cis-1,2-Dichloroethene	ug/l	70	2 U	2 U	**4.6**	**4.9**	2 U	**0.45 J**	2 U	2 U	**0.48 J**	2 U	**22**	**0.61 J**	2 U	2 U	2 U	2 U	2 U	2 U
	cis-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DIBROMOCHLOROMETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**5.1**	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.6 J**	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.9 J**	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**160**	**1.7 J**	**6.1**	**5.3**
	O-XYLENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**3.2**	2 U	2 U	2 U
	STYRENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	2 U	2 U	**19**	**19**	2 U	**0.8 J**	2 U	2 U	2 U	2 U	**56**	**2**	2 U	2 U	2 U	2 U	2 U	2 U
	TOLUENE	ug/l	1000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,2-Dichloroethene	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.3 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TRICHLOROETHENE	ug/l	5	2 U	2 U	**12**	**11**	2 U	**0.53 J**	2 U	2 U	2 U	2 U	**65**	**0.71 J**	2 U	2 U	2 U	2 U	2 U	2 U
	Vinyl chloride	ug/l	2	2 U	2 U	**5**	**4.3**	2 U	2 U	2 U	2 U	2 U	2 U	**7.8**	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	XYLENE, P-, M-	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix A
Mobile Laboratory Field Screening Data for Geoprobe Samples

			Location:	GW048				GW049				GW050				GW051		MW601	RIVER-1
			Sample Date:	5/2/2012	5/2/2012	5/2/2012	5/2/2012	5/3/2012	5/3/2012	5/3/2012	5/3/2012	5/4/2012	5/4/2012	5/4/2012	5/4/2012	5/4/2012	5/4/2012	4/25/2012	4/24/2012
			Depth (ft):	2-6	11-15	20-24	25-29	2-6	11-15	20-24	25-29	2-6	11-15	20-24	28-32	2-6	11-15	21-21	0-0
			Lab Sample ID:	SEI-70	SEI-71	SEI-72	SEI-73	SEI-80	SEI-81	SEI-82	SEI-83	SEI-88	SEI-89	SEI-90	SEI-91	SEI-86	SEI-87	SEI-27	SEI-12
			Sample Type:	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	1,1,1-Trichloroethane	ug/l	200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1,2-TRICHLOROETHANE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHANE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,1-DICHLOROETHENE	ug/l	7	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**45**	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2.5**	2 U
	1,2-DICHLOROETHANE	ug/l	5	2 U	2 U	**0.52 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-Dichloropropane	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2.8**	2 U
	1,4-DICHLOROBENZENE	ug/l	5	2 U	2 U	2 U	2 U	**0.47 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**5.7**	2 U
	BENZENE	ug/l	5	**0.26 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLORINATED FLUOROCARBON (FREON 113)	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROBENZENE	ug/l	100	2 U	**0.27 J**	2 U	2 U	**0.47 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**1.2 J**	2 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROMETHANE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	cis-1,2-Dichloroethene	ug/l	70	2 U	**0.25 J**	**0.31 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.61 J**	**0.34 J**
	cis-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DIBROMOCHLOROMETHANE	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.99 J**	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	O-XYLENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.22 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TOLUENE	ug/l	1000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,2-Dichloroethene	ug/l	100	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	trans-1,3-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TRICHLOROETHENE	ug/l	5	2 U	**0.2 J**	**0.25 J**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**0.84 J**	2 U
	Vinyl chloride	ug/l	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	XYLENE, P-, M-	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix B – Boring / Well Construction Logs

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BORING/WELL NUMBER: **MW-700-S**

TOTAL DEPTH (FEET): **18.8**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/13/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Brown fine to coarse SAND, trace Gravel, trace Silt, moist. (SW)		2.8/5			
5-10		5-10': Brown fine to coarse SAND, trace Gravel, trace Silt, moist. (SW)		3.4/5			
10-15		10-15': Brown fine to coarse SAND, little Gravel, moist. (SP)		4.0/5			
15-16		15-16': Brown fine to coarse SAND, little Gravel, moist. (SP)		3.8/3.8			
16-18.8		16-18.8': Light brown to orange weathered BEDROCK, dry.					

Notes:

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BORING/WELL NUMBER: **MW-701-D**
TOTAL DEPTH (FEET): **21.9**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/13/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Brown fine to coarse SAND, little Gravel, moist. (SP)		2.7/5			
5-10		5-10': Brown fine to coarse SAND, little Gravel, moist. (SP)		2.8/5			
10-15		10-15': Brown fine to coarse SAND, little Gravel, moist. (SP)		4.4/5			
15-17		15-17': Brown fine to coarse SAND, little Gravel, moist. (SP)		4.8/5			
17-20		17-20': Brown SILT and SAND, trace Gravel, moist. (SM)					
20-21		20-21': Brown SILT and SAND, trace Gravel, moist. (SM)		1.9/1.9			
21-21.9		21-21.9'- Weathered BEDROCK					

Notes:

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BORING/WELL NUMBER: **MW-702-D**
TOTAL DEPTH (FEET): **29.5**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/12/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Brown fine to coarse SAND, some Gravel, moist. (SP)		2.2/5			
5-7.5		5-7.5': Brown fine to coarse SAND, some Gravel, moist. (SP)		1.3/5			
7.5-10		7.5-10': Brown SILT AND SAND, trace Gravel, moist. (SM)					
10-13		10-13': Brown SILT AND SAND, trace Gravel, moist. (SM)		3/5			
13-15		13-15': Brown fine to coarse SAND, little Gravel, trace Silt, wet. (SW)					
15-19		15-19': Brown fine to coarse SAND, little Gravel, trace Silt, wet. (SW)		3.5/5			
19-20		19-20'- Weathered BEDROCK					

Notes:

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BORING/WELL NUMBER: **MW-704-D**
TOTAL DEPTH (FEET): **21**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/11/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Light brown, fine to coarse SAND, little Gravel, little Silt, moist. (SW)		2/5			
5-10		5-10': Brown to gray fine to coarse SAND, some Silt, little Gravel, trace Clay, wet. (SW)		3/5			
10-15		10-15': SAA		1/5			
15-20		15-20':SAA		2/5			
20-21		20-21': SAA		1/1			

Notes:

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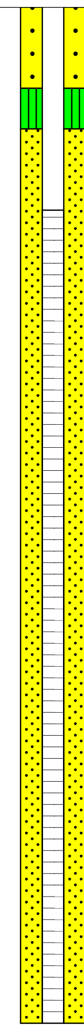
BORING/WELL NUMBER: **MW-706-S**
TOTAL DEPTH (FEET): **15**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/12/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0–3		0-3': Brown fine to coarse SAND, trace Gravel, moist. (SP)		1.8/3			
3–8		3-8': Brown to Gray fine to coarse SAND, little Gravel, trace Silt, wet. (SW)		1.2/5			
8–13		8-13': Brown to Gray fine to coarse SAND, little Gravel, trace Silt, wet. (SW)		1/5			
13–15		13-15': Brown SILTY SAND, little Gravel, trace Clay, moist. (SM)		1.3/2			



Notes:

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BORING/WELL NUMBER: **MW-707-D**
TOTAL DEPTH (FEET): **31.5**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/12/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-3		0-3': Brown fine to coarse SAND, little Gravel, moist. (SP)		1.1/3			
3-8		3-8': Brown to Gray fine to coarse SAND, trace Gravel, moist. (SP)		2.5/5			
8-13		8-13': Light brown SILT, some Clay, moist. (ML)		2.8/5			
13-18		13-18': Brown SILT, little Clay, trace Sand, wet. (ML)		2.8/5			
18-23		18-23': Brown fine to coarse SAND, little Silt, trace Gravel, wet. (SW)		2.1/5			
23-28		23-28': Brown fine to coarse SAND, some Gravel, wet. (SP)		1.9/5			
28-30		28-30': Brown fine to coarse SAND, some Gravel, wet. (SP)		2.1/3.5			
30-31.5		30-31.5': Weathered BEDROCK					

Notes:

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BORING/WELL NUMBER: **MW-708-B**
TOTAL DEPTH (FEET): **52.5**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/13/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Brown fine to coarse SAND, trace Gravel, moist. (SP)		0.5/5			
5-10		5-10': SAA		2.1/5			
10-12		10-12': Gray fine to coarse SAND, little Gravel, wet. (SP)		3.0/5			
12-15		12-15': Brown SILT, some Sand, trace Clay, moist. (SM)					
15-17		15-17': SAA		3.3/5			
17-20		17-20': Brown SILT, some Clay, little Fine Sand, moist. (SM)					
20-22		20-22': Brown SILT and SAND, trace Clay, wet. (SM)		4.8/5			
22-25		22-25': Brown fine to coarse SAND, trace Gravel, trace Silt, wet. (SW)					
25-30		25-30': SAA		3.4/5			
30-35		30-35': SAA		2/5			
35-40		35-40': SAA		3.1/5			
40-42		40-42': Brown fine to coarse SAND, trace Gravel, tightly packed, refusal.		2/2			

Notes:

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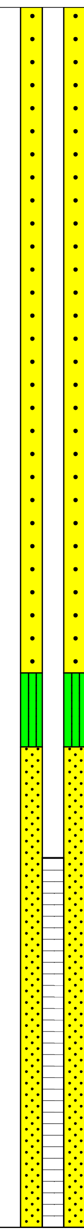
BORING/WELL NUMBER: **MW-709-D**
TOTAL DEPTH (FEET): **33**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/07/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-3		0-3': Light brown fine to coarse SAND, little Gravel, dry. (SP)		0.4/3			
3-8		3.-8': Gray fine to coarse SAND, little Gravel, trace Silt, wet. (SW)		0.8/5			
8-13		8-13': Brown SAND and SILT, trace Clay, moist. (SM)		2.5/5			
13-18		13-18': Brown SAND and SILT, little Clay. (SM)		1/5			
18-23		18-23': SAA		2.5/5			
23-28		23-28': Brown fine to coarse SAND, litle Gravel, trace Silt, wet. (SW)		2.4/5			
28-32		28-32': SAA		2.7/5			
32-33		32-33': Light brown weathered BEDROCK, dry.					



