2012 Annual Report

Penta Wood Products Site

WA No. 132-LRLR-05WE/Contract No. EP-S5-06-01

Prepared for

April 2013

CH2MHILL®

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Abbreviations and Acronyms

BTEX	benzene, toluene, ethylbenzene, and xylene
CAMU	Corrective Action Management Unit
ES	Enforcement Standard
EW	extraction well
gpm	gallons per minute
LNAPL	light nonaqueous phase liquid
LTRA	long-term removal action
MG	million gallons
µg/L	micrograms per liter
mg/L	milligrams per liter
MW	monitoring well
NAPL	nonaqueous phase liquid
ORP	oxidation-reduction potential
PCP	pentachlorophenol
RA	remedial action
scfm	standard cubic feet per minute
USEPA	U.S. Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System

SECTION 1

Introduction

The annual report documents the activities associated with the groundwater long-term remedial action (LTRA) that occurred at the Penta Wood Products Site, as performed by CH2M HILL for the U.S. Environmental Protection Agency (USEPA) under Work Assignment No. 132-LRLR-05WE.

The LTRA includes the following: operation and maintenance and performance monitoring of the groundwater extraction and treatment system; light nonaqueous phase liquid (LNAPL) removal; bioventing system operation and monitoring; groundwater monitoring for long-term monitored natural attenuation; hazardous waste generation and disposal; and site inspections and maintenance.

The continued operation of the groundwater extraction wells has depressed the water table in the LNAPL zone and promoted LNAPL removal. The continued operation of the groundwater extraction wells has also effectively captured and treated groundwater containing 1,000 micrograms per liter (µg/L) or more of pentachlorophenol (PCP) and the overall groundwater concentrations are being reduced to a level that allows natural attenuation to achieve the *Wisconsin Administration Code* NR 140 standards. Treated groundwater has been discharged in accordance the Wisconsin Pollutant Discharge Elimination System (WPDES) permit.

The continuous operation of the LNAPL recovery has reduced the source of PCP to the groundwater. Bioventing operation has promoted natural degradation of the residual diesel fuel petroleum hydrocarbons and PCP in unsaturated zones, including the LNAPL smear zone.

SECTION 2

Groundwater Monitoring

The 11th year of post–remedial action (RA) groundwater monitoring at the Penta Wood Products Site included two groundwater sampling events. The groundwater monitoring network at the site consists of 28 monitoring wells (Figure 1) and five residential wells (Figure 2), although some of the wells are not currently sampled due to redundancy. The semiannual groundwater sampling event was conducted in May 2012 and consisted of sampling five monitoring wells, (MW-12, 15, 19, 22 and 26), five residential wells, and one onsite potable well, along with static water level measurements collected at all monitoring wells, and measurement of LNAPL thickness in monitoring wells where present. The annual groundwater sampling event was conducted in October 2012 and consisted of sampling 16 monitoring wells (MW-02, 03, 05, 06S, 07, 09, 10, 10S, 12, 15, 16, 17, 19, 22, 26 and 28), 5 residential wells (RW-01 through 05), and 1 onsite potable well. MW-10 was unable to be sampled as it appeared to be dry. Presented in this report are the results of the two groundwater sampling events. It is an update of the previous year's report, and updates evaluations based on the new data.

The treatment system operated for approximately 1 year prior to September 2001, when it was shut down to allow for pilot testing and plant modifications intended to help achieve effluent criteria. Since the restart on February 27, 2004, the treatment system has been running continuously with the exception of occasional downtime for routine maintenance and repairs. The October 2012 monitoring well results reflect approximately 8.5 years of system operation since the groundwater treatment system was restarted. The groundwater results also reflect approximately 5 years of bioventing system operations.

During the groundwater sampling events, samples were collected to monitor groundwater contaminant levels. Parameters that were analyzed include the following: PCP; naphthalene; benzene; toluene; ethylbenzene; and xylene (BTEX); dissolved metals; and natural attenuation parameters. A summary of the analytical results for the May and October sampling events is provided in Appendix A, and the natural attenuation parameters that were sampled for in May and October are provided in Appendix B.

Water level and LNAPL measurements were collected to determine the remaining LNAPL thickness and the groundwater flow direction(s) in the unconfined and semiconfined aquifers as described in the following subsections. Groundwater elevations, oil/water interface measurement data, historical LNAPL thickness data, and other observations are included in Appendix C.

Trends in the distribution and concentrations of PCP and other parameters are used with water level measurements to evaluate the effectiveness of the treatment system in capturing the affected groundwater, also known as capture zone analysis, as described in the following subsections. The capture zone analysis and parameters help to assess the effectiveness of the groundwater and LNAPL extraction, treatment, and natural attenuation.

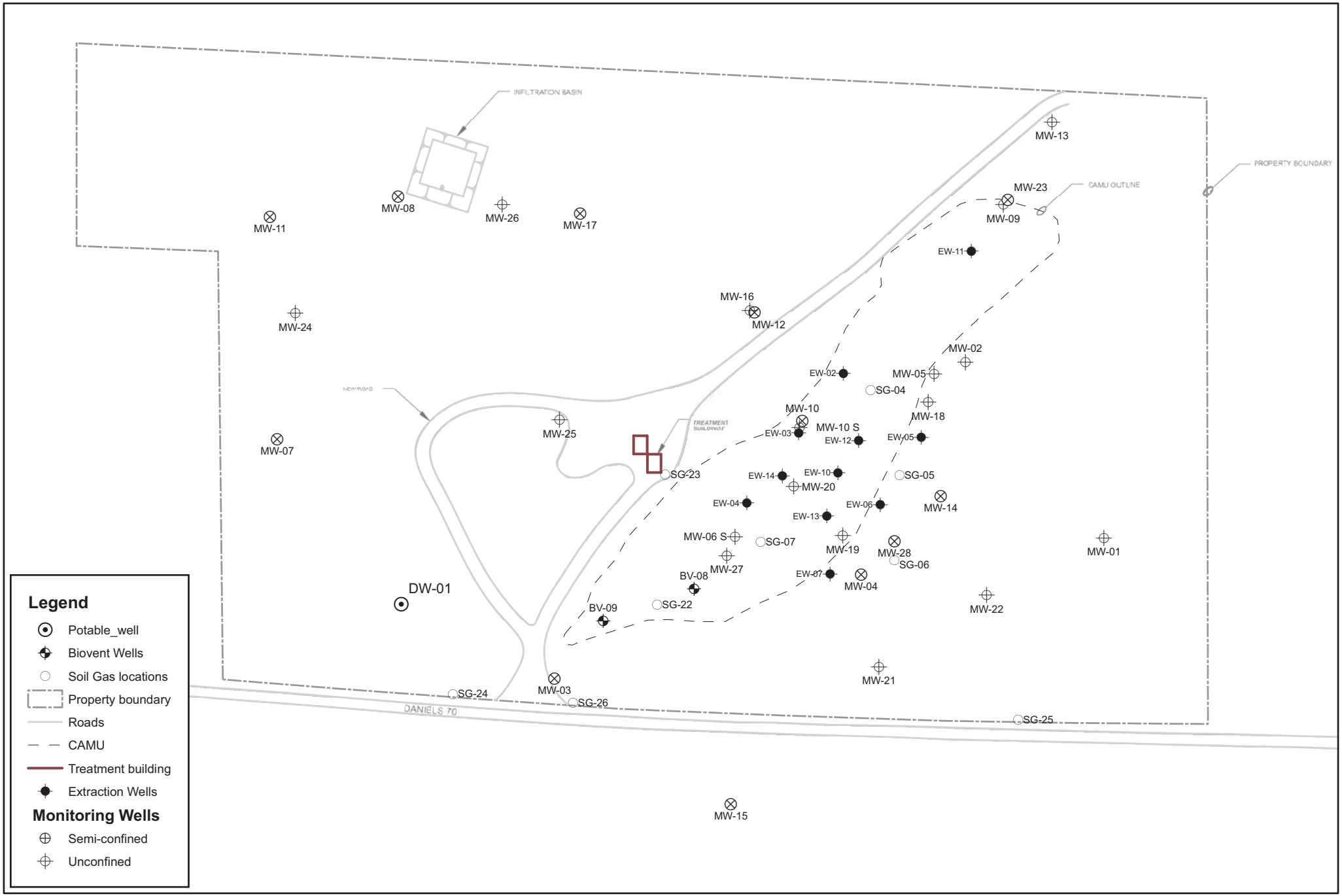

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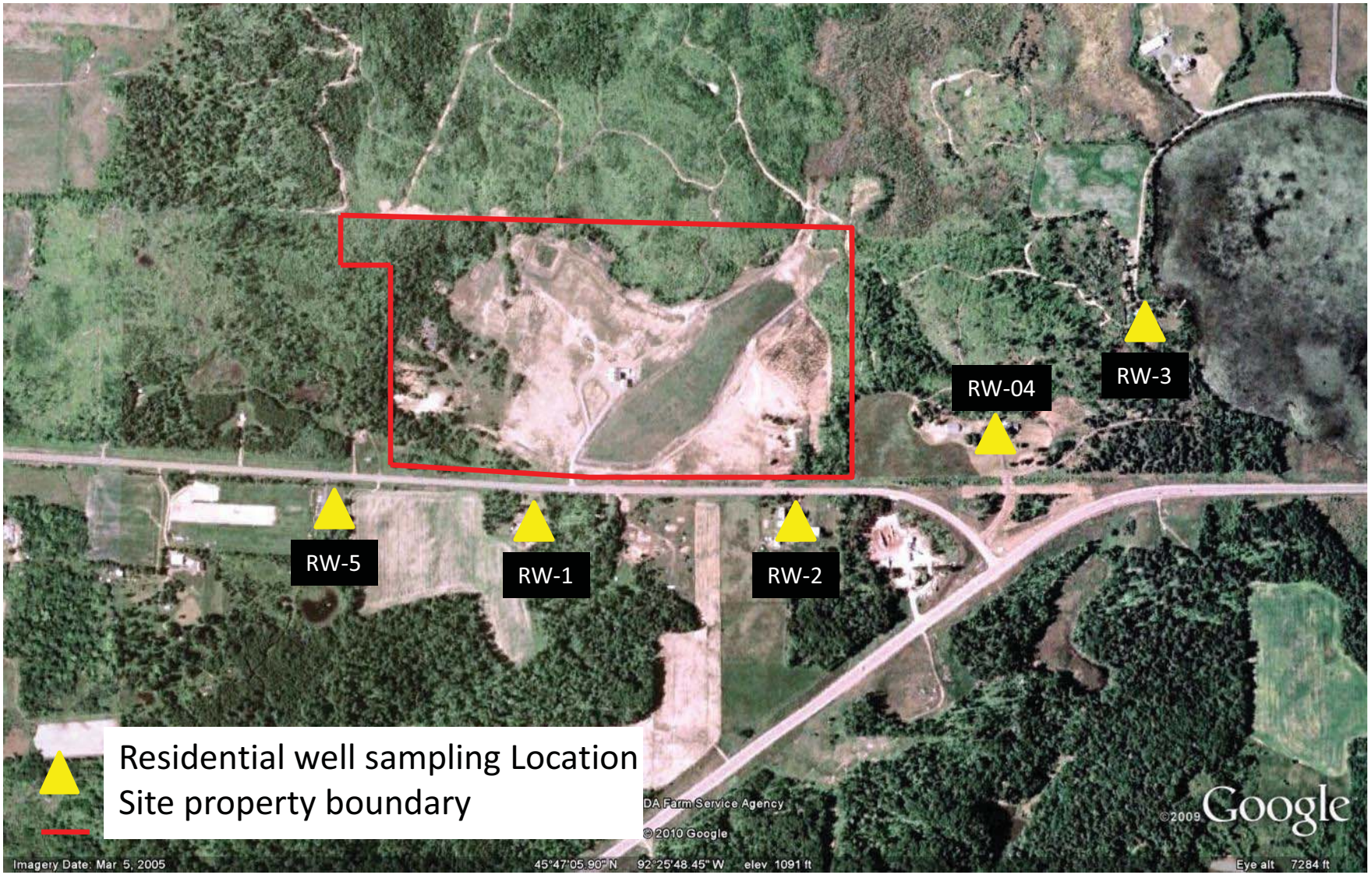
Figure 1

Well Location Map
2012 Annual Report
Pentawood Products Superfund Site
Siren, Wisconsin



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0 ft 1,500 ft

Figure 2
Residential Well Map
Pentawood Products Superfund Site
Siren WI

2.1 Water Levels and LNAPL Measurements

Water levels in monitoring wells were measured in May and October 2012. A water level indicator was used to measure the distance from the top of the inner well casing to the water surface. In wells where LNAPL has been previously detected, the depth to the LNAPL surface (if present) and water surface were measured from the top of the inner well casing using an oil/water interface probe.

Groundwater elevations, oil/water interface measurement data, historical LNAPL thickness data, and other observations are included in Appendix C.

The following subsection discusses LNAPL thickness and distribution, and the effects the groundwater extraction well network has had on the unconfined and semiconfined aquifers.

2.1.1 LNAPL Thickness

LNAPL was observed in four monitoring wells during the annual and semiannual sampling events. MW-10S was observed to be dry during the annual event, and therefore no LNAPL was observed. The observed LNAPL thicknesses are summarized in Table 1.

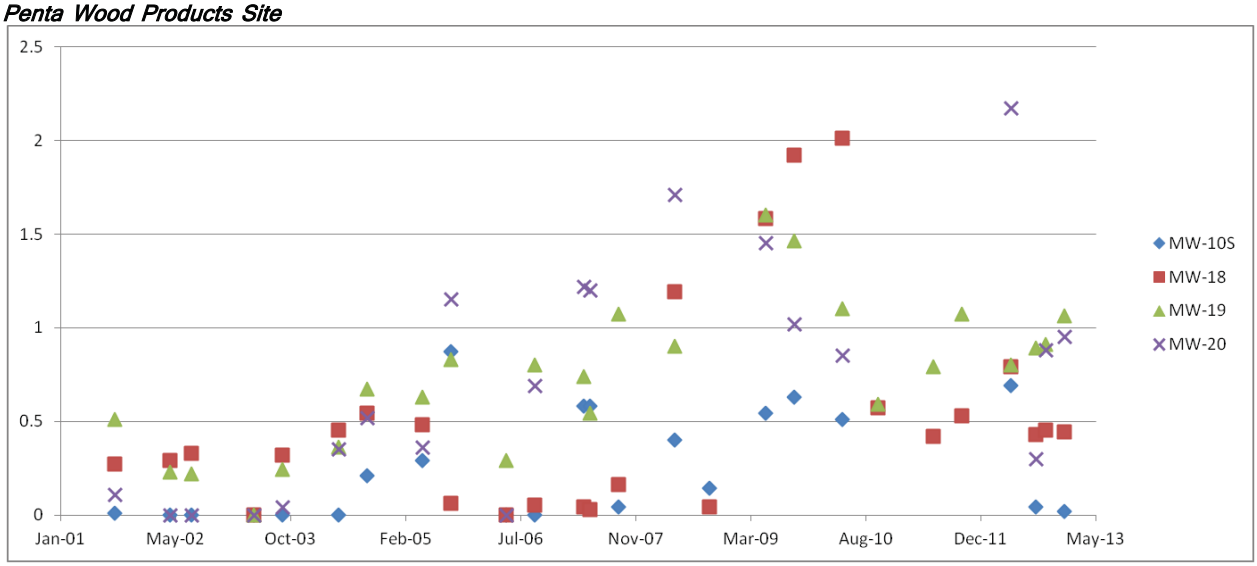
TABLE 1
2012 Monitoring Well LNAPL Measurement
Penta Wood Products Site

	LNAPL Measurement (feet)	
Monitoring Well	**Semiannual Event May 2012**	**Annual Event October 2012**
MW-10S	0.69	Dry
MW-18	0.79	0.45
MW-19	0.80	0.91
MW-20	2.17	0.88

In May 2012, the LNAPL thickness measured in monitoring wells MW-10S, MW-18, MW-19, and MW-20 was slightly higher than in 2011. The October 2012 LNAPL thicknesses measured were similar to the thicknesses observed in 2011. There was a measureable amount of LNAPL in all of the wells, except for MW-10S in October, since it was dry. The decrease in LNAPL thickness from May to October is likely the result of successful LNAPL removal and bioventing, which results in the volatilization of the residual diesel fuel petroleum hydrocarbons and PCP in the LNAPL smear zone. The decrease in LNAPL thickness could also be affected by the steadily increasing groundwater elevation at the site since 2009. As water levels rise, LNAPL becomes retained in the formation, leaving behind a residual LNAPL trapped below the water table. The historical observed LNAPL thicknesses are shown in Figure 3. The observed LNAPL thicknesses have varied since the extraction began controlling the LNAPL extent once the system was turned on in February 2004.

LNAPL-absorbent socks used to remove additional LNAPL from monitoring wells were not installed in 2012, so accurate thickness measurements could be collected. It also should be noted that after the removal of the LNAPL socks in 2010, there was no measurable amount of LNAPL in wells MW-18 and MW-20 in 2011; however, there were measureable levels in 2012.

FIGURE 3
Historical LNAPL Thickness
Penta Wood Products Site



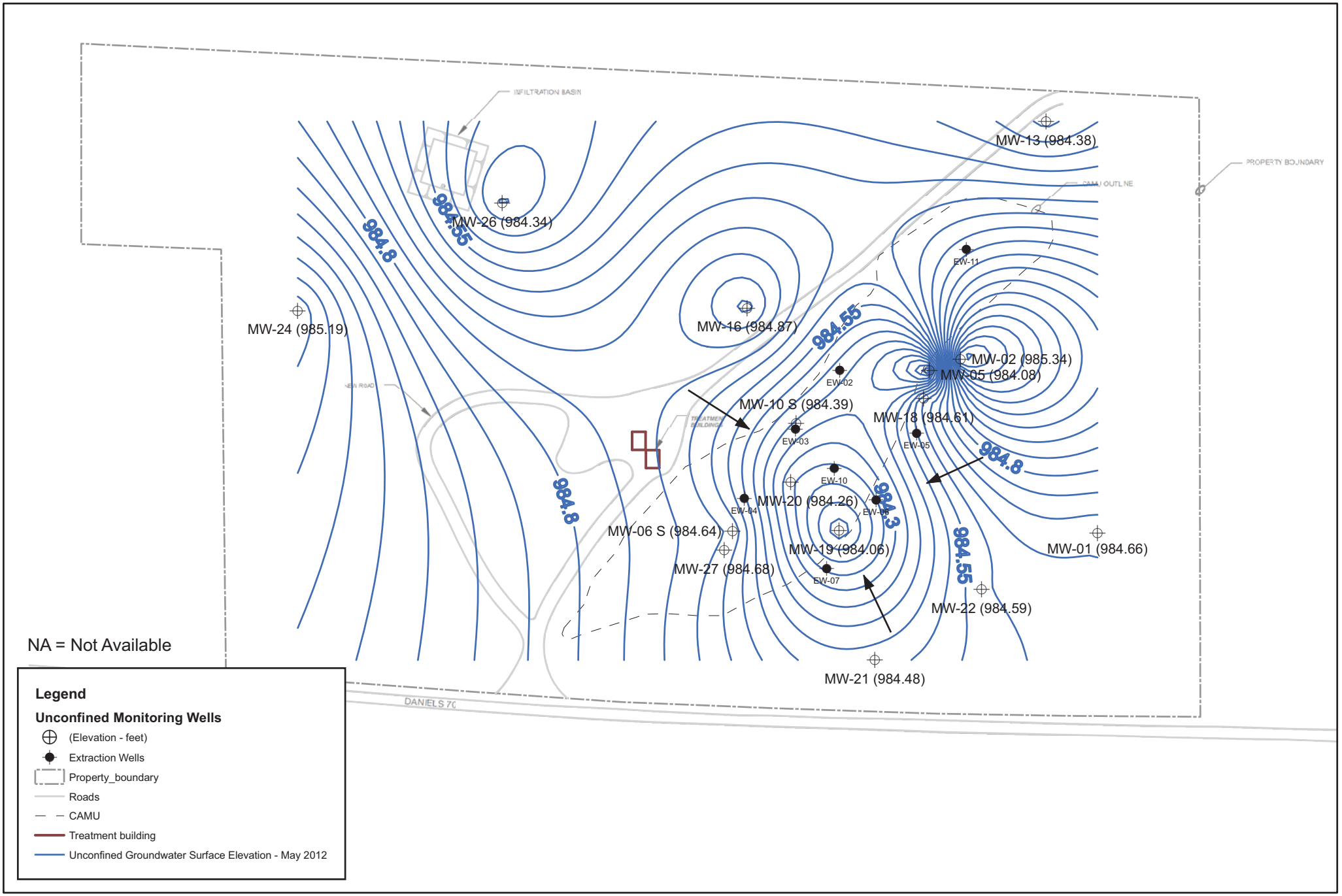
2.1.2 Capture Zone Analysis

The groundwater extraction system at the site was designed to create a depression in the water table promoting migration of contamination toward the extraction wells to enhance the LNAPL recovery at the site. The capture effectiveness was primarily evaluated based on site-specific field data, including potentiometric surface maps and the calculated horizontal gradients as described in the following subsections.

2.1.2.1 Unconfined Aquifer

Potentiometric Surface. The water level elevations recorded in May 2012 and October 2012 continued to show a consistent capture zone in the unconfined aquifer resulting from the operation of the groundwater extraction system. The May 2012 (Figure 4) and October 2012 (Figure 5) groundwater elevation contours indicate a groundwater divide existing beneath the site, running from the southwest to the northeast. The capture zone is bounded by MW-13 on the north, MW-16 on the west, and MW-22 on the east, as indicated by the lower water level elevations observed in the monitoring wells located within or adjacent to the Corrective Action Management Unit (CAMU).

The discharge of treated groundwater into the infiltration basin has continued to show minimal to no response on the unconfined aquifer. In the unconfined aquifer, some variability in the groundwater elevation was observed from 2011 to 2012, although the capture zone appeared to be largely intact. The variability of the water table surface is likely a function of both the influence of the treatment system's pumping wells and varying surface infiltration rates across the site.



NA = Not Available

Legend

Unconfined Monitoring Wells

- (Elevation - feet)
- Extraction Wells
- Property_boundary
- Roads
- CAMU
- Treatment building
- Unconfined Groundwater Surface Elevation - May 2012

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Figure 4

Unconfined Groundwater Elevation - May 2012
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Pentawood Products Superfund Site
Siren, Wisconsin

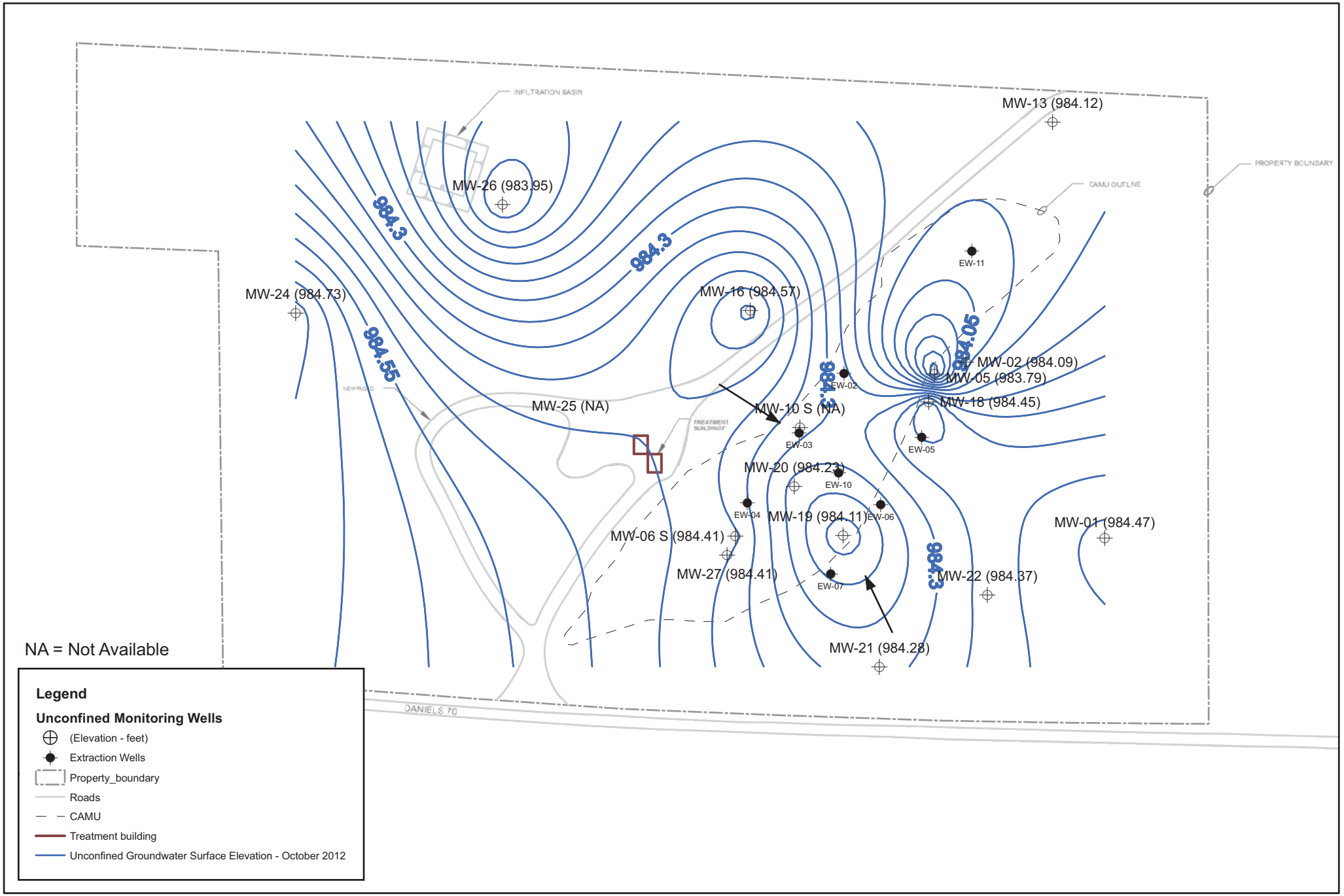

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Figure 5
Unconfined Groundwater Elevation - October 2012
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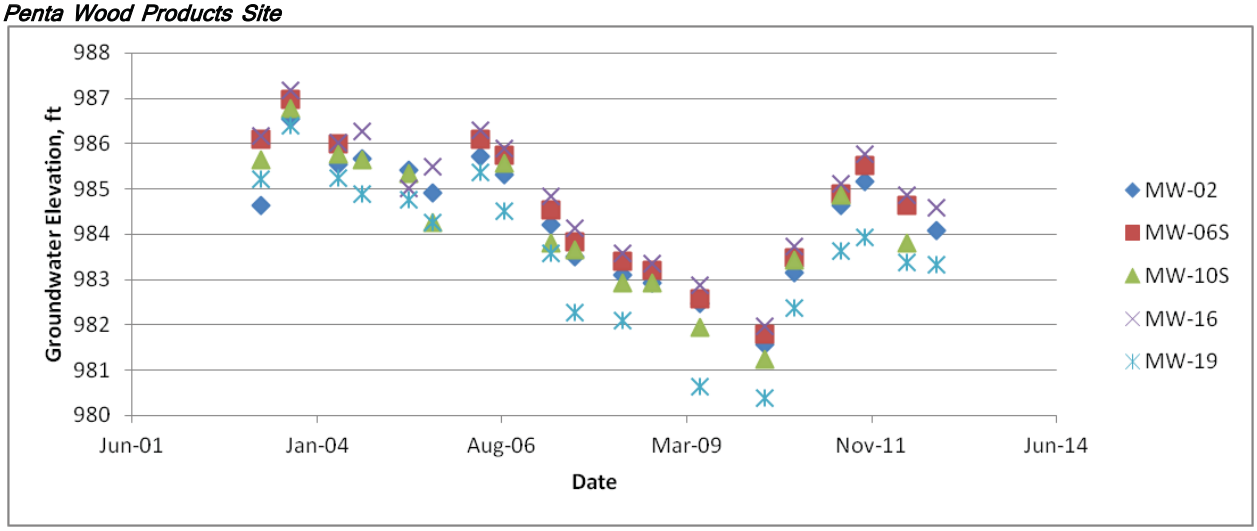
Pentawood Products Superfund Site
Siren, Wisconsin

Water levels in the unconfined aquifer were steadily declining from 2003 through 2009 largely due to reduced precipitation in the region, but in the past 2 years, rainfall totals have increased, and water table elevations have rebounded. During the summer and fall of 2012, reduced rainfall lowered the water table at the site approximately 1 foot or more. Figure 6 shows the trends in the groundwater elevation in unconfined monitoring wells since 2002.

FIGURE 6
Water Elevations in Unconfined Wells
Penta Wood Products Site



Hydraulic Gradients. Horizontal hydraulic gradients were calculated using groundwater elevations from monitoring wells screened in the unconfined aquifer located inside and outside the capture zone created by the extraction wells. The gradients calculated for 2004 (which represents the treatment system operation shortly after startup), 2010, 2011, and 2012 are summarized in Table 2.

TABLE 2
Horizontal Hydraulic Gradients in the Unconfined Aquifer
Penta Wood Products Site

		Gradients							
Monitoring Well Outside Capture Zone	**Monitoring Well Inside Capture Zone**	**May 2004**	**May 2010**	**June 2011**	**May 2012**	**September 2004**	**October 2010**	**October 2011**	**October 2012**
MW-13	MW-05	0.0004 (outward)	0.00048	0.0008	0.0006	0.0011	0.00059	0.0009	0.0006
MW-6S	MW-19	0.0019	0.0019	0.0056	0.0066	--	0.0024	0.0072	0.0057
MW-16	MW-10S	0.0009	0.0010	0.00096	0.0047	0.0015	0.0011	--	--
MW-22	MW-19	0.0012	0.0017	0.0036	0.0040	0.0013	0.0013	0.0046	0.0035

The horizontal gradients indicate that hydraulic capture was maintained at similar levels in 2012 to historical levels. In general, the horizontal gradients were slightly less than in previous years. MW-10S was dry and subsequently not measured. The calculated hydraulic gradients support the definition of the capture zone created by the extraction wells.

2.1.2.2 Semiconfined Aquifer

Potentiometric Surface. Groundwater in the semiconfined aquifer exhibited similar flow patterns between May 2012 (Figure 7) and October 2012 (Figure 8) with a groundwater divide that ran north-south beneath the site.

West of this divide, groundwater flow direction was to the west and northwest. Water levels recorded near the extraction wells in May and more so in October 2012 indicate a localized groundwater depression on the eastern half of the divide that resulted from extraction well pumping. The continued treatment system optimization led to an increased localized depression in the area of the CAMU. Continued pumping is expected to maintain and enlarge the containment.

Hydraulic Gradients. Horizontal hydraulic gradients were calculated using groundwater elevations from monitoring wells screened in the semiconfined aquifer located inside and outside the capture zone created by the extraction wells. The gradients were calculated for 2004, 2010, 2011, and 2012. The calculated gradients are summarized in Table 3.

Operation of the extraction wells and continued treatment system optimization has resulted in an increased capture zone around the extraction wells in 2011 over previous years, which was maintained in 2012. The flowing monitoring well pairs (MW-14/MW-10, MW-23/MW-10, MW-12/MW-10) showed decreased gradients in May 2012 as compared to the previous summer but within the historical range. The gradient form October 2012 showed increased gradient from the previous year. Overall gradients in May and October show an inward flow toward the plume, verifying capture in the semiconfined aquifer.

TABLE 3
Horizontal Hydraulic Gradients in the Semiconfined Aquifer
Penta Wood Products Site

		Gradients							
Monitoring Well Outside Capture Zone	**Monitoring Well Inside Capture Zone**	**May 2004**	**May 2010**	**June 2011**	**May 2012**	**September 2004**	**October 2010**	**October 2011**	**October 2012**
MW-12	MW-10	-0.0005	0.0010	0.0052	0.0013	-0.0034	0.0009	0.0013	0.0014
MW-14	MW-10	-0.0013	0.0014	0.0009	0.001	0.0008	0.0003	0.00088	0.0016
MW-23	MW-10	-0.0005	0.0009	0.00088	0.0003	0.0007	0.0005	0.00067	0.0009

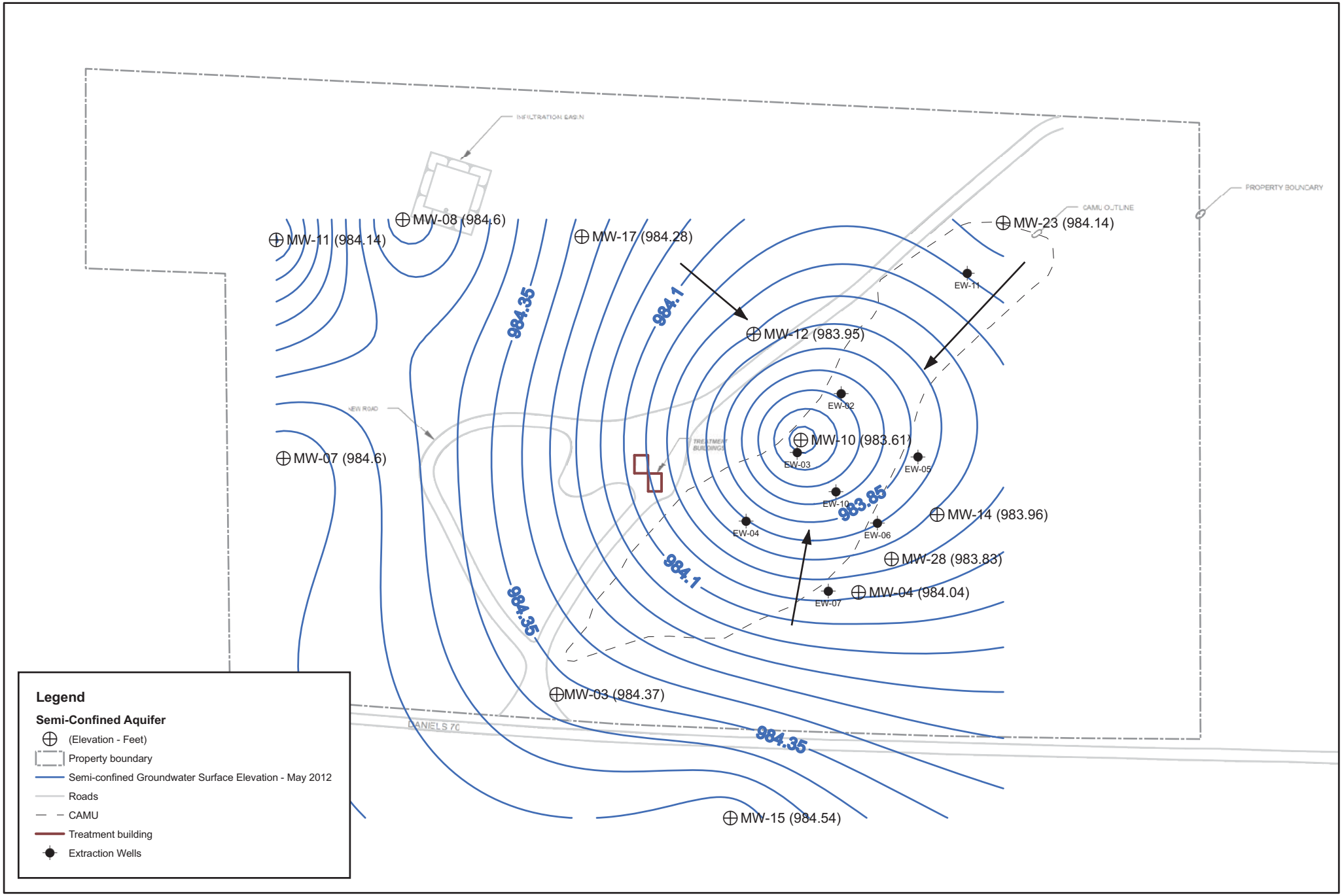


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Figure 7

Semi-confined Groundwater Elevation - May 2012
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Siren, Wisconsin

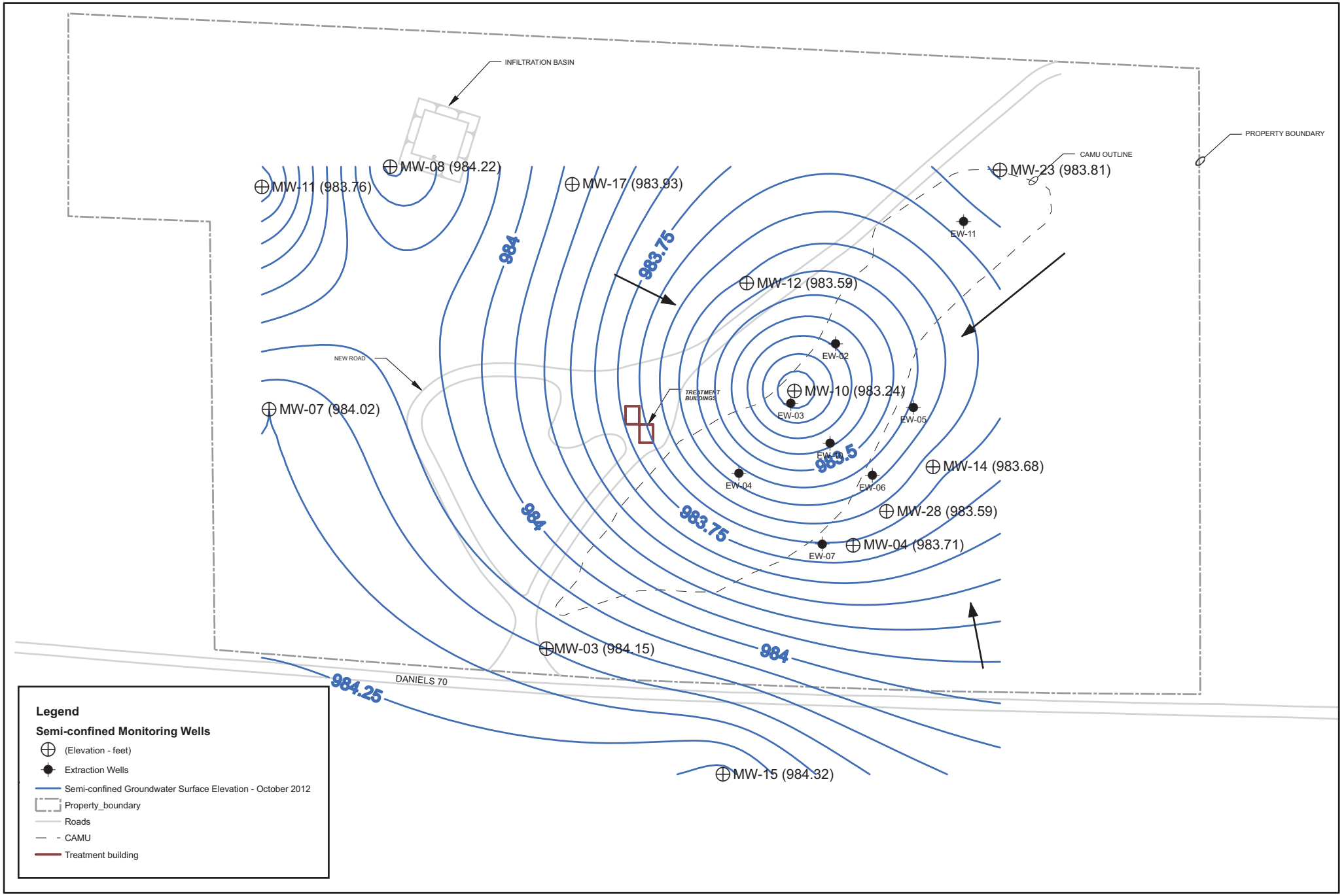

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Figure 8

Semi-confined Groundwater Elevation - October 2012
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Pentawood Products Superfund Site
Siren, Wisconsin

2.2 Groundwater Sampling and Analysis

Groundwater analytical data is collected to evaluate the performance of the RA at the site. The data are analyzed in accordance with the following objectives:

- Confirm that contaminants do not extend to residential drinking water wells.
- Evaluate the current monitoring data to determine whether the plume is declining in size since the February 2004 restart of the treatment system.
- Evaluate the infiltration basin area to determine the effect of re-infiltration on groundwater quality.
- Evaluate the influent data from the groundwater extraction system to determine the amount of PCP removed to date.
- Identify changes needed to groundwater monitoring strategy.