Notes:

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BORING/WELL NUMBER: **MW-710-D**
TOTAL DEPTH (FEET): **35**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/05/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0–3		0-3': Light brown fine to coarse SAND, little Gravel, moist. (SP)		1.2/3			
3–8		3.-8': Gray fine to coarse SAND, some Silt, moist. (SM)		0.4/5			
8–13		8-13': Light brown CLAY and SILT, trace Sand, moist. (CL)		0.5/5			
13–18		13-18': Light brown CLAY and SILT, trace Sand, moist. (CL)		0.6/5			
18–23		18-23': Light brown fine to medium SAND, some Silt, wet. (SM)		0.9/5			
23–28		23-28': Light brown fine to coarse SAND, little Silt, little Gravel, wet. (SW)		1.9/5			
28–33		28-33': Light brown fine to coarse SAND, little Gravel, trace Silt, moist. (SW)		1.1/5			
33–34		33-34': Light brown fine to coarse SAND, little Gravel, Little Silt, moist. (SW)		2/2			
34–35		34-35': Light brown to orange fine to coarse SAND, trace					

Notes:

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BORING/WELL NUMBER: **MW-710-D**
TOTAL DEPTH (FEET): **35**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/05/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
35		Gravel, little Silt, moist. (SW)					

Notes:

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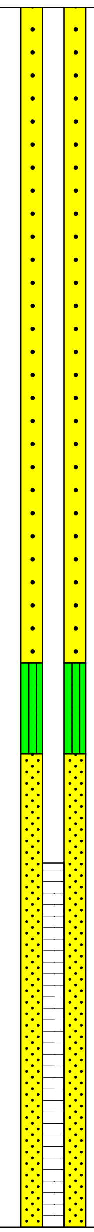
BORING/WELL NUMBER: **MW-711-D**
TOTAL DEPTH (FEET): **33.5**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/11/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)
0-5	0-5': Brown fine to coarse SAND, trace Gravel, moist. (SP)		1.4/5		
5-8	5-8': SAA		2.5/5		
8-9	8-9': Gray fine to coarse SAND, little Gravel, moist. (SP)				
9-10	9-10': Brown fine to coarse SAND, little Silt, little Gravel, moist. (SW)				
10-15	10-15': Gray Brown SAND and SILT, some Clay, moist. (SM)		3/5		
15-17.5	15-17.5': SAA		4.8/5		
17.5-19.5	17.5-19.5': Brown fine to medium SAND, some Silt, wet. (SM)				
19.5-20	19.5-20': Brown fine to coarse SAND, some Gravel, trace Silt, wet. (SW)				
20-25	20-25': SAA		1.2/5		
25-30	25-30': Brown fine to coarse SAND, little Gravel, Wet.		0.8/5		
30-33.5	NR				

Monitoring Well



Notes:

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BORING/WELL NUMBER: **MW-712-S**
TOTAL DEPTH (FEET): **15**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/05/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0–3		0-3': Light brown fine to coarse SAND, trace Gravel, dry. (SP)		1.6/3			
3–8		3.-8': Brown to gray fine to coarse SAND, little Gravel, wet. (SP)		1.0/5			
8–13		8-13': SAA		0.6/5			
13–15		13-15': Gray fine to coarse SAND, trace Gravel, trace Silt, wet. (SW)		0.5/2			

Notes:

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BORING/WELL NUMBER: **MW-713-D**
TOTAL DEPTH (FEET): **32**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/08/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-3		0-3':Dark brown fine to coarse SAND, little Gravel, trace Silt, moist. (SW)		0.7/3			
3-7.5		3.-7.5': Gray fine to coarse SAND, some Silt, trace Gravel, moist. (SW)		2.8/5			
7.5-8		7.5-8': Gray SILT and SAND, wet. (SM)					
8-13		8-13': Gray SILT, some Clay, wet. (ML)		3.6/5			
13-18		13-18': Gray SILT, little Clay, trace fine Sand, wet. (ML)		4.7/5			
18-23		18-23': Gray fine to coarse SAND, little Silt, trace Clay, wet. (SM)		3.8/5			
23-28		23-28': Brown fine to coarse SAND, little Gravel, trace Silt, wet. (SW)		2.6/5			
28-32		28-32': Gray brown fine to coarse SAND, little Gravel, moist. (SP)		1.0/5			

Notes:

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Westford, MA 01886

BORING/WELL NUMBER: **MW-714-D**
TOTAL DEPTH (FEET): **21**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/04/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-3		0-3': Light brown fine to coarse SAND, trace Gravel, dry. (SP)		2/3			
3-8		3.-8': Light brown, gray towards the bottom, fine to coarse SAND, trace Gravel, dry. (SP)		2.8/5			
8-11.5		8-11.5': SAA		2/5			
11.5-13		11.5-13': Light brown SILT, little Sand, wet. (SM)					
13-18		13-18': Light brown SILT, some Sand, wet. (SM)		1/5			
18-20		18-20': Light brown fine to coarse SAND, little Gravel, little Silt, moist. (SW)		2/3			
20-21		20-21': Weathered BEDROCK					

Notes:

AMEC Earth & Environmental Inc.
2 Robbins Road
Westford, MA 01886

BORING/WELL NUMBER: **MW-715-D**
TOTAL DEPTH (FEET): **27**

PROJECT INFORMATION		DRILLING INFORMATION	
CLIENT NAME:	**Baker Hughes**	DRILLER:	
PROJECT:	**Bird Machine**	DRILLING METHOD:	**Dual Tube**
SITE LOCATION:	**Walpole, MA**	SAMPLING METHOD:	**5' macrocore**
JOB NUMBER:	**0146790000**	CASING DIAMETER:	**2.75"**
LOGGED BY:	**Alex Ranieri**	WELL DIAMETER:	**2"**
DATE DRILLED:	**6/11/12**	GROUND SURFACE ELEV.:	
DRILLING CO.:	**Stone**	TOP OF CASING ELEV.:	

Depth (feet)	Soil Symbols	Soil Description	Sample	Recovery (ft/ft)	Analytical Sample	PID (ppm)	Monitoring Well
0-5		0-5': Light brown, fine to coarse SAND, little Gravel, little Silt, moist. (SW)		2/5			
5-10		5-10': NR		NR			
10-15		10-15': Brown to gray fine to coarse SAND, some Silt, little Gravel, trace Clay, wet. (SW)		3/5			
15-20		15-20': Brown to gray fine to coarse SAND, little Silt, little Gravel, wet. (SW)		1/5			
20-25		20-25': SAA		2/5			
25-27		Refusal at 27 feet					

Notes: MW-715-S screened at 15'-5'

Appendix C – Laboratory Results for Initial Process Monitoring

Appendix C
Laboratory Results for Initial Process Monitoring

			Location:	LR-MW-124	LR-MW-129	MB-MW-360	MB-MW-361	MB-MW-362	MB-MW-363		MB-MW-371	MB-MW-374	MW_122	MW-700S	MW-701S	MW-702B	MW-702D	MW-702S	MW-703S	MW-704D	MW-704S
			Sample Date:	6/21/2012	6/25/2012	6/22/2012	6/22/2012	6/21/2012	6/21/2012		7/3/2012	6/19/2012	5/4/2012	6/21/2012	6/26/2012	6/26/2012	6/26/2012	6/25/2012	6/27/2012	6/22/2012	6/22/2012
			Depth (ft):	3-5	15-25	2-12	14-25	10-20	3-8		3-8	18-28	5-5	5-15	5-10	27-37	20.5-25.5	13-18	4-14	11-21	3-7
			Lab Sample ID:	L1211183-09	L1211356-01	L1211183-14	L1211183-12	L1211183-04	L1211183-01	L1211183-02	L1211816-01	L1211003-03	L1208272-01	L1211183-08	L1211356-12	L1211356-07	L1211356-06	L1211356-02	L1211509-01	L1211183-11	L1211183-15
			Sample Type:	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Method	Analyte	Units	GW-1	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
DISSGAS	ETHANE	ug/l																			
	ETHYLENE	ug/l																			
	METHANE	ug/l																			
SW6020	ARSENIC	ug/L	10								1 U		**5**						**1.7**		
SW8260B	1,1,1,2-TETRACHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-Trichloroethane	ug/l	200	1 U	1 U	1 U	1 U	1 U	1 U	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	ug/l	2	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U
	1,1,2-TRICHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHENE	ug/l	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,3-TRICHLOROBENZENE	ug/l		2 U	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ		2 U		2 U	2 U	**13**	2 U	2 U	2 U	2 U	2 U
	1,2,3-Trichloropropane	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 UJ	2 U	2 UJ	2 U	2 U	2 U	2 UJ		2 U		2 UJ	2 U	**61**	2 U	2 U	2 U	2 U	2 UJ
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 UJ	2 U	2 UJ	2 UJ	2 U	2 U		2 UJ		2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	**2.7**	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
	1,2-Dichloropropane	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	**2.2**	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	**5.9**	1 U	1 U	1 U	1 U	1 U
	1,4-DIOXANE	ug/l	3	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ		250 UJ		250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ
	2,2-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	2-Butanone	ug/l	4000	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U		5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
	2-HEXANONE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-Methyl-2-pentanone	ug/l	350	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U		5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
	ACETONE	ug/l	6300	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U		5 UJ		**22**	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
	BENZENE	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	BROMOBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOCHLOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	ug/l	4	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U		2 UJ		2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U
	BROMOMETHANE	ug/l	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 UJ		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	**2**	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	cis-1,2-Dichloroethene	ug/l	70	1 U	1 U	1 U	1 U	**13**	1 U	1 U		**3**		1 U	1 U	1 U	1 U	1 U	1 U	1 U	**1.6**
	cis-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	DIBROMOCHLOROMETHANE	ug/l	2	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U		1 UJ		1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U
	DIBROMOMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DICHLORODIFLUOROMETHANE	ug/l		2 UJ	2 U	2 UJ	2 U	2 U	2 U	2 UJ		2 U		2 UJ	2 U	2 U	2 U	2 U	2 UJ	2 U	2 UJ
	ETHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ETHYL-TERT-BUTYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	HEXACHLOROBUTADIENE	ug/l	0.6	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U		0.6 U		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
	ISOPROPYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ		2 U		2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U
	n-Butylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	n-Propylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	o-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
Blank results indicate that the constiuent was not analyzed.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix C
Laboratory Results for Initial Process Monitoring