TestAmerica, Inc., of North Canton, Ohio, analyzed both the semiannual (May 2012) and annual samples (October 2012). Quality control samples consisting of field blanks, duplicate samples, and matrix spike/matrix spike duplicate samples were collected at the frequency specified in the *Sampling and Analysis Plan* (CH2M HILL 2000; revised February 2005). All monitoring well and residential well sample result packages were submitted to the USEPA Environmental Services Assistance Team contractor for data validation. The data quality memorandums for the sampling events can be found in Appendix D.

2.2.1 Residential Well Sampling Procedures

Five residential wells and one onsite potable well were sampled during the semiannual sampling (May 2012) and annual sampling (October 2012).

Semiannual sampling (May 2012) results received from TestAmerica, Inc., showed that PCP, BTEX, and naphthalene were not detected in the onsite potable well or residential wells, except for RW01, which had an estimated detection (below the preventative action limit of 0.1 µg/L) of PCP. Since the presence of PCP in the residential wells has been variable, RW01 was resampled on July 11, 2012. The reanalysis confirmed the estimated detection, which was within historical range.

Annual sampling (October 2012) results from TestAmerica, Inc., showed that PCP, BTEX, and naphthalene were not detected in the onsite potable well or residential wells, except for the estimated detections of PCP in all of the wells. Since the presence of PCP in all of the residential wells is unlikely and historical results have not shown confirmed PCP detections, the wells were resampled on December 3 and 4, 2012. PCP was not detected in the reanalysis, and therefore, the initial results were rejected. Contamination during sample preparation is most likely the cause of the initial estimated detections. The residential well sample information (names, addresses, and telephone numbers) and the analytical results were submitted under separate cover letters to Linda Martin, USEPA Work Assignment Manager, on August 8, 2012, and on January 10, 2013 (Appendix E).

2.2.2 Monitoring Well Sampling Procedures

For the semiannual sampling event conducted in May 2012, the following five monitoring wells were sampled:

- MW-12
- MW-15
- MW-19
- MW-22
- MW-26

MW-19 represents the unconfined groundwater in the LNAPL area; MW-15 is used to assess groundwater south of the plume; MW-12 and MW-22 are used to assess the impacts of plant operation to the perimeter of the plume; and MW-26 is used to monitor groundwater quality near the treated water infiltration basin. Sampling of the wells was started on May 22 2012, and completed on May 24, 2012. All monitoring wells were purged of at least three well volumes before sampling. MW-22 was purged and sampled using disposable polyvinyl chloride bailers. The remaining monitoring wells were purged and sampled with dedicated Grundfos pumps.

For the annual sampling event conducted during October 2012, 15 monitoring wells were sampled. The following monitoring wells were sampled for this event:

- MW-02
- MW-03
- MW-05
- MW-06S
- MW-07
- MW-09
- MW-10
- MW-12
- MW-15
- MW-16
- MW-17
- MW-19
- MW-22
- MW-26
- MW-28

Sampling of the wells was completed between October 16 and 18, 2012. Monitoring wells MW-03, MW-05, MW-07, MW-10, MW-12, MW-15, MW-17, MW-19, MW-26, and MW-28, were purged and sampled with dedicated Grundfos Redi-Flo 2 pumps. Wells MW-02, MW-06S, MW-09, MW-16, and MW-22 were purged and sampled using disposable polyvinyl chloride bailers.

Results of the semiannual and annual sampling events are discussed in the following subsections.

2.2.3 PCP Plume

To observe PCP trends over time, the PCP concentration were contoured for the semiconfined and the unconfined aquifers. PCP concentration contours for the unconfined aquifer are presented in Figures 9 (1,000 µg/L) and 10 (1 µg/L). PCP concentration contours for the semiconfined aquifer are presented in Figures 11 (1,000 µg/L) and 12 (1 µg/L). Historical contours are presented to establish a baseline condition before the operation of the groundwater extraction and treatment system. Several previous contours are also presented to show changes in the contours over the last few years.

A comparison of the unconfined 1,000-µg/L PCP contour lines in Figure 9 shows that the high concentration plume has steadily shrunk from the 1994 baseline. In 2010, 2011, and 2012, the levels of PCP in the most contaminated well in the sampling program dropped significantly. In MW-19, the level of PCP dropped from 31,800 µg/L to 4,470 µg/L—a drop of more than 85 percent in 2010 and maintained a similar level at 8,100 µg/L in 2012. The reduction is likely due to a combination of the groundwater extraction system drawing water towards the approximate center of the plume and biodegradation resulting from the availability of oxygen in groundwater around the plume perimeter. The large reductions in the unconfined plume size are evidence that the PCP LNAPL source is not continuing to contribute to the groundwater contamination outside the immediate LNAPL area.

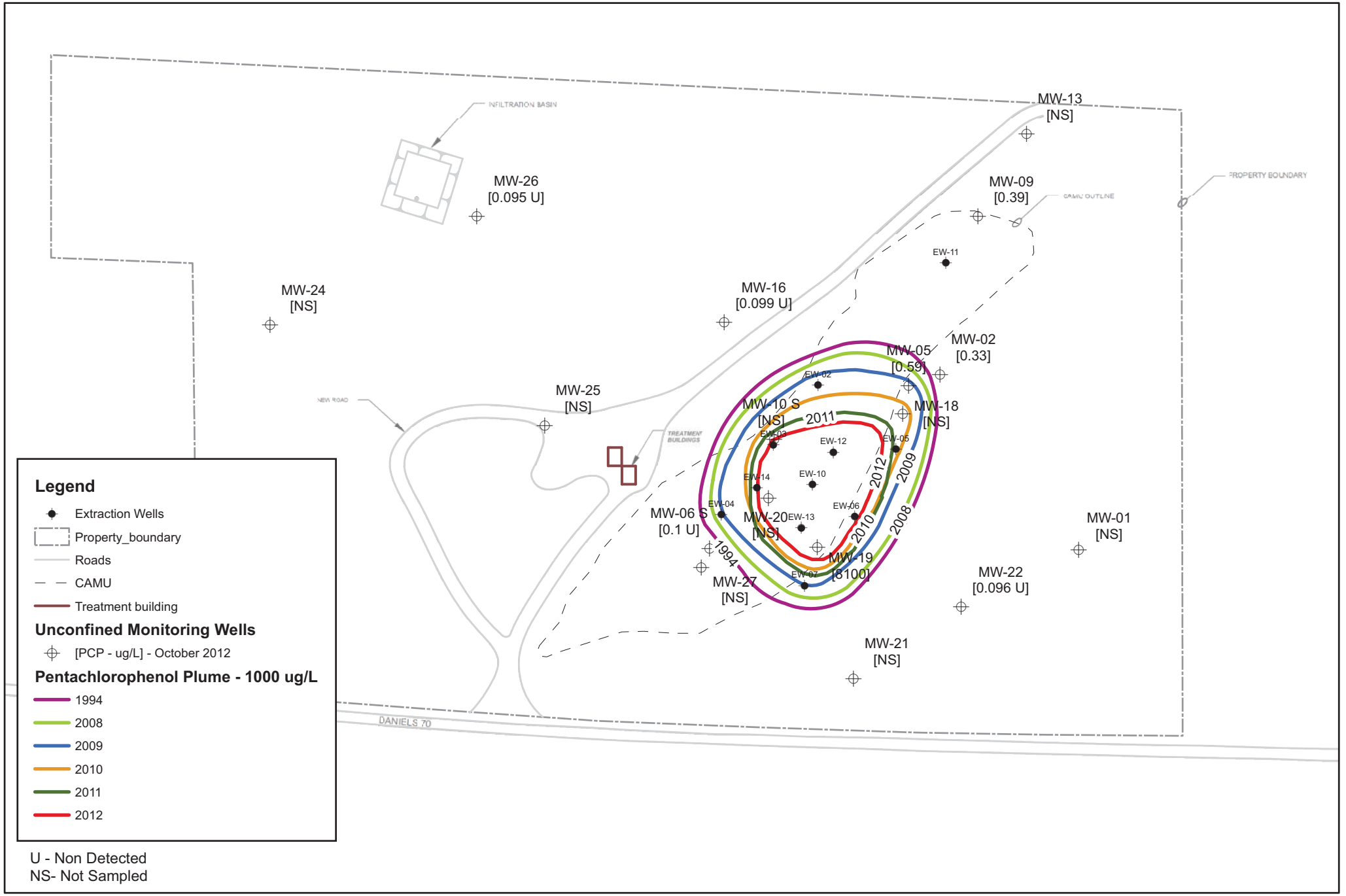

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Figure 9
Unconfined PCP Plume - 1000 ug/L
2012 Annual Report
Pentawood Products Superfund Site
Siren, Wisconsin

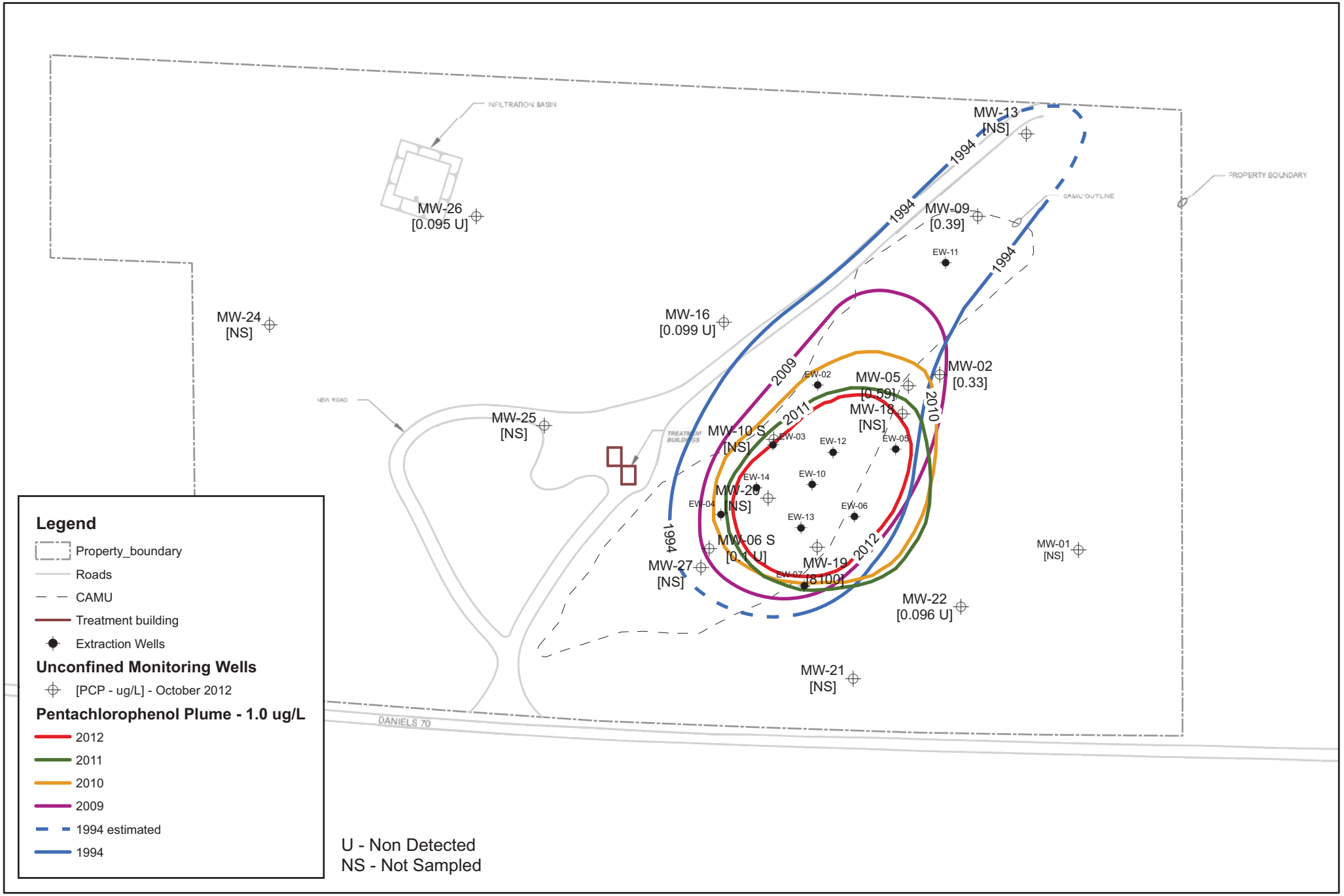

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Figure 10
Unconfined PCP Plume - 1.0 ug/L
2012 Annual Report
Pentawood Products Superfund Site
Siren, Wisconsin

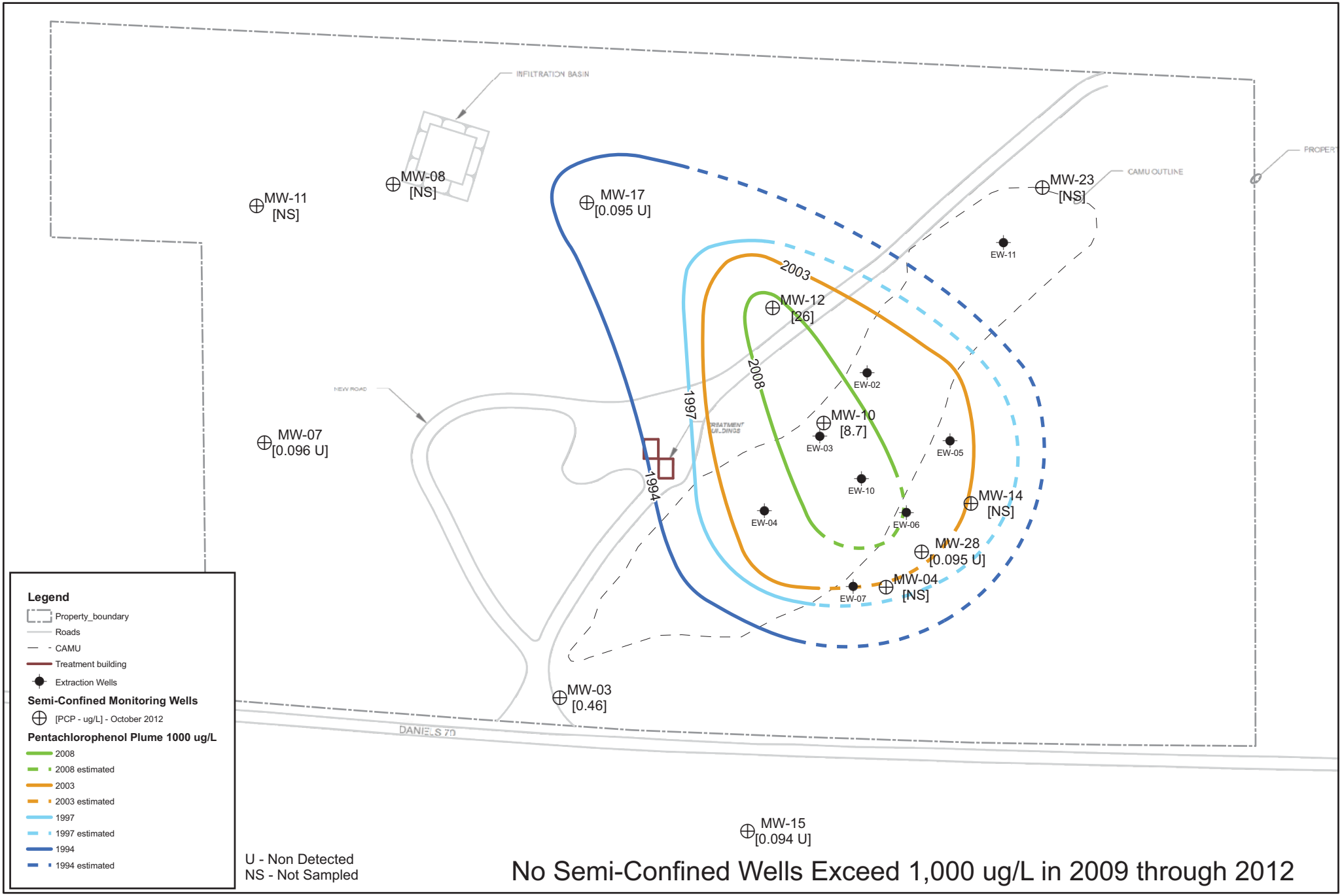

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Figure 11
Semi-Confined PCP Plume - 1000 ug/L
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Pentawood Products Superfund Site
Siren, Wisconsin

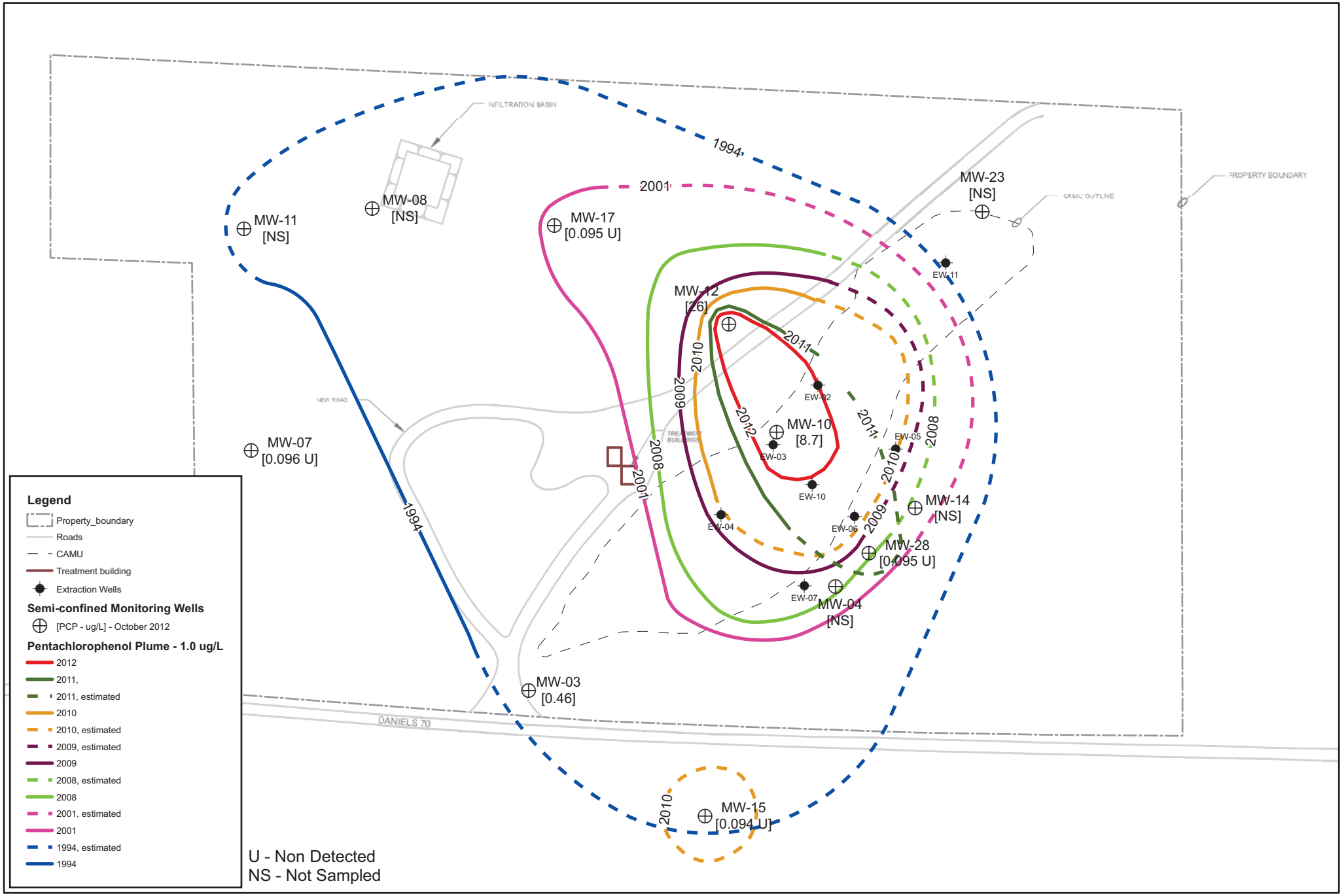

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Figure 12
Semi-Confined PCP Plume - 1.0 ug/L
2012 Annual Report
Pentawood Products Superfund Site
Siren, Wisconsin

A comparison of the semiconfined 1,000-µg/L PCP contour lines in Figure 11 shows that the high concentration plume in the semiconfined aquifer has shrunk significantly from the 1994 baseline. In October 2009, 2010, 2011, and 2012, all semiconfined wells at the site were reduced in concentration to below the 1,000 µg/L level.

The 1-µg/L plume in the semiconfined aquifer, as shown in Figure 12, shrunk similar to the 1,000 µg/L, and is anticipated to continue to shrink. PCP trends for individual monitoring wells within the PCP plume are discussed in the following subsections.

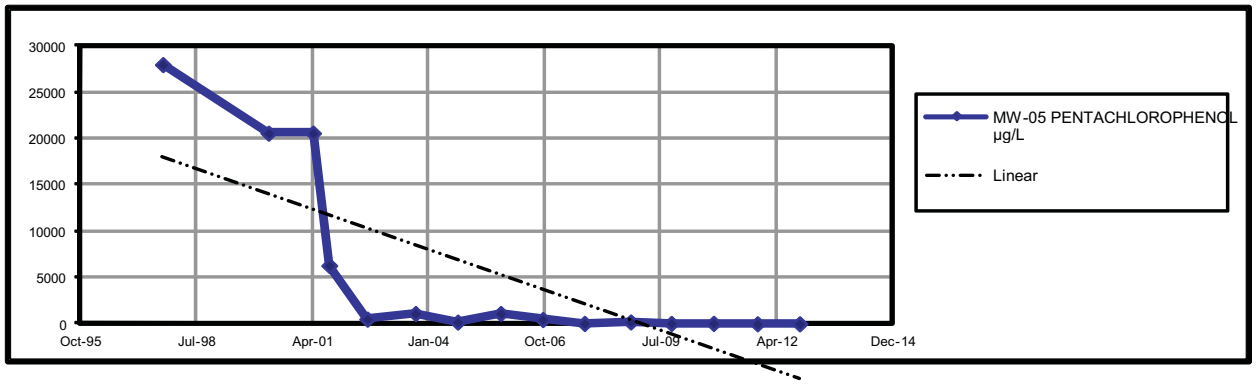
2.2.3.1 MW-15

MW-15 is a semiconfined well and is the southernmost well at the site. It is the last well between the site and adjacent residences. PCP had an estimated detection of 0.024 µg/L in May 2012 and was not detected in the well in October 2012, which is consistent with historical results.

2.2.3.2 MW-05

PCP concentration in monitoring well MW-05 dropped from 20,600 µg/L, before groundwater treatment system operation, to 0.59 µg/L in the most recent sample in October 2012 (Figure 13). PCP concentrations remain low in this area because nearby uncontaminated groundwater is being drawn radially toward extraction well EW-02 and EW-05 since their activation in February 2004, thereby purging the aquifer of PCP. Free product has never been observed in this well. MW-05 is considered an unconfined aquifer well and like similar wells has shown a significant decrease in PCP concentration.

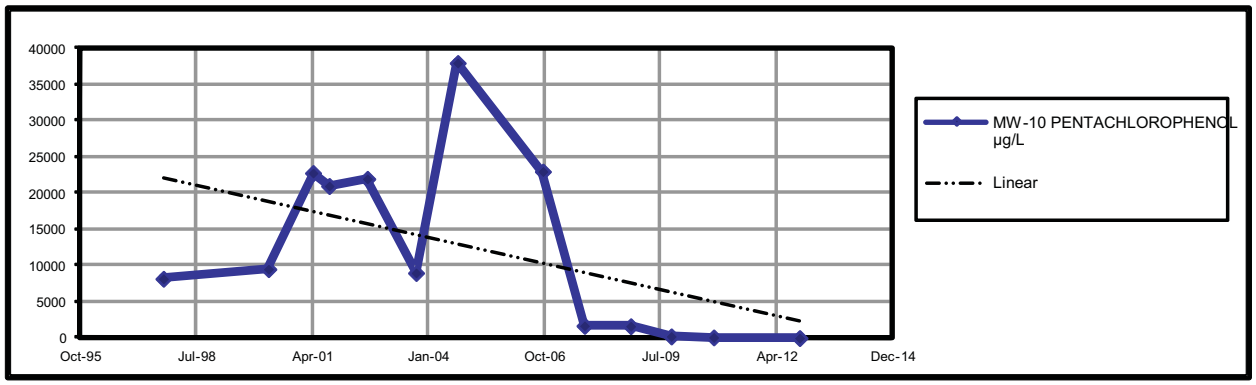
FIGURE 13
MW-05 PCP Concentration
Penta Wood Products Site



2.2.3.3 MW-10

PCP concentrations in MW-10 have declined from a high of 38,000 µg/L in February 2004 to a concentration of 8.7 µg/L in October 2012.

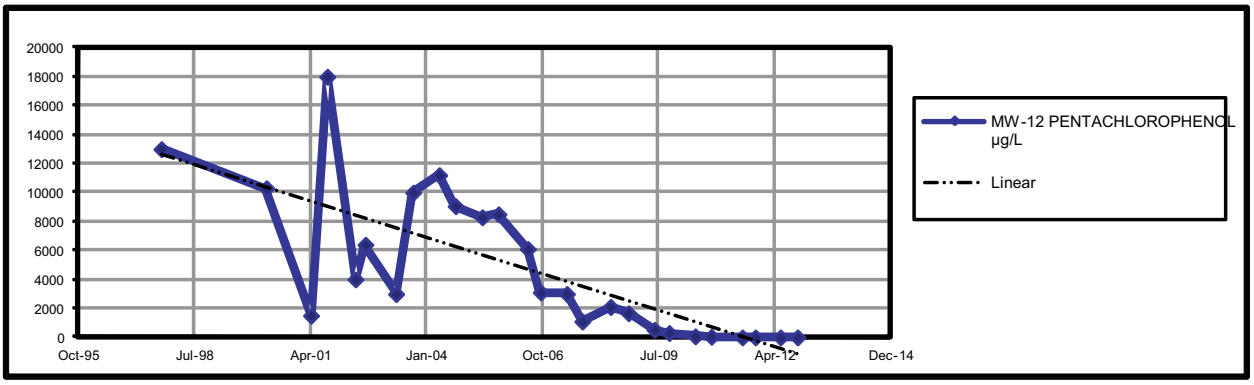
FIGURE 14
MW-10 PCP Concentration
Penta Wood Products Site



2.2.3.4 MW-12

Although monitoring well MW-12, located in the semiconfined aquifer, has shown fluctuations in PCP between groundwater sampling events, there is an overall decreasing trend in the PCP concentration (Figure 15). PCP has declined from the maximum concentration of 18,000 µg/L in September 2001 to 26 µg/L in the most recent sample in October 2012. Free product has never been observed in this well.

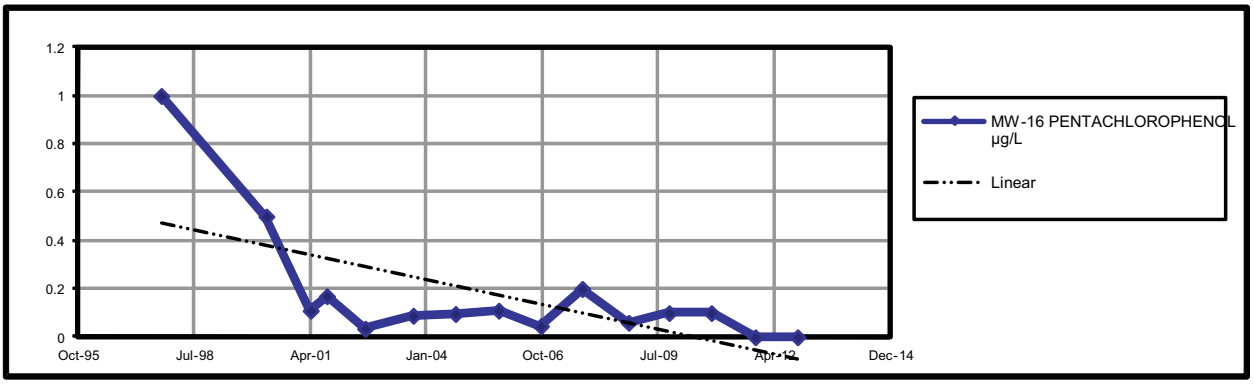
FIGURE 15
MW-12 PCP Concentration
Penta Wood Products Site



2.2.3.5 MW-16

Monitoring well MW-16 is an unconfined well located just outside the area where LNAPL is present. It has consistently had low concentrations of PCP, as shown in Figure 16. The highest concentration of PCP in the past 5 years was observed at 0.2 µg/L in September 2007. PCP was not detected in October 2012.

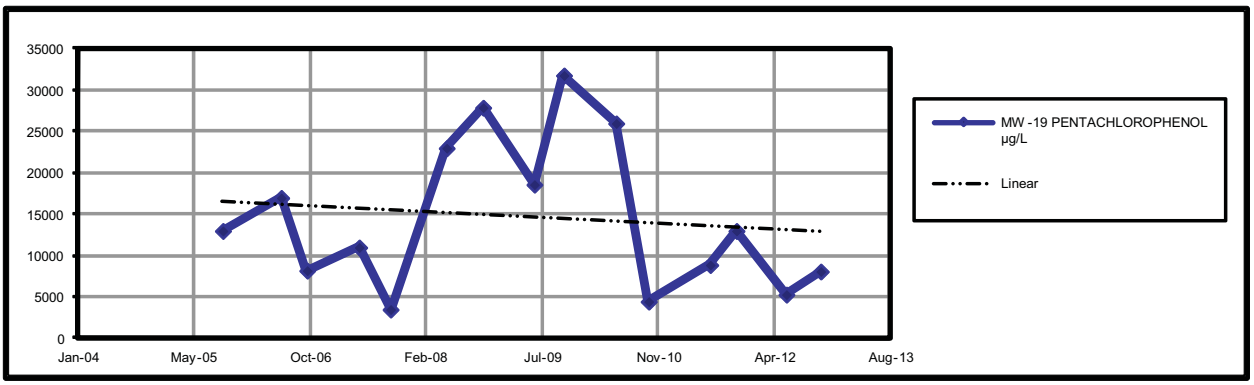
FIGURE 16
MW-16 PCP Concentration
Penta Wood Products Site



2.2.3.6 MW-19

LNAPL has been present in MW-19 since monitoring began, and entrainment of LNAPL droplets in the sample will have notable effects on PCP concentrations. The PCP concentrations were measured at 5,300 µg/L in May 2012 and 8,100 µg/L in October 2012, which is less than what was observed in 2011. Although variability of PCP concentrations in samples collected from wells with LNAPL is expected, in the most recent 3 sampling events the levels in PCP are lower than the previous 2 years.

FIGURE 17
MW-19 PCP Concentration
Penta Wood Products Site



2.2.3.7 Naphthalene

Naphthalene was detected in monitoring well MW-19 at concentrations of 50 µg/L in May 2012 and 8.4 µg/L in October 2012. The concentrations have been continually decreasing from 5,260 µg/L since 2000.

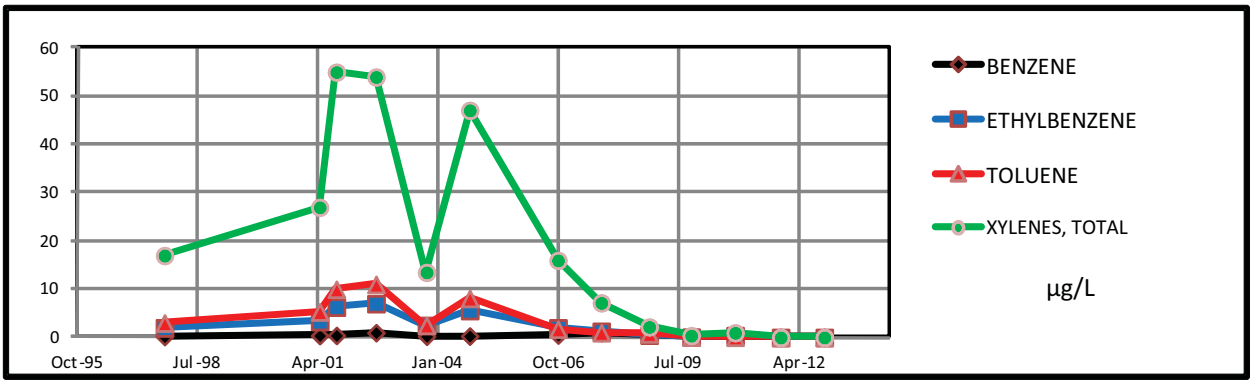
2.2.3.8 BTEX

BTEX has historically been detected in three wells, but was only detected in MW-19 during the fall 2012 sampling event.

2.2.3.9 MW-10

Since 2004, a consistent decrease in BTEX concentrations has been observed. The concentration of ethylbenzene has decreased from 5.58 µg/L in 2004 to nondetected in 2012, toluene has decreased from 8.09 µg/L in 2004 to nondetected in 2012, and xylene has decreased from 47.1 µg/L in 2004 to nondetected in 2012.

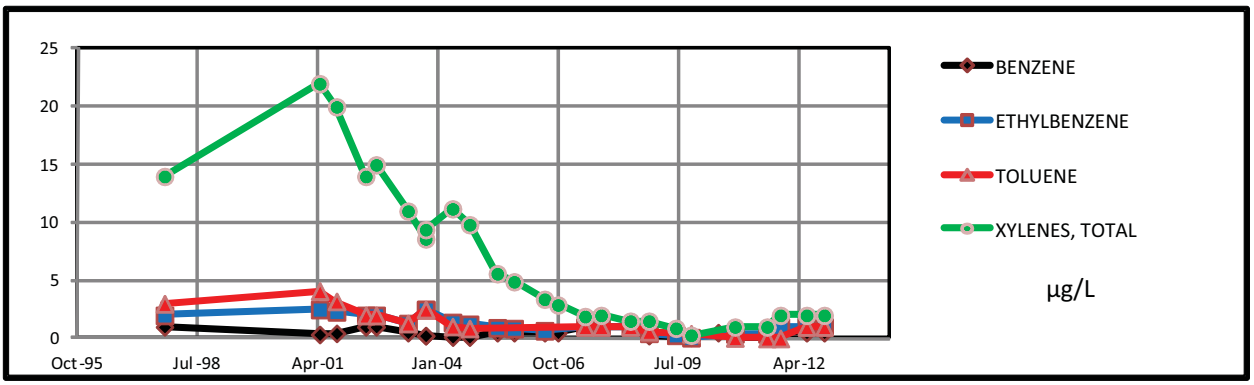
FIGURE 18
MW-10 BTEX Concentrations
Penta Wood Products Site



2.2.3.10 MW-12

The BTEX concentrations have shown steady declines especially over the last 5 years. The ethylbenzene concentration has declined from 1.39 µg/L in 2004 to nondetected in 2012, the toluene concentration has declined from 1.03 µg/L in 2004 to nondetected in 2012 and the xylene concentration has declined from 11.2 µg/L in 2004 to nondetected in 2012.

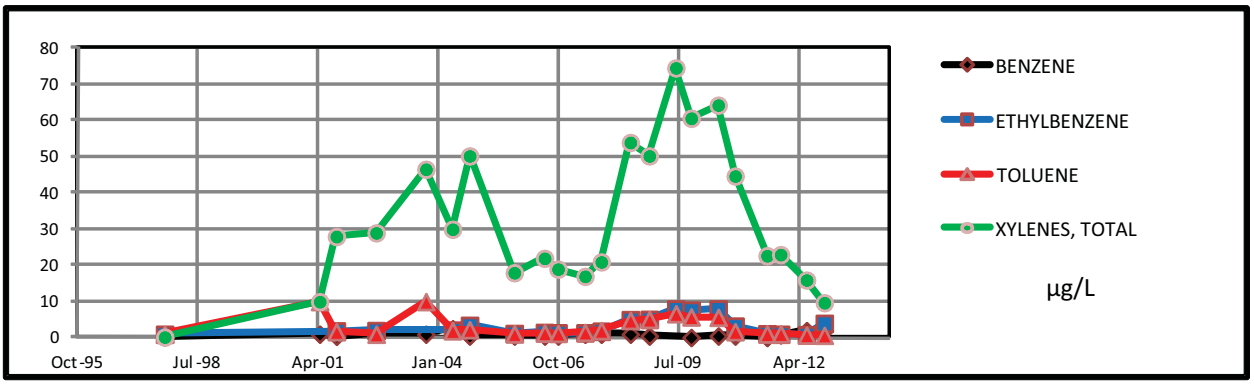
FIGURE 19
MW-12 BTEX Concentrations
Penta Wood Products Site



2.2.3.11 MW-19

The BTEX concentrations have variability over time most likely due to the presence of ongoing nonaqueous phase liquid (NAPL) in the well. Ethylbenzene was estimated detected at a concentration of 0.88 µg/L in May 2012 and was not detected in October 2012. Toluene was estimated detected at a concentration of 0.76 µg/L in May 2012 and 0.67 µg/L in October 2012. Xylenes were detected at a concentration of 16 µg/L in May 2012 and 9.7 µg/L in October 2012. The results from 2012 have shown reductions in concentrations of all analytes.

FIGURE 20
MW-19 BTEX Concentrations
Penta Wood Products Site



2.2.4 Dissolved Metals

Dissolved metals collected from wells sampled in May and October 2012 at the site include the following: arsenic, copper, iron, manganese, and zinc.

2.2.4.1 Arsenic

Dissolved arsenic was detected in several wells at the site; concentrations of arsenic for MW-12 (1.2 µg/L), MW-17 (1.2 µg/L), and MW-26 (1.1 µg/L) were above the Wisconsin Department of Natural Resources (WDNR) Preventive Action Limit for arsenic of 1 µg/L but below the federal maximum contaminant level of 10 µg/L. The 2012 concentrations of arsenic are similar to 2011 and are within the historically levels at the site.

2.2.4.2 Copper

Only two estimated detections of dissolved copper were found in October 2012. All were well below the WDNR preventive action limit of 130 µg/L, similar to previous years.

2.2.4.3 Iron

In May and October 2012, dissolved iron was detected above the WDNR Preventative Action Limit of 0.15 milligrams per liter (mg/L) in the following wells: MW-02 at 0.81 mg/L and MW-05 at 2.7 mg/L. In addition, dissolved iron was detected in MW-03 at 0.26 mg/L, MW-07 at 0.23 mg/L, MW-10 at 0.19 mg/L, and MW-16 at 0.18 mg/L, below the WDNR Enforcement Standard (ES) of 0.3 mg/L. Elevated iron concentrations are an indicator of natural attenuation. The iron concentrations reported in 2012 are similar to the concentrations reported in 2010 and 2011.

2.2.4.4 Manganese

In May and October 2012, dissolved manganese exceeded the WDNR ES of 0.05 mg/L at four wells (MW-05, MW-10, MW-12, and MW-19) ranging from 0.41 mg/L (MW-12) to 7 mg/L (MW-05). An additional six monitoring wells (MW-02, MW-03, MW-06S, MW-07, MW-16, and MW-22) had dissolved manganese detected at concentrations ranging from 0.0039 mg/L (MW-06S) to 0.025 mg/L (MW-02) below the WDNR ES of 0.05 mg/L. Elevated manganese concentrations are an indicator of natural attenuation. The manganese concentrations reported in 2012 are similar to concentrations reported in 2010 and 2011.

2.2.4.5 Zinc

Dissolved zinc was not detected in any well in May or October 2012, similar to previous years.

2.2.5 Natural Attenuation Parameters

Natural attenuation is a remediation approach that relies on natural processes that work to reduce mass and concentration of contaminants in soil and groundwater. Natural attenuation processes include dispersion, dilution, abiotic transformation, volatilization, sorption, and biodegradation. Biodegradation is often the most important process for compounds that can be transformed or reduced by indigenous microorganisms.

Appendix B contains a table presenting the natural attenuation parameters for each well as measured since 1997.

2.2.5.1 Oxidation/Reduction

Evaluation of the data generated during 2012 suggested that areas at the perimeter or outside the PCP plume are under slight to strong oxidizing conditions as shown by elevated oxidation-reduction potential (ORP). Overall, the ORP levels in 2012 are slightly increasing from 2011; therefore, reductive dechlorination is most likely occurring. ORP measurements at wells in the most concentrated area of the PCP plume (greater than 1,000 μg/L) have not been able to be measured because of the possibility of LNAPL affecting the field measurements. It is expected that the wells within the most concentrated area of the PCP plume would exhibit reducing conditions.

2.2.5.2 Chloride

Elevated chloride concentrations are an indicator of PCP degradation. About 700 μg/L of chloride is produced for each 1,000 μg/L of PCP degraded. Generally, chloride is higher at the plume interior wells than at the perimeter wells. In 2012, the semiconfined wells had chloride levels ranging from 7.8 mg/L (MW-10) to 69 mg/L (MW-03). The unconfined wells ranged from 2.8 mg/L at MW-09) to 19 mg/L at MW-26. Historically, either MW-03 or MW-21 have reported the highest chloride levels, possibly because of their proximity to the highway where influence from seasonal road salting may have caused elevated chloride concentrations.

Since the beginning of groundwater extraction, correlation between PCP degradation and chloride production has been difficult because, as chloride is produced, it is removed by the extraction system, creating a net effect that is difficult to discern.

2.2.5.3 Nitrate

In 2012, nitrate levels remained relatively low, ranging from nondetectable (less than 0.1 mg/L) to 5.9 mg/L at MW-09, and remaining comparable to concentrations observed in 2011.

2.2.5.4 Methane

Methane, a product of anaerobic degradation, was detected above the reporting limit in four wells, MW-03 (0.013 mg/L), MW-05 (0.017 mg/L), MW-07 (0.0022 mg/L), and MW-10 (0.012 mg/L), in October 2012. One detection in MW-19 (0.00071 mg/L) was found in May 2012. The absence of methane at or above the detection limit in most wells suggests that degradation is occurring primarily under nonmethanogenic, anaerobic, or sulfate-reducing conditions.

2.2.5.5 Sulfate

Once oxygen and nitrate are depleted, sulfate can also be used as an electron acceptor. Sulfate continues to fluctuate within the plume and has not shown any clear trends. Sulfate levels in 2012 were similar to 2011.

2.2.6 Groundwater Quality near the Infiltration Basin

Large quantities of treated groundwater have been discharged at the site's infiltration basin since the beginning of operation. Approximately 170 million gallons (MG) of groundwater have been re-infiltrated from 2004 through 2012. The water would be expected to displace groundwater over a considerable area. The re-infiltration of the treated groundwater helps to maintain a water balance to offset the extracted volume of water.

2.2.6.1 Unconfined Aquifer

MW-26 is used to determine the effects that the infiltration basin has on the unconfined aquifer in the area. PCP, methane, nitrate, iron, and manganese concentrations in MW-26 have remained similar to background levels, as would be expected for the discharge of treated groundwater. Sulfate concentrations have increased from a background value of less than 10 mg/L to a high of 2,360 mg/L in June 2009, but in the most recent samples collected in October 2012 the sulfate levels were 200 mg/L.

The water discharged at the infiltration basin had been previously extracted from an area of high PCP concentrations and treated to remove dissolved PCP. Chloride does not change significantly during the treatment of the extracted groundwater. A baseline chloride concentration was not measured in MW-26 before the operation of the groundwater treatment system. However, chloride concentrations decreased from 30 mg/L in 2001 to 11 mg/L in 2003 while the treatment system was shut down for renovations. Chloride concentrations increased after the treatment system was restarted in 2004, and have ranged from 17 to 203 mg/L, with the most recent concentration of 19 mg/L in October 2012.

2.2.6.2 Semiconfined Aquifer

MW-17 is used to determine the effects of the infiltration basin on the semiconfined aquifer. MW-17 is sampled annually for PCP and natural attenuation parameters. PCP, methane, manganese, and iron in MW-17 have remained similar to background levels. Nitrate concentrations dropped in 2009 because the source area groundwater has minimal nitrate; however, they increased to 5.18 mg/L in 2010, which is similar to the levels experienced from 2005-2008. Nitrate dropped again in 2011 to 3.9 mg/L but increased to 4.7 mg/L in 2012. Sulfate concentrations have remained close to the background value of 10 mg/L but did increase in 2012 to 23 mg/L. The water discharged at the infiltration basin was extracted from an area of high PCP concentrations and treated to remove dissolved PCP. Chloride does not change significantly during the treatment of the extracted groundwater. The background chloride level of 4.8 mg/L measured in 1997 has increased to 16 mg/L in October 2012.

Another benefit of re-infiltrating groundwater is that treatment results in aeration and re-oxygenation of the groundwater. A groundwater divide in the semiconfined aquifer exists at the location of the infiltration basin; therefore, a portion of this oxygenated water should flow towards the extraction wells and the PCP plume and provide a supply of oxygen for aerobic biodegradation of the PCP.

2.3 Summary

Groundwater treatment system operation and optimization has led to continuous capture of site contaminants. Similar to previous years, the capture zone can be observed in potentiometric surface maps from data collected in May 2012 and October 2012, in both the unconfined and semiconfined aquifers.

LNAPL was present in four unconfined aquifer wells (MW-10S, MW-18, MW-19, and MW-20) in May 2012 and three (MW-18, MW-19, and MW-20) in October 2012. LNAPL was observed in the same wells that have historically contained LNAPL.

Results from the residential well and potable well sampling in May 2012 and October 2012, indicate that BTEX and naphthalene are not present in any residential wells or in the onsite potable well. Estimated detections (below the preventative action limit of 0.1 µg/L) of PCP were found in RW01 in May 2012 and in all of the wells in October 2012. Since the presence of PCP in the residential wells has been variable and historical results have not shown confirmed detections, the wells were resampled. The reanalysis confirmed the estimated detection in RW01 in May 2012, which was within historical range. PCP was not detected in the reanalysis in October 2012; therefore, the initial results were rejected.

Large reductions in PCP concentrations in unconfined monitoring wells parallel the reduction in NAPL extent; this is evidence that reduction in the PCP source is occurring at the site. The PCP plume exceeding 1,000 µg/L has been steadily shrinking in the unconfined aquifer centered on the CAMU and is generally the same size as in 2011. The 1 µg/L plume in the unconfined aquifer has shrunk significantly since 1994 and currently occupies nearly the same footprint as the 1,000 µg/L plume.

The PCP plume in the semiconfined aquifer shrunk significantly in recent groundwater events. PCP concentrations in the semiconfined aquifer have been less than 1,000 µg/L since 2009. The 1-µg/L plume in the semiconfined aquifer has shrunk significantly over time and now appears only around the CAMU area where the LNAPL is present. The declining trends in the semiconfined aquifer continued in 2012, with the biggest decrease in PCP concentration from 690 µg/L to 0.12 µg/L in MW-28.

Rapid reductions in PCP in the unconfined aquifer and reduction of LNAPL thickness show evidence of a reduction in the source at the site. Naphthalene and BTEX are also in decline in several wells in the area of elevated PCP. Evaluation of the natural attenuation parameters revealed similar conditions to those in 2011.

2.4 Recommendations

It is recommended that the reduced sampling program be continued in 2013. As the groundwater table continues to rebound, MW-6S will be sampled during the annual round replacing MW-27. MW-28 will continue to be sampled to monitor the plume along the southwestern side of the site.

SECTION 3

Treatment System Operation and Maintenance

The treatment system at the Penta Wood Products Site consists of groundwater extraction and treatment, LNAPL recovery, and bioventing. The groundwater extraction system extracts and treats groundwater containing dissolved-phase PCP and depresses the groundwater table to contain groundwater contamination and allows LNAPL to collect near the extraction wells. The depressed groundwater also exposes additional LNAPL smear zone. The bioventing system was installed to provide oxygen for the aerobic biodegradation of residual diesel fuel petroleum hydrocarbons and PCP in the LNAPL smear zone.

Groundwater treatment system discharge monitoring is performed in accordance with the WPDES permit dated November 2007. The results are available in Appendix F.

The following subsections describe the performance and activities related to the operation of the groundwater extraction and bioventing system.

3.1 Groundwater Extraction System

The following section describes the groundwater extraction system performance, which includes the estimates of groundwater and PCP extracted, operational and maintenance items, and a discussion of the LNAPL and groundwater extraction wells.

3.1.1 Groundwater Extraction and LNAPL Removal Performance

The estimated PCP mass removed from the groundwater in 2012 was approximately 408 pounds and 8,477 pounds since the groundwater extraction began in 2000 (Table 4).

In addition to the PCP mass removed through groundwater extraction, PCP mass is removed through the extraction of LNAPL. The volume of liquid waste that was extracted through the LNAPL recovery system can be used to make a rough estimate of the mass of PCP removed by LNAPL extraction. The plant recovered approximately 49,891 gallons of liquid waste in the separator through 2012. Before 2008, approximately one-half of the liquid waste was water. Continued optimization of the system resulted in less water in the waste oil storage tank and disposed of offsite. The estimated amount of LNAPL extracted from the subsurface is based on the volume accumulated in the storage tank through the year. In 2012, approximately 3,639 gallons of LNAPL was recovered. Assuming an LNAPL density of 0.84 grams per cubic centimeter and a PCP concentration of 5 percent—this volume equates to about 1,277 pounds of PCP present in LNAPL removed in 2012 (Table 5). LNAPL recovery rates increased in 2012 from 2011. This increase is likely due to the fact that the LNAPL extraction system was running more effectively with three additional recovery wells operating than in previous years. The recovery wells installed in early 2011 did not run the entire year as there was a lag time between when the wells were installed and when LNAPL began accumulating in the new wells.

TABLE 4
PCP Mass Removed with the Groundwater Extraction System
Penta Wood Products Site

Operation Period	Volume of Groundwater Extracted (gallons)	Average PCP Influent Concentration (µg/L)	PCP Mass Removed (lbs)
09/27/00 to 12/18/00	11,712,960[a]	12,535	1,224
02/02/01 to 02/08/01	691,200[a]	12,535	72
03/16/01 to 06/10/01	9,288,000[a]	10,356	802
06/15/01 to 09/27/01	6,822,720[a]	7,535	429
		Total PCP Mass Removed from 2000 to 2001	**2,527**
02/27/04 to 12/31/04	18,548,154	9,227	1,427[b]

TABLE 4
PCP Mass Removed with the Groundwater Extraction System
Penta Wood Products Site

Operation Period	Volume of Groundwater Extracted (gallons)	Average PCP Influent Concentration (µg/L)	PCP Mass Removed (lbs)
01/01/05 to 12/31/05	21,374,796	7,300	1,301[b]
01/01/06 to 12/31/06	14,759,392	6,425	791[b]
01/01/07 to 12/31/07	16,551,336	3,557	491
01/01/08 to 12/31/08	18,118,696	3,255	492
01/01/09 to 12/31/09	18,533,648	2,883	445
01/01/10 to 12/31/10	18,561,632	1,948	301
01/01/11 to 12/31/11	17,796,668	1,985	295
01/01/12 to 12/31/12	23,051,892	2,125	408
		Total PCP Mass Removed 2000 to 2012	**8,477**

[a] Volumes are estimated.
[b] Values were revised based on measured volumes. Values previously reported were based on estimated volumes.

TABLE 5
PCP Mass Removed from the Free Product Recovery System
Penta Wood Products Site

Operation Period	Amount of Liquid Extracted (gal)	Amount of LNAPL Extracted (gal)	Amount of Fuel Oil Removed[c] (gal)	Amount of PCP Removed[d] (gal)	Amount of PCP Removed[d] (lb)
2004	7,640	3,820[a]	3,629	191	1,338
2005	3,404	1,702[a]	1,617	85	596
2006	7,550	3,775[a]	3,586	189	1,322
2007	11,079	5,540[a]	5,263	277	1,940
2008	4,002	4,002[b]	3,802	200	1,402
2009	5,090	5,090[b]	4,836	255	1,783
2010	4,987[e]	4,987[b]	4,738	249	1,747
2011	2,500	2,500[b]	2,375	125	876
2012	3,639	3,639[b]	3,457	182	1,277
Total	**49,891**	**35,055**	**33,301**	**1,753**	**12,282**

[a] Assumes 50 percent of the extracted liquid is LNAPL.
[b] Assumes 100 percent of the extracted liquid is LNAPL based on system optimization and observations of waste in storage tank.
[c] Assumes LNAPL is 95 percent of the fuel oil.
[d] Assumes LNAPL is 5 percent PCP.
[e] Includes LNAPL recovered with absorbent socks.

In accordance with the WPDES permit, PCP concentrations in the influent were measured quarterly and are summarized in Table 6. Influent concentrations have continued to decrease year after year. The PCP concentrations in February and May 2012 were elevated over the PCP concentrations the last two quarters of 2012, which could be due to increased pumping rates later in the year.

TABLE 6
Quarterly PCP Influent Concentrations
Penta Wood Products Site

Date	Influent PCP Concentration (µg/L)
February 2012	2,600
May 2012	2,200
July 2012	1,900
October 2012	1,800

As a result of the system operation, there has been a significant reduction in the annual average PCP influent concentrations since the system was initially started in 2004 (result in November 2004 was 9,140 µg/L).

The remaining PCP mass in the aquifer matrix is adsorbed on the aquifer matrix, dissolved in the groundwater, and present in the LNAPL residual zone. The estimated PCP remaining in the aquifer matrix (such as soil) and dissolved in the groundwater is shown in Table 7. The estimated PCP mass remaining in the LNAPL is shown in Table 8. It should be noted that the contaminant mass estimates are based on many simplifying assumptions and are expected to be accurate only to within a one order-of-magnitude range. As a result, the estimates are intended for general comparisons of the relative significance of contaminant mass in different media.

Since the system was restarted in 2004, the system has extracted over 195 MG of groundwater, or approximately 10 pore volumes. In 2012, the system extracted about 23.05 MG (over 1 pore volume) and groundwater extraction rates averaged 58 gallons per minute (gpm) while the system was operating. The effective extraction rate over 2012, which includes time when the extraction wells were not operating, was 37 gpm. With consistent operation, the groundwater extraction system maintained capture of the PCP plume as discussed in the previous section. The 23.05 MG of water treated in 2012 was an increase of 5.26 MG from 2011; this can be attributed to full operation of the new extraction wells that were installed in spring 2011. An increase in PCP concentration in groundwater can be attributed to the new extraction wells installed within the most contaminated parts of the groundwater plume.

3.1.2 Groundwater Treatment System Operation and Maintenance

Continued groundwater treatment system optimization has led to a reduction in carbon changeout frequency, eliminating the need for partial carbon changeouts, and decreasing disposal costs. Optimization of the dosage and monitoring of the pretreatment chemical addition resulted in reduced solids loading to the carbon vessels and extended the operating time between carbon changeouts. The treatment system can operate 20 to 22 weeks and treat approximately 10 to 12 MG of water before requiring a changeout of the lead carbon vessel. A total of two carbon changeouts were completed in 2012.

During 2012 it was noticed that the carbon vessels were developing rusting and pitting on the insides of the vessels including corroding of the headers at the bottom of the vessel. The carbon vessels were shut down and repaired.

3.1.3 LNAPL Extraction Wells Operation and Maintenance

LNAPL removal performance was improved by routinely adjusting the LNAPL pump depth to account for water level fluctuations. The LNAPL pumps have the intake at the top of the pumps and if the water level changes significantly, the pump depth may be too deep and pump only water or to shallow and not pump at all. Therefore, the LNAPL pumps were raised or lowered on a monthly basis in the spring, summer and fall of 2012, to ensure the pump was at the appropriate depth within the extraction well.

TABLE 7
Estimate of PCP Mass Remaining in Soil and Groundwater for 2012
Penta Wood Products Site

Contaminant	Parameter	Unconfined MW-10S, 19, 20 (Area 1)	Unconfined MW-6S, PW01 (Area 2)	Unconfined MW-3 (Area 3)	Unconfined MW-16 (Area 4)	Semiconfined MW-5,10,18 (Area 1)	Semiconfined MW-6, PW-01 (Area 2)	Semiconfined MW-3 (Area 3)	Semiconfined MW-12 (Area 4)	Total Contaminant Mass (lb)
	Aquifer Media Volume (ft^3):	3,540,000	2,790,000	1,800,000	6,100,000	5,900,000	4,650,000	3,000,000	10,200,000	
	Aquifer Water Volume (ft^3):	1,416,000	1,116,000	720,000	2,440,000	2,360,000	1,860,000	1,200,000	4,080,000	
Mass in 2012 (9^{th} Year Following Groundwater Extraction System restarted in February 2004). Based on Groundwater Sampling in October 2012.										
PCP	Conc. (µg/L)	8,100	0.10	0.46	0.10	7.30		0.46	26.0	
K_d[a] = 0.60	Mass in soil (lb)	1,911	0.02	0.06	0.04	2.87	0.0	0.09	17.67	1,932
	Mass in GW (lb)	714	0.01	0.02	0.02	1.07	0.0	0.03	6.60	722
	Total Mass (lb)	**2,625**	**0.08**	**0.08**	**0.06**	**3.94**	**0.0**	**0.13**	**24.28**	**2,654**

[a]K_d from Hydrogeologic Investigation, December 1994.
Contaminant mass estimates are based on many simplifying assumptions and are expected to be accurate only to within a one order-of-magnitude range. As a result, they are intended as general comparisons of the relative significance of contaminant mass in different media.
Soil density = 1.78 grams per cubic centimeter (g/cm^3); ft^3 = cubic feet; GW = groundwater

TABLE 8
Summary of 2012 PCP Mass Estimates
Penta Wood Products Site

Penta Wood Products Site	PCP Mass (lb)	Notes
PCP Mass Remaining		
LNAPL Residual Zone	2,692	Based on original mass less the mass estimated from recovered LNAPL.
Soil (Saturated zone – Adsorbed)	1,932	Based on groundwater concentration and a PCP K_d of 0.6.
Groundwater (saturated zone – dissolved)	722	Based on weighted average groundwater concentrations.
Total PCP Mass Remaining	5,346	
PCP Mass Removed		
Removed by LNAPL Recovery System through 2012	12,282	Assuming LNAPL is 5 percent PCP and based on actual LNAPL recovered.
Removed by GW Extraction System through 2012	8,477	Estimate was revised based on actual GW extraction volumes and concentrations from 2004 through 2012 (see Table 4).
	20,759	

Note: Remaining contaminant mass estimates are based on many simplifying assumptions and are expected to be accurate only to within a one order-of-magnitude range. As a result, they are intended as general comparisons of the relative significance of contaminant mass in different media.

GW = groundwater

3.2 Bioventing System

The bioventing system was installed to provide oxygen for the aerobic biodegradation of residual diesel fuel petroleum hydrocarbons and PCP in the LNAPL smear zone. As the groundwater extraction system extracts and treats groundwater containing dissolved phase PCP, the groundwater table is depressed, which exposes more of the LNAPL smear zone to the air supplied by the bioventing system.

The bioventing system was first started September 24, 2007. Due to the increases of methane and the frozen ground surface (which prevents upward release of the methane and may result in a lateral spreading of the methane to nearby residences), the bioventing system is shut down during the winter months. The system is restarted after the spring ground thaw. In June 2009, the bioventing operation was modified to reduce the operating time to 5 days per month. Evaluation of the monitoring data showed that oxygen levels can reach saturation levels within the first several days of blower operation in the majority of the unsaturated zone and during 1 month of not operating, only a small decrease in the oxygen levels are observed. The effectiveness of the bioventing, therefore, is not compromised by this pulsed operation, which can provide a reduction in operation costs through the lowered energy consumption. Under these parameters, the bioventing system was restarted on April 10, 2012, and operated 5 days per month through October 28, 2012, when the bioventing system was shut down for the winter.

3.2.1 Soil Gas Monitoring

Since startup of the bioventing system, carbon dioxide and methane levels have decreased in the bioventing wells; however, the oxygen level at SG-07S located within the wood chip area have remained at low percentages relative to the other monitored wells. Intermediate wells, deep wells, and shallow wells located outside of the wood chip area have exhibited similar changes in gas composition including increasing oxygen levels and decreasing carbon dioxide levels throughout the months of bioventing activity.

Oxygen has generally stabilized for each well at approximately 20 percent. Methane has not been detected or has been found at low concentrations in these wells after the initial startup. No major temperature changes have been observed that would cause concern for a potential fire hazard. Table 9 provides a summary of the baseline measurements prior to startup, measurements right after the bioventing system was turned on after the winter, and measurements 1 month prior to winter shutdown.

TABLE 9
Bioventing System Soil Gas Measurement Summary
Penta Wood Products Site

	O_2 (%)			CO_2 (%)			CH_4 (%)		
Well ID	Baseline (09/21/07)	Startup from Winter Shutdown (04/10/12)	1 Month Prior to Winter Shutdown (10/24/12)	Baseline (09/21/07)	Startup from Winter Shutdown (04/10/12)	1 Month Prior to Winter Shutdown (10/24/12)	Baseline (09/21/07)	Startup from Winter Shutdown (04/10/12)	1 Month Prior to Winter Shutdown (10/24/12)
Shallow									
SG-04S	21.2	20.9	20.2	0.1	0.1	0.1	0.1	0.0	0.0
SG-05S	17.8	19.9	19.7	1.7	0.3	0.0	0.0	0.0	0.0
SG-06S	17	20.8	20.7	2.3	0.0	0.0	0.0	0.0	0.0
SG-07S	4.3	2.9	2.3	28.5	21.7	26.8	14.1	13.0	9.8
SG-22	0.9[a]	15.9	20.4	27.3	5.0	0.2	18.3[a]	0.0	0.0
Intermediate									
SG-04I	1.4	11.0	19.7	14.9	3.2	0.3	0.0	0.0	0.0
SG-05I	9.2	19.8	19.4	8.1	0.0	0.1	0.0	0.0	0.0
SG-06I	12.8	20.7	20.5	5.5	0.0	0.0	0.0	0.0	0.0
SG-07I	12.5	16.8	20.1	7.9	2.0	0.6	0.0	0.0	0.1
Deep									
SG-04D	1.7	20.9	19.1	14.6	3.2	0.4	0.0	0.0	0.0
SG-05D	1.6	19.9	19.8	14.7	0.0	0.0	0.0	0.0	0.0
SG-06D	6.1	19.7	19.7	11.7	0.3	0.0	0.0	0.0	0.0
SG-07D	2.0	18.6	20.6	16.5	1.2	0.2	0.0	0.0	0.1
Perimeter									
SG-23 (3 feet)	18.3	21.3	20.3	1.7	0.0	0.0	0.0	0.0	0.0
SG-24 (5 feet)	19.1	21.1	21.7	0.7	0.0	0.0	0.0	0.0	0.0
SG-25 (5 feet)	17.9	21.1	21.6	2.3	0.0	0.0	0.0	0.0	0.0
SG-26 (5 feet)	21.3	21.2	21.5	0.0	0.0	0.0	0.0	0.0	0.0

3.2.2 Bioventing System Operation and Maintenance

Process measurements, such as air injection well flow rates and pressures, and vacuum before and pressure after the air injection blower are monitored periodically during the bioventing operation. Measured pressures in each well stabilize at approximately 1 pound per square inch. Air flow rates for the deep bioventing wells (BV-02, BV-03, BV-04, BV-05, BV-06, BV-07, and BV-11) were set between 300 and 430 standard cubic feet per minute (scfm). Air flow rates for each of the shallow bioventing wells (BV-08 and BV-09) were set at approximately 160 scfm. Deep wells were designed for a maximum flow of 500 scfm and shallow wells for a maximum of 200 scfm.

The bioventing system was restarted on April 10, 2012, after the spring ground thaw. The system was shut down for the winter on October 28, 2012.

3.3 Summary

The groundwater extraction system was operated continuously with limited down time for maintenance. More than 23.05 MG of groundwater, or over 1 pore volume, were removed from the extraction zone in 2012. An estimated 408 pounds of dissolved-phase PCP from groundwater was removed. Approximately 3,727 gallons of LNAPL was extracted from the subsurface. Continued attention to optimization of system operations has led to increased operation of the groundwater extraction system and enhancement of the groundwater capture. The capture zone observed in 2011 was maintained in 2012.

Influent concentrations of PCP from the groundwater extraction wells has declined over time from approximately 9,227 µg/L in 2004 to approximately 1,985 µg/L in 2011 showing an overall decline in mass of PCP removed. A slight increase to 2,125 µg/L in 2012 was observed and is likely the result of the contribution from the three new extraction wells targeting the most contaminated areas of the plume. The total amount of PCP removed from the environment by the LNAPL recovery and groundwater extraction systems through 2012 is over 20,759 pounds. A majority of the mass is estimated to be recovered from the LNAPL.

The bioventing system operated for approximately 7 months in 2012. During that time, shallow wells within the wood chip area indicated decreases in oxygen, methane and carbon dioxide concentrations, although well SG-07S showed an increase in carbon dioxide concentrations. The intermediate and deep wells showed a general decrease in oxygen and carbon dioxide and except for SG-07I, which exhibited no readings for methane. Methane was not detected or was found at low concentrations in all of the wells.

The bioventing system was shut down for the winter because of concerns about methane migration within the frozen ground surface. However, based on the relatively low oxygen utilization rate observed during previous years, the oxygen is not expected to drop below the 5 percent minimum level for aerobic biodegradation in the deep and intermediate zones while the bioventing is down for the winter months.

3.4 Recommendations

The bioventing system should continue to operate in 2013, in conjunction with the LNAPL recovery to maximize the LNAPL reductions. Soil gas monitoring will be performed and the bioventing system will be restarted in the spring after the snow melt and the ground thaws. Soil gas measurements will be monitored during startup of the bioventing system in the spring and will then be measured at the start of each monthly operation. The bioventing operation will continue to operate 5 days per month.

Opportunities for continued optimization of the groundwater extraction and treatment system and LNAPL recovery operations will be evaluated throughout the year. The LNAPL recovery pumps will be adjusted monthly to maximize LNAPL recovery from the subsurface. The treatment system will continue to operate through 2013.

SECTION 4

Waste Generation and Disposal Summary

The RA activities at the site result in the generation of hazardous waste. Hazardous waste management procedures for the Penta Wood Products Site (USEPA ID No. WID006176945) are outlined in the *Waste Handling Plan* (CH2M HILL 2012). Table 10 summarizes the amount and type of waste generated in 2012.

TABLE 10
2012 Detailed Hazardous Waste Generation Summary
Penta Wood Products Site

Manifest #	Date	Filter Cake (lbs)	Carbon (lbs)	LNAPL (lbs)	Yearly Total (lbs)
008907770JJK	01/11/12	23,540			
009537213JJK	04/02/12	27,800			
009537215JJK	04/02/12		24,480		
009537218JJK	04/27/12			25,493	
001247868JJK	06/01/12	29,800			
009976264JJK	07/20/12	24,300			
009976296JJK	08/22/12	24,500			
009976291JJK	09/04/12		40,940		
010566171JJK	11/01/12	27,700			
010775304JJK	12/21/12	24,640			
2012 Total (lbs):		**182,280**	**65,420**	**25,493**	**273,193**

Table 11 summarizes the amount of waste generated and disposed of offsite from 2000 to 2012.

TABLE 11
Hazardous Waste Generation Summary
Penta Wood Products Site

Date	Filter Cake (lbs)	Misc. Debris (lbs)	Carbon (lbs)	LNAPL (lbs)	Water (gal)	Yearly Total (lbs)
2000	0	200	6,000	5,009*		11,209
2001	0	400	56,100	6,166*		62,666
2002	0	1,400	48,000	10,790*	27,756	87,946
2003	0	600	0	3,083*	1,376	5,059
2004	155,960	3,200	102,000	53,522*		314,682
2005	178,784	1,290	104,860	23,847*		308,924
2006	112,640	1,200	136,520	52,892*		303,252
2007	174,020	2,200	245,377	77,615*		517,387
2008	211,402	3,176	70,007	28,036		312,621
2009	233,840	1,116	49,757	35,659		320,372
2010	210,940	0	81,227	34,937		327,104
2011	292,903	0	74,247	0		367,150
2012	182,280	0	65,420	25,493		273,193

*Volume shows represents amount disposed of offsite and is estimated to be approximately 50 percent pure LNAPL and 50 percent mixture of water and emulsified LNAPL.

Although there has been over a 5-MG increase in the amount of groundwater treated at the site and an increase in influent concentration, there has been over a 100,000 lb decrease in the production of filter cake. The decrease in filter cake has been achieved through continued optimization of the treatment system operations. The replacement of a polymer pump has allowed for more accurate delivery of polymer, which increases the amount of water that can be removed from the filter cake before disposal. Removing more water from the filter cake reduces the overall weight of the material disposed of offsite. LNAPL recovery has increased since the beginning of 2011.

SECTION 5

Site Inspection and Maintenance

5.1 Community Relations

No community relations issues were encountered in 2012.

5.2 Site Condition

Erosion at the site was almost entirely halted because of erosion control features that are maintained on the site. The grass around the monitoring wells, bioventing wells, and extraction wells was also mowed to maintain accessibility in more frequently travelled areas and to minimize biological hazards in these areas. Health and Safety

No health and safety audit was performed in 2012; however, the health and safety plan was updated in May 2012. A health and safety audit is planned for 2013.