			Location:	MW-705S		MW-706S	MW-707D	MW-708B	MW-708D	MW-709D		MW-709S	MW-710B	MW-710D	MW-710M	MW-710S	MW-711D	MW-711S	MW-712S	MW-713D	
			Sample Date:	6/26/2012		6/27/2012	6/20/2012	6/26/2012	6/25/2012	6/20/2012		6/20/2012	6/25/2012	6/21/2012	6/21/2012	6/21/2012	6/20/2012	6/20/2012	6/19/2012	6/20/2012	
			Depth (ft):	4-14		2.5-12.5	20-30	42.5-52.5	16-26	20-30		6-16	36-41	31-41	20-30	11-16	22.5-33.5	7-17	5-15	22-32	
			Lab Sample ID:	L1211356-10	L1211356-11	L1211509-02	L1211003-13	L1211356-05	L1211356-04	L1211003-08	L1211003-09	L1211003-11	L1211356-03	L1211183-03	L1211183-06	L1211183-07	L1211003-10	L1211003-12	L1211003-05	L1211003-06	L1211003-07
			Sample Type:	N	FD	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	FD	N
Method	Analyte	Units	GW-1	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
	ETHANE	ug/l						0.5 U	**1.34**	**2.42 J**		**6.11**	0.5 U	0.5 U	**9.62**		**15.8**				
DISSGAS	ETHYLENE	ug/l						0.5 U	0.5 U	0.5 UJ		0.5 U	0.5 U	0.5 U	**3.19**		0.5 U				
	METHANE	ug/l						**11.9**	**94.4**	**445 J**		**1110**	5 U	5 U	**111**		**411**				
SW6020	ARSENIC	ug/L	10	**2.3 J**	**1.8 J**	**18**															
	1,1,1,2-TETRACHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-Trichloroethane	ug/l	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHENE	ug/l	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	**1.6**	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,3-TRICHLOROBENZENE	ug/l		2 UJ	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	20 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 UJ	2 UJ
	1,2,3-Trichloropropane	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 UJ	2 U	2 U	2 U	20 UJ	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-DICHLOROETHANE	ug/l	5	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,2-Dichloropropane	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-DIOXANE	ug/l	3	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	2500 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ
	2,2-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	2-Butanone	ug/l	4000	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	50 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	2-HEXANONE	ug/l		5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-Methyl-2-pentanone	ug/l	350	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U
	ACETONE	ug/l	6300	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	50 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	BENZENE	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SW8260B	BROMOBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOCHLOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	ug/l	4	2 UJ	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	20 UJ	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
	BROMOMETHANE	ug/l	10	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	ug/l	100	1 U	1 U	1 U	**1.8**	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	ug/l		2 U	2 U	2 U	2 UJ	2 U	2 U	2 UJ	2 UJ	2 UJ	20 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 UJ	2 UJ
	cis-1,2-Dichloroethene	ug/l	70	1 U	1 U	1 U	**1.2**	1 U	**1.8**	**2**	**2.3**	**10**	10 U	1 U	**4.6**	**10**	**9.3**	1 U	1 U	**11**	**10**
	cis-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	DIBROMOCHLOROMETHANE	ug/l	2	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
	DIBROMOMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DICHLORODIFLUOROMETHANE	ug/l		2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U
	ETHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ETHYL-TERT-BUTYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	HEXACHLOROBUTADIENE	ug/l	0.6	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
	ISOPROPYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 UJ	2 UJ	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U	20 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	n-Butylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	n-Propylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	o-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
Blank results indicate that the constiuent was not analyzed.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix C
Laboratory Results for Initial Process Monitoring

			Location:	MW-713S	MW-714D	MW-714S	MW-715D	MW-715S	NP-MW-601	NP-MW-602	NP-MW-603
			Sample Date:	6/19/2012	6/19/2012	6/18/2012	6/22/2012	6/22/2012	6/26/2012	6/26/2012	6/27/2012
			Depth (ft):	7-17	15-20	5-10	17-27	4-14	14-24	5-15	10-20
			Lab Sample ID:	L1211003-04	L1211003-02	L1211003-01	L1211183-16	L1211183-13	L1211356-09	L1211356-08	L1211509-03
			Sample Type:	N	N	N	N	N	N	N	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result
DISSGAS	ETHANE	ug/l									
	ETHYLENE	ug/l									
	METHANE	ug/l									
SW6020	ARSENIC	ug/L	10								
SW8260B	1,1,1,2-TETRACHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-Trichloroethane	ug/l	200	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,2,2-TETRACHLOROETHANE	ug/l	2	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
	1,1,2-TRICHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHANE	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-DICHLOROETHENE	ug/l	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1-Dichloropropene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,3-TRICHLOROBENZENE	ug/l		2 UJ	2 U	2 U	2 U	2 U	**12**	**3.7**	2 U
	1,2,3-Trichloropropane	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2,4-TRICHLOROBENZENE	ug/l	70	2 U	2 U	2 U	2 UJ	2 U	**50**	**2.2**	2 U
	1,2,4-TRIMETHYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l		2 U	2 U	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ
	1,2-Dibromoethane	ug/l	0.02	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,2-DICHLOROBENZENE	ug/l	600	1 U	1 U	1 U	1 U	1 U	**2.6**	1 U	1 U
	1,2-DICHLOROETHANE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
	1,2-Dichloropropane	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5-Trimethylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,3-DICHLOROBENZENE	ug/l	40	1 U	1 U	1 U	1 U	1 U	**2.5**	1 U	1 U
	1,3-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	1,4-DICHLOROBENZENE	ug/l	5	1 U	1 U	1 U	1 U	1 U	**5.4**	1 U	1 U
	1,4-DIOXANE	ug/l	3	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ
	2,2-DICHLOROPROPANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	2-Butanone	ug/l	4000	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ
	2-HEXANONE	ug/l		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	4-Methyl-2-pentanone	ug/l	350	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ
	ACETONE	ug/l	6300	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ
	BENZENE	ug/l	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	BROMOBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMOCHLOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	BROMODICHLOROMETHANE	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	BROMOFORM	ug/l	4	2 U	2 U	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ
	BROMOMETHANE	ug/l	10	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 UJ
	CARBON DISULFIDE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CARBON TETRACHLORIDE	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROBENZENE	ug/l	100	1 U	1 U	1 U	1 U	1 U	**1.7**	1 U	1 U
	CHLOROETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	CHLOROFORM	ug/l	70	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	CHLOROMETHANE	ug/l		2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	cis-1,2-Dichloroethene	ug/l	70	1 U	**2.2**	**1.5**	1 U	1 U	1 U	1 U	1 U
	cis-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	DIBROMOCHLOROMETHANE	ug/l	2	1 U	1 U	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ
	DIBROMOMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	DICHLORODIFLUOROMETHANE	ug/l		2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ
	ETHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	ETHYLBENZENE	ug/l	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	ETHYL-TERT-BUTYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	HEXACHLOROBUTADIENE	ug/l	0.6	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
	ISOPROPYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Isopropylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYL TERT BUTYL ETHER	ug/l	70	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	METHYLENE CHLORIDE	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	NAPHTHALENE	ug/l	140	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 U
	n-Butylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	n-Propylbenzene	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	o-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
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Appendix C
Laboratory Results for Initial Process Monitoring

			Location:	LR-MW-124	LR-MW-129	MB-MW-360	MB-MW-361	MB-MW-362	MB-MW-363		MB-MW-371	MB-MW-374	MW_122	MW-700S	MW-701S	MW-702B	MW-702D	MW-702S	MW-703S	MW-704D	MW-704S
			Sample Date:	6/21/2012	6/25/2012	6/22/2012	6/22/2012	6/21/2012	6/21/2012		7/3/2012	6/19/2012	5/4/2012	6/21/2012	6/26/2012	6/26/2012	6/26/2012	6/25/2012	6/27/2012	6/22/2012	6/22/2012
			Depth (ft):	3-5	15-25	2-12	14-25	10-20	3-8		3-8	18-28	5-5	5-15	5-10	27-37	20.5-25.5	13-18	4-14	11-21	3-7
			Lab Sample ID:	L1211183-09	L1211356-01	L1211183-14	L1211183-12	L1211183-04	L1211183-01	L1211183-02	L1211816-01	L1211003-03	L1208272-01	L1211183-08	L1211356-12	L1211356-07	L1211356-06	L1211356-02	L1211509-01	L1211183-11	L1211183-15
			Sample Type:	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Method	Analyte	Units	GW-1	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	O-XYLENE	ug/l		1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	P/M-XYLENE	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	p-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	p-ISOPROPYLTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	SEC-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TERT-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TERTIARY-AMYL METHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	1 U	1 U	1 U	1 U	**51**	1 U	1 U		**23**		1 U	1 U	1 U	1 U	1 U	1 U	**2.3**	**7.8**
	TETRAHYDROFURAN	ug/l		5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U		5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
	TOLUENE	ug/l	1000	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	trans-1,2-Dichloroethene	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	trans-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U		0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
	TRICHLOROETHENE	ug/l	5	1 U	1 U	1 U	1 U	**22**	1 U	1 U		**6**		1 U	1 U	**1.5**	**1.3**	1 U	1 U	**1.2**	**4.9**
	TRICHLOROFLUOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U
	Vinyl chloride	ug/l	2	**1.1**	1 U	1 U	1 U	**4.2**	1 U	1 U		**1.4**		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

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U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
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N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix C
Laboratory Results for Initial Process Monitoring