5.3 Quality

A quality audit was performed during the fall groundwater sampling event to ensure that proper procedures were used during the event. The following quality action items found in the 2012 were addressed immediately:

- Obtain the QAPP signature page and place in the project files
- Include the residential wells purge water handling procedures into the project instructions
- Update the standard operating procedures to reflect current field procedures

5.4 Recommendation

Trees planted on the CAMU and adjacent to the treatment building in the past several years will be evaluated in 2013 to ensure that their growth is not affecting the integrity of the cover or the treatment building foundation.

SECTION 6

References

CH2M HILL. 1998. *Feasibility Study Report.* Penta Wood Products RI/FS.

CH2M HILL. 2000. *Sampling and Analysis Plan*. Revised April 2001.

CH2M HILL. 2010. *Field Sampling Plan.*

CH2M HILL. 2012. *Waste-Handling Plan*.

Appendix A
Analytical Results

Penta Wood
Diesel Range Organic Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/9/2012	3/6/2012	4/3/2012	5/8/2012	6/26/2012	7/31/2012	8/21/2012
Field Sample Identification:		12CP03-16	12CP03-21	12CP03-25	12CP03-30	12CP03-35	12CP03-40	12CP03-43
Diesel Range Organics	**Units**							
DIESEL COMPONENTS	mg/l	0.095 U	0.057 UB	0.095 UJ	0.031 J	0.095 U	0.095 U	0.047 UJ

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Diesel Range Organic Results
2012 Treatment Plant Samples

Field Site Identifier:	01	01	01
Field Sample Location:	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:	N/A	N/A	N/A
Matrix:	Waste Water	Waste Water	Waste Water
Sample Collection Date:	10/9/2012	11/13/2012	12/11/2012
Field Sample Identification:	13CP01-03	13CP01-08	13CP01-12

Diesel Range Organics	**Units**			
DIESEL COMPONENTS	mg/l	0.095 UJ	0.033 UB	0.037 UB

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dioxin Results
2012 Treatment Plant Samples

Field Site Identifier:	01
Field Sample Location:	EFFLUENT
Sample Interval:	N/A
Matrix:	Waste Water
Sample Collection Date:	5/8/2012
Field Sample Identification:	12CP03-30

Dioxins and Furans	**Units**	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	pg/l	1.3 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Metal Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/14/2012	5/8/2012	7/31/2012	10/9/2012
Field Sample Identification:		12CP03-18	12CP03-30	12CP03-40	13CP01-03
Metals	**Units**				
ARSENIC	ug/l	0.62 J	0.54 J	0.48 J	1.7 J
COPPER	ug/l	1.3 UB	3.5 J	16	1.7 UB
IRON	ug/l	50 U	50 U	50 U	190
MANGANESE	ug/l	680	870	860	870
ZINC	ug/l	32 UB	19 UB	46	46

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/14/2012	5/8/2012	7/31/2012	10/9/2012	1/3/2012	2/9/2012	2/14/2012
Field Sample Identification:		12CP03-17	12CP03-29	12CP03-39	13CP01-02	12CP03-15	12CP03-16	12CP03-18
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	2,600	2,200	1,900	1,800	0.094 U	0.094 U	0.094 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/21/2012	2/28/2012	3/6/2012	3/13/2012	3/28/2012	4/3/2012	4/10/2012
Field Sample Identification:		12CP03-19	12CP03-20	12CP03-21	12CP03-23	12CP03-24	12CP03-25	12CP03-26
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.027 J	0.094 U	0.095 UJ	0.095 U	0.095 U	0.095 UJ	0.095 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		4/17/2012	5/1/2012	5/8/2012	5/15/2012	5/22/2012	5/29/2012	6/5/2012
Field Sample Identification:		12CP03-27	12CP03-28	12CP03-30	12CP03-31	12CP03-32	12CP03-33	12CP03-34
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.096 U	0.095 U	0.019 J	0.094 U	0.094 U	0.095 U	0.097 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		6/26/2012	7/5/2012	7/17/2012	7/24/2012	7/31/2012	8/7/2012	8/14/2012
Field Sample Identification:		12CP03-35	12CP03-36	12CP03-37	12CP03-38	12CP03-40	12CP03-41	12CP03-42
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.096 U	0.095 U	0.095 U	0.094 U	0.025 J	0.094 U	0.094 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		8/21/2012	10/5/2012	10/9/2012	10/16/2012	10/23/2012	10/30/2012	11/6/2012
Field Sample Identification:		12CP03-43	13CP01-01	13CP01-03	13CP01-04	13CP01-05	13CP01-06	13CP01-07
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.094 U	0.094 UJ	0.094UJ	0.095 U	0.095 U	0.094 U	0.095 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Pentachlorophenol Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		11/13/2012	11/19/2012	11/27/2012	12/4/2012	12/11/2012	12/18/2012	12/26/2012
Field Sample Identification:		13CP01-08	13CP01-09	13CP01-10	13CP01-11	13CP01-12	13CP01-13	13CP01-14
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.094 U	0.094 U	0.095 U	0.094 UJ	0.094 U	0.095 U	0.094 UJ

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/9/2012	3/6/2012	4/3/2012	5/8/2012	6/26/2012	7/31/2012	8/21/2012
Field Sample Identification:		12CP03-16	12CP03-21	12CP03-25	12CP03-30	12CP03-35	12CP03-40	12CP03-43
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PHENOL	ug/l	NR	NR	NR	0.95 U	NR	NR	NR

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
2012 Treatment Plant Samples

Field Site Identifier:	01	01	01
Field Sample Location:	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:	N/A	N/A	N/A
Matrix:	Waste Water	Waste Water	Waste Water
Sample Collection Date:	10/9/2012	11/13/2012	12/11/2012
Field Sample Identification:	13CP01-03	13CP01-08	13CP01-12

Semivolatile Organic Compounds	**Units**			
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U
PHENOL	ug/l	NR	NR	NR

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
2012 Treatment Plant Samples

Field Site Identifier:	01
Field Sample Location:	EFFLUENT
Sample Interval:	N/A
Matrix:	Waste Water
Sample Collection Date:	5/8/2012
Field Sample Identification:	12CP03-30

Volatile Organic Compounds	**Units**	
BENZENE	ug/l	1.0 U
ETHYLBENZENE	ug/l	1.0 U
TOLUENE	ug/l	1.0 U
XYLENES, TOTAL	ug/l	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Wet Chemistry Results
2012 Treatment Plant Samples

Field Site Identifier:		01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		2/14/2012	5/8/2012	7/31/2012	10/9/2012
Field Sample Identification:		12CP03-18	12CP03-30	12CP03-40	13CP01-03
Wet Chemistry	**Units**				
CHLORIDE (AS CL)	mg/l	19	20	21	20

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
May 2012 Groundwater Samples - Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DW-01	RW-01	RW-01	RW-01RE	RW-01RE	RW-02	RW-03
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water, Dup	Water	Water
Sample Collection Date:		5/23/2012	5/23/2012	5/23/2012	7/11/2012	7/11/2012	5/23/2012	5/23/2012
Field Sample Identification:		12CP02-01	12CP02-25	12CP02-26	12CP02-31	12CP02-32	12CP02-27	12CP02-28
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U	NR	NR	0.19 U	0.19 U
PENTACHLOROPHENOL	ug/l	0.028 J	0.019 J	0.017 J	0.027 J	0.033 J	0.097 U	0.097 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
May 2012 Groundwater Samples - Residential Wells

Field Site Identifier:	01	01
Field Sample Location:	RW-04	RW-05
Sample Interval:	N/A	N/A
Matrix:	Water	Water
Sample Collection Date:	5/23/2012	5/23/2012
Field Sample Identification:	12CP02-29	12CP02-30

Semivolatile Organic Compounds	**Units**		
NAPHTHALENE	ug/l	0.20 U	0.19 U
PENTACHLOROPHENOL	ug/l	0.094 U	0.095 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
October 2012 Groundwater Samples - Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DW-01	RW-01	RW-01	RW-01RE	RW-01RE	RW-02	RW-02RE
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water, Dup	Water	Water
Sample Collection Date:		10/18/2012	10/17/2012	10/17/2012	12/3/2012	12/3/2012	10/17/2012	12/3/2012
Field Sample Identification:		13CB01-28	13CB01-22	13CB01-23	13CB01-44	13CB01-45	13CB01-24	13CB01-46
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U	NR	NR	0.19 U	NR
PENTACHLOROPHENOL	ug/l	0.032 J	0.045 J	0.035 J	0.094 UJ	0.094 UJ	0.057 J	0.094 UJ

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
October 2012 Groundwater Samples - Residential Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		RW-03	RW-03RE	RW-04	RW-04RE	RW-05	RW-05RE
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	12/3/2012	10/17/2012	12/3/2012	10/17/2012	12/4/2012
Field Sample Identification:		13CB01-25	13CB01-47	13CB01-26	13CB01-48	13CB01-27	13CB01-49
Semivolatile Organic Compounds	**Units**						
NAPHTHALENE	ug/l	0.19 U	NR	0.19 U	NR	0.19 U	NR
PENTACHLOROPHENOL	ug/l	0.015 J	0.095 UJ	0.071 J	0.094 UJ	0.030 J	0.095 UJ

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
May 2012 Groundwater Samples - Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DW-01	RW-01	RW-01	RW-02	RW-03	RW-04	RW-05
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/23/2012	5/23/2012	5/23/2012	5/23/2012	5/23/2012	5/23/2012	5/23/2012
Field Sample Identification:		12CP02-01	12CP02-25	12CP02-26	12CP02-27	12CP02-28	12CP02-29	12CP02-30
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
October 2012 Groundwater Samples - Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DW-01	RW-01	RW-01	RW-02	RW-03	RW-04	RW-05
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/18/2012	10/17/2012	10/17/2012	10/17/2012	10/17/2012	10/17/2012	10/17/2012
Field Sample Identification:		13CB01-28	13CB01-22	13CB01-23	13CB01-24	13CB01-25	13CB01-26	13CB01-27
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Gas Results
May 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		MW-12	MW-12	MW-15	MW-19	MW-22	MW-26
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012
Field Sample Identification:		12CP02-19	12CP02-20	12CP02-21	12CP02-22	12CP02-23	12CP02-24
Dissolved Gasses	**Units**						
METHANE	ug/l	0.50 U	0.50 U	0.50 U	0.71	0.50 U	0.50 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Gas Results
October 2012 Groundwater Samples - Monitoring Wells

	Field Site Identifier:	01	01	01	01	01	01	01
	Field Sample Location:	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-09	MW-10
	Sample Interval:	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Matrix:	Water	Water	Water	Water	Water	Water	Water
	Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012	10/16/2012	10/17/2012
	Field Sample Identification:	13CB01-01	13CB01-02	13CB01-03	13CB01-04	13CB01-05	13CB01-06	13CB01-07
Dissolved Gasses	**Units**							
METHANE	ug/l	0.50 U	13	17	0.50 U	2.2	0.50 U	12

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Gas Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-10	MW-12	MW-12	MW-15	MW-16	MW-17	MW-19
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water, Dup	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-08	13CB01-10	13CB01-11	13CB01-12	13CB01-13	13CB01-14	13CB01-15
Dissolved Gasses	**Units**							
METHANE	ug/l	12	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Gas Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01
Field Sample Location:		MW-22	MW-26	MW-28
Sample Interval:		N/A	N/A	N/A
Matrix:		Water	Water	Water
Sample Collection Date:		10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-16	13CB01-17	13CB01-19
Dissolved Gasses	**Units**			
METHANE	ug/l	0.50 U	0.50 U	0.50 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Metals Results
May 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		MW-12	MW-12	MW-15	MW-19	MW-22	MW-26
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012
Field Sample Identification:		12CP02-19	12CP02-20	12CP02-21	12CP02-22	12CP02-23	12CP02-24
Dissolved Metals (Filtered)	**Units**						
ARSENIC	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
COPPER	ug/l	10 U	4.3 J	10 U	7.6 J	2.3 J	10 U
IRON	ug/l	50 U	50 U	50 U	50 U	160	50 U
MANGANESE	ug/l	670	630	10 U	1,300	13	10 U
ZINC	ug/l	20 U	20 U	20 U	20 U	20 U	20 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Metals Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-02	MW-03	MW-05	MW-06S	MW-07	MW-09	MW-10
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:		10/16/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-01	13CB01-02	13CB01-03	13CB01-04	13CB01-05	13CB01-06	13CB01-07
Dissolved Metals (Filtered)	**Units**							
ARSENIC	ug/l	0.82 J	0.59 J	0.57 J	0.54 J	2.0 U	0.91 J	0.55 J
COPPER	ug/l	6.2 J	10 U	10 U	10 U	10 U	10 U	10 U
IRON	ug/l	810	260	2,700	50 U	230	50 U	190
MANGANESE	ug/l	25	8.3 J	7,000	3.9 J	22	10 U	1,600
ZINC	ug/l	20 U	20 U	20 U	20 U	20 U	20 U	20 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Metals Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-10	MW-12	MW-12	MW-15	MW-16	MW-17	MW-19
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water, Dup	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-08	13CB01-10	13CB01-11	13CB01-12	13CB01-13	13CB01-14	13CB01-15
Dissolved Metals (Filtered)	**Units**							
ARSENIC	ug/l	0.50 J	0.98 J	1.2 J	0.97 J	0.66 J	1.2 J	2.0 U
COPPER	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	6.9 J
IRON	ug/l	180	50 U	50 U	50 U	180	50 U	50 U
MANGANESE	ug/l	1,600	410	420	10 U	17	10 U	900
ZINC	ug/l	20 U	20 U	20 U	20 U	20 U	20 U	20 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Dissolved Metals Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:	01	01	01
Field Sample Location:	MW-22	MW-26	MW-28
Sample Interval:	N/A	N/A	N/A
Matrix:	Water	Water	Water
Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:	13CB01-16	13CB01-17	13CB01-19

Dissolved Metals (Filtered)	**Units**			
ARSENIC	ug/l	0.59 J	0.99 J	0.48 J
COPPER	ug/l	10 U	10 U	10 U
IRON	ug/l	50 U	50 U	50 U
MANGANESE	ug/l	5.7 J	10 U	10 U
ZINC	ug/l	20 U	20 U	20 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
May 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		MW-12	MW-12	MW-15	MW-19	MW-22	MW-26
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012
Field Sample Identification:		12CP02-19	12CP02-20	12CP02-21	12CP02-22	12CP02-23	12CP02-24
Semivolatile Organic Compounds	**Units**						
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U	50	0.19 U	0.19 UJ
PENTACHLOROPHENOL	ug/l	21 J	16 J	0.024 J	5,300	0.084 J	0.10 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-02	MW-03	MW-05	MW-06S	MW-07	MW-09	MW-10
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:		10/16/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-01	13CB01-02	13CB01-03	13CB01-04	13CB01-05	13CB01-06	13CB01-07
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.20 U	0.20 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U
PENTACHLOROPHENOL	ug/l	0.33	0.46	0.59 J	0.10 U	0.096 U	0.39	8.7

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-10	MW-12	MW-12	MW-15	MW-16	MW-17	MW-19
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water, Dup	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-08	13CB01-10	13CB01-11	13CB01-12	13CB01-13	13CB01-14	13CB01-15
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.20 U	0.21 U	0.19 U	0.19 U	0.20 U	0.19 U	8.4
PENTACHLOROPHENOL	ug/l	14	26	23	0.094 U	0.099 U	0.095 U	8,100

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Semivolatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:	01	01	01
Field Sample Location:	MW-22	MW-26	MW-28
Sample Interval:	N/A	N/A	N/A
Matrix:	Water	Water	Water
Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:	13CB01-16	13CB01-17	13CB01-19

Semivolatile Organic Compounds	**Units**			
NAPHTHALENE	ug/l	0.19 U	0.19 U	0.19 U
PENTACHLOROPHENOL	ug/l	0.096 U	0.095 U	0.095 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
May 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		MW-12	MW-12	MW-15	MW-19	MW-22	MW-26
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012
Field Sample Identification:		12CP02-19	12CP02-20	12CP02-21	12CP02-22	12CP02-23	12CP02-24
Volatile Organic Compounds	**Units**						
BENZENE	ug/l	0.50 U	0.50 U	0.50 U	2.0 U	0.50 U	0.50 U
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	0.88 J	1.0 U	1.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	0.76 J	1.0 U	1.0 U
XYLENES, TOTAL	ug/l	2.0 U	2.0 U	2.0 U	16	2.0 U	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-02	MW-03	MW-05	MW-06S	MW-07	MW-09	MW-10
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:		10/16/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-01	13CB01-02	13CB01-03	13CB01-04	13CB01-05	13CB01-06	13CB01-07
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-10	MW-12	MW-12	MW-15	MW-16	MW-17	MW-19
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water, Dup	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-08	13CB01-10	13CB01-11	13CB01-12	13CB01-13	13CB01-14	13CB01-15
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.0 U
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.67 J
XYLENES, TOTAL	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	9.7

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Volatile Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:	01	01	01
Field Sample Location:	MW-22	MW-26	MW-28
Sample Interval:	N/A	N/A	N/A
Matrix:	Water	Water	Water
Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:	13CB01-16	13CB01-17	13CB01-19

Volatile Organic Compounds	**Units**			
BENZENE	ug/l	2.5 UJ	0.50 U	0.50 U
ETHYLBENZENE	ug/l	5.0 UJ	1.0 U	1.0 U
TOLUENE	ug/l	5.0 UJ	1.0 UJ	1.0 U
XYLENES, TOTAL	ug/l	10 UJ	2.0 U	2.0 U

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Wet Chemistry Results
May 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01
Field Sample Location:		MW-12	MW-12	MW-15	MW-19	MW-22	MW-26
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012	5/22/2012
Field Sample Identification:		12CP02-19	12CP02-20	12CP02-21	12CP02-22	12CP02-23	12CP02-24
Wet Chemistry	**Units**						
ALKALINITY, TOTAL (AS CACO3)	mg/l	300	310	260	51	49	200
CHLORIDE (AS CL)	mg/l	14	14	11	15	3.4	19
HARDNESS (AS CACO3)	mg/l	431	419	266	76	51	325
NITROGEN, NITRATE (AS N)	mg/l	1.8	1.8	4.6 J	1.1	0.76 J	1.7
SULFATE (AS SO4)	mg/l	120	120	5.1 J	12	3.9 J	210
SULFIDE	mg/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL ORGANIC CARBON	mg/l	1.5	1.6	1.2	38	10	0.43 J

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Wet Chemistry Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:	01	01	01	01	01	01	01
Field Sample Location:	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-09	MW-10
Sample Interval:	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:	Water	Water	Water	Water	Water	Water	Water
Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012	10/16/2012	10/17/2012
Field Sample Identification:	13CB01-01	13CB01-02	13CB01-03	13CB01-04	13CB01-05	13CB01-06	13CB01-07
Wet Chemistry	**Units**						
ALKALINITY, TOTAL (AS CACO3)	mg/l	54	460	180	18	210	63	240
CHLORIDE (AS CL)	mg/l	4.1	69	11	16	11	2.8 J	7.8
HARDNESS (AS CACO3)	mg/l	91.2	493	302	51.4	254	82	304
NITROGEN, NITRATE (AS N)	mg/l	0.90 J	3.6 J	0.10 UJ	5.5 J	1.5 J	5.9 J	0.075 J
SULFATE (AS SO4)	mg/l	32 J	17	130	11 J	120	10 J	68 J
SULFIDE	mg/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL ORGANIC CARBON	mg/l	6.7	2.4	1.8	3.2	0.97 J	3.8	1.7

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Wet Chemistry Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-10	MW-12	MW-12	MW-15	MW-16	MW-17	MW-19
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water, Dup	Water	Water, Dup	Water	Water	Water	Water
Sample Collection Date:		10/17/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:		13CB01-08	13CB01-10	13CB01-11	13CB01-12	13CB01-13	13CB01-14	13CB01-15
Wet Chemistry	**Units**							
ALKALINITY, TOTAL (AS CACO3)	mg/l	230	280	290	250	37	150	36
CHLORIDE (AS CL)	mg/l	8.0	14	13	12	4.6	16	12
HARDNESS (AS CACO3)	mg/l	292	413	424	271	39.8	187	66.3
NITROGEN, NITRATE (AS N)	mg/l	0.067 J	2.0 J	2.0 J	5.3 J	0.52 J	4.7	1.4
SULFATE (AS SO4)	mg/l	69 J	120	130	5.0 U	17 J	23 J	11 J
SULFIDE	mg/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL ORGANIC CARBON	mg/l	1.7	1.4	1.3	0.69 J	1.3	0.59 J	27

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Penta Wood
Wet Chemistry Results
October 2012 Groundwater Samples - Monitoring Wells

Field Site Identifier:	01	01	01
Field Sample Location:	MW-22	MW-26	MW-28
Sample Interval:	N/A	N/A	N/A
Matrix:	Water	Water	Water
Sample Collection Date:	10/16/2012	10/16/2012	10/17/2012
Field Sample Identification:	13CB01-16	13CB01-17	13CB01-19

Wet Chemistry	**Units**			
ALKALINITY, TOTAL (AS CACO3)	mg/l	48	190	120
CHLORIDE (AS CL)	mg/l	4.1	19	11
HARDNESS (AS CACO3)	mg/l	53.1	344	134
NITROGEN, NITRATE (AS N)	mg/l	0.48 J	1.8 J	1.8
SULFATE (AS SO4)	mg/l	5.0 U	200	5.0 U
SULFIDE	mg/l	1.0 U	1.0 U	1.0 U
TOTAL ORGANIC CARBON	mg/l	36	0.30 J	0.81 J

QUALIFIER KEY: "U" - Analyte not found at the listed detection limit; "J" - Estimated Result; "B" - Analyte detected in Blank; No Qualifier - Analyte found; "R" - Rejected; "NR" - Not Reported

Appendix B

Natural Attenuation Data

Well	Casing Dia. (inches)	Approx. Well Depth (ft)	TOC Elev. (ft MSL)	Aquifer[a]	May 2012		October 2012		
					Depth to Water (ft) DTW	Comments (DTP = Depth to Product)	Depth to Water (ft) DTW	DTB	Comments (DTP = Depth to Product)
MW-01	2	97	1072.32	UC	87.66		87.85	98.42	
MW-02	2	85	1064.85	UC	79.51		80.76	84.25	
MW-03	4	182	1129.50	SC	145.13		145.35	--	
MW-04	4	187	1087.81	SC	103.77		104.10	--	
MW-05	4	118	1071.73	UC	87.65		87.94	113.75	
MW-06 S	2	129.05	1108.63	UC	123.99		124.22	128.96	
MW-07	4	140.5	1096.39	SC	111.79		112.19	--	
MW-08	4	160	1091.28	SC	106.68		107.06	163.80	
MW-09	2	54	1020.71	UC	32.85		33.08	53.48	
MW-10	4	131	1089.74	SC	97.8		106.50	134.02	
MW-10 S	2	115.23	1090.43	UC	106.64	105.95[b]	Dry	Dry	Dry
MW-11	2	155.5	1085.58	SC	101.44		101.82	159.00	
MW-12	2	135	1081.99	SC	98.04		98.40	--	
MW-13	2	27	1006.10	UC	21.72		21.98	29.32	
MW-14	2	175	1078.50	SC	94.54		94.82	173.92	
MW-15	2	170	1127.22	SC	142.68		142.90	--	
MW-16	2	106.5	1081.92	UC	97.05		97.35	105.39	
MW-17	2	134	1084.50	SC	100.22		100.57	--	
MW-18	6	116	1072.44	UC	88.51	87.72[c]	88.38	+	87.93[f]
MW-19	2	112	1088.17	UC	104.80	104.00[d]	104.85	+	103.94[g]
MW-20	2	107.5	1097.76	UC	115.38	113.21[e]	114.29	+	113.41[h]
MW-21	2	114.9	1095.70	UC	111.22		111.42	114.75	
MW-22	2	105.16	1084.70	UC	100.11		100.33	104.00	
MW-23	2	125	1017.57	SC	33.43		33.76	127.08	
MW-24	2	125	1084.10	UC	98.91		99.37	108.20	
MW-25	2	117.8	1095.24	UC	110.30		110.65	--	
MW-26	2	141	1087.07	UC	102.73		103.12	--	
MW-27			1111	UC	126.32		126.59	--	
MW-28			1083.1	SC	99.27		99.51	--	

[a] UC=Unconfined aquifer; SC=semiconfined aquifer

[b]MW-10S NAPL thickness in ft 0.69

[c]MW-18 NAPL thickness in ft 0.79

[d]MW-19 NAPL thickness in ft 0.80

[e]MW-20 NAPL thickness in ft 2.17

[f]MW-18 NAPL thickness in ft 0.45

[g]MW-19 NAPL thickness in ft 0.91

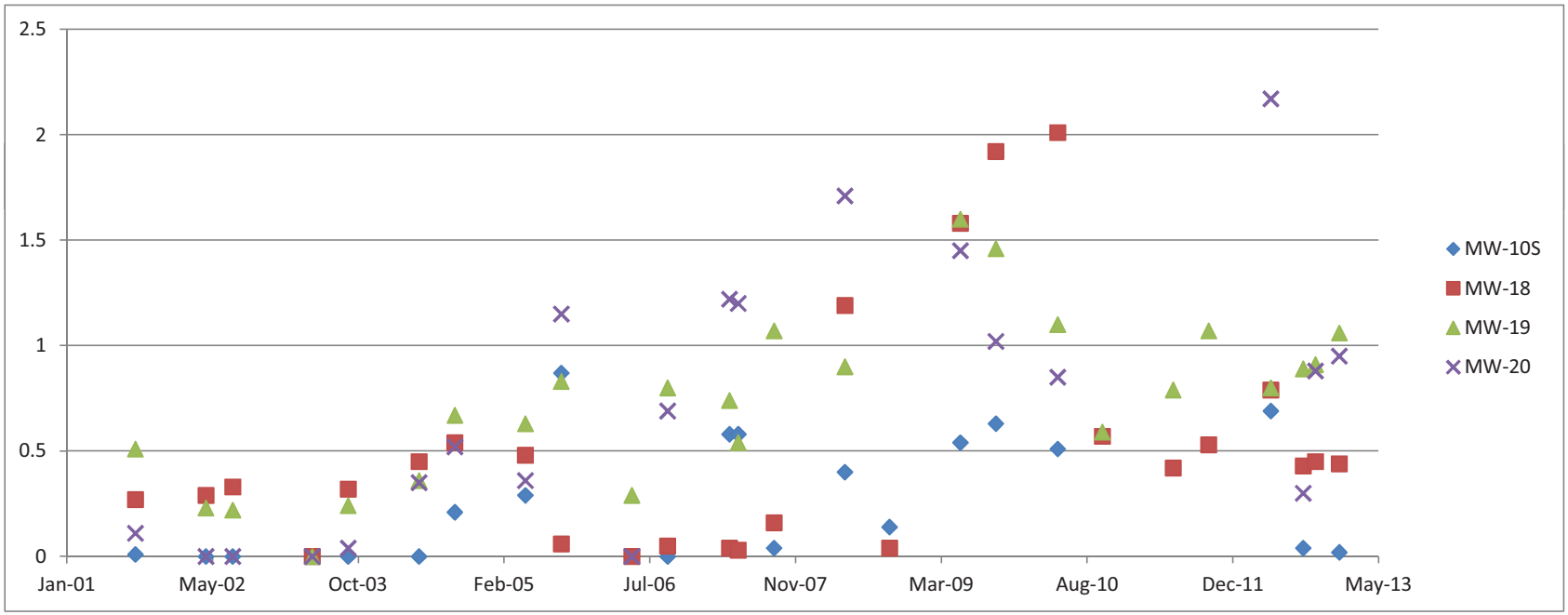
[h]MW-20 NAPL thickness in ft 0.88

-- The DTB was not observed due to the presence of a dedicated pump.

+ The DTB was not measured due to The risk of equipment contamination due to The presence of product.

Data Source for Graph													
	Sep-01	May-02	Aug-02	May-03	Sep-03	May-04	Sep-04	May-05	Sep-05	May-06	Sep-06	Apr-07	May-07
MW-10 S	0.01	0	0	0	0	0	0.21	0.29	0.87	0	0	0.58	0.58
MW-18	0.27	0.29	0.33	0	0.32	0.45	0.54	0.48	0.06	0	0.05	0.04	0.03
MW-19	0.51	0.23	0.22	0	0.2416	0.36	0.67	0.63	0.83	0.29	0.8	0.74	0.54
MW-20	0.11	0	0	0	0.04	0.35	0.52	0.36	1.15	0	0.69	1.22	1.2

Data Source for Graph													
	Sep-07	May-08	Oct-08	Jun-09	Oct-09	May-10	Oct-10	Jun-11	Oct-11	May-12	Aug-12	Oct-12	Dec-12
MW-10 S	0.04	0.4	0.14	0.54	0.63	0.51				0.69	0.04		0.02
MW-18	0.16	1.19	0.04	1.58	1.92	2.01	0.57	0.42	0.53	0.79	0.43	0.45	0.44
MW-19	1.07	0.9		1.6	1.46	1.1	0.59	0.79	1.07	0.80	0.89	0.91	1.06
MW-20		1.71		1.45	1.02	0.85				2.17	0.3	0.88	0.95



Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
DW-01	9/24/2003								1.48	<0.005	<0.05	<2	<0.5	<0.05	66.9
DW-01	5/31/2005								1.5 J	<0.004 J	<0.05 J	6.5	<0.002	0.039 J	29 J
DW-01	5/10/2007								1.8	<0.01	<0.100	17 J	<0.002	0.074 J	29
DW-01	9/19/2007								1.5 J	0.0024 J	<0.100	14 J	<0.002	<0.093	27
DW-01	5/20/2008								NT	NT	NT	NT	NT	0.094 UJ	NT
DW-01	10/23/2008								1.79 J	0.0046 J	0.642 J	9.07	0.002 UJ	0.1 UJ	29.6
DW-01	6/3/2009								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/8/2009								NT	NT	NT	NT	NT	0.1 UJ	NT
DW-01	5/19/2010								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/7/2010								NT	NT	NT	NT	NT	0.1 UJ	NT
DW-01	6/30/2011								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/18/2011								NT	NT	NT	NT	NT	0.032 J	NT
DW-01	5/23/2012								NT	NT	NT	NT	NT	0.028 J	NT
DW-01	10/18/2012								NT	NT	NT	NT	NT	0.032 J	NT
MW-01	10/9/1997	8.46	475	11.23	96.2	7.32	171.0		6.5	NT	<0.02	6.3	<0.01	2.0	18
MW-01	4/5/2000	8.56	416	10.34	86.5	7.14	290.6		1.6	<0.002	<0.05	2.5	0.0003	<0.5	8.7
MW-01	4/24/2001	8.69	431	9.83	84.6	7.08	168.7		6.5	<0.015	<0.025	13.0	<0.00011	<0.1	24
MW-01	9/11/2001	10.18	370	10.63	NR	7.00	235.8		2.6	0.001	<0.035	<8.2	<0.01	0.5	10
MW-01	5/14/2002	8.89	541	9.68	83.6	7.17	113.7		2.7	0.005	<0.011	7.8		0.1	9.3
MW-01	8/6/2002	8.82	439	NR	89.2	7.33	241.1		<0.15	0.00095 B	<0.011	7.9	<0.01	0.1	7.4
MW-01	4/29/2003	9.03	383	3.03	26.5	7.13	151.8		2.6	<0.005 J	<0.025	10.0	<0.0005	<0.1 J	4.3
MW-01	9/24/2003	9.22	349	10.23	89.2	7.16	322.6	53.2	2.61	0.036	0.1 J	<2	<0.0005	0.1	3.3
MW-01	5/4/2004	9.15	314	NR	93.8	7.05	217.0	NR	2.1 J	15.0 R	790 R	2.0 R		1.06 J	4.3 R
MW-01	9/21/2004	10.05	279	10.89	97.1	7.07	91.1	160	1.8 J	2.60 J	838	5.2 J		0.3	2.7
MW-01	5/10/2005	9.30	540	11.68	102.2	7.08	190.8	155	1.7 J	<0.01	<0.05	14 R	<0.002	0.1	3.6 J
MW-01	9/29/2005	8.96	282	12.12	105.1	7.15	154.6	217	1.9	0.0038 J	<0.05	16	<0.002	0.1	6.2
MW-01	5/31/2006	10.76	252	9.33	94.0	7.62	156.3	85.4	1.6 J	<0.01	<0.05	17	<0.002	0.049 J	2.3 J
MW-01	9/25/2006	Well Dry							Well Dry						
MW-01	5/8/2007	8.95	274	9.47	82.5	6.99	87.8	109	1.9 J	0.0063 J	<0.100	15 J	<0.002	0.11 J	2.2 J
MW-01	9/18/2007	9.81	274	11.33	100.6	6.74	180.5	66.7	3 J	<0.01	<0.100	12 J	<0.002	<0.093	9.4
MW-01	10/21/2008	8.70	276	9.78	84.0	7.17	226.0	58.1	1.62 J	0.01 UJ	0.388	6.19	0.002 UJ	0.42 UJ	3.91
MW-02	10/9/1997	9.49	143	8.82	77.2	6.42	274.1		1.1	NT	<0.02	17	<0.01	<1.0	3.5
MW-02	4/5/2000	9.47	111	9.59	81.4	6.85	305.8		<0.1	0.003	<0.05	58.3	0.0003	<0.5	1.0
MW-02	9/12/2001	12.00	172	11.50	99.8	7.62	96.9		2.3	0.057	<0.035	10	<0.01	0.51	6.2
MW-02	8/6/2002	9.96	128	6.31	NR	5.41	380.5		<0.15	0.018	0.048	10	<0.01	0.1	3.0
MW-02	9/24/2003	9.85	172	7.07	62.8	6.19	326.2	Off Scale	2.02	0.443	3.03	3 J	<0.0005	0.28	1 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-02	9/21/2004	10.29	319	1.17	10.7	6.01	182.6	Off Scale	1.4 J	0.0222 J	25800	4.0 R		1.26	12 J
MW-02	9/28/2005	10.27	358	8.95	88.0	6.26	156.2	Off Scale	<0.1	0.0093 J	0.065	27	<0.002	2.2 J	5.6
MW-02	9/26/2006	11.03	345	2.44	22.5	6.28	205.0	Off Scale	0.12	<0.0026	<0.05	20	<0.002	2.3	1.6 J
MW-02	9/19/2007	10.00	350	7.18	65.3	5.95	200.3	Off Scale	0.22 J	0.0065 J	<0.100	16 J	<0.002	3.7	3.6
MW-02	10/21/2008	10.23	299	9.55	92.3	6.37	184.3	395	1.1 J	0.0052 J	0.424 J	12.9	0.002 UJ	1.6 J	3.17
MW-02	10/6/2009	9.57	272	4.86	43.0	6.47	212.0	8.2	0.81 J	0.01 UJ	0.129 J	11.6 J	0.00083 UJ	2.21 J	1.97 J
MW-02	10/6/2010	13.28	340	NR	89.6	6.73	114.1	741	1.01 J	0.0094 J	0.043 J	4.2 J	<0.0013	<0.1	0.56 J
MW-02	10/19/2011	9.65	230	8.68	74.7	6.48	153.6	210.9	0.5 J	0.0037 J	0.047 J	33	<0.0005	<0.1	7.7
MW-02	10/16/2012	9.65	212	8.55	81.3	6.58	143.6	170.6	0.9 J	0.0250	0.810	32 J	0.00012 J	0.3	4.1
MW-03	10/8/1997	10.34	696	3.52	31.5	6.91	38.4		4.4	0.011	0.257	16	<0.01	<1.0	42
MW-03	4/4/2000	Parameters not measured							2.8	0.010	0.498	12.5	0.0016	<0.6	64
MW-03	4/25/2001	10.27	1039	3.77	33.8	6.83	169.1		4.42	0.008	0.142	11	NT	<0.11	47
MW-03	9/13/2001	11.53	1118	16.44	NR	6.93	99.0		4	0.031	0.930	14	<0.01	0.093	58
MW-03	8/7/2002	10.36	1007	4.50	NR	6.74	165.1		<0.15	0.011	0.164	16	<0.01	0.11	69
MW-03	9/23/2003	10.32	873	5.68	50.9	7.06	147.3	0.65	4.43	0.008 J	<0.001	<2	0.0025	0.31	52.4
MW-03	9/21/2004	10.70	1071	0.38	3.4	6.80	87.2	10.6	3.5 J	4.99 J	278	8.9 R		0.37	62 J
MW-03	9/28/2005	10.58	948	24.95	(*)	6.82	242.6	25.9	3.3	0.0067 J	0.120	24	<0.002	0.2 J	62
MW-03	9/25/2006	Well Dry							Well Dry						
MW-03	9/20/2007	Well Dry							Well Dry						
MW-03	10/21/2008	11.98	1129	1.26	11.8	6.80	63.4	72.8	2.73 J	0.0152 J	2.140	15.2	0.0049 J	0.1 UJ	60.5
MW-03	10/7/2009	12.34	1098	5.05	51.0	6.87	127.0	NR	2.55 J	0.0124 J	0.722 J	11 J	0.021 J	0.1 UJ	53.8 J
MW-03	10/5/2010	12.82	1300	25.70	NR	6.52	108.0	12.2	3.62	0.012 J	0.805	19.8 J	0.0016	<0.1	67.2
MW-03	10/18/2011	10.50	1133	4.64	45.1	6.88	89.1	5.0	3.3	0.0410	0.510	16	0.140	0.58	64
MW-03	10/16/2012	10.50	1035	4.46	40.1	6.82	12.6	6.3	3.6 J	0.0083 J	0.260	17	0.0130	0.46	69
MW-04	10/9/1997	9.61	228	1.09	8.0	8.41	-137.9		<0.1	NT	0.04	6.3	0.139	<1.0	7.3
MW-04	4/4/2000	9.43	237	1.38	NR	8.49	NR		<0.1	0.047	<0.05	10.8	0.0008	<0.5	9.6
MW-05	10/10/1997	10.68	887	0.38	3.4	6.24	28.8		<0.1	NT	4.9	15	<0.01	28000	50
MW-05	4/7/2000	8.76	737	4.81	39.3	6.03	119.4		<0.1	3.35	3.4	34.3	0.0009	20600	49
MW-05	4/26/2001	12.29	1018	3.71	36.0	6.40	-39.7		<0.13	11.3	7.6	28	NT	20600	42
MW-05	9/13/2001	11.45	698	10.19	97.0	6.80	-68.6		0.17	8.50	4.1	22	<0.01	6300	29
MW-05	8/7/2002	11.80	589	5.02	NR	6.15	35.2		<0.15	7.84	7.9	21		510	26
MW-05	9/25/2003	10.60	559	2.99	27.0	6.54	-21.3		<0.05	8.32	13.4	20	0.00047 J	1100	22.1
MW-05	9/22/2004	11.80	749	8.43	82.8	6.53	-98.5	56.8	0.01 R	5,650 J	30.5	24 R		194	29 J
MW-05	9/28/2005	11.13	627	3.27	30.3	6.47	-60.4	0.98	<0.1	7.6	19	35	0.0230	1100 J	18
MW-05	9/26/2006	11.49	736	4.79	46.5	6.64	221.0	0.72	<0.1	8.0	23	27	0.0087 J	460	16