Location:				MW-705S		MW-706S	MW-707D	MW-708B	MW-708D	MW-709D		MW-709S	MW-710B	MW-710D	MW-710M	MW-710S	MW-711D	MW-711S	MW-712S	MW-713D	
Sample Date:				6/26/2012		6/27/2012	6/20/2012	6/26/2012	6/25/2012	6/20/2012		6/20/2012	6/25/2012	6/21/2012	6/21/2012	6/21/2012	6/20/2012	6/20/2012	6/19/2012	6/20/2012	
Depth (ft):				4-14		2.5-12.5	20-30	42.5-52.5	16-26	20-30		6-16	36-41	31-41	20-30	11-16	22.5-33.5	7-17	5-15	22-32	
Lab Sample ID:				L1211356-10	L1211356-11	L1211509-02	L1211003-13	L1211356-05	L1211356-04	L1211003-08	L1211003-09	L1211003-11	L1211356-03	L1211183-03	L1211183-06	L1211183-07	L1211003-10	L1211003-12	L1211003-05	L1211003-06	L1211003-07
Sample Type:				N	FD	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	FD	N
Method	**Analyte**	**Units**	**GW-1**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	O-XYLENE	ug/l		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	P/M-XYLENE	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	p-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	p-ISOPROPYLTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	SEC-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	STYRENE	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	TERT-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	TERTIARY-AMYL METHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Tetrachloroethene	ug/l	5	1 U	1 U	1 U	**2.9**	1 U	**4.1**	**7.4**	**8.9**	**35**	10 U	1 U	**18**	**7.8**	**46**	1 U	1 U	**5.6**	**6**
	TETRAHYDROFURAN	ug/l		5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ	50 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
	TOLUENE	ug/l	1000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	trans-1,2-Dichloroethene	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	trans-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	TRICHLOROETHENE	ug/l	5	1 U	1 U	1 U	**1.9**	1 U	**1.2**	**2.4**	**2.7**	**27**	10 U	1 U	**7.5**	**11**	**14**	1 U	1 U	**7.4**	**7.2**
	TRICHLOROFLUOROMETHANE	ug/l		2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Vinyl chloride	ug/l	2	1 U	1 U	1 U	**1**	1 U	**1**	**1.7**	**1.8**	**4.7**	10 U	1 U	**2**	**3**	**5.9**	1 U	1 U	**2.6**	**2.8**

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
Blank results indicate that the constiuent was not analyzed.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix C
Laboratory Results for Initial Process Monitoring

Method	Analyte	Units	GW-1	MW-713S	MW-714D	MW-714S	MW-715D	MW-715S	NP-MW-601	NP-MW-602	NP-MW-603
			Sample Date:	6/19/2012	6/19/2012	6/18/2012	6/22/2012	6/22/2012	6/26/2012	6/26/2012	6/27/2012
			Depth (ft):	7-17	15-20	5-10	17-27	4-14	14-24	5-15	10-20
			Lab Sample ID:	L1211003-04	L1211003-02	L1211003-01	L1211183-16	L1211183-13	L1211356-09	L1211356-08	L1211509-03
			Sample Type:	N	N	N	N	N	N	N	N
				Result	Result	Result	Result	Result	Result	Result	Result
SW8260B	O-XYLENE	ug/l		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SW8260B	P/M-XYLENE	ug/l	10000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	p-CHLOROTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	p-ISOPROPYLTOLUENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	SEC-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	STYRENE	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SW8260B	TERT-BUTYLBENZENE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	TERTIARY-AMYL METHYL ETHER	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
SW8260B	Tetrachloroethene	ug/l	5	1 U	**2.8**	1 U	1 U	1 U	1 U	1 U	1 U
SW8260B	TETRAHYDROFURAN	ug/l		5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ
SW8260B	TOLUENE	ug/l	1000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SW8260B	trans-1,2-Dichloroethene	ug/l	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SW8260B	trans-1,3-Dichloropropene	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
SW8260B	TRICHLOROETHENE	ug/l	5	1 U	**1.5**	1 U	1 U	1 U	**1.1**	1 U	1 U
SW8260B	TRICHLOROFLUOROMETHANE	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
SW8260B	Vinyl chloride	ug/l	2	1 U	1 U	**1**	1 U	1 U	1 U	1 U	1 U

Notes:
J: Indicates constituent was detected at an estimated value.
U: Indicates constituent was not detected at the reporting limit shown.
Detected concentrations above GW-1 are shaded.
Blank results indicate that the constiuent was not analyzed.
N = Normal Sample; FD = Field Duplicate Sample; ug/L = micrograms per liter

Appendix D – Public Notification Letters

1. Draft FIR Transmittal Letter dated 7/16/12 including PIP Mailing List Notice of Document Availability, Public Comment Period, and date of upcoming Public Meeting
2. Final FIR Transmittal Letter dated x/xx/12 including PIP Mailing List Notice of Document Availability (to be included in the final document version)

July 16, 2012

Mr. Gerard Martin
Massachusetts Department of Environmental Protection
Southeast Regional Office
Bureau of Waste Site Cleanup
20 Riverside Drive, Lakeville, Massachusetts 02347

Dear Mr. Martin:

Re: Public Comment Draft
Phase IV Final Inspection Report
100 Neponset Street
Walpole, Massachusetts
RTN 4-3024222

On behalf of Baker Hughes, Inc. (BHI), AMEC Environment and Infrastructure (AMEC) is providing this Public Comment Draft of the Phase IV Final Inspection Report (FIR) for the Bird Machine Company Site at 100 Neponset Street in Walpole, Massachusetts. BHI is submitting this FIR pursuant to 310 CMR 40.0870 of the Massachusetts Contingency Plan (MCP). The Site is listed as Release Tracking Number (RTN) 4-3024222 under the MCP.

This Draft FIR documents the construction of a Comprehensive Remedial Action that is expected to be a Permanent Solution for the Site, and that was planned in the Phase IV Remedy Implementation Plan. A Permanent Solution will achieve a condition of No Significant Risk for current and reasonably forseeable site uses. As documented in the Class C-2 Response Action Outcome Statement submitted to the Massachusetts Department of Environmental Protection (MassDEP) on December 16, 2011, the Site already achieves the requirements of a Temporary Solution.