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-05	9/20/2007	11.60	583	2.95	28.8	6.53	-68.9	0.80	0.1 UJ	7.6	25	39 J	0.0098	31	13
MW-05	10/22/2008	10.47	552	2.79	26.8	6.74	-73.0	1.08	0.05 UJ	9.7 J	10.5 J	24.8	0.011 J	206	8.68
MW-05	10/7/2009	13.43	631	3.30	29.8	6.69	-75.5	NR	0.05 UJ	11.8 J	6 J	55.1 J	0.017 J	33.3 J	8.59 J
MW-05	10/6/2010	12.87	638.5	1.90	18.8	6.37	27.9	2.00	0.1 UJ	12.6	3.0	79.4	0.004	40	11.4 J
MW-05	10/19/2011	10.33	809	3.05	31.0	6.99	-39.7	0.00	<0.1	11.0	2.6	150	0.038 J	0.97	15
MW-05	10/17/2012	11.32	634	5.84	61.5	6.88	-47.6	0.90	0.1 UJ	7.0	2.7	130	0.017	0.59 J	11
MW-06S	10/9/1997	11.26	792	5.25	48.0	6.21	232.1		4.5	NT	0.02	0.9	<0.01	<1.0	72
MW-06S	4/7/2000	Not measured. Sampled for VOCs only													
MW-06S	4/26/2001	12.03	453	2.78	26.7	5.92	142.2		0.87	0.347	<0.025	12	NT	2.5	14
MW-06S	9/12/2001	Not measured due to product in the well.							1.1	0.8	<0.035	16	<0.01	1.1	12
MW-06S	8/7/2002	12.75	583	NR	41.4	6.08	77.8		<0.15	1.790	3.33	18	0.270	88 B	17
MW-06S	9/25/2003	Not measured due to product in the well.							1.01	0.961	1.10	17	0.130	0.33	23.9
MW-06S	9/27/2006	CAMU wells not measured							3.9	0.590	<0.05	18	0.0035 J	0.21	18.0
MW-06S	9/20/2007	10.81	569	6.24	57.0	5.86	86.9	NR	4.7 J	0.2	0.51	34 J	0.003	0.099	30
MW-06S	10/23/2008	10.68	227	8.83	79.5	6.60	245.0	NR	7.11 J	0.0653 J	0.438 J	11	0.002 UJ	2.65	28.3
MW-06S	10/8/2009	Well Dry							Well Dry						
MW-06S	10/7/2010	14.30	680	92.67	NR	6.26	77.0	>1000	6.94 J	0.0197 J	0.531	11 J	<0.0013	0.1 UJ	21.3
MW-06S	10/19/2011	10.64	140	10.88	97.7	6.96	245.0	505.1	5.3	0.014	<0.05	9.8	<0.0005	<0.1	17
MW-06S	10/17/2012	11.67	156	12.23	112.3	7.27	129.0	701.1	5.5 J	0.0039 J	<0.05	11 J	<0.0005	<0.1	16
MW-07	10/14/1997	10.13	709	8.23	73.0	6.86	6.04		4.9	NT	0.622	6.0	<0.01	<1.0	7.6
MW-07	4/4/2000	9.87	693	5.82	51.5	7.01	156.1		2.7	0.026	0.359	6.06	0.004	<0.5	4.8
MW-07	4/25/2001	12.60	721	7.54	71.2	6.89	127.5		3.6	0.007	0.154	6.54	0.0047	<0.1	8.4
MW-07	9/11/2001	11.04	824	8.36	74.5	6.27	208.0		3.0	0.0044	0.230	10	0.012	0.083	23
MW-07	8/7/2002	12.68	812	NR	93.7	6.71	256.3		<0.15	0.004 B	0.305	10	<0.01	0.03	21
MW-07	9/24/2003	10.38	680	6.85	61.6	6.90	98.7	1.97	2.97	<0.005	0.09 J	<2	0.0049	0.044 J	12.2
MW-07	9/22/2004	13.90	736	7.89	77.5	6.71	35.2	14.5	3.4 J	9.75 J	1640 J	6.8 R		5.75	7.2 J
MW-07	9/27/2005	10.44	789	8.01	71.9	5.53	146.0	6.97	1.8	0.016	0.88	130 J	<0.002 J	<0.12	18
MW-07	9/27/2006	11.16	799	5.47	69.1	6.77	220.1	NR	1.8	0.068 J	<0.05	110	0.0043 J	0.087 J	15
MW-07	9/20/2007	10.55	771	7.43	67.2	6.69	120.5	(off scale)	1.5 J	0.022	0.26	170 J	0.0037	<0.093	16
MW-07	10/22/2008	10.26	911	8.76	78.4	7.16	112.3	835	1.54 J	0.0416 J	0.926 J	98.9	0.11 J	<0.1	14.1
MW-07	10/8/2009	10.29	811	10.28	96.1	7.33	183.6	(off scale)	1.91 J	0.109 J	0.687 J	152 J	0.0024 J	0.403 J	12.2 J
MW-07	10/6/2010	12.26	748	8.05	77.6	6.02	61.9	167	2.24 J	0.0632	0.989	168	0.0280	<0.1	13.8 J
MW-07	10/19/2011	11.72	492	8.65	80.1	7.01	84.8	88.7	1.9 J	0.0210	0.081	92	0.0150	<0.1	12
MW-07	10/16/2012	12.15	679	9.75	100.3	7.18	75.0	87.3	1.5 J	0.0220	0.230	120	0.0022	<0.1	11
MW-08	10/14/1997	9.73	363	4.28	37.2	7.93	12.2		1.4	NT	0.148	4.5	0.0365	<1.0	4.2

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-08	4/5/2000	10.07	295	3.78	33.5	6.91	252.3		3.5	0.0053	<0.05	6.5	0.0072	<0.5	6.26
MW-08	4/26/2001	11.08	358	5.50	52.3	7.94	151.3		1.52	0.027	<0.025	7.5	0.0116	0.2	3.25
MW-08	9/11/2001	10.49	386	4.08	NR	7.77	29.3		1.5	0.018	0.07	<7.6	<0.01	0.062	3.8
MW-08	8/8/2002	11.80	375	NR	75.2	7.56	160.9		<0.15	0.0053 B	0.011 B	6.0	<0.01	<0.04	4.2
MW-08	9/25/2003	10.67	414	6.20	57.8	7.79	125.4	4.15	2.6	0.006 J	<0.05	<2	0.0092	<0.11	11
MW-08	9/23/2004	11.89	449	5.50	52.8	7.14	11.0	2.99	2.4 J	12.0 J	256	5.8 J	3.75 J	1.94	15
MW-08	9/28/2005	11.10	407	8.25	71.0	7.56	195.2	52.2	2.0 J	0.016	0.13	19	0.0026	0.031 J	20
MW-08	9/25/2006	Well Dry							Well Dry						
MW-08	9/20/2007	11.86	543	4.67	43.9	7.34	-50.4	28.0	1.5 J	0.013	0.21	76 J	<0.002	<0.093	21
MW-08	10/22/2008	10.77	560	5.42	48.9	7.61	25.0	30.4	1.92 J	0.0131 J	0.707 J	73.1	0.0008 J	<0.1	24.3
MW-09	10/8/1997	10.59	171	6.30	54.9	5.63	217.6		4.2	NT	<0.0001	3.4	<0.01	<1.0	45
MW-09	4/5/2000	9.65	153	6.36	44.7	5.78	321.7		1.97	0.0217	<0.05	8.46	0.000396	0.6	3.15
MW-09	4/23/2001	9.62	172	5.21	43.1	5.72	162.7		2.46	0.034	<0.025	27	<0.00012	0.12	3.22
MW-09	9/12/2001	11.23	206	5.75	NR	5.54	309.8		3.3	0.016	0.11	<6.8	<0.01	0.76	6.5
MW-09	8/6/2002	9.21	253	1.96	17.3	5.27	391.9		<0.15	0.0063 B	<0.011	22	<0.01	0.54	11
MW-09	9/25/2003	9.22	206	3.53	34.3	5.62	278.7	73.3	2.36	0.016	0.24	24	<0.0005	2.3	4.4
MW-09	9/22/2004	11.91	228	4.99	47.5	5.28	148.1	5.93	1.8 J	8.51 J	0.24 J	26 R	<10.0 J	2.92	3.2 J
MW-09	9/27/2005	10.45	168	(*)	--	4.33	333.6	0.76	1.9 J	0.0054 J	<0.05	20	<0.002 J	0.57	2.6
MW-09	9/25/2006	Well Dry							Well Dry						
MW-09	9/21/2007	9.85	199	7.20	65.2	5.24	239.5	1.50	3.8 J	0.0041 J	<0.100	15 J	<0.002	0.37	2.6
MW-09	10/22/2008	9.28	205	13.1	122.1	5.84	282.5	3.38	2.48 J	0.01 UJ	0.166 J	14.9	0.002 UJ	<0.1	3.44
MW-09	10/8/2009	Well needs redevelopment; pump was pulled							Well needs redevelopment; pump was pulled						
MW-09	5/18/2010	12.17	160	6.99	NR	5.88	197.8	20.1	2.42 J	0.0071 J	0.120 UJ	11	<0.0013	0.073 J	2.63
MW-09	10/6/2010	13.29	NR	NR	76.8	6.34	72.3	17.4	3.35	<0.016	0.109 J	14 J	<0.0013	<0.1	3.26 J
MW-09	10/19/2011	9.04	131	7.99	67.0	5.91	214.7	3.0	3.10	0.0029 J	<0.05	8.9	<0.0005	<0.1	<1.0
MW-09	10/16/2012	8.37	200	8.28	72.3	5.86	232.5	3.4	5.9 J	<0.01	<0.05	10 J	<0.0005	0.39	2.8 J
MW-10	10/15/1997	10.88	803	0.38	3.4	6.83	-33.2		4.9	NT	0.00219	13	0.0135	3400	35
MW-10	4/6/2000	10.76	988	0.47	4.2	6.82	27.4		1.72	1.59	0.1159	13.8	0.003067	9530	55.9
MW-10	4/26/2001	12.31	1029	4.52	42.8	6.89	-103.5		0.18	2.38	5.65	22	NT	22800	48
MW-10	9/12/2001	11.18	1188	6.55	63.1	6.89	-71.1		0.13	3.20	2.40	23	<0.01	21000	61
MW-10	8/7/2002	14.24	1010	NR	60.9	6.30	-147.8		<0.15	2.54	10.7	20	0.011	22000	56
MW-10	10/1/2003								<0.05	1.85	2.59	3	0.00062	9000	22
MW-10	9/23/2004	Not measured due to product in the well							0.0018 J	1.81	0.0241	18	<10.0	38000	38
MW-10	9/29/2005	Well Dry							Well Dry						
MW-10	9/27/2006	Not measured due to product in the well							<0.1	2.6	0.12	24	<0.002	23000 J	14
MW-10	9/20/2007	Not measured due to product in the well							0.68 J	2.7	0.55	25 J	0.0024	1700	20

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-10	10/23/2008	Not measured due to product in the well							0.05 UJ	2.21 J	1.11 J	28.1	0.006 J	1630	12.4
MW-10	10/7/2009	Not measured due to product in the well							0.05 UJ	2.23 J	1.21 J	58.7 J	0.017 J	220 J	9.82 J
MW-10	10/7/2010	Not measured due to product in the well							0.1 UJ	1.78	0.488	48.2 J	0.0018	92.4 J	7.26 J
MW-10	10/20/2011	10.94	451	4.12	40.9	7.21	-21.7	5.0	0.21	1.7	0.18	53	0.0088 J	21	8.4
MW-10	10/17/2012	11.10	587	3.32	33.6	7.29	-23.6	4.6	0.075 J	1.6	0.19	68 J	0.012	9	7.8
MW-10S	10/15/1997	13.18	339	10.49	100.0	7.55	135.6		<0.1	NT	0.0000454	23	<0.01	12000	38
MW-10S	4/7/2000	9.41	599	5.02	41.5	6.37	331.6		<100	10.1	<0.05	138	0.001567	56100	53
MW-10S	4/25/2001	Not measured due to product in the well							1.5	6.03	11.30	8.6	0.00055	49000	11
MW-10S	9/12/2001	Not measured due to product in the well							4.7	7.60	0.048	13	<0.01	82000	10
MW-10S	8/7/2002	13.62	431	NR	66.1	6.31	303.8		0.11	7.07	0.0673	14	<0.01	390	10
MW-10S	9/25/2003	Not measured due to product in the well							3.41	5.9	<0.05	2.0	<0.0005	2200	6.7
MW-10S	9/22/2004	Not measured due to product in the well							3.6 J	3740 J	0.0227 J	15 R	<10.0 J	9490	24 J
MW-10S	9/29/2005	Not measured due to product in the well							2.0 J	3.9	<0.05	120 J	<0.002	<0.11	16
MW-10S	9/27/2006	Not measured due to product in the well							1.2	2.5	<0.05	79	<0.002	2700 J	8.6
MW-10S	9/20/2007	Not measured due to product in the well							1.3	1.3	<0.100	69 J	<0.002	24	8.7
MW-10S	10/23/2008	Not measured due to product in the well							Well Dry				0.002 UJ	Well Dry	
MW-10S	10/7/2009	Pump is set above water table; No sample collected							Pump is set above water table; No sample collected						
MW-11	10/15/1997	13.98	398	4.86	47.2	7.94	144.3		3.4	NT	<0.0001	12	<0.01	<1.0	7.5
MW-11	4/4/2000	13.24	427	6.57	61.9	7.80	215.5		3.09	<0.002	<0.05	9.41	0.000138	<0.6	6.98
MW-11	4/4/2001	12.98	337	6.98	67.6	7.86	138.5		3.74	<0.015	<0.025	3.48	<0.00011	<0.11	6.25
MW-11	9/10/2001	13.13	414	9.09	NR	7.77	100.0		3.1	0.00045	<0.035	<7.4	<0.010	0.091	8
MW-11	8/6/2002	13.12	455	5.37	NR	7.58	240.6		<0.15	0.0012 B	<0.011	7.6	<0.01	<0.04	7.8
MW-11	9/23/2003	12.66	396	6.29	60.7	7.81	245.9	11.3	2.94	<0.005	<0.05	<2.0	<0.0005	<0.11	6.7
MW-11	9/21/2004	12.15	494	0.48	4.4	7.64	159.3	7.76	3.0 J	1.40 J	15.6	6.2 J	<10.0	0.0656	9
MW-11	9/29/2005	11.55	502	8.12	96.9	7.26	177.2	0.32	2.4 J	0.003 J	<0.05	9.7	<0.002	740 J	14
MW-11	9/27/2006	11.91	490	NR	53.8	7.82	159.2	0.16	0.53 J	<0.01 J	<0.05 J	8.8 J	<0.002 J	<0.11	16 J
MW-11	9/20/2007	11.83	520	5.05	47.5	7.54	75.7	0.28	2.4 J	<0.01	<0.100	19 J	<0.002	<0.093	20
MW-11	10/22/2008	11.93	546	6.93	64.6	7.64	208.7	0.20	2.26 J	0.01 UJ	0.533	17.8	0.002 UJ	0.27	19.9
MW-12	10/15/1997	10.16	1044	2.86	25.0	6.93	41.2		<0.1	NT	0.00027	15	<0.01	5000	48
MW-12	4/6/2000	10.10	1097	0.63	5.6	6.89	169.9		0.483	1.59	0.1128	11.9	0.0016	10300	54.5
MW-12	4/6/2001	Parameters not measured							0.43	1.57	0.1310	16	0.0480	1500	48
MW-12	9/13/2001	11.02	1142	3.95	36.7	6.84	22.2		<0.53	1.40	0.74	16	<0.01	18000	47
MW-12	5/14/2002	10.28	933	0.75	7.0	6.72	110.0		0.67	1.68	<0.011	17		4300	40
MW-12	8/7/2002	12.21	920	NR	45.9	6.69	150.0		0.46	1.60	0.105	15	<0.01	6400	37
MW-12	4/29/2003	10.95	982	5.24	47.2	6.80	126.1		0.8	1.56	<0.025	20	<0.05	3000	31

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-12	9/23/2003	10.89	864	3.07	27.8	6.62	306.1	0.54	1.17	1.53	<0.05	<2.0	0.00049 J	10000	30.8
MW-12	5/4/2004	10.64	897	7.50	71.7	7.15	126.2		1.1 J	1480 R	52.7	14 R	1.34 J	11200 J	29
MW-12	9/22/2004	13.49	939	3.87	37.6	6.77	95.6	0.83	1.1 J	1230 J	53.9	12 R	<10.0 J	9060 J	26 J
MW-12	5/12/2005	11.24	1774	2.79	26.4	6.88	176.6	0.46	1.3 J	1.4	<0.05	16 R	<0.002	8300 J	23 J
MW-12	9/27/2005	11.67	760	0.70	6.4	6.56	169.3	4.28	1.1 J	1.3	<0.05	26 J	<0.002 J	8500 J	20
MW-12	6/7/2006	12.10	788	4.85	38.1	6.76	175.9	2.13	2.1 J	1.1 J	0.05 R	32	<0.002	6100 J	21 J
MW-12	9/26/2006	12.39	872	NR	41.5	7.07	214.1	1.29	1.9 J	1.2 J	<0.05	15 J	<0.002 J	3100	14 J
MW-12	5/9/2007	12.15	771	NR	NR	6.60	155.5	0.58	2.4 J	1.1	<0.100	37 J	<0.002	3000 J	13
MW-12	9/19/2007	11.85	737	3.19	30.6	6.79	144.8	1.27	2.8 J	0.82	<0.100	29 J	<0.002	1100	14
MW-12	5/20/2008	11.61	705	1.86	18.2	6.95	168.4	0.00	2.0 J	1.0	0.1 UJ	25	0.002 UJ	2100 J	12
MW-12	10/21/2008	10.23	706	3.44	31.7	7.06	110.2	0.50	2.96 J	1.14	0.927	31.8	0.002 UJ	1670 J	13.1
MW-12	6/2/2009	12.99	711	9.30	88.8	7.28	131.8	3.70	2.65 J	1.04	0.310	59.9	0.0008 UJ	521 J	12.3
MW-12	10/6/2009	10.97	742	4.88	44.8	7.00	184.4	0.37	1.84 J	0.987 J	0.307 J	85.4 J	0.00083 UJ	295 J	13.7 J
MW-12	5/19/2010	11.92	790	6.43	NR	6.94	162.4	0.76	1.87 J	0.913 J	0.228 J	116	<0.0013	70.3	14.7
MW-12	10/5/2010	14.78	990	35.60	NR	7.01	85.7	2.07	1.73	0.834	0.358	119	<0.0013	43.7	14.4 J
MW-12	6/29/2011	11.58	820	3.18	30.2	6.47	308.1	1.50	2.28	0.744	0.314	111	<0.0009	37	14.1 J
MW-12	10/18/2011	10.51	800	6.51	58.6	7.11	173.1	0.00	2.1	0.66	<0.05	98	<0.0005	37	14
MW-12	5/22/2012	11.40	793	3.40	31.3	7.10	154.6	0.20	1.8	0.67	<0.05	120	<0.0005	21 J	14
MW-12	10/16/2012	10.57	773	6.52	58.7	6.94	137.4	1.40	2.0 J	0.41	<0.05	120	<0.0005	26	14
MW-13	10/8/1997	12.79	185	6.00	54.1	6.19	206.7		1.3	0.000027	0.0000067	1.4	<0.01	0.7	2.7
MW-13	4/5/2000	9.67	189	8.29	51.5	5.49	296.7		<100	0.1118	<0.05	431	0.0003	0.8	4.4
MW-13	4/23/2001	9.08	140	3.44	26.8	5.59	207.9		1.77	0.110	<0.025	35	<0.00012	0.18	3.5
MW-13	9/10/2001	10.69	203	NR	NR	5.54	196.0		2.5	0.027	0.052	<7.5	<0.01	0.69	5.4
MW-13	8/5/2002	11.49	223	5.36	48.3	5.38	333.1		<0.15	0.045	1.31	8.4	<0.01	0.64	6.8
MW-13	9/23/2003	11.16	195	3.50	32.3	5.80	317.0	432	1.86	0.182	0.96	7.0	<0.0005	2.90	5.1
MW-13	9/21/2004	11.13	208	1.57	13.8	5.60	229.7	151	2.4 J	3.67 J	<0.124 J	6.4 R	<10.0 J	4.67	6.5 J
MW-13	9/27/2005	12.48	168	(*)	NR	5.19	335.1	221	0.6	0.0071 J	<0.05	19	<0.002 J	0.85	3.1
MW-13	9/25/2006	Well Dry							Well Dry						
MW-13	9/18/2007	11.42	163	7.33	69.0	5.39	311.2	0.50	0.31 J	0.0063 J	<0.100	29 J	<0.002	0.53	2.9
MW-13	10/21/2008	10.50	142	11.66	105.9	5.87	196.4	167	0.45 J	<0.01	0.207	10.1	0.002 UJ	0.31 UJ	1.9 J
MW-13	10/7/2009	12.90	106	8.11	76.8	6.24	54.5	235	0.77 J	0.01 UJ	0.05 UJ	9.71 J	0.00083 UJ	0.16 J	2.12 J
MW-14	10/9/1997	9.32	252	6.43	56.2	8.09	108.9		1.6	NT	<0.0001	2.4	<0.01	<1.0	8.0
MW-14	4/6/2000	9.10	283	6.92	60.0	7.42	257.3		2.2	<0.002	<0.05	4.1	0.0002	<0.5	15.7
MW-15	10/16/1997	9.29	409	4.49	39.1	8.22	149.8		4.1	NT	0.00001	6.3	<0.01	<1.0	6.5
MW-15	4/4/2000	8.08	483	10.72	85.1	7.69	284.1		3.52	<0.002	<0.05	10.0	0.000339	<0.5	12.3

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-15	4/25/2001	11.79	675	8.73	81.3	7.73	179.4		3.97	<0.015	<0.025	2.6	<0.0001	<0.11	15
MW-15	9/12/2001	9.74	548	9.80	NR	8.00	153.3		3.7	0.00031	<0.035	<4.5	<0.01	0.077	17
MW-15	8/6/2002	10.24	508	NR	101.4	7.72	285.7		<0.15	<0.00042	<0.011	4.7	<0.01	<0.04	16
MW-15	9/23/2003	9.74	483	9.14	81.7	7.90	213.6	26.1	3.8	<0.005	<0.05	<2.0	<0.0005	<0.1	17.4
MW-15	9/21/2004	9.85	514	8.49	77.4	7.55	73.5	4.11	3.2 J	0.976 J	36.7	3.9 J	<10.0	0.279	16
MW-15	9/29/2005	11.44	580	10.25	89.3	7.58	163.8	1.50	4.2 J	0.0016 J	<0.05	5.8	<0.002	<0.11	17
MW-15	9/27/2006	11.95	607	NR	89.5	7.84	118.3	3.68	4.7 J	<0.002 B	<0.05 J	5.9 J	<0.002 J	< 0.11	14 J
MW-15	9/19/2007	12.75	574	11.08	106.6	7.01	197.0	1.50	5.7 J	<0.01	<0.100	13 J	<0.002	<0.1	15
MW-15	5/20/2008	12.21	551	8.40	80.5	7.66	136.3	0.80	4.7 J	0.00052 J	0.100 UJ	6.6	0.002 UJ	0.18 J	14
MW-15	10/21/2008	11.78	575	7.56	70.2	7.54	98.6	1.27	6.05 J	<0.01	0.854	6.99	0.002 UJ	0.1 UJ	14.6
MW-15	6/2/2009	13.58	560	8.78	85.0	7.83	159.0	NR	5.33 J	<0.01	0.301	6.42	0.0008 UJ	0.1 UJ	13.5
MW-15	10/7/2009	10.20	576	8.46	75.5	7.65	28.9	16.90	4.74 J	<0.0001 UJ	0.293 J	6.52 J	0.00083 UJ	0.1 UJ	12.9 J
MW-15	5/18/2010	13.09	563	9.26	NR	7.42	130.9	19.37	4.57 J	0.010 UJ	0.194 J	6.3	<0.0013	<0.1	10.7
MW-15	10/7/2010	12.50	543	7.99	75.3	7.32	85.7	2.53	5.49 J	<0.016	0.311	6.91 J	<0.0013	2.32 J	13.2 J
MW-15	6/28/2011	13.24	538	5.96	57.0	7.58	228.9	0.80	5.2 J	<0.01	0.205	6.91	<0.0009	<0.1	12.1J
MW-15	10/18/2011	11.62	545	8.8	81.3	7.48	140.0	0.00	4.8 J	0.0017 J	<0.05	5.3	<0.0005	<0.1	12
MW-15	5/22/2012	11.77	537	7.99	83.4	7.51	165.7	0.00	4.6 J	<0.01	<0.05	5.1 J	<0.0005	0.024 J	11
MW-15	10/16/2012	12.38	554	10.91	107.1	7.51	82.4	1.00	5.3 J	<0.01	<0.05	<5.0	<0.0005	<0.1	12
MW-16	10/14/1997	9.86	409	8.57	74.8	6.82	99.4		3.2	NT	0.00002	8.1	<0.01	<1.0	6.1
MW-16	4/6/2000	9.77	169	8.16	70.0	6.63	310.9		3.9	1.69	<0.05	24.1	<0.001068	<0.5	6.5
MW-16	4/26/2001	10.46	1102	4.72	43.2	6.81	75.6		8.7	0.0094	0.026	29	<0.00012	<0.11	3.6
MW-16	9/10/2001	Parameters not measured							5.8	0.00082	<0.035	11	<0.01	0.17	1.8
MW-16	8/6/2002	11.70	247	10.86	NR	6.11	331.3		<0.15	0.0091 B	0.0782	13	<0.01	0.035	2.0
MW-16	9/23/2003	10.97	216	10.27	93.2	6.34	349.1	29.0	3.5	<0.005	<0.05	3 J	<0.0005	0.089 J	6.2
MW-16	9/21/2004	10.68	222	0.07	0.6	6.49	173.9	37.4	2.1 J	0.617 J	0.025	5.5 J	<10.0	0.0962	3.7
MW-16	9/29/2005	10.48	373	11.12	97.6	6.79	233.4	12.8	1.5	0.0021 J	<0.05	71 J	<0.002	<0.11	11
MW-16	9/26/2006	10.69	278	9.33	87.7	6.45	232.3	51.8	1.2 J	<0.00059 B	<0.05 J	32 J	<0.002 J	0.046 J	4.1 J
MW-16	9/18/2007	10.91	210	11.55	105.1	5.89	318.4	NR	1.2 J	<0.01	<0.100	23 J	<0.002	0.2	4.5
MW-16	10/22/2008	9.15	248	17.98	156.2	6.52	224.5	267	0.99 J	0.02 J	0.318 J	43.2	0.002 UJ	0.08 J	7.51
MW-16	10/6/2009	9.61	173	10.62	93.2	7.03	177.8	164	1.03 J	0.0486 J	0.458 J	36.7 J	0.00083 UJ	0.1 UJ	6.35 J
MW-16	10/5/2010	12.82	290	100.07	NR	7.82	104.7	292.33	0.63 J	<0.016	<0.05	6.29 J	<0.0013	<0.1	5.74 J
MW-16	10/19/2011	10.03	110	NR	NR	6.97	165.8	101.7	0.63 J	0.014	0.13	12	<0.0005	<0.1	4.2
MW-16	10/16/2012	9.87	126	10.89	96.5	6.94	204.6	27.5	0.52 J	0.017	0.18	17 J	<0.0005	<0.1	4.6
MW-17	10/15/1997	9.26	399	4.53	39.0	7.89	147.2		4.1	NT	<0.0001	10	<0.01	<1	4.8
MW-17	4/6/2000	9.15	438	4.81	41.8	7.73	254.9		4.21	<0.002	<0.05	<3.0	0.00013	<0.5	4.89
MW-17	4/26/2001	10.38	412	9.64	85.7	7.77	58.6		4.98	<0.015	<0.025	6.8	NT	0.72	4.12

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-17	9/11/2001	11.44	457	6.96	62.9	7.49	262.0		4.4	<0.00027	0.31	<9.3	<0.01	<0.059	4.8
MW-17	8/8/2002	12.88	425	NR	65.8	7.64	204.5		<0.15	<0.00042	<0.011	7.4	<0.01	0.032	4.6
MW-17	9/25/2003	9.80	405	6.45	57.3	7.80	206.0	358	5.1	<0.005	<0.05	<2.0	<0.0005	0.46	4.4
MW-17	9/22/2004	11.02	498	9.13	87.0	7.57	150.5	8.23	4.8 J	0.045 J	0.0139 J	8.6 R	<10.0 J	2.82	4.1 J
MW-17	9/27/2005	11.94	368	(*)	NR	6.31	325.4	0.23	5.1 J	<0.01	<0.05	7.8	<0.002 J	0.054 J	3.9
MW-17	9/26/2006	11.74	429	NR	61.9	7.75	222.0	1.05	5.5 J	<0.01 J	<0.05 J	6.5 J	<0.002 J	<0.11	2.9 J
MW-17	9/19/2007	10.42	385	10.15	92.6	7.60	113.7	0.30	5.6 J	<0.01	<0.100	14 J	<0.002	<0.099	4.7
MW-17	10/22/2008	10.57	376	7.24	65.7	7.76	126.0	0.66	5.75 J	0.01 UJ	0.374 J	7.75	0.002 UJ	0.095	7.78
MW-17	10/6/2009	11.03	361	9.33	84.8	7.80	167.1	1.69	1.65 J	0.01 UJ	0.16 J	6.86 J	0.00083 UJ	0.1 UJ	6.54 J
MW-17	10/5/2010	12.85	530	68.9	NR	7.87	105.7	1.85	5.18	<0.01	0.163	9.68 J	<0.0013	<0.1	11.6 J
MW-17	10/18/2011	10.89	400	7.76	72.1	7.76	156.9	0.00	3.9	<0.01	<0.05	24	<0.0005	<0.1	16
MW-17	10/16/2012	11.49	415	8.55	80.1	7.84	100.8	0.00	4.7	<0.01	<0.05	23 J	<0.0005	<0.1	16
MW-18	10/10/1997	11.51	777	1.03	9.2	6.13	-12.1		<0.1	NT	0.03	11	<0.01	8800	49
MW-19	10/16/1997	8.43	662	12.11	103.4	8.23	133.6		3.8	NT	<0.0001	19	<0.01	8900	47
MW-19	4/7/2000	7.80	650	5.02	40.3	6.75	323.2		6.97	<0.002	<0.05	90	0.000272	11000	37.4
MW-19	4/7/2001	Not measured due to product in the well							3.37	1.79	<0.025	47	NT	25600	39
MW-19	9/12/2001	Not measured due to product in the well							1.3	1.80	0.071	<9.7	0.016	400000	19
MW-19	5/13/2002	Not measured due to product in the well							2.0	2.07	<0.011	16		14000	33
MW-19	8/8/2002	Not measured due to product in the well							0.16	3.11	0.218	16	<0.01	11000	22
MW-19	4/29/2003	Not measured due to product in the well							3.0	3.59	<0.025	27	0.0024	4900	19.6
MW-19	9/25/2003	Not measured due to product in the well							2.0	4.47	0.05 J	90	0.0057	15000	17.5
MW-19	5/4/2004	Not measured due to product in the well							0.71 J	3.36	0.031	16 R	1.13 J	70000 J	25
MW-19	9/22/2004	Not measured due to product in the well							1.5 J	2.65	<0.124	23 R	<10.0 J	111000	15 J
MW-19	5/10/2005	Not measured due to product in the well							0.76 J	2.3	<0.05	29 R	<0.002	45000 J	18 J
MW-19	9/29/2005	Not measured due to product in the well							0.75	2.7	<0.05	40 J	<0.002	13000 J	19
MW-19	6/7/2006	Not measured due to product in the well							0.76 J	2.7 J	<0.05 J	36	<0.002	17000 J	18 J
MW-19	9/27/2006	Not measured due to product in the well							0.66 J	3.1	<0.05	30	<0.002 J	8200 J	14
MW-19	5/9/2007	Not measured due to product in the well							0.29 J	2.6	<0.100	59 J	<0.002	11000 J	15
MW-19	9/20/2007	Not measured due to product in the well							0.28 J	3.1	<0.100	42 J	<0.002	3500	17
MW-19	5/20/2008	Not measured due to product in the well							0.44 J	2.9	0.100 UJ	42	<0.002	23000 J	16
MW-19	10/24/2008	Not measured due to product in the well							0.04 J	4.85 J	0.51 J	46	0.0021 J	27900	15.9
MW-19	6/2/2009	Not measured due to product in the well							0.01 UJ	4.05	0.222	45	0.0039 J	18600 J	12.8
MW-19	10/8/2009	Not measured due to product in the well							0.05 UJ	3.19 J	0.237 J	42 J	0.002 J	31800 J	14.3 J
MW-19	5/20/2010	Not measured due to product in the well							0.05 UJ	1.87 J	0.0922 UJ	32	0.0014	26000	21.5
MW-19	10/7/2010	Not measured due to product in the well							0.10 UJ	0.942	0.114	18.7 J	<0.0013	4470 J	13.6 J
MW-19	6/29/2011	Not measured due to product in the well							0.26	1.3	0.131	20	<0.0009	8880	16.6 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-19	10/20/2011	Not measured due to product in the well							0.3	1.7	0.052 J	17	0.00033 J	13000	19
MW-19	5/22/2012	Not measured due to product in the well							1.1	1.3	<0.05	12	0.00071	5300	15
MW-19	10/17/2012	Not measured due to product in the well							1.4	0.9	<0.05	11 J	<0.0005	8100	12
MW-20	10/15/1997	Well Dry							NT	NT	NT	NT	<0.01	11000	NT
MW-20	4/26/2001	Not measured due to product in the well							<0.13	2.25	0.841	67	NT	36600	24
MW-20	9/12/2001	Not measured due to product in the well							0.15	2.8	<0.035	24	<0.01	83000	16
MW-20	8/7/2002	Not measured due to product in the well							<0.15	3.28	0.206	25	<0.01	30000 B	22
MW-20	9/25/2003	Not measured due to product in the well							<1.25	3.25	0.35	80 J	0.0054	13000	19.4 J
MW-20	9/22/2004	Not measured due to product in the well							0.29 J	2.32	2.07	23 R	<10.0 J	133000	24 J
MW-20	10/25/2005	Not measured due to product in the well							2.1 J	2.4	0.14	39 J	<0.002	63000 J	13
MW-20	9/27/2006	Not measured due to product in the well							0.22	4.2	0.094 J	71	<0.002 J	44000 J	16
MW-20	9/20/2007	Not measured due to product in the well							0.1 UJ	4.8	<0.100	98 J	<0.002	9500	18
MW-20	10/23/2008	Not measured due to product in the well							0.13 J	3.4 J	0.462	29	0.002 UJ	41000	15.7
MW-21	2/9/1998	8.50	559	8.35	NT	7.05	177.5		NT	NT	<0.1	9.1	0.011	<1.0	71
MW-21	5/14/2002	9.29	457	10.66	93.5	5.86	152.0		2.0		0.130	7.3		0.07	69
MW-21	8/6/2002	10.72	444	NR	99.0	6.79	297.6		<0.15	0.00063 B	<0.011	9.6		0.035	49
MW-21	4/29/2003	9.91	473	3.72	NR	6.65	144.9		2.5	<0.005	<0.025	12	<0.0005	0.15	41
MW-21	9/24/2003	9.30	491	11.13	97.7	6.74	326.0	400	2.6	<0.005	<0.05	<2.0	<0.0005	0.063 J	48
MW-21	5/4/2004	10.10	557	NR	89.2	6.50	196.3	NR	2.3 J	0.718 R	14000 R	3.6 R	<10.0	<0.135 B	67
MW-21	9/21/2004	9.80	510	10.37	92.5	6.61	102.1	365	2.4 J	0.484 J	10300 J	4.8 R	<10.0 J	0.474	63 J
MW-21	5/10/2005	10.47	544	10.89	94.1	6.63	159.6	103	2.8 J	0.00047 J	<0.05	12 R	<0.002	0.33	49 J
MW-21	9/27/2005	10.45	444	13.46	(*)	6.32	129.8	969	2.4 J	0.0098 J	0.036 J	17	<0.002 J	0.046 J	47
MW-21	6/1/2006	9.76	496	8.23	62.7	6.77	200.8	684	2.7 J	0.017 J	0.047 J	20	<0.002	0.023 J	65 J
MW-21	9/25/2006	Well Dry							Well Dry						
MW-21	5/8/2007	10.64	429	9.20	82.9	6.04	200.1	312	4.2 J	<0.01	<0.100	9.3 J	<0.002	<0.098	33 J
MW-21	9/18/2007	12.17	352	7.89	NR	6.32	235.8	150	3.7 J	<0.01	<0.100	12 J	<0.002	0.13	29
MW-21	10/21/2008	8.57	411	12.83	110.1	6.58	211.3	44.4	2.69 J	<0.01	0.294 J	<7.27	0.002 UJ	0.1 UJ	69
MW-22	2/9/1998	8.70	558	7.50	NT	6.86	119.5		NT	NT	<0.1	18	0.013	<1.0	56
MW-22	5/14/2002	9.91	423	10.25	91.3	6.77	85.5		3.7 J	0.0035	0.0229	14		0.12	18
MW-22	8/6/2002	11.37	343	NR	101.6	6.86	323.7		<0.15	<0.00042	0.025 B	12	<0.01	0.078	7.2
MW-22	9/24/2003	9.70	303	10.92	96.4	6.89	345.4	1038	2.15	0.542	2.77	3.0 J	<0.0005	0.34	4.9
MW-22	9/21/2004	9.78	316	10.59	94.5	6.64	99.3	777	2.2 J	<15.0 J	<0.025 J	6.7 R	<10.0 J	0.22	11 J
MW-22	9/28/2005	9.70	Meter not working		87.4	6.66	260.8	59.5	1.7 J	0.0013 J	<0.05	18	<0.002	0.16 J	10
MW-22	9/25/2006	Well Dry							Well Dry						
MW-22	9/18/2007	11.85	276	8.23	NR	6.53	227.9	NR	2.5 J	<0.01	<0.100	10 J	<0.002	0.13	8.2

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-22	5/20/2008	10.05	268	NR	86.6	6.43	273.7	1045.9	2.3 J	0.0036	0.100 UJ	12	0.002 UJ	0.77 J	8.4
MW-22	10/21/2008	10.31	243	12.46	111.0	6.90	238.5	NR	1.48 J	<0.01	0.303 J	6.95	0.002 UJ	0.09 UJ	4.7
MW-22	6/2/2009	9.97	188	NR	NR	7.07	196.7	NR	1.97 J	<0.01	0.0831	6.73	0.0008 UJ	0.1 UJ	6.9
MW-22	10/6/2009	8.94	173	10.02	86.6	7.12	187.4	918	5.31 J	0.168 J	1.56 J	7.53 J	0.00083 UJ	0.1 UJ	7.0 J
MW-22	5/18/2010	11.91	177	11.71	NR	6.35	238.3	772	1.9 J	NT	NT	6.9	<0.0013	0.1 U	9.2
MW-22	10/6/2010	12.85	NR	NR	94.4	6.83	123.7	451.83	0.9 J	<0.01	0.0742 J	5.62 J	<0.0013	0.13 UB	1.8 J
MW-22	6/29/2011	10.45	84	8.77	78.7	6.88	286.9	113	0.46 J	0.0276	0.499	3.9 J	<0.0009	<0.1	0.78 J
MW-22	10/18/2011	9.56	96	18.25	161.9	7.15	164.3	37.3	0.5 J	0.0027 J	<0.05	3.5 J	<0.0005	<0.1	<1.0
MW-22	5/22/2012	9.96	112	9.81	87.0	7.34	157.6	74.3	0.76 J	0.013	0.16	3.9 J	<0.0005	0.084 J	3.4
MW-22	10/16/2012	8.62	131	10.95	93.9	6.64	226.7	35.8	0.48 J	0.0057 J	<0.05	<5.0	<0.0005	<0.1	4.1
MW-23	2/27/1998	9.63	270	13.68	122.3	7.93	159.0		NT	NT	<0.1	7.6	0.0566	<1.0	8.7
MW-23	9/11/2001	11.57	322	3.21	28.8	7.46	112.6		<0.13	0.029	<0.035	<8.2	<0.01	0.49	10
MW-24	2/8/1998	13.80	524	5.35	NR	6.62	80.0		NT	NT	<0.1	5.2	<0.01	<1	19
MW-24	4/24/2001	15.30	634	3.67	34.9	6.28	209.2		3.64	0.002	<0.025	12	<0.0001	0.11	36
MW-25	2/9/1998	8.69	808	8.16	NR	6.95	55.0		NT	NT	<0.1	9.9	0.017	<1.0	16
MW-26	4/24/2001	11.24	646	7.73	71.8	7.05	190.2		5.0	<0.015	0.04	10	<0.0001	<0.1	22
MW-26	9/10/2001	Parameters not measured							3.2	<0.004	0.10	12	<0.01	0.16	30
MW-26	5/14/2002	12.28	588	7.55	72.8	7.11	17.8		3.0 J	0.001	<0.011	15		0.10	27
MW-26	8/5/2002	11.30	588	NR	66.3	6.52	280.1		<0.15	0.00056 B	<0.011	14	<0.01	0.03	18
MW-26	4/29/2003	10.58	621	8.68	79.2	6.53	157.3		3.5	<0.005	<0.025	14	<0.0005	<0.1	18
MW-26	9/23/2003	10.84	513	7.41	67.7	6.70	279.8	23.7	3.74	<0.005	<0.05	<2.0	<0.0005	<0.11	11
MW-26	5/4/2004	9.85	172	7.07	62.8	6.19	326.2	NR	3.9 J	1.23 R	0.039	42 R	<10.0	<0.242 B	17
MW-26	9/23/2004	13.16	931	8.85	87.2	6.44	63.4	44.6	1.5 J	19.3	620	120	<10.0	0.393	28
MW-26	5/10/2005	11.49	1120	10.48	97.2	6.92	197.0	NR	2.8 J	0.0018 J	<0.05	200 R	<0.002	0.061 J	26 J
MW-26	9/27/2005	12.13	845	6.77	63.2	6.78	129.2	5.24	1.9 J	<0.01	<0.05	170 J	<0.002 J	0.027 J	25
MW-26	6/7/2006	11.71	830	7.97	74.7	7.00	113.3	2.93	1.8 J	<0.0025 J	<0.05 J	140	<0.002	<0.11	29 J
MW-26	9/27/2006	12.24	1011	7.10	66.6	7.11	227.3	1.03	1.5 J	<0.01 J	<0.05 J	87 J	<0.002 J	<0.11	23 J
MW-26	5/8/2007	11.36	852	7.60	70.4	7.51	60.9	3.07	1.5 J	<0.01	<0.100	210 J	<0.002	<0.093	21 J
MW-26	9/19/2007	11.65	892	6.03	56.2	7.04	129.7	3.40	1.3 J	<0.01	<0.100	220 J	<0.002	<0.095	25
MW-26	5/20/2008	11.80	921	7.06	66.5	7.06	181.1	0.00	1.8 J	<0.0025	0.100 UJ	230	0.002 UJ	0.096 UJ	22
MW-26	10/22/2008	10.88	953	4.74	43.0	6.96	192.9	1.83	2.36 J	0.01 UJ	0.777 J	235	0.002 UJ	<0.1	21.7
MW-26	6/2/2009	13.40	901	15.21	146.0	7.37	195.6	4.10	1.83 J	<0.01	0.341	2360	0.0008UJ	0.1 UJ	203
MW-26	10/6/2009	12.63	845	9.82	96.6	7.15	133.2	0.31	1.7 J	0.01 UJ	0.325 J	212 J	0.00083 UJ	0.1 UJ	20.7 J
MW-26	5/19/2010	12.84	919	12.24	NR	7.06	133.8	2.81	2.41 J	0.010 UJ	0.236 J	279	<0.0013	0.13 J	20.4

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-26	10/5/2010	12.11	985	2.31	21.6	6.75	102.1	0.67	1.77	<0.01	0.376	232	<0.0013	0.1 UJ	20 J
MW-26	6/29/2011	12.59	934	7.50	71.0	6.74	355.5	0.90	1.83 J	<0.01	0.274	230	<0.0009	<0.1	18.3 J
MW-26	10/19/2011	11.14	906	10.80	91.4	7.21	224.3	0.00	1.6 J	<0.01	<0.05	200	<0.0005	<0.1	19
MW-26	5/22/2012	12.36	839	8.66	81.6	7.33	146.5	0.00	1.7	<0.01	<0.05	210	<0.0005	<0.1	19
MW-26	10/16/2012	11.52	827	10.10	93.0	7.39	143.6	0.00	1.8 J	<0.01	<0.05	200	<0.0005	<0.1	19
MW-27	10/20/2011	12.71	202	9.48	89.3	8.33	168.6	27.60	3.1	<0.01	<0.05	9.1	0.0001 J	0.17	10
MW-28	10/20/2011	10.52	283	5.11	47.0	7.78	154.2	6.50	1.3	0.006 J	<0.05	5.2	0.00019 J	690	5.5
MW-28	10/17/2012	10.57	304	10.73	96.7	7.82	112.7	0.00	1.8	<0.01	<0.05	<5.0	<0.0005	<0.1	11
PW-01	10/23/1997	11.10	550	5.00	NR	8.92	185.0		7.7	NT	0.0012	10	0.0195	5.0	48
PZ-03	2/9/1998	7.50	212	11.02	NR	6.91	164.0		NT	NT	NT	NT	NT	<1	NT

(*) Readings outside normal range, instrument response in question.

NR - Parameter not Recorded.

NT - Parameter not tested.

Appendix C

Groundwater Elevations and Observations, and LNAPL Measurements

Well	Casing Dia. (inches)	Approx. Well Depth (ft)	TOC Elev. (ft MSL)	Aquifer[a]	May 2012		October 2012		
					Depth to Water (ft) DTW	Comments (DTP = Depth to Product)	Depth to Water (ft) DTW	DTB	Comments (DTP = Depth to Product)
MW-01	2	97	1072.32	UC	87.66		87.85	98.42	
MW-02	2	85	1064.85	UC	79.51		80.76	84.25	
MW-03	4	182	1129.50	SC	145.13		145.35	--	
MW-04	4	187	1087.81	SC	103.77		104.10	--	
MW-05	4	118	1071.73	UC	87.65		87.94	113.75	
MW-06 S	2	129.05	1108.63	UC	123.99		124.22	128.96	
MW-07	4	140.5	1096.39	SC	111.79		112.19	--	
MW-08	4	160	1091.28	SC	106.68		107.06	163.80	
MW-09	2	54	1020.71	UC	32.85		33.08	53.48	
MW-10	4	131	1089.74	SC	97.8		106.50	134.02	
MW-10 S	2	115.23	1090.43	UC	106.64	105.95[b]	Dry	Dry	Dry
MW-11	2	155.5	1085.58	SC	101.44		101.82	159.00	
MW-12	2	135	1081.99	SC	98.04		98.40	--	
MW-13	2	27	1006.10	UC	21.72		21.98	29.32	
MW-14	2	175	1078.50	SC	94.54		94.82	173.92	
MW-15	2	170	1127.22	SC	142.68		142.90	--	
MW-16	2	106.5	1081.92	UC	97.05		97.35	105.39	
MW-17	2	134	1084.50	SC	100.22		100.57	--	
MW-18	6	116	1072.44	UC	88.51	87.72[c]	88.38	+	87.93[f]
MW-19	2	112	1088.17	UC	104.80	104.00[d]	104.85	+	103.94[g]
MW-20	2	107.5	1097.76	UC	115.38	113.21[e]	114.29	+	113.41[h]
MW-21	2	114.9	1095.70	UC	111.22		111.42	114.75	
MW-22	2	105.16	1084.70	UC	100.11		100.33	104.00	
MW-23	2	125	1017.57	SC	33.43		33.76	127.08	
MW-24	2	125	1084.10	UC	98.91		99.37	108.20	
MW-25	2	117.8	1095.24	UC	110.30		110.65	--	
MW-26	2	141	1087.07	UC	102.73		103.12	--	
MW-27			1111	UC	126.32		126.59	--	
MW-28			1083.1	SC	99.27		99.51	--	

[a] UC=Unconfined aquifer; SC=semiconfined aquifer

[b]MW-10S NAPL thickness in ft 0.69

[c]MW-18 NAPL thickness in ft 0.79

[d]MW-19 NAPL thickness in ft 0.80

[e]MW-20 NAPL thickness in ft 2.17

[f]MW-18 NAPL thickness in ft 0.45

[g]MW-19 NAPL thickness in ft 0.91

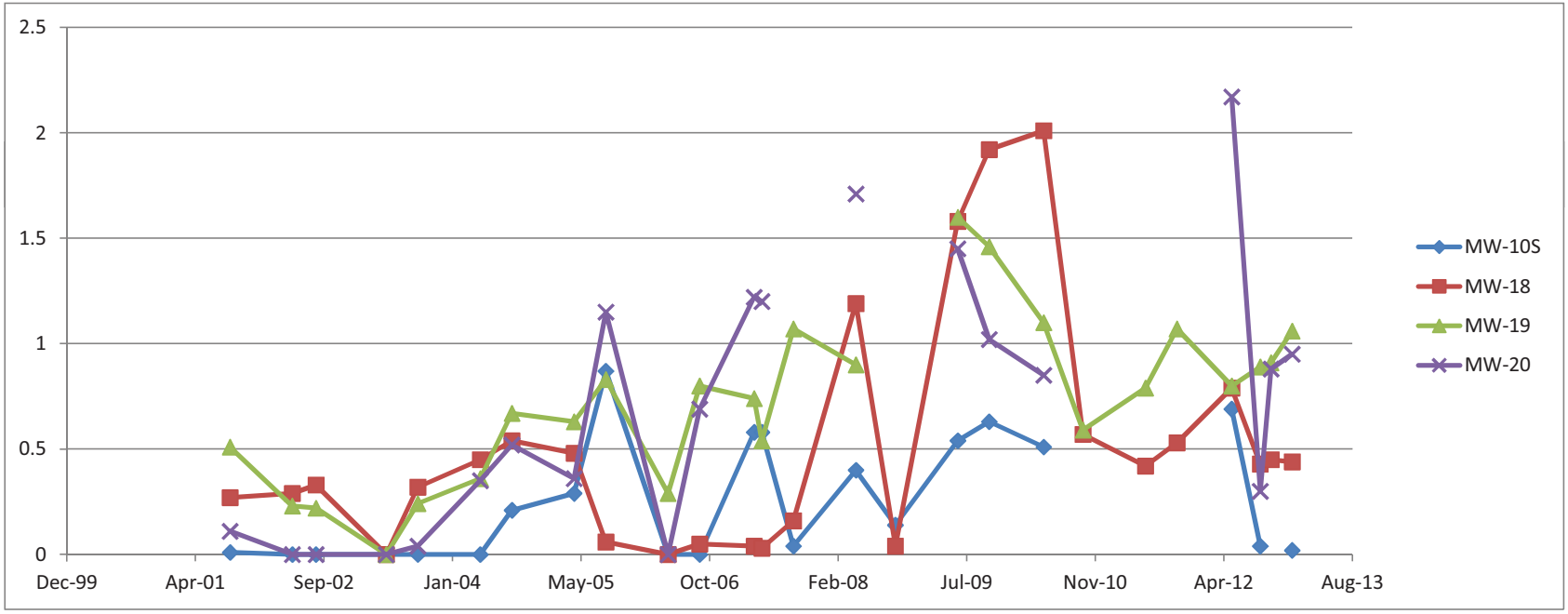
[h]MW-20 NAPL thickness in ft 0.88

-- The DTB was not observed due to the presence of a dedicated pump.

+ The DTB was not measured due to The risk of equipment contamination due to The presence of product.

Data Source for Graph													
	Sep-01	May-02	Aug-02	May-03	Sep-03	May-04	Sep-04	May-05	Sep-05	May-06	Sep-06	Apr-07	May-07
MW-10 S	0.01	0	0	0	0	0	0.21	0.29	0.87	0	0	0.58	0.58
MW-18	0.27	0.29	0.33	0	0.32	0.45	0.54	0.48	0.06	0	0.05	0.04	0.03
MW-19	0.51	0.23	0.22	0	0.2416	0.36	0.67	0.63	0.83	0.29	0.8	0.74	0.54
MW-20	0.11	0	0	0	0.04	0.35	0.52	0.36	1.15	0	0.69	1.22	1.2

Data Source for Graph													
	Sep-07	May-08	Oct-08	Jun-09	Oct-09	May-10	Oct-10	Jun-11	Oct-11	May-12	Aug-12	Oct-12	Dec-12
MW-10 S	0.04	0.4	0.14	0.54	0.63	0.51				0.69	0.04		0.02
MW-18	0.16	1.19	0.04	1.58	1.92	2.01	0.57	0.42	0.53	0.79	0.43	0.45	0.44
MW-19	1.07	0.9		1.6	1.46	1.1	0.59	0.79	1.07	0.80	0.89	0.91	1.06
MW-20		1.71		1.45	1.02	0.85				2.17	0.3	0.88	0.95



Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
DW-01	9/24/2003								1.48	<0.005	<0.05	<2	<0.5	<0.05	66.9
DW-01	5/31/2005								1.5 J	<0.004 J	<0.05 J	6.5	<0.002	0.039 J	29 J
DW-01	5/10/2007								1.8	<0.01	<0.100	17 J	<0.002	0.074 J	29
DW-01	9/19/2007								1.5 J	0.0024 J	<0.100	14 J	<0.002	<0.093	27
DW-01	5/20/2008								NT	NT	NT	NT	NT	0.094 UJ	NT
DW-01	10/23/2008								1.79 J	0.0046 J	0.642 J	9.07	0.002 UJ	0.1 UJ	29.6
DW-01	6/3/2009								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/8/2009								NT	NT	NT	NT	NT	0.1 UJ	NT
DW-01	5/19/2010								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/7/2010								NT	NT	NT	NT	NT	0.1 UJ	NT
DW-01	6/30/2011								NT	NT	NT	NT	NT	<0.1	NT
DW-01	10/18/2011								NT	NT	NT	NT	NT	0.032 J	NT
DW-01	5/23/2012								NT	NT	NT	NT	NT	0.028 J	NT
DW-01	10/18/2012								NT	NT	NT	NT	NT	0.032 J	NT
MW-01	10/9/1997	8.46	475	11.23	96.2	7.32	171.0		6.5	NT	<0.02	6.3	<0.01	2.0	18
MW-01	4/5/2000	8.56	416	10.34	86.5	7.14	290.6		1.6	<0.002	<0.05	2.5	0.0003	<0.5	8.7
MW-01	4/24/2001	8.69	431	9.83	84.6	7.08	168.7		6.5	<0.015	<0.025	13.0	<0.00011	<0.1	24
MW-01	9/11/2001	10.18	370	10.63	NR	7.00	235.8		2.6	0.001	<0.035	<8.2	<0.01	0.5	10
MW-01	5/14/2002	8.89	541	9.68	83.6	7.17	113.7		2.7	0.005	<0.011	7.8		0.1	9.3
MW-01	8/6/2002	8.82	439	NR	89.2	7.33	241.1		<0.15	0.00095 B	<0.011	7.9	<0.01	0.1	7.4
MW-01	4/29/2003	9.03	383	3.03	26.5	7.13	151.8		2.6	<0.005 J	<0.025	10.0	<0.0005	<0.1 J	4.3
MW-01	9/24/2003	9.22	349	10.23	89.2	7.16	322.6	53.2	2.61	0.036	0.1 J	<2	<0.0005	0.1	3.3
MW-01	5/4/2004	9.15	314	NR	93.8	7.05	217.0	NR	2.1 J	15.0 R	790 R	2.0 R		1.06 J	4.3 R
MW-01	9/21/2004	10.05	279	10.89	97.1	7.07	91.1	160	1.8 J	2.60 J	838	5.2 J		0.3	2.7
MW-01	5/10/2005	9.30	540	11.68	102.2	7.08	190.8	155	1.7 J	<0.01	<0.05	14 R	<0.002	0.1	3.6 J
MW-01	9/29/2005	8.96	282	12.12	105.1	7.15	154.6	217	1.9	0.0038 J	<0.05	16	<0.002	0.1	6.2
MW-01	5/31/2006	10.76	252	9.33	94.0	7.62	156.3	85.4	1.6 J	<0.01	<0.05	17	<0.002	0.049 J	2.3 J
MW-01	9/25/2006	Well Dry							Well Dry						
MW-01	5/8/2007	8.95	274	9.47	82.5	6.99	87.8	109	1.9 J	0.0063 J	<0.100	15 J	<0.002	0.11 J	2.2 J
MW-01	9/18/2007	9.81	274	11.33	100.6	6.74	180.5	66.7	3 J	<0.01	<0.100	12 J	<0.002	<0.093	9.4
MW-01	10/21/2008	8.70	276	9.78	84.0	7.17	226.0	58.1	1.62 J	0.01 UJ	0.388	6.19	0.002 UJ	0.42 UJ	3.91
MW-02	10/9/1997	9.49	143	8.82	77.2	6.42	274.1		1.1	NT	<0.02	17	<0.01	<1.0	3.5
MW-02	4/5/2000	9.47	111	9.59	81.4	6.85	305.8		<0.1	0.003	<0.05	58.3	0.0003	<0.5	1.0
MW-02	9/12/2001	12.00	172	11.50	99.8	7.62	96.9		2.3	0.057	<0.035	10	<0.01	0.51	6.2
MW-02	8/6/2002	9.96	128	6.31	NR	5.41	380.5		<0.15	0.018	0.048	10	<0.01	0.1	3.0

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-02	9/24/2003	9.85	172	7.07	62.8	6.19	326.2	Off Scale	2.02	0.443	3.03	3 J	<0.0005	0.28	1 J
MW-02	9/21/2004	10.29	319	1.17	10.7	6.01	182.6	Off Scale	1.4 J	0.0222 J	25800	4.0 R		1.26	12 J
MW-02	9/28/2005	10.27	358	8.95	88.0	6.26	156.2	Off Scale	<0.1	0.0093 J	0.065	27	<0.002	2.2 J	5.6
MW-02	9/26/2006	11.03	345	2.44	22.5	6.28	205.0	Off Scale	0.12	<0.0026	<0.05	20	<0.002	2.3	1.6 J
MW-02	9/19/2007	10.00	350	7.18	65.3	5.95	200.3	Off Scale	0.22 J	0.0065 J	<0.100	16 J	<0.002	3.7	3.6
MW-02	10/21/2008	10.23	299	9.55	92.3	6.37	184.3	395	1.1 J	0.0052 J	0.424 J	12.9	0.002 UJ	1.6 J	3.17
MW-02	10/6/2009	9.57	272	4.86	43.0	6.47	212.0	8.2	0.81 J	0.01 UJ	0.129 J	11.6 J	0.00083 UJ	2.21 J	1.97 J
MW-02	10/6/2010	13.28	340	NR	89.6	6.73	114.1	741	1.01 J	0.0094 J	0.043 J	4.2 J	<0.0013	<0.1	0.56 J
MW-02	10/19/2011	9.65	230	8.68	74.7	6.48	153.6	210.9	0.5 J	0.0037 J	0.047 J	33	<0.0005	<0.1	7.7
MW-02	10/16/2012	9.65	212	8.55	81.3	6.58	143.6	170.6	0.9 J	0.0250	0.810	32 J	0.00012 J	0.3	4.1
MW-03	10/8/1997	10.34	696	3.52	31.5	6.91	38.4		4.4	0.011	0.257	16	<0.01	<1.0	42
MW-03	4/4/2000	Parameters not measured							2.8	0.010	0.498	12.5	0.0016	<0.6	64
MW-03	4/25/2001	10.27	1039	3.77	33.8	6.83	169.1		4.42	0.008	0.142	11	NT	<0.11	47
MW-03	9/13/2001	11.53	1118	16.44	NR	6.93	99.0		4	0.031	0.930	14	<0.01	0.093	58
MW-03	8/7/2002	10.36	1007	4.50	NR	6.74	165.1		<0.15	0.011	0.164	16	<0.01	0.11	69
MW-03	9/23/2003	10.32	873	5.68	50.9	7.06	147.3	0.65	4.43	0.008 J	<0.001	<2	0.0025	0.31	52.4
MW-03	9/21/2004	10.70	1071	0.38	3.4	6.80	87.2	10.6	3.5 J	4.99 J	278	8.9 R		0.37	62 J
MW-03	9/28/2005	10.58	948	24.95	(*)	6.82	242.6	25.9	3.3	0.0067 J	0.120	24	<0.002	0.2 J	62
MW-03	9/25/2006	Well Dry							Well Dry						
MW-03	9/20/2007	Well Dry							Well Dry						
MW-03	10/21/2008	11.98	1129	1.26	11.8	6.80	63.4	72.8	2.73 J	0.0152 J	2.140	15.2	0.0049 J	0.1 UJ	60.5
MW-03	10/7/2009	12.34	1098	5.05	51.0	6.87	127.0	NR	2.55 J	0.0124 J	0.722 J	11 J	0.021 J	0.1 UJ	53.8 J
MW-03	10/5/2010	12.82	1300	25.70	NR	6.52	108.0	12.2	3.62	0.012 J	0.805	19.8 J	0.0016	<0.1	67.2
MW-03	10/18/2011	10.50	1133	4.64	45.1	6.88	89.1	5.0	3.3	0.0410	0.510	16	0.140	0.58	64
MW-03	10/16/2012	10.50	1035	4.46	40.1	6.82	12.6	6.3	3.6 J	0.0083 J	0.260	17	0.0130	0.46	69
MW-04	10/9/1997	9.61	228	1.09	8.0	8.41	-137.9		<0.1	NT	0.04	6.3	0.139	<1.0	7.3
MW-04	4/4/2000	9.43	237	1.38	NR	8.49	NR		<0.1	0.047	<0.05	10.8	0.0008	<0.5	9.6
MW-05	10/10/1997	10.68	887	0.38	3.4	6.24	28.8		<0.1	NT	4.9	15	<0.01	28000	50
MW-05	4/7/2000	8.76	737	4.81	39.3	6.03	119.4		<0.1	3.35	3.4	34.3	0.0009	20600	49
MW-05	4/26/2001	12.29	1018	3.71	36.0	6.40	-39.7		<0.13	11.3	7.6	28	NT	20600	42
MW-05	9/13/2001	11.45	698	10.19	97.0	6.80	-68.6		0.17	8.50	4.1	22	<0.01	6300	29
MW-05	8/7/2002	11.80	589	5.02	NR	6.15	35.2		<0.15	7.84	7.9	21		510	26
MW-05	9/25/2003	10.60	559	2.99	27.0	6.54	-21.3		<0.05	8.32	13.4	20	0.00047 J	1100	22.1
MW-05	9/22/2004	11.80	749	8.43	82.8	6.53	-98.5	56.8	0.01 R	5,650 J	30.5	24 R		194	29 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-05	9/28/2005	11.13	627	3.27	30.3	6.47	-60.4	0.98	<0.1	7.6	19	35	0.0230	1100 J	18
MW-05	9/26/2006	11.49	736	4.79	46.5	6.64	221.0	0.72	<0.1	8.0	23	27	0.0087 J	460	16
MW-05	9/20/2007	11.60	583	2.95	28.8	6.53	-68.9	0.80	0.1 UJ	7.6	25	39 J	0.0098	31	13
MW-05	10/22/2008	10.47	552	2.79	26.8	6.74	-73.0	1.08	0.05 UJ	9.7 J	10.5 J	24.8	0.011 J	206	8.68
MW-05	10/7/2009	13.43	631	3.30	29.8	6.69	-75.5	NR	0.05 UJ	11.8 J	6 J	55.1 J	0.017 J	33.3 J	8.59 J
MW-05	10/6/2010	12.87	638.5	1.90	18.8	6.37	27.9	2.00	0.1 UJ	12.6	3.0	79.4	0.004	40	11.4 J
MW-05	10/19/2011	10.33	809	3.05	31.0	6.99	-39.7	0.00	<0.1	11.0	2.6	150	0.038 J	0.97	15
MW-05	10/17/2012	11.32	634	5.84	61.5	6.88	-47.6	0.90	0.1 UJ	7.0	2.7	130	0.017	0.59 J	11
MW-06S	10/9/1997	11.26	792	5.25	48.0	6.21	232.1		4.5	NT	0.02	0.9	<0.01	<1.0	72
MW-06S	4/7/2000	Not measured. Sampled for VOCs only													
MW-06S	4/26/2001	12.03	453	2.78	26.7	5.92	142.2		0.87	0.347	<0.025	12	NT	2.5	14
MW-06S	9/12/2001	Not measured due to product in the well.							1.1	0.8	<0.035	16	<0.01	1.1	12
MW-06S	8/7/2002	12.75	583	NR	41.4	6.08	77.8		<0.15	1.790	3.33	18	0.270	88 B	17
MW-06S	9/25/2003	Not measured due to product in the well.							1.01	0.961	1.10	17	0.130	0.33	23.9
MW-06S	9/27/2006	CAMU wells not measured							3.9	0.590	<0.05	18	0.0035 J	0.21	18.0
MW-06S	9/20/2007	10.81	569	6.24	57.0	5.86	86.9	NR	4.7 J	0.2	0.51	34 J	0.003	0.099	30
MW-06S	10/23/2008	10.68	227	8.83	79.5	6.60	245.0	NR	7.11 J	0.0653 J	0.438 J	11	0.002 UJ	2.65	28.3
MW-06S	10/8/2009	Well Dry							Well Dry						
MW-06S	10/7/2010	14.30	680	92.67	NR	6.26	77.0	>1000	6.94 J	0.0197 J	0.531	11 J	<0.0013	0.1 UJ	21.3
MW-06S	10/19/2011	10.64	140	10.88	97.7	6.96	245.0	505.1	5.3	0.014	<0.05	9.8	<0.0005	<0.1	17
MW-06S	10/17/2012	11.67	156	12.23	112.3	7.27	129.0	701.1	5.5 J	0.0039 J	<0.05	11 J	<0.0005	<0.1	16
MW-07	10/14/1997	10.13	709	8.23	73.0	6.86	6.04		4.9	NT	0.622	6.0	<0.01	<1.0	7.6
MW-07	4/4/2000	9.87	693	5.82	51.5	7.01	156.1		2.7	0.026	0.359	6.06	0.004	<0.5	4.8
MW-07	4/25/2001	12.60	721	7.54	71.2	6.89	127.5		3.6	0.007	0.154	6.54	0.0047	<0.1	8.4
MW-07	9/11/2001	11.04	824	8.36	74.5	6.27	208.0		3.0	0.0044	0.230	10	0.012	0.083	23
MW-07	8/7/2002	12.68	812	NR	93.7	6.71	256.3		<0.15	0.004 B	0.305	10	<0.01	0.03	21
MW-07	9/24/2003	10.38	680	6.85	61.6	6.90	98.7	1.97	2.97	<0.005	0.09 J	<2	0.0049	0.044 J	12.2
MW-07	9/22/2004	13.90	736	7.89	77.5	6.71	35.2	14.5	3.4 J	9.75 J	1640 J	6.8 R		5.75	7.2 J
MW-07	9/27/2005	10.44	789	8.01	71.9	5.53	146.0	6.97	1.8	0.016	0.88	130 J	<0.002 J	<0.12	18
MW-07	9/27/2006	11.16	799	5.47	69.1	6.77	220.1	NR	1.8	0.068 J	<0.05	110	0.0043 J	0.087 J	15
MW-07	9/20/2007	10.55	771	7.43	67.2	6.69	120.5	(off scale)	1.5 J	0.022	0.26	170 J	0.0037	<0.093	16
MW-07	10/22/2008	10.26	911	8.76	78.4	7.16	112.3	835	1.54 J	0.0416 J	0.926 J	98.9	0.11 J	<0.1	14.1
MW-07	10/8/2009	10.29	811	10.28	96.1	7.33	183.6	(off scale)	1.91 J	0.109 J	0.687 J	152 J	0.0024 J	0.403 J	12.2 J
MW-07	10/6/2010	12.26	748	8.05	77.6	6.02	61.9	167	2.24 J	0.0632	0.989	168	0.0280	<0.1	13.8 J
MW-07	10/19/2011	11.72	492	8.65	80.1	7.01	84.8	88.7	1.9 J	0.0210	0.081	92	0.0150	<0.1	12