The public comment period for the Draft FIR will begin on July 17, 2012 and will extend through August 6, 2012. Comments can be submitted to Chris Clodfelter of Baker Hughes at the following address:

Chris Clodfelter
Senior HS&E Specialist
Baker Hughes Incorporated
2929 Allen Parkway
Suite 2100
Houston, Texas 77019-2118
Office: 713.439.8329 | Fax: 713.439.8383

Copies of the Draft FIR are being provided to the MassDEP Southeast Regional Office (File Review Telephone Number: 508-946-2718) and to the Walpole Public Library (Telephone Number: 508-660-7341) in accordance with the Public Involvement Plan (PIP) for the Site. The Draft FIR is also being provided today to the Town of Walpole for upload to their website for this property: http://walpole-ma.gov/BirdMachine.htm. A copy of the executive summary of the Draft FIR, which summarizes the findings and conclusions presented in the document, is attached to this letter. A copy of this letter including the executive summary is being sent via US Mail to the PIP Mailing List for the Site.

Baker Hughes will present a summary of the Draft FIR and be available to answer questions at a public meeting scheduled for Tuesday July 31, 2012 at 7pm, at the Walpole Town Hall. Please contact me if you have any questions regarding the Public Involvement process for this document.

Sincerely,

Kim M. Henry
LSP No. 7122

cc:

Mr. Michael Boynton, Walpole Town Administrator
Ms. Robin Chapell, Walpole Health Agent
Ms. Landis Hershey, Walpole Conservation Agent
Ms. Deborah Burke, Key Petitioner
Public Involvement Plan Mailing List

Enclosure:

Copy of Draft Phase IV FIR Executive Summary

COPY OF DRAFT PHASE IV FIR - EXECUTIVE SUMMARY

On behalf of Baker Hughes, Inc. (BHI), AMEC Environment & Infrastructure, Inc. (AMEC) completed this Phase IV Final Inspection Report (FIR) for the former Bird Machine Company (BMC) Site located in Walpole, Massachusetts. BHI is submitting this FIR pursuant to 310 CMR 40.0870 of the Massachusetts Contingency Plan (MCP). This FIR documents the construction of a Comprehensive Remedial Action that is expected to be a Permanent Solution for the Site, and that was planned in the Phase IV Remedy Implementation Plan (RIP; AMEC 2012). A Permanent Solution will achieve a condition of No Significant Risk (NSR) for current and reasonably forseeable site uses. As documented in the Class C-2 Response Action Outcome (RAO) Statement submitted to the Massachusetts Department of Environmental Protection (MassDEP) on December 16, 2011, the Site already achieves the requirements of a Temporary Solution (AMEC 2011a).

Release Abatement Measures (RAMs) have been conducted at several locations to reduce the mass and concentrations of contaminants at the Site. The Phase II Comprehensive Site Assessment (CSA) reports (AMEC 2011b, AMEC 2011c) indicate that a condition of NSR exists for all areas of the Site except groundwater, where some monitoring well concentrations exceed drinking water criteria (Massachusetts Maximum Contaminant Levels or MMCLs). It is unlikely that groundwater at the Site will be used for drinking water, but the Site is within a Potential Drinking Water Source Area designated by the Town of Walpole (Walpole 2007). Considering this designation, groundwater at the Site is categorized as GW-1 under the MCP. The CSA reports found no current pathway between Site contaminants and the Town's water supply wells to the northeast, but the potential for contaminant movement from a portion of the Site warrants further monitoring. Background information including a description of RAMs and Site characteristics is summarized in Section 1 of this FIR.

Areas of groundwater contamination exceeding MMCLs have been identified for arsenic, chlorinated Volatile Organic Compounds (cVOCs), and 1,4-dichlorobenzene (DCB). Monitored Natural Attenuation (MNA) consists of active monitoring of natural processes to ensure attainment of cleanup goals, and was selected for implementation in Phase IV. MNA is considered an Active Remedial Monitoring Program under the MCP and has been designed and constructed to provide a Permanent Solution that achieves a condition of NSR. Section 2 of this FIR presents the results of interim investigations planned in the RIP, rationale for changes to the conceptual MNA well locations proposed in the RIP, and the construction details for the resulting monitoring system that was installed based on these data. The potential areas of groundwater contamination above MMCLs are illustrated in three dimensions using a plan view and cross-sections, and the Conceptual Site Model (CSM) is updated.

Section 3 of this FIR summarizes the Operation, Maintenance, and Monitoring (OMM) program based on the plan presented in the RIP, including sampling methods and locations, analytical parameters, and monitoring frequencies, along with data evaluation and reporting methods. Initially the program will include 42 water quality monitoring wells and 19 additional water level monitoring points (wells or surface water benchmarks) measured on a quarterly basis. Methods of determining MNA effectiveness and procedures for changing this program over time are summarized in Section 3, and a list of permits and regulatory approvals relating to the MNA system is provided.

This FIR documents that a remedial monitoring well network to support an Active Remedial Monitoring Program has been designed and constructed in accordance with the plans and specifications presented in the RIP. This program will be implemented under Phase V of the MCP, and the results of performance monitoring conducted through groundwater sampling and data evaluation will be presented in semiannual Remedial Monitoring Reports.

Appendix E – BWSC Transmittal Form & Phase IV Completion Statement
(to be included in paper copy following eDEP submittal of final FIR version)