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-07	10/16/2012	12.15	679	9.75	100.3	7.18	75.0	87.3	1.5 J	0.0220	0.230	120	0.0022	<0.1	11
MW-08	10/14/1997	9.73	363	4.28	37.2	7.93	12.2		1.4	NT	0.148	4.5	0.0365	<1.0	4.2
MW-08	4/5/2000	10.07	295	3.78	33.5	6.91	252.3		3.5	0.0053	<0.05	6.5	0.0072	<0.5	6.26
MW-08	4/26/2001	11.08	358	5.50	52.3	7.94	151.3		1.52	0.027	<0.025	7.5	0.0116	0.2	3.25
MW-08	9/11/2001	10.49	386	4.08	NR	7.77	29.3		1.5	0.018	0.07	<7.6	<0.01	0.062	3.8
MW-08	8/8/2002	11.80	375	NR	75.2	7.56	160.9		<0.15	0.0053 B	0.011 B	6.0	<0.01	<0.04	4.2
MW-08	9/25/2003	10.67	414	6.20	57.8	7.79	125.4	4.15	2.6	0.006 J	<0.05	<2	0.0092	<0.11	11
MW-08	9/23/2004	11.89	449	5.50	52.8	7.14	11.0	2.99	2.4 J	12.0 J	256	5.8 J	3.75 J	1.94	15
MW-08	9/28/2005	11.10	407	8.25	71.0	7.56	195.2	52.2	2.0 J	0.016	0.13	19	0.0026	0.031 J	20
MW-08	9/25/2006	Well Dry							Well Dry						
MW-08	9/20/2007	11.86	543	4.67	43.9	7.34	-50.4	28.0	1.5 J	0.013	0.21	76 J	<0.002	<0.093	21
MW-08	10/22/2008	10.77	560	5.42	48.9	7.61	25.0	30.4	1.92 J	0.0131 J	0.707 J	73.1	0.0008 J	<0.1	24.3
MW-09	10/8/1997	10.59	171	6.30	54.9	5.63	217.6		4.2	NT	<0.0001	3.4	<0.01	<1.0	45
MW-09	4/5/2000	9.65	153	6.36	44.7	5.78	321.7		1.97	0.0217	<0.05	8.46	0.000396	0.6	3.15
MW-09	4/23/2001	9.62	172	5.21	43.1	5.72	162.7		2.46	0.034	<0.025	27	<0.00012	0.12	3.22
MW-09	9/12/2001	11.23	206	5.75	NR	5.54	309.8		3.3	0.016	0.11	<6.8	<0.01	0.76	6.5
MW-09	8/6/2002	9.21	253	1.96	17.3	5.27	391.9		<0.15	0.0063 B	<0.011	22	<0.01	0.54	11
MW-09	9/25/2003	9.22	206	3.53	34.3	5.62	278.7	73.3	2.36	0.016	0.24	24	<0.0005	2.3	4.4
MW-09	9/22/2004	11.91	228	4.99	47.5	5.28	148.1	5.93	1.8 J	8.51 J	0.24 J	26 R	<10.0 J	2.92	3.2 J
MW-09	9/27/2005	10.45	168	(*)	--	4.33	333.6	0.76	1.9 J	0.0054 J	<0.05	20	<0.002 J	0.57	2.6
MW-09	9/25/2006	Well Dry							Well Dry						
MW-09	9/21/2007	9.85	199	7.20	65.2	5.24	239.5	1.50	3.8 J	0.0041 J	<0.100	15 J	<0.002	0.37	2.6
MW-09	10/22/2008	9.28	205	13.1	122.1	5.84	282.5	3.38	2.48 J	0.01 UJ	0.166 J	14.9	0.002 UJ	<0.1	3.44
MW-09	10/8/2009	Well needs redevelopment; pump was pulled							Well needs redevelopment; pump was pulled						
MW-09	5/18/2010	12.17	160	6.99	NR	5.88	197.8	20.1	2.42 J	0.0071 J	0.120 UJ	11	<0.0013	0.073 J	2.63
MW-09	10/6/2010	13.29	NR	NR	76.8	6.34	72.3	17.4	3.35	<0.016	0.109 J	14 J	<0.0013	<0.1	3.26 J
MW-09	10/19/2011	9.04	131	7.99	67.0	5.91	214.7	3.0	3.10	0.0029 J	<0.05	8.9	<0.0005	<0.1	<1.0
MW-09	10/16/2012	8.37	200	8.28	72.3	5.86	232.5	3.4	5.9 J	<0.01	<0.05	10 J	<0.0005	0.39	2.8 J
MW-10	10/15/1997	10.88	803	0.38	3.4	6.83	-33.2		4.9	NT	0.00219	13	0.0135	3400	35
MW-10	4/6/2000	10.76	988	0.47	4.2	6.82	27.4		1.72	1.59	0.1159	13.8	0.003067	9530	55.9
MW-10	4/26/2001	12.31	1029	4.52	42.8	6.89	-103.5		0.18	2.38	5.65	22	NT	22800	48
MW-10	9/12/2001	11.18	1188	6.55	63.1	6.89	-71.1		0.13	3.20	2.40	23	<0.01	21000	61
MW-10	8/7/2002	14.24	1010	NR	60.9	6.30	-147.8		<0.15	2.54	10.7	20	0.011	22000	56
MW-10	10/1/2003								<0.05	1.85	2.59	3	0.00062	9000	22

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-10	9/23/2004	Not measured due to product in the well							0.0018 J	1.81	0.0241	18	<10.0	38000	38
MW-10	9/29/2005	Well Dry							Well Dry						
MW-10	9/27/2006	Not measured due to product in the well							<0.1	2.6	0.12	24	<0.002	23000 J	14
MW-10	9/20/2007	Not measured due to product in the well							0.68 J	2.7	0.55	25 J	0.0024	1700	20
MW-10	10/23/2008	Not measured due to product in the well							0.05 UJ	2.21 J	1.11 J	28.1	0.006 J	1630	12.4
MW-10	10/7/2009	Not measured due to product in the well							0.05 UJ	2.23 J	1.21 J	58.7 J	0.017 J	220 J	9.82 J
MW-10	10/7/2010	Not measured due to product in the well							0.1 UJ	1.78	0.488	48.2 J	0.0018	92.4 J	7.26 J
MW-10	10/20/2011	10.94	451	4.12	40.9	7.21	-21.7	5.0	0.21	1.7	0.18	53	0.0088 J	21	8.4
MW-10	10/17/2012	11.10	587	3.32	33.6	7.29	-23.6	4.6	0.075 J	1.6	0.19	68 J	0.012	9	7.8
MW-10S	10/15/1997	13.18	339	10.49	100.0	7.55	135.6		<0.1	NT	0.0000454	23	<0.01	12000	38
MW-10S	4/7/2000	9.41	599	5.02	41.5	6.37	331.6		<100	10.1	<0.05	138	0.001567	56100	53
MW-10S	4/25/2001	Not measured due to product in the well							1.5	6.03	11.30	8.6	0.00055	49000	11
MW-10S	9/12/2001	Not measured due to product in the well							4.7	7.60	0.048	13	<0.01	82000	10
MW-10S	8/7/2002	13.62	431	NR	66.1	6.31	303.8		0.11	7.07	0.0673	14	<0.01	390	10
MW-10S	9/25/2003	Not measured due to product in the well							3.41	5.9	<0.05	2.0	<0.0005	2200	6.7
MW-10S	9/22/2004	Not measured due to product in the well							3.6 J	3740 J	0.0227 J	15 R	<10.0 J	9490	24 J
MW-10S	9/29/2005	Not measured due to product in the well							2.0 J	3.9	<0.05	120 J	<0.002	<0.11	16
MW-10S	9/27/2006	Not measured due to product in the well							1.2	2.5	<0.05	79	<0.002	2700 J	8.6
MW-10S	9/20/2007	Not measured due to product in the well							1.3	1.3	<0.100	69 J	<0.002	24	8.7
MW-10S	10/23/2008	Not measured due to product in the well							Well Dry				0.002 UJ	Well Dry	
MW-10S	10/7/2009	Pump is set above water table; No sample collected							Pump is set above water table; No sample collected						
MW-11	10/15/1997	13.98	398	4.86	47.2	7.94	144.3		3.4	NT	<0.0001	12	<0.01	<1.0	7.5
MW-11	4/4/2000	13.24	427	6.57	61.9	7.80	215.5		3.09	<0.002	<0.05	9.41	0.000138	<0.6	6.98
MW-11	4/4/2001	12.98	337	6.98	67.6	7.86	138.5		3.74	<0.015	<0.025	3.48	<0.00011	<0.11	6.25
MW-11	9/10/2001	13.13	414	9.09	NR	7.77	100.0		3.1	0.00045	<0.035	<7.4	<0.010	0.091	8
MW-11	8/6/2002	13.12	455	5.37	NR	7.58	240.6		<0.15	0.0012 B	<0.011	7.6	<0.01	<0.04	7.8
MW-11	9/23/2003	12.66	396	6.29	60.7	7.81	245.9	11.3	2.94	<0.005	<0.05	<2.0	<0.0005	<0.11	6.7
MW-11	9/21/2004	12.15	494	0.48	4.4	7.64	159.3	7.76	3.0 J	1.40 J	15.6	6.2 J	<10.0	0.0656	9
MW-11	9/29/2005	11.55	502	8.12	96.9	7.26	177.2	0.32	2.4 J	0.003 J	<0.05	9.7	<0.002	740 J	14
MW-11	9/27/2006	11.91	490	NR	53.8	7.82	159.2	0.16	0.53 J	<0.01 J	<0.05 J	8.8 J	<0.002 J	<0.11	16 J
MW-11	9/20/2007	11.83	520	5.05	47.5	7.54	75.7	0.28	2.4 J	<0.01	<0.100	19 J	<0.002	<0.093	20
MW-11	10/22/2008	11.93	546	6.93	64.6	7.64	208.7	0.20	2.26 J	0.01 UJ	0.533	17.8	0.002 UJ	0.27	19.9
MW-12	10/15/1997	10.16	1044	2.86	25.0	6.93	41.2		<0.1	NT	0.00027	15	<0.01	5000	48
MW-12	4/6/2000	10.10	1097	0.63	5.6	6.89	169.9		0.483	1.59	0.1128	11.9	0.0016	10300	54.5

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-12	4/6/2001	Parameters not measured							0.43	1.57	0.1310	16	0.0480	1500	48
MW-12	9/13/2001	11.02	1142	3.95	36.7	6.84	22.2		<0.53	1.40	0.74	16	<0.01	18000	47
MW-12	5/14/2002	10.28	933	0.75	7.0	6.72	110.0		0.67	1.68	<0.011	17		4300	40
MW-12	8/7/2002	12.21	920	NR	45.9	6.69	150.0		0.46	1.60	0.105	15	<0.01	6400	37
MW-12	4/29/2003	10.95	982	5.24	47.2	6.80	126.1		0.8	1.56	<0.025	20	<0.05	3000	31
MW-12	9/23/2003	10.89	864	3.07	27.8	6.62	306.1	0.54	1.17	1.53	<0.05	<2.0	0.00049 J	10000	30.8
MW-12	5/4/2004	10.64	897	7.50	71.7	7.15	126.2		1.1 J	1480 R	52.7	14 R	1.34 J	11200 J	29
MW-12	9/22/2004	13.49	939	3.87	37.6	6.77	95.6	0.83	1.1 J	1230 J	53.9	12 R	<10.0 J	9060 J	26 J
MW-12	5/12/2005	11.24	1774	2.79	26.4	6.88	176.6	0.46	1.3 J	1.4	<0.05	16 R	<0.002	8300 J	23 J
MW-12	9/27/2005	11.67	760	0.70	6.4	6.56	169.3	4.28	1.1 J	1.3	<0.05	26 J	<0.002 J	8500 J	20
MW-12	6/7/2006	12.10	788	4.85	38.1	6.76	175.9	2.13	2.1 J	1.1 J	0.05 R	32	<0.002	6100 J	21 J
MW-12	9/26/2006	12.39	872	NR	41.5	7.07	214.1	1.29	1.9 J	1.2 J	<0.05	15 J	<0.002 J	3100	14 J
MW-12	5/9/2007	12.15	771	NR	NR	6.60	155.5	0.58	2.4 J	1.1	<0.100	37 J	<0.002	3000 J	13
MW-12	9/19/2007	11.85	737	3.19	30.6	6.79	144.8	1.27	2.8 J	0.82	<0.100	29 J	<0.002	1100	14
MW-12	5/20/2008	11.61	705	1.86	18.2	6.95	168.4	0.00	2.0 J	1.0	0.1 UJ	25	0.002 UJ	2100 J	12
MW-12	10/21/2008	10.23	706	3.44	31.7	7.06	110.2	0.50	2.96 J	1.14	0.927	31.8	0.002 UJ	1670 J	13.1
MW-12	6/2/2009	12.99	711	9.30	88.8	7.28	131.8	3.70	2.65 J	1.04	0.310	59.9	0.0008 UJ	521 J	12.3
MW-12	10/6/2009	10.97	742	4.88	44.8	7.00	184.4	0.37	1.84 J	0.987 J	0.307 J	85.4 J	0.00083 UJ	295 J	13.7 J
MW-12	5/19/2010	11.92	790	6.43	NR	6.94	162.4	0.76	1.87 J	0.913 J	0.228 J	116	<0.0013	70.3	14.7
MW-12	10/5/2010	14.78	990	35.60	NR	7.01	85.7	2.07	1.73	0.834	0.358	119	<0.0013	43.7	14.4 J
MW-12	6/29/2011	11.58	820	3.18	30.2	6.47	308.1	1.50	2.28	0.744	0.314	111	<0.0009	37	14.1 J
MW-12	10/18/2011	10.51	800	6.51	58.6	7.11	173.1	0.00	2.1	0.66	<0.05	98	<0.0005	37	14
MW-12	5/22/2012	11.40	793	3.40	31.3	7.10	154.6	0.20	1.8	0.67	<0.05	120	<0.0005	21 J	14
MW-12	10/16/2012	10.57	773	6.52	58.7	6.94	137.4	1.40	2.0 J	0.41	<0.05	120	<0.0005	26	14
MW-13	10/8/1997	12.79	185	6.00	54.1	6.19	206.7		1.3	0.000027	0.0000067	1.4	<0.01	0.7	2.7
MW-13	4/5/2000	9.67	189	8.29	51.5	5.49	296.7		<100	0.1118	<0.05	431	0.0003	0.8	4.4
MW-13	4/23/2001	9.08	140	3.44	26.8	5.59	207.9		1.77	0.110	<0.025	35	<0.00012	0.18	3.5
MW-13	9/10/2001	10.69	203	NR	NR	5.54	196.0		2.5	0.027	0.052	<7.5	<0.01	0.69	5.4
MW-13	8/5/2002	11.49	223	5.36	48.3	5.38	333.1		<0.15	0.045	1.31	8.4	<0.01	0.64	6.8
MW-13	9/23/2003	11.16	195	3.50	32.3	5.80	317.0	432	1.86	0.182	0.96	7.0	<0.0005	2.90	5.1
MW-13	9/21/2004	11.13	208	1.57	13.8	5.60	229.7	151	2.4 J	3.67 J	<0.124 J	6.4 R	<10.0 J	4.67	6.5 J
MW-13	9/27/2005	12.48	168	(*)	NR	5.19	335.1	221	0.6	0.0071 J	<0.05	19	<0.002 J	0.85	3.1
MW-13	9/25/2006	Well Dry							Well Dry						
MW-13	9/18/2007	11.42	163	7.33	69.0	5.39	311.2	0.50	0.31 J	0.0063 J	<0.100	29 J	<0.002	0.53	2.9
MW-13	10/21/2008	10.50	142	11.66	105.9	5.87	196.4	167	0.45 J	<0.01	0.207	10.1	0.002 UJ	0.31 UJ	1.9 J
MW-13	10/7/2009	12.90	106	8.11	76.8	6.24	54.5	235	0.77 J	0.01 UJ	0.05 UJ	9.71 J	0.00083 UJ	0.16 J	2.12 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-14	10/9/1997	9.32	252	6.43	56.2	8.09	108.9		1.6	NT	<0.0001	2.4	<0.01	<1.0	8.0
MW-14	4/6/2000	9.10	283	6.92	60.0	7.42	257.3		2.2	<0.002	<0.05	4.1	0.0002	<0.5	15.7
MW-15	10/16/1997	9.29	409	4.49	39.1	8.22	149.8		4.1	NT	0.00001	6.3	<0.01	<1.0	6.5
MW-15	4/4/2000	8.08	483	10.72	85.1	7.69	284.1		3.52	<0.002	<0.05	10.0	0.000339	<0.5	12.3
MW-15	4/25/2001	11.79	675	8.73	81.3	7.73	179.4		3.97	<0.015	<0.025	2.6	<0.0001	<0.11	15
MW-15	9/12/2001	9.74	548	9.80	NR	8.00	153.3		3.7	0.00031	<0.035	<4.5	<0.01	0.077	17
MW-15	8/6/2002	10.24	508	NR	101.4	7.72	285.7		<0.15	<0.00042	<0.011	4.7	<0.01	<0.04	16
MW-15	9/23/2003	9.74	483	9.14	81.7	7.90	213.6	26.1	3.8	<0.005	<0.05	<2.0	<0.0005	<0.1	17.4
MW-15	9/21/2004	9.85	514	8.49	77.4	7.55	73.5	4.11	3.2 J	0.976 J	36.7	3.9 J	<10.0	0.279	16
MW-15	9/29/2005	11.44	580	10.25	89.3	7.58	163.8	1.50	4.2 J	0.0016 J	<0.05	5.8	<0.002	<0.11	17
MW-15	9/27/2006	11.95	607	NR	89.5	7.84	118.3	3.68	4.7 J	<0.002 B	<0.05 J	5.9 J	<0.002 J	< 0.11	14 J
MW-15	9/19/2007	12.75	574	11.08	106.6	7.01	197.0	1.50	5.7 J	<0.01	<0.100	13 J	<0.002	<0.1	15
MW-15	5/20/2008	12.21	551	8.40	80.5	7.66	136.3	0.80	4.7 J	0.00052 J	0.100 UJ	6.6	0.002 UJ	0.18 J	14
MW-15	10/21/2008	11.78	575	7.56	70.2	7.54	98.6	1.27	6.05 J	<0.01	0.854	6.99	0.002 UJ	0.1 UJ	14.6
MW-15	6/2/2009	13.58	560	8.78	85.0	7.83	159.0	NR	5.33 J	<0.01	0.301	6.42	0.0008 UJ	0.1 UJ	13.5
MW-15	10/7/2009	10.20	576	8.46	75.5	7.65	28.9	16.90	4.74 J	<0.0001 UJ	0.293 J	6.52 J	0.00083 UJ	0.1 UJ	12.9 J
MW-15	5/18/2010	13.09	563	9.26	NR	7.42	130.9	19.37	4.57 J	0.010 UJ	0.194 J	6.3	<0.0013	<0.1	10.7
MW-15	10/7/2010	12.50	543	7.99	75.3	7.32	85.7	2.53	5.49 J	<0.016	0.311	6.91 J	<0.0013	2.32 J	13.2 J
MW-15	6/28/2011	13.24	538	5.96	57.0	7.58	228.9	0.80	5.2 J	<0.01	0.205	6.91	<0.0009	<0.1	12.1J
MW-15	10/18/2011	11.62	545	8.8	81.3	7.48	140.0	0.00	4.8 J	0.0017 J	<0.05	5.3	<0.0005	<0.1	12
MW-15	5/22/2012	11.77	537	7.99	83.4	7.51	165.7	0.00	4.6 J	<0.01	<0.05	5.1 J	<0.0005	0.024 J	11
MW-15	10/16/2012	12.38	554	10.91	107.1	7.51	82.4	1.00	5.3 J	<0.01	<0.05	<5.0	<0.0005	<0.1	12
MW-16	10/14/1997	9.86	409	8.57	74.8	6.82	99.4		3.2	NT	0.00002	8.1	<0.01	<1.0	6.1
MW-16	4/6/2000	9.77	169	8.16	70.0	6.63	310.9		3.9	1.69	<0.05	24.1	<0.001068	<0.5	6.5
MW-16	4/26/2001	10.46	1102	4.72	43.2	6.81	75.6		8.7	0.0094	0.026	29	<0.00012	<0.11	3.6
MW-16	9/10/2001	Parameters not measured							5.8	0.00082	<0.035	11	<0.01	0.17	1.8
MW-16	8/6/2002	11.70	247	10.86	NR	6.11	331.3		<0.15	0.0091 B	0.0782	13	<0.01	0.035	2.0
MW-16	9/23/2003	10.97	216	10.27	93.2	6.34	349.1	29.0	3.5	<0.005	<0.05	3 J	<0.0005	0.089 J	6.2
MW-16	9/21/2004	10.68	222	0.07	0.6	6.49	173.9	37.4	2.1 J	0.617 J	0.025	5.5 J	<10.0	0.0962	3.7
MW-16	9/29/2005	10.48	373	11.12	97.6	6.79	233.4	12.8	1.5	0.0021 J	<0.05	71 J	<0.002	<0.11	11
MW-16	9/26/2006	10.69	278	9.33	87.7	6.45	232.3	51.8	1.2 J	<0.00059 B	<0.05 J	32 J	<0.002 J	0.046 J	4.1 J
MW-16	9/18/2007	10.91	210	11.55	105.1	5.89	318.4	NR	1.2 J	<0.01	<0.100	23 J	<0.002	0.2	4.5
MW-16	10/22/2008	9.15	248	17.98	156.2	6.52	224.5	267	0.99 J	0.02 J	0.318 J	43.2	0.002 UJ	0.08 J	7.51
MW-16	10/6/2009	9.61	173	10.62	93.2	7.03	177.8	164	1.03 J	0.0486 J	0.458 J	36.7 J	0.00083 UJ	0.1 UJ	6.35 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-16	10/5/2010	12.82	290	100.07	NR	7.82	104.7	292.33	0.63 J	<0.016	<0.05	6.29 J	<0.0013	<0.1	5.74 J
MW-16	10/19/2011	10.03	110	NR	NR	6.97	165.8	101.7	0.63 J	0.014	0.13	12	<0.0005	<0.1	4.2
MW-16	10/16/2012	9.87	126	10.89	96.5	6.94	204.6	27.5	0.52 J	0.017	0.18	17 J	<0.0005	<0.1	4.6
MW-17	10/15/1997	9.26	399	4.53	39.0	7.89	147.2		4.1	NT	<0.0001	10	<0.01	<1	4.8
MW-17	4/6/2000	9.15	438	4.81	41.8	7.73	254.9		4.21	<0.002	<0.05	<3.0	0.00013	<0.5	4.89
MW-17	4/26/2001	10.38	412	9.64	85.7	7.77	58.6		4.98	<0.015	<0.025	6.8	NT	0.72	4.12
MW-17	9/11/2001	11.44	457	6.96	62.9	7.49	262.0		4.4	<0.00027	0.31	<9.3	<0.01	<0.059	4.8
MW-17	8/8/2002	12.88	425	NR	65.8	7.64	204.5		<0.15	<0.00042	<0.011	7.4	<0.01	0.032	4.6
MW-17	9/25/2003	9.80	405	6.45	57.3	7.80	206.0	358	5.1	<0.005	<0.05	<2.0	<0.0005	0.46	4.4
MW-17	9/22/2004	11.02	498	9.13	87.0	7.57	150.5	8.23	4.8 J	0.045 J	0.0139 J	8.6 R	<10.0 J	2.82	4.1 J
MW-17	9/27/2005	11.94	368	(*)	NR	6.31	325.4	0.23	5.1 J	<0.01	<0.05	7.8	<0.002 J	0.054 J	3.9
MW-17	9/26/2006	11.74	429	NR	61.9	7.75	222.0	1.05	5.5 J	<0.01 J	<0.05 J	6.5 J	<0.002 J	<0.11	2.9 J
MW-17	9/19/2007	10.42	385	10.15	92.6	7.60	113.7	0.30	5.6 J	<0.01	<0.100	14 J	<0.002	<0.099	4.7
MW-17	10/22/2008	10.57	376	7.24	65.7	7.76	126.0	0.66	5.75 J	0.01 UJ	0.374 J	7.75	0.002 UJ	0.095	7.78
MW-17	10/6/2009	11.03	361	9.33	84.8	7.80	167.1	1.69	1.65 J	0.01 UJ	0.16 J	6.86 J	0.00083 UJ	0.1 UJ	6.54 J
MW-17	10/5/2010	12.85	530	68.9	NR	7.87	105.7	1.85	5.18	<0.01	0.163	9.68 J	<0.0013	<0.1	11.6 J
MW-17	10/18/2011	10.89	400	7.76	72.1	7.76	156.9	0.00	3.9	<0.01	<0.05	24	<0.0005	<0.1	16
MW-17	10/16/2012	11.49	415	8.55	80.1	7.84	100.8	0.00	4.7	<0.01	<0.05	23 J	<0.0005	<0.1	16
MW-18	10/10/1997	11.51	777	1.03	9.2	6.13	-12.1		<0.1	NT	0.03	11	<0.01	8800	49
MW-19	10/16/1997	8.43	662	12.11	103.4	8.23	133.6		3.8	NT	<0.0001	19	<0.01	8900	47
MW-19	4/7/2000	7.80	650	5.02	40.3	6.75	323.2		6.97	<0.002	<0.05	90	0.000272	11000	37.4
MW-19	4/7/2001	Not measured due to product in the well							3.37	1.79	<0.025	47	NT	25600	39
MW-19	9/12/2001	Not measured due to product in the well							1.3	1.80	0.071	<9.7	0.016	400000	19
MW-19	5/13/2002	Not measured due to product in the well							2.0	2.07	<0.011	16		14000	33
MW-19	8/8/2002	Not measured due to product in the well							0.16	3.11	0.218	16	<0.01	11000	22
MW-19	4/29/2003	Not measured due to product in the well							3.0	3.59	<0.025	27	0.0024	4900	19.6
MW-19	9/25/2003	Not measured due to product in the well							2.0	4.47	0.05 J	90	0.0057	15000	17.5
MW-19	5/4/2004	Not measured due to product in the well							0.71 J	3.36	0.031	16 R	1.13 J	70000 J	25
MW-19	9/22/2004	Not measured due to product in the well							1.5 J	2.65	<0.124	23 R	<10.0 J	111000	15 J
MW-19	5/10/2005	Not measured due to product in the well							0.76 J	2.3	<0.05	29 R	<0.002	45000 J	18 J
MW-19	9/29/2005	Not measured due to product in the well							0.75	2.7	<0.05	40 J	<0.002	13000 J	19
MW-19	6/7/2006	Not measured due to product in the well							0.76 J	2.7 J	<0.05 J	36	<0.002	17000 J	18 J
MW-19	9/27/2006	Not measured due to product in the well							0.66 J	3.1	<0.05	30	<0.002 J	8200 J	14
MW-19	5/9/2007	Not measured due to product in the well							0.29 J	2.6	<0.100	59 J	<0.002	11000 J	15

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-19	9/20/2007	Not measured due to product in the well							0.28 J	3.1	<0.100	42 J	<0.002	3500	17
MW-19	5/20/2008	Not measured due to product in the well							0.44 J	2.9	0.100 UJ	42	<0.002	23000 J	16
MW-19	10/24/2008	Not measured due to product in the well							0.04 J	4.85 J	0.51 J	46	0.0021 J	27900	15.9
MW-19	6/2/2009	Not measured due to product in the well							0.01 UJ	4.05	0.222	45	0.0039 J	18600 J	12.8
MW-19	10/8/2009	Not measured due to product in the well							0.05 UJ	3.19 J	0.237 J	42 J	0.002 J	31800 J	14.3 J
MW-19	5/20/2010	Not measured due to product in the well							0.05 UJ	1.87 J	0.0922 UJ	32	0.0014	26000	21.5
MW-19	10/7/2010	Not measured due to product in the well							0.10 UJ	0.942	0.114	18.7 J	<0.0013	4470 J	13.6 J
MW-19	6/29/2011	Not measured due to product in the well							0.26	1.3	0.131	20	<0.0009	8880	16.6 J
MW-19	10/20/2011	Not measured due to product in the well							0.3	1.7	0.052 J	17	0.00033 J	13000	19
MW-19	5/22/2012	Not measured due to product in the well							1.1	1.3	<0.05	12	0.00071	5300	15
MW-19	10/17/2012	Not measured due to product in the well							1.4	0.9	<0.05	11 J	<0.0005	8100	12
MW-20	10/15/1997	Well Dry							NT	NT	NT	NT	<0.01	11000	NT
MW-20	4/26/2001	Not measured due to product in the well							<0.13	2.25	0.841	67	NT	36600	24
MW-20	9/12/2001	Not measured due to product in the well							0.15	2.8	<0.035	24	<0.01	83000	16
MW-20	8/7/2002	Not measured due to product in the well							<0.15	3.28	0.206	25	<0.01	30000 B	22
MW-20	9/25/2003	Not measured due to product in the well							<1.25	3.25	0.35	80 J	0.0054	13000	19.4 J
MW-20	9/22/2004	Not measured due to product in the well							0.29 J	2.32	2.07	23 R	<10.0 J	133000	24 J
MW-20	10/25/2005	Not measured due to product in the well							2.1 J	2.4	0.14	39 J	<0.002	63000 J	13
MW-20	9/27/2006	Not measured due to product in the well							0.22	4.2	0.094 J	71	<0.002 J	44000 J	16
MW-20	9/20/2007	Not measured due to product in the well							0.1 UJ	4.8	<0.100	98 J	<0.002	9500	18
MW-20	10/23/2008	Not measured due to product in the well							0.13 J	3.4 J	0.462	29	0.002 UJ	41000	15.7
MW-21	2/9/1998	8.50	559	8.35	NT	7.05	177.5		NT	NT	<0.1	9.1	0.011	<1.0	71
MW-21	5/14/2002	9.29	457	10.66	93.5	5.86	152.0		2.0		0.130	7.3		0.07	69
MW-21	8/6/2002	10.72	444	NR	99.0	6.79	297.6		<0.15	0.00063 B	<0.011	9.6		0.035	49
MW-21	4/29/2003	9.91	473	3.72	NR	6.65	144.9		2.5	<0.005	<0.025	12	<0.0005	0.15	41
MW-21	9/24/2003	9.30	491	11.13	97.7	6.74	326.0	400	2.6	<0.005	<0.05	<2.0	<0.0005	0.063 J	48
MW-21	5/4/2004	10.10	557	NR	89.2	6.50	196.3	NR	2.3 J	0.718 R	14000 R	3.6 R	<10.0	<0.135 B	67
MW-21	9/21/2004	9.80	510	10.37	92.5	6.61	102.1	365	2.4 J	0.484 J	10300 J	4.8 R	<10.0 J	0.474	63 J
MW-21	5/10/2005	10.47	544	10.89	94.1	6.63	159.6	103	2.8 J	0.00047 J	<0.05	12 R	<0.002	0.33	49 J
MW-21	9/27/2005	10.45	444	13.46	(*)	6.32	129.8	969	2.4 J	0.0098 J	0.036 J	17	<0.002 J	0.046 J	47
MW-21	6/1/2006	9.76	496	8.23	62.7	6.77	200.8	684	2.7 J	0.017 J	0.047 J	20	<0.002	0.023 J	65 J
MW-21	9/25/2006	Well Dry							Well Dry						
MW-21	5/8/2007	10.64	429	9.20	82.9	6.04	200.1	312	4.2 J	<0.01	<0.100	9.3 J	<0.002	<0.098	33 J
MW-21	9/18/2007	12.17	352	7.89	NR	6.32	235.8	150	3.7 J	<0.01	<0.100	12 J	<0.002	0.13	29
MW-21	10/21/2008	8.57	411	12.83	110.1	6.58	211.3	44.4	2.69 J	<0.01	0.294 J	<7.27	0.002 UJ	0.1 UJ	69

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-22	2/9/1998	8.70	558	7.50	NT	6.86	119.5		NT	NT	<0.1	18	0.013	<1.0	56
MW-22	5/14/2002	9.91	423	10.25	91.3	6.77	85.5		3.7 J	0.0035	0.0229	14		0.12	18
MW-22	8/6/2002	11.37	343	NR	101.6	6.86	323.7		<0.15	<0.00042	0.025 B	12	<0.01	0.078	7.2
MW-22	9/24/2003	9.70	303	10.92	96.4	6.89	345.4	1038	2.15	0.542	2.77	3.0 J	<0.0005	0.34	4.9
MW-22	9/21/2004	9.78	316	10.59	94.5	6.64	99.3	777	2.2 J	<15.0 J	<0.025 J	6.7 R	<10.0 J	0.22	11 J
MW-22	9/28/2005	9.70	Meter not working		87.4	6.66	260.8	59.5	1.7 J	0.0013 J	<0.05	18	<0.002	0.16 J	10
MW-22	9/25/2006	Well Dry							Well Dry						
MW-22	9/18/2007	11.85	276	8.23	NR	6.53	227.9	NR	2.5 J	<0.01	<0.100	10 J	<0.002	0.13	8.2
MW-22	5/20/2008	10.05	268	NR	86.6	6.43	273.7	1045.9	2.3 J	0.0036	0.100 UJ	12	0.002 UJ	0.77 J	8.4
MW-22	10/21/2008	10.31	243	12.46	111.0	6.90	238.5	NR	1.48 J	<0.01	0.303 J	6.95	0.002 UJ	0.09 UJ	4.7
MW-22	6/2/2009	9.97	188	NR	NR	7.07	196.7	NR	1.97 J	<0.01	0.0831	6.73	0.0008 UJ	0.1 UJ	6.9
MW-22	10/6/2009	8.94	173	10.02	86.6	7.12	187.4	918	5.31 J	0.168 J	1.56 J	7.53 J	0.00083 UJ	0.1 UJ	7.0 J
MW-22	5/18/2010	11.91	177	11.71	NR	6.35	238.3	772	1.9 J	NT	NT	6.9	<0.0013	0.1 U	9.2
MW-22	10/6/2010	12.85	NR	NR	94.4	6.83	123.7	451.83	0.9 J	<0.01	0.0742 J	5.62 J	<0.0013	0.13 UB	1.8 J
MW-22	6/29/2011	10.45	84	8.77	78.7	6.88	286.9	113	0.46 J	0.0276	0.499	3.9 J	<0.0009	<0.1	0.78 J
MW-22	10/18/2011	9.56	96	18.25	161.9	7.15	164.3	37.3	0.5 J	0.0027 J	<0.05	3.5 J	<0.0005	<0.1	<1.0
MW-22	5/22/2012	9.96	112	9.81	87.0	7.34	157.6	74.3	0.76 J	0.013	0.16	3.9 J	<0.0005	0.084 J	3.4
MW-22	10/16/2012	8.62	131	10.95	93.9	6.64	226.7	35.8	0.48 J	0.0057 J	<0.05	<5.0	<0.0005	<0.1	4.1
MW-23	2/27/1998	9.63	270	13.68	122.3	7.93	159.0		NT	NT	<0.1	7.6	0.0566	<1.0	8.7
MW-23	9/11/2001	11.57	322	3.21	28.8	7.46	112.6		<0.13	0.029	<0.035	<8.2	<0.01	0.49	10
MW-24	2/8/1998	13.80	524	5.35	NR	6.62	80.0		NT	NT	<0.1	5.2	<0.01	<1	19
MW-24	4/24/2001	15.30	634	3.67	34.9	6.28	209.2		3.64	0.002	<0.025	12	<0.0001	0.11	36
MW-25	2/9/1998	8.69	808	8.16	NR	6.95	55.0		NT	NT	<0.1	9.9	0.017	<1.0	16
MW-26	4/24/2001	11.24	646	7.73	71.8	7.05	190.2		5.0	<0.015	0.04	10	<0.0001	<0.1	22
MW-26	9/10/2001	Parameters not measured							3.2	<0.004	0.10	12	<0.01	0.16	30
MW-26	5/14/2002	12.28	588	7.55	72.8	7.11	17.8		3.0 J	0.001	<0.011	15		0.10	27
MW-26	8/5/2002	11.30	588	NR	66.3	6.52	280.1		<0.15	0.00056 B	<0.011	14	<0.01	0.03	18
MW-26	4/29/2003	10.58	621	8.68	79.2	6.53	157.3		3.5	<0.005	<0.025	14	<0.0005	<0.1	18
MW-26	9/23/2003	10.84	513	7.41	67.7	6.70	279.8	23.7	3.74	<0.005	<0.05	<2.0	<0.0005	<0.11	11
MW-26	5/4/2004	9.85	172	7.07	62.8	6.19	326.2	NR	3.9 J	1.23 R	0.039	42 R	<10.0	<0.242 B	17
MW-26	9/23/2004	13.16	931	8.85	87.2	6.44	63.4	44.6	1.5 J	19.3	620	120	<10.0	0.393	28
MW-26	5/10/2005	11.49	1120	10.48	97.2	6.92	197.0	NR	2.8 J	0.0018 J	<0.05	200 R	<0.002	0.061 J	26 J

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-26	9/27/2005	12.13	845	6.77	63.2	6.78	129.2	5.24	1.9 J	<0.01	<0.05	170 J	<0.002 J	0.027 J	25
MW-26	6/7/2006	11.71	830	7.97	74.7	7.00	113.3	2.93	1.8 J	<0.0025 J	<0.05 J	140	<0.002	<0.11	29 J
MW-26	9/27/2006	12.24	1011	7.10	66.6	7.11	227.3	1.03	1.5 J	<0.01 J	<0.05 J	87 J	<0.002 J	<0.11	23 J
MW-26	5/8/2007	11.36	852	7.60	70.4	7.51	60.9	3.07	1.5 J	<0.01	<0.100	210 J	<0.002	<0.093	21 J
MW-26	9/19/2007	11.65	892	6.03	56.2	7.04	129.7	3.40	1.3 J	<0.01	<0.100	220 J	<0.002	<0.095	25
MW-26	5/20/2008	11.80	921	7.06	66.5	7.06	181.1	0.00	1.8 J	<0.0025	0.100 UJ	230	0.002 UJ	0.096 UJ	22
MW-26	10/22/2008	10.88	953	4.74	43.0	6.96	192.9	1.83	2.36 J	0.01 UJ	0.777 J	235	0.002 UJ	<0.1	21.7
MW-26	6/2/2009	13.40	901	15.21	146.0	7.37	195.6	4.10	1.83 J	<0.01	0.341	2360	0.0008UJ	0.1 UJ	203
MW-26	10/6/2009	12.63	845	9.82	96.6	7.15	133.2	0.31	1.7 J	0.01 UJ	0.325 J	212 J	0.00083 UJ	0.1 UJ	20.7 J
MW-26	5/19/2010	12.84	919	12.24	NR	7.06	133.8	2.81	2.41 J	0.010 UJ	0.236 J	279	<0.0013	0.13 J	20.4
MW-26	10/5/2010	12.11	985	2.31	21.6	6.75	102.1	0.67	1.77	<0.01	0.376	232	<0.0013	0.1 UJ	20 J
MW-26	6/29/2011	12.59	934	7.50	71.0	6.74	355.5	0.90	1.83 J	<0.01	0.274	230	<0.0009	<0.1	18.3 J
MW-26	10/19/2011	11.14	906	10.80	91.4	7.21	224.3	0.00	1.6 J	<0.01	<0.05	200	<0.0005	<0.1	19
MW-26	5/22/2012	12.36	839	8.66	81.6	7.33	146.5	0.00	1.7	<0.01	<0.05	210	<0.0005	<0.1	19
MW-26	10/16/2012	11.52	827	10.10	93.0	7.39	143.6	0.00	1.8 J	<0.01	<0.05	200	<0.0005	<0.1	19
MW-27	10/20/2011	12.71	202	9.48	89.3	8.33	168.6	27.60	3.1	<0.01	<0.05	9.1	0.0001 J	0.17	10
MW-28	10/20/2011	10.52	283	5.11	47.0	7.78	154.2	6.50	1.3	0.006 J	<0.05	5.2	0.00019 J	690	5.5
MW-28	10/17/2012	10.57	304	10.73	96.7	7.82	112.7	0.00	1.8	<0.01	<0.05	<5.0	<0.0005	<0.1	11
PW-01	10/23/1997	11.10	550	5.00	NR	8.92	185.0		7.7	NT	0.0012	10	0.0195	5.0	48
PZ-03	2/9/1998	7.50	212	11.02	NR	6.91	164.0		NT	NT	NT	NT	NT	<1	NT

(*) Readings outside normal range, instrument response in question.

NR - Parameter not Recorded.

NT - Parameter not tested.

Appendix D

Residential Well Memorandums

CH2M HILL
135 South 84th Street
Suite 400
Milwaukee, WI 53214
Tel 414.272.2426
Fax 414.272.4408

CH2MHILL

August 8, 2012

Ms. Linda Martin
Remedial Project Manager (SR-6J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507

Subject: Subcontract No. 599, May 2012 Sampling Results
Penta Wood Products Site, Town of Daniels, Wisconsin
Long-Term Response Action (LTRA)
WA No. 132-LRLR-05WE, Contract No. EP-S5-06-01

Dear Linda:

Please find the enclosed results of the residential and potable well semi-annual groundwater sampling event that took place between May 22, 2012 and May 24, 2012. This sampling event included the analysis of pentachlorophenol (PCP), benzene, ethylbenzene, toluene, xylene (BTEX), and naphthalene. The following table provides information on the residential wells where samples were collected.

LTRA Residential Well Information

Penta Wood Products Site – Town of Daniels, Wisconsin

Location ID	Resident Name	Resident Address	Resident Phone Number	WI Well No.
RW01	Bill Ellis (formerly Skold)	8713 Daniels 70	(715) 349-5840	SX 303
RW02	LaVonne Brethorst	8627 Daniels 70	(715) 349-5237	Unknown
RW03	Ken and Sheri Nelson	Daniels 70 (same driveway as V. Engstrom)	(715) 349-8070	JB 251
RW04	Vayne Engstrom	8526 Daniels 70	(715) 349-5212	AN 547
RW05	Timothy Tjader	8783 Daniels 70	(715) 349-5192	Unknown

All analyses were performed by TestAmerica Laboratories, Inc. of North Canton, Ohio. Analytical results were received by CH2M HILL on June 13, 2012. During a review of the preliminary results, CH2M HILL's project chemist observed an estimated detection of PCP at 0.019 micrograms per liter (below the preventative action limit (PAL) of 0.1 micrograms per liter) in residential well RW01 (12CP02-25). The field replicate (12CP02-26) reported an estimated detection of PCP at 0.017 micrograms per liter. RW01 was resampled on July 11 to confirm the estimated detections. RW01 (12CP02-31) and the field replicate (12CP02-32) reported estimated detections of PCP at 0.027 micrograms per liter and 0.033 micrograms per liter, respectively. Since the presence of PCP in RW01 has been observed in the past at

low levels, the estimated detections reported in both May and July 2012 are not unrealistic and are within the historical range.

The semi-annual groundwater results were submitted under a cover letter on June 29, 2012 to the U.S. Environmental Protection Agency (USEPA) for validation. The resampling results of RW01 were submitted for validation under a separate cover letter on August, 8 2012. The following summary is based on a review of the data before receiving final validation results from USEPA.

The results of the May 2012 semi-annual groundwater sampling event showed no detections of BTEX, naphthalene or PCP in any of the residential wells except for the estimated detection of PCP in RW01 discussed above.

If you have any questions or comments, please contact me at 262.388.3899, or Mike Niebauer at 608.298.7770.

Sincerely,

CH2M HILL

Shannon M. Olson

Shannon Olson
Project Chemist

Enclosure

cc: Pat Vogtman, PO/USEPA Region 5 (w/o enclosure)
Rhonda Flynn, CO/USEPA Region 5 (w/o enclosure)
Phil Richard/WDNR
Mike Niebauer, SM/CH2M HILL, Milwaukee
Shannon Olson, ASM/CH2M HILL, Milwaukee
Keli McKenna, RTL/CH2M HILL, Milwaukee
Ike Johnson, PM/CH2M HILL, Milwaukee
Dan Plomb, DPM/CH2M HILL, Milwaukee
Paul Arps, QAM/CH2M HILL, Milwaukee
Dave Shekoski, Sample Coordinator/CH2M HILL, Milwaukee
Cherie Wilson, AA/CH2M HILL, Milwaukee

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-11646-1

Client Sample ID: PWP-DW01
Date Collected: 05/23/12 10:30
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11646-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 06:23	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 06:23	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 06:23	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*63 - 129*		*06/02/12 06:23*	*1*
4-Bromofluorobenzene (Surr)	*87*		*66 - 117*		*06/02/12 06:23*	*1*
Toluene-d8 (Surr)	*89*		*74 - 115*		*06/02/12 06:23*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 121*		*06/02/12 06:23*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		05/26/12 08:42	05/31/12 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*56*		*28 - 110*	*05/26/12 08:42*	*05/31/12 17:44*	*1*
2-Fluorophenol (Surr)	*53*		*10 - 110*	*05/26/12 08:42*	*05/31/12 17:44*	*1*
2,4,6-Tribromophenol (Surr)	*60*		*22 - 120*	*05/26/12 08:42*	*05/31/12 17:44*	*1*
Nitrobenzene-d5 (Surr)	*56*		*27 - 111*	*05/26/12 08:42*	*05/31/12 17:44*	*1*
Phenol-d5 (Surr)	*55*		*10 - 110*	*05/26/12 08:42*	*05/31/12 17:44*	*1*
Terphenyl-d14 (Surr)	*76*		*37 - 119*	*05/26/12 08:42*	*05/31/12 17:44*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.028	J	0.095	0.015	ug/L		05/29/12 14:45	06/07/12 20:13	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*60*		*32 - 140*	*05/29/12 14:45*	*06/07/12 19:49*	*4*
2,4-Dichlorophenylacetic acid	*58*		*32 - 140*	*05/29/12 14:45*	*06/07/12 20:13*	*4*

Client Sample ID: PWP-RW01
Date Collected: 05/23/12 12:40
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 02:18	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 02:18	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 02:18	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 02:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*121*		*63 - 129*		*06/02/12 02:18*	*1*
4-Bromofluorobenzene (Surr)	*88*		*66 - 117*		*06/02/12 02:18*	*1*
Toluene-d8 (Surr)	*92*		*74 - 115*		*06/02/12 02:18*	*1*
Dibromofluoromethane (Surr)	*106*		*75 - 121*		*06/02/12 02:18*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.097	ug/L		05/26/12 08:42	05/31/12 15:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*28 - 110*	*05/26/12 08:42*	*05/31/12 15:30*	*1*
2-Fluorophenol (Surr)	*69*		*10 - 110*	*05/26/12 08:42*	*05/31/12 15:30*	*1*
2,4,6-Tribromophenol (Surr)	*73*		*22 - 120*	*05/26/12 08:42*	*05/31/12 15:30*	*1*
Nitrobenzene-d5 (Surr)	*68*		*27 - 111*	*05/26/12 08:42*	*05/31/12 15:30*	*1*
Phenol-d5 (Surr)	*70*		*10 - 110*	*05/26/12 08:42*	*05/31/12 15:30*	*1*
Terphenyl-d14 (Surr)	*84*		*37 - 119*	*05/26/12 08:42*	*05/31/12 15:30*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.019	J	0.096	0.015	ug/L		05/29/12 14:45	06/07/12 12:27	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*66*		*32 - 140*	*05/29/12 14:45*	*06/07/12 12:27*	*4*
2,4-Dichlorophenylacetic acid	*63*		*32 - 140*	*05/29/12 14:45*	*06/07/12 12:52*	*4*

RW01 - Reanalysis

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-13140-1

Client Sample ID: 12CP02-31
Date Collected: 07/11/12 10:00
Date Received: 07/12/12 09:30

Lab Sample ID: 240-13140-1
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.027	J	0.095	0.015	ug/L		07/18/12 17:00	07/21/12 14:03	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*36*		*32 - 140*	*07/18/12 17:00*	*07/21/12 14:03*	*4*
2,4-Dichlorophenylacetic acid	*28*	*X*	*32 - 140*	*07/18/12 17:00*	*07/21/12 14:29*	*4*

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-11645-1

Client Sample ID: PWP-RW01FR
Date Collected: 05/23/12 12:40
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 02:40	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 02:40	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 02:40	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 02:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*63 - 129*		*06/02/12 02:40*	*1*
4-Bromofluorobenzene (Surr)	*91*		*66 - 117*		*06/02/12 02:40*	*1*
Toluene-d8 (Surr)	*92*		*74 - 115*		*06/02/12 02:40*	*1*
Dibromofluoromethane (Surr)	*107*		*75 - 121*		*06/02/12 02:40*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.096	ug/L		05/26/12 08:42	05/31/12 15:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*28 - 110*	*05/26/12 08:42*	*05/31/12 15:49*	*1*
2-Fluorophenol (Surr)	*62*		*10 - 110*	*05/26/12 08:42*	*05/31/12 15:49*	*1*
2,4,6-Tribromophenol (Surr)	*67*		*22 - 120*	*05/26/12 08:42*	*05/31/12 15:49*	*1*
Nitrobenzene-d5 (Surr)	*63*		*27 - 111*	*05/26/12 08:42*	*05/31/12 15:49*	*1*
Phenol-d5 (Surr)	*63*		*10 - 110*	*05/26/12 08:42*	*05/31/12 15:49*	*1*
Terphenyl-d14 (Surr)	*87*		*37 - 119*	*05/26/12 08:42*	*05/31/12 15:49*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.017	J	0.096	0.015	ug/L		05/29/12 14:45	06/07/12 13:17	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*63*		*32 - 140*	*05/29/12 14:45*	*06/07/12 13:17*	*4*
2,4-Dichlorophenylacetic acid	*61*		*32 - 140*	*05/29/12 14:45*	*06/07/12 13:41*	*4*

RW01FR-Reanalysis

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-13140-1

Client Sample ID: 12CP02-32
Date Collected: 07/11/12 10:00
Date Received: 07/12/12 09:30

Lab Sample ID: 240-13140-2
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.033	J	0.095	0.015	ug/L		07/18/12 17:00	07/21/12 15:19	4
Pentachlorophenol	0.035	J H	0.095	0.015	ug/L		07/23/12 16:15	07/24/12 17:24	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*23*	*X*	*32 - 140*	*07/18/12 17:00*	*07/21/12 14:54*	*4*
2,4-Dichlorophenylacetic acid	*20*	*X*	*32 - 140*	*07/18/12 17:00*	*07/21/12 15:19*	*4*
2,4-Dichlorophenylacetic acid	*74*		*32 - 140*	*07/23/12 16:15*	*07/24/12 16:59*	*4*
2,4-Dichlorophenylacetic acid	*71*		*32 - 140*	*07/23/12 16:15*	*07/24/12 17:24*	*4*

Client Sample ID: PWP-RW02
Date Collected: 05/23/12 13:10
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 03:25	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 03:25	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 03:25	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*63 - 129*		*06/02/12 03:25*	*1*
4-Bromofluorobenzene (Surr)	*87*		*66 - 117*		*06/02/12 03:25*	*1*
Toluene-d8 (Surr)	*90*		*74 - 115*		*06/02/12 03:25*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 121*		*06/02/12 03:25*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.096	ug/L		05/26/12 08:42	05/31/12 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*28 - 110*	*05/26/12 08:42*	*05/31/12 16:28*	*1*
2-Fluorophenol (Surr)	*58*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:28*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*22 - 120*	*05/26/12 08:42*	*05/31/12 16:28*	*1*
Nitrobenzene-d5 (Surr)	*60*		*27 - 111*	*05/26/12 08:42*	*05/31/12 16:28*	*1*
Phenol-d5 (Surr)	*61*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:28*	*1*
Terphenyl-d14 (Surr)	*77*		*37 - 119*	*05/26/12 08:42*	*05/31/12 16:28*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.097	U	0.097	0.015	ug/L		05/29/12 14:45	06/07/12 14:31	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*63*		*32 - 140*	*05/29/12 14:45*	*06/07/12 14:06*	*4*
2,4-Dichlorophenylacetic acid	*51*		*32 - 140*	*05/29/12 14:45*	*06/07/12 14:31*	*4*

Client Sample ID: PWP-RW03
Date Collected: 05/23/12 13:50
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 03:47	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 03:47	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 03:47	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*63 - 129*		*06/02/12 03:47*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 117*		*06/02/12 03:47*	*1*
Toluene-d8 (Surr)	*91*		*74 - 115*		*06/02/12 03:47*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 121*		*06/02/12 03:47*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		05/26/12 08:42	05/31/12 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*53*		*28 - 110*	*05/26/12 08:42*	*05/31/12 16:47*	*1*
2-Fluorophenol (Surr)	*53*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:47*	*1*
2,4,6-Tribromophenol (Surr)	*59*		*22 - 120*	*05/26/12 08:42*	*05/31/12 16:47*	*1*
Nitrobenzene-d5 (Surr)	*54*		*27 - 111*	*05/26/12 08:42*	*05/31/12 16:47*	*1*
Phenol-d5 (Surr)	*54*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:47*	*1*
Terphenyl-d14 (Surr)	*78*		*37 - 119*	*05/26/12 08:42*	*05/31/12 16:47*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.097	U	0.097	0.015	ug/L		05/29/12 14:45	06/07/12 15:19	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*64*		*32 - 140*	*05/29/12 14:45*	*06/07/12 14:55*	*4*
2,4-Dichlorophenylacetic acid	*58*		*32 - 140*	*05/29/12 14:45*	*06/07/12 15:19*	*4*

Client Sample ID: PWP-RW04
Date Collected: 05/23/12 13:35
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 04:32	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 04:32	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 04:32	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 04:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*63 - 129*		*06/02/12 04:32*	*1*
4-Bromofluorobenzene (Surr)	*89*		*66 - 117*		*06/02/12 04:32*	*1*
Toluene-d8 (Surr)	*91*		*74 - 115*		*06/02/12 04:32*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 121*		*06/02/12 04:32*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.20	U	0.20	0.10	ug/L		05/26/12 08:42	05/31/12 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*57*		*28 - 110*	*05/26/12 08:42*	*05/31/12 16:09*	*1*
2-Fluorophenol (Surr)	*58*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:09*	*1*
2,4,6-Tribromophenol (Surr)	*65*		*22 - 120*	*05/26/12 08:42*	*05/31/12 16:09*	*1*
Nitrobenzene-d5 (Surr)	*59*		*27 - 111*	*05/26/12 08:42*	*05/31/12 16:09*	*1*
Phenol-d5 (Surr)	*60*		*10 - 110*	*05/26/12 08:42*	*05/31/12 16:09*	*1*
Terphenyl-d14 (Surr)	*77*		*37 - 119*	*05/26/12 08:42*	*05/31/12 16:09*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.094	U	0.094	0.015	ug/L		05/29/12 14:45	06/07/12 16:09	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*61*		*32 - 140*	*05/29/12 14:45*	*06/07/12 15:44*	*4*
2,4-Dichlorophenylacetic acid	*57*		*32 - 140*	*05/29/12 14:45*	*06/07/12 16:09*	*4*

Client Sample ID: PWP-RW05
Date Collected: 05/23/12 14:40
Date Received: 05/25/12 09:20

Lab Sample ID: 240-11645-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			06/02/12 04:54	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/02/12 04:54	1
Toluene	1.0	U	1.0	0.13	ug/L			06/02/12 04:54	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			06/02/12 04:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*63 - 129*		*06/02/12 04:54*	*1*
4-Bromofluorobenzene (Surr)	*90*		*66 - 117*		*06/02/12 04:54*	*1*
Toluene-d8 (Surr)	*91*		*74 - 115*		*06/02/12 04:54*	*1*
Dibromofluoromethane (Surr)	*107*		*75 - 121*		*06/02/12 04:54*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		05/26/12 08:42	05/31/12 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*52*		*28 - 110*	*05/26/12 08:42*	*05/31/12 17:06*	*1*
2-Fluorophenol (Surr)	*52*		*10 - 110*	*05/26/12 08:42*	*05/31/12 17:06*	*1*
2,4,6-Tribromophenol (Surr)	*55*		*22 - 120*	*05/26/12 08:42*	*05/31/12 17:06*	*1*
Nitrobenzene-d5 (Surr)	*55*		*27 - 111*	*05/26/12 08:42*	*05/31/12 17:06*	*1*
Phenol-d5 (Surr)	*54*		*10 - 110*	*05/26/12 08:42*	*05/31/12 17:06*	*1*
Terphenyl-d14 (Surr)	*75*		*37 - 119*	*05/26/12 08:42*	*05/31/12 17:06*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		05/29/12 14:45	06/07/12 16:58	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*66*		*32 - 140*	*05/29/12 14:45*	*06/07/12 16:33*	*4*
2,4-Dichlorophenylacetic acid	*63*		*32 - 140*	*05/29/12 14:45*	*06/07/12 16:58*	*4*

CH2M HILL
135 South 84th Street
Suite 400
Milwaukee, WI 53214
Tel 414.272.2426
Fax 414.272.4408

January 10, 2013

Ms. Linda Martin
Remedial Project Manager (SR-6J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507

Subject: Subcontract No. 599, October 2012 Sampling Results
Penta Wood Products Site, Town of Daniels, Wisconsin
Long-Term Response Action (LTRA)
WA No. 132-LRLR-05WE, Contract No. EP-S5-06-01

Dear Linda:

Please find the enclosed results of the residential and potable well annual groundwater sampling event that took place between October 16, 2012 and December 4, 2012. This sampling event included the analysis of pentachlorophenol (PCP), benzene, ethylbenzene, toluene, xylene (BTEX), and naphthalene. The following table provides information on the residential wells where samples were collected.

LTRA Residential Well Information
Penta Wood Products Site – Town of Daniels, Wisconsin

Location ID	Resident Name	Resident Address	Resident Phone Number	WI Well No.
RW01	Bill Ellis (formerly Skold)	8713 Daniels 70	(715) 349-5840	SX 303
RW02	LaVonne Brethorst	8627 Daniels 70	(715) 349-5237	Unknown
RW03	Ken and Sheri Nelson	Daniels 70 (same driveway as V. Engstrom)	(715) 349-8070	JB 251
RW04	Vayne Engstrom	8526 Daniels 70	(715) 349-5212	AN 547
RW05	Timothy Tjader	8783 Daniels 70	(715) 349-5192	Unknown

All analyses were performed by TestAmerica Laboratories, Inc. of North Canton, Ohio. Analytical results were received by CH2M HILL on November 2, 2012. During a review of the preliminary results, CH2M HILL's project chemist observed estimated detections (below the preventative action limit (PAL) of 0.1 micrograms per liter) of PCP in all of the residential wells. The residential wells were resampled on December 3 and December 4 to confirm the estimated detections. The PCP result for each residential well was found to be nondetect upon resampling.

The annual groundwater results, including the residential well resampling, were submitted under a single cover letter on January 9, 2013 to the U.S. Environmental Protection Agency

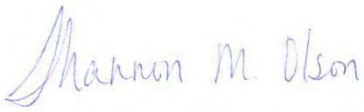
(USEPA) for validation. The following summary is based on a review of the data before receiving final validation results from USEPA.

The results of the October 2012 annual groundwater sampling event showed no detections of BTEX, naphthalene or PCP in any of the residential wells.

If you have any questions or comments, please contact me at 503.736.2063, or Mike Niebauer at 608.298.7770.

Sincerely,

CH2M HILL



Shannon Olson
Project Chemist

Enclosure

cc: Pat Vogtman, PO/USEPA Region 5 (w/o enclosure)
Rhonda Flynn, CO/USEPA Region 5 (w/o enclosure)
Phil Richard/WDNR
Mike Niebauer, SM/CH2M HILL, Milwaukee
Shannon Olson, ASM/CH2M HILL, Milwaukee
Keli McKenna, RTL/CH2M HILL, Milwaukee
Ike Johnson, PM/CH2M HILL, Milwaukee
Paul Arps, DPM/CH2M HILL, Milwaukee
Theresa Rojas, QAM/CH2M HILL, Milwaukee
Dave Shekoski, Sample Coordinator/CH2M HILL, Milwaukee
Cherie Wilson, AA/CH2M HILL, Milwaukee

DW-01

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-28
Date Collected: 10/18/12 08:15
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/28/12 15:52	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/28/12 15:52	1
Toluene	1.0	U	1.0	0.13	ug/L			10/28/12 15:52	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/28/12 15:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*63 - 129*		*10/28/12 15:52*	*1*
4-Bromofluorobenzene (Surr)	*75*		*66 - 117*		*10/28/12 15:52*	*1*
Toluene-d8 (Surr)	*96*		*74 - 115*		*10/28/12 15:52*	*1*
Dibromofluoromethane (Surr)	*90*		*75 - 121*		*10/28/12 15:52*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U H	0.19	0.096	ug/L		10/26/12 08:35	10/31/12 11:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*59*		*20 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*
2-Fluorophenol (Surr)	*68*		*10 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*
2,4,6-Tribromophenol (Surr)	*62*		*21 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*
Nitrobenzene-d5 (Surr)	*63*		*21 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*
Phenol-d5 (Surr)	*66*		*21 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*
Terphenyl-d14 (Surr)	*73*		*24 - 110*	*10/26/12 08:35*	*10/31/12 11:09*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.032	J	0.095	0.015	ug/L		10/23/12 17:00	10/31/12 01:03	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*65*		*32 - 140*	*10/23/12 17:00*	*10/30/12 00:38*	*4*
2,4-Dichlorophenylacetic acid	*69*		*32 - 140*	*10/23/12 17:00*	*10/31/12 01:03*	*4*

RW-01

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-22
Date Collected: 10/17/12 13:20
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/25/12 10:15	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/25/12 10:15	1
Toluene	1.0	U	1.0	0.13	ug/L			10/25/12 10:15	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/25/12 10:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*63 - 129*		*10/25/12 10:15*	*1*
4-Bromofluorobenzene (Surr)	*75*		*66 - 117*		*10/25/12 10:15*	*1*
Toluene-d8 (Surr)	*97*		*74 - 115*		*10/25/12 10:15*	*1*
Dibromofluoromethane (Surr)	*92*		*75 - 121*		*10/25/12 10:15*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.097	ug/L		10/24/12 08:43	10/29/12 15:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*20 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*
2-Fluorophenol (Surr)	*56*		*10 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*
2,4,6-Tribromophenol (Surr)	*57*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*
Nitrobenzene-d5 (Surr)	*55*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*
Phenol-d5 (Surr)	*59*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*
Terphenyl-d14 (Surr)	*72*		*24 - 110*	*10/24/12 08:43*	*10/29/12 15:02*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.045	J	0.095	0.015	ug/L		10/23/12 17:00	10/30/12 19:44	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*68*		*32 - 140*	*10/23/12 17:00*	*10/30/12 19:19*	*4*
2,4-Dichlorophenylacetic acid	*74*		*32 - 140*	*10/23/12 17:00*	*10/30/12 19:44*	*4*

RW-01 (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-44
Date Collected: 12/03/12 09:30
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-5
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 10:10	4
Pentachlorophenol	0.094	U H	0.094	0.015	ug/L		12/14/12 17:00	12/18/12 19:01	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*19*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 10:10*	*4*
2,4-Dichlorophenylacetic acid	*20*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 10:10*	*4*
2,4-Dichlorophenylacetic acid	*48*		*32 - 140*	*12/14/12 17:00*	*12/18/12 19:01*	*4*

RW-01FR

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-23
Date Collected: 10/17/12 13:21
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/28/12 15:30	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/28/12 15:30	1
Toluene	1.0	U	1.0	0.13	ug/L			10/28/12 15:30	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/28/12 15:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*63 - 129*		*10/28/12 15:30*	*1*
4-Bromofluorobenzene (Surr)	*75*		*66 - 117*		*10/28/12 15:30*	*1*
Toluene-d8 (Surr)	*96*		*74 - 115*		*10/28/12 15:30*	*1*
Dibromofluoromethane (Surr)	*88*		*75 - 121*		*10/28/12 15:30*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.096	ug/L		10/24/12 08:43	10/29/12 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*54*		*20 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*
2-Fluorophenol (Surr)	*58*		*10 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*
Nitrobenzene-d5 (Surr)	*54*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*
Phenol-d5 (Surr)	*60*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*
Terphenyl-d14 (Surr)	*72*		*24 - 110*	*10/24/12 08:43*	*10/29/12 15:20*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.035	J	0.095	0.015	ug/L		10/23/12 17:00	10/30/12 22:36	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*64*		*32 - 140*	*10/23/12 17:00*	*10/30/12 22:11*	*4*
2,4-Dichlorophenylacetic acid	*65*		*32 - 140*	*10/23/12 17:00*	*10/30/12 22:36*	*4*

RW-01FR (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-45
Date Collected: 12/03/12 09:30
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-6
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 10:33	4
Pentachlorophenol	0.094	U H	0.094	0.015	ug/L		12/14/12 17:00	12/18/12 19:25	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*19*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 10:33*	*4*
2,4-Dichlorophenylacetic acid	*21*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 10:33*	*4*
2,4-Dichlorophenylacetic acid	*50*		*32 - 140*	*12/14/12 17:00*	*12/18/12 19:25*	*4*
2,4-Dichlorophenylacetic acid	*55*		*32 - 140*	*12/14/12 17:00*	*12/18/12 19:25*	*4*

RW-02

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-24
Date Collected: 10/17/12 11:12
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/24/12 01:58	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/24/12 01:58	1
Toluene	1.0	U	1.0	0.13	ug/L			10/24/12 01:58	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/24/12 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*63 - 129*		*10/24/12 01:58*	*1*
4-Bromofluorobenzene (Surr)	*78*		*66 - 117*		*10/24/12 01:58*	*1*
Toluene-d8 (Surr)	*98*		*74 - 115*		*10/24/12 01:58*	*1*
Dibromofluoromethane (Surr)	*91*		*75 - 121*		*10/24/12 01:58*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		10/24/12 08:43	10/29/12 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*55*		*20 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*
2-Fluorophenol (Surr)	*62*		*10 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*
2,4,6-Tribromophenol (Surr)	*55*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*
Nitrobenzene-d5 (Surr)	*60*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*
Phenol-d5 (Surr)	*64*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*
Terphenyl-d14 (Surr)	*77*		*24 - 110*	*10/24/12 08:43*	*10/29/12 14:09*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.057	J	0.094	0.015	ug/L		10/23/12 17:00	10/30/12 16:29	4
Pentachlorophenol	0.037	J	0.094	0.015	ug/L		10/23/12 17:00	11/05/12 09:26	4
Pentachlorophenol	0.094	U H	0.094	0.015	ug/L		11/06/12 16:15	11/08/12 16:05	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*60*		*32 - 140*	*10/23/12 17:00*	*10/30/12 16:05*	*4*
2,4-Dichlorophenylacetic acid	*66*		*32 - 140*	*10/23/12 17:00*	*10/30/12 16:29*	*4*
2,4-Dichlorophenylacetic acid	*69*		*32 - 140*	*10/23/12 17:00*	*11/05/12 09:26*	*4*
2,4-Dichlorophenylacetic acid	*58*		*32 - 140*	*11/06/12 16:15*	*11/08/12 16:05*	*4*

RW-02 (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-46
Date Collected: 12/03/12 10:00
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-1
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 08:35	4
Pentachlorophenol	0.094	U H	0.094	0.015	ug/L		12/14/12 17:00	12/18/12 17:26	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*23*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 08:35*	*4*
2,4-Dichlorophenylacetic acid	*25*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 08:35*	*4*
2,4-Dichlorophenylacetic acid	*45*		*32 - 140*	*12/14/12 17:00*	*12/18/12 17:26*	*4*

RW-03

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-25
Date Collected: 10/17/12 11:43
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/24/12 01:37	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/24/12 01:37	1
Toluene	1.0	U	1.0	0.13	ug/L			10/24/12 01:37	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/24/12 01:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*63 - 129*		*10/24/12 01:37*	*1*
4-Bromofluorobenzene (Surr)	*81*		*66 - 117*		*10/24/12 01:37*	*1*
Toluene-d8 (Surr)	*98*		*74 - 115*		*10/24/12 01:37*	*1*
Dibromofluoromethane (Surr)	*89*		*75 - 121*		*10/24/12 01:37*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		10/24/12 08:43	10/29/12 14:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*56*		*20 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*
2-Fluorophenol (Surr)	*59*		*10 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*
Nitrobenzene-d5 (Surr)	*60*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*
Phenol-d5 (Surr)	*63*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*
Terphenyl-d14 (Surr)	*71*		*24 - 110*	*10/24/12 08:43*	*10/29/12 14:27*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.015	J p	0.094	0.015	ug/L		10/23/12 17:00	10/30/12 16:53	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*63*		*32 - 140*	*10/23/12 17:00*	*10/30/12 16:53*	*4*
2,4-Dichlorophenylacetic acid	*65*		*32 - 140*	*10/23/12 17:00*	*10/30/12 17:18*	*4*

RW-03 (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-47
Date Collected: 12/03/12 10:30
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-2
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 08:59	4
Pentachlorophenol	0.095	U H	0.095	0.015	ug/L		12/14/12 17:00	12/18/12 17:49	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*16*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 08:59*	*4*
2,4-Dichlorophenylacetic acid	*20*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 08:59*	*4*
2,4-Dichlorophenylacetic acid	*51*		*32 - 140*	*12/14/12 17:00*	*12/18/12 17:49*	*4*

RW-04

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-26
Date Collected: 10/17/12 12:14
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/24/12 02:20	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/24/12 02:20	1
Toluene	1.0	U	1.0	0.13	ug/L			10/24/12 02:20	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/24/12 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*63 - 129*		*10/24/12 02:20*	*1*
4-Bromofluorobenzene (Surr)	*80*		*66 - 117*		*10/24/12 02:20*	*1*
Toluene-d8 (Surr)	*100*		*74 - 115*		*10/24/12 02:20*	*1*
Dibromofluoromethane (Surr)	*91*		*75 - 121*		*10/24/12 02:20*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		10/24/12 08:43	10/29/12 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*57*		*20 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*
2-Fluorophenol (Surr)	*63*		*10 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*
2,4,6-Tribromophenol (Surr)	*67*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*
Nitrobenzene-d5 (Surr)	*60*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*
Phenol-d5 (Surr)	*66*		*21 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*
Terphenyl-d14 (Surr)	*73*		*24 - 110*	*10/24/12 08:43*	*10/29/12 14:45*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.071	J	0.10	0.016	ug/L		10/23/12 17:00	10/30/12 18:06	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*74*		*32 - 140*	*10/23/12 17:00*	*10/30/12 17:42*	*4*
2,4-Dichlorophenylacetic acid	*75*		*32 - 140*	*10/23/12 17:00*	*10/30/12 18:06*	*4*

RW-04 (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-48
Date Collected: 12/03/12 11:00
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-3
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 09:22	4
Pentachlorophenol	0.094	U H	0.094	0.015	ug/L		12/14/12 17:00	12/18/12 18:13	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*24*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 09:22*	*4*
2,4-Dichlorophenylacetic acid	*26*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 09:22*	*4*
2,4-Dichlorophenylacetic acid	*51*		*32 - 140*	*12/14/12 17:00*	*12/18/12 18:13*	*4*

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RW-05

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-16601-1

Client Sample ID: 13CB01-27
Date Collected: 10/17/12 12:48
Date Received: 10/19/12 12:19

Lab Sample ID: 240-16601-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.50	U	0.50	0.13	ug/L			10/25/12 09:54	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			10/25/12 09:54	1
Toluene	1.0	U	1.0	0.13	ug/L			10/25/12 09:54	1
Xylenes, Total	2.0	U	2.0	0.28	ug/L			10/25/12 09:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*63 - 129*		*10/25/12 09:54*	*1*
4-Bromofluorobenzene (Surr)	*79*		*66 - 117*		*10/25/12 09:54*	*1*
Toluene-d8 (Surr)	*96*		*74 - 115*		*10/25/12 09:54*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 121*		*10/25/12 09:54*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.19	U	0.19	0.095	ug/L		10/24/12 08:43	10/29/12 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*58*		*20 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*
2-Fluorophenol (Surr)	*70*		*10 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*
Nitrobenzene-d5 (Surr)	*63*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*
Phenol-d5 (Surr)	*72*		*21 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*
Terphenyl-d14 (Surr)	*70*		*24 - 110*	*10/24/12 08:43*	*10/29/12 15:38*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.030	J	0.095	0.015	ug/L		10/23/12 17:00	10/30/12 18:55	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*64*		*32 - 140*	*10/23/12 17:00*	*10/30/12 18:31*	*4*
2,4-Dichlorophenylacetic acid	*67*		*32 - 140*	*10/23/12 17:00*	*10/30/12 18:55*	*4*

RW-05 (Reanalysis)

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Penta Wood Products Site

TestAmerica Job ID: 240-18303-1

Client Sample ID: 13CB01-49
Date Collected: 12/04/12 10:00
Date Received: 12/05/12 09:15

Lab Sample ID: 240-18303-4
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.095	U	0.095	0.015	ug/L		12/10/12 07:00	12/13/12 09:46	4
Pentachlorophenol	0.095	U H	0.095	0.015	ug/L		12/14/12 17:00	12/18/12 18:37	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*18*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 09:46*	*4*
2,4-Dichlorophenylacetic acid	*20*	*X*	*32 - 140*	*12/10/12 07:00*	*12/13/12 09:46*	*4*
2,4-Dichlorophenylacetic acid	*39*		*32 - 140*	*12/14/12 17:00*	*12/18/12 18:37*	*4*

Appendix E
Data Quality Memorandums

Data Usability Evaluation of the Groundwater Samples Collected at the Penta Wood Products Site, Siren, Wisconsin

PREPARED FOR: U.S. Environmental Protection Agency

PREPARED BY: Shannon Olson/CH2M HILL

DATE: February 28, 2013

Introduction

The objective of the Data Quality Evaluation memorandum is to assess the data quality of analytical results for samples collected during the semiannual and annual groundwater field investigations conducted at the Penta Wood Products Site in Siren, Wisconsin, from May 22 to May 23, July 11, from October 16 to October 18 and from December 3 to December 4, 2012. Samples were collected and analyzed with the objective to assess existing groundwater contaminant concentrations and monitor the ongoing natural attenuation process. Individual method requirements and guidelines from the Quality Assurance Project Plan (QAPP) (CH2M HILL, February 2005), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (January 2010) were used in this assessment.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

The following are the analytical laboratory analyses for samples collected:

- Semiannual Sampling Event - May 2012
    - Five residential wells (RW-01, RW-02, RW-03, RW-04 and RW-05), one potable well (DW-01) and one field replicate (FR) were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), pentachlorophenol (PCP) and naphthalene.
    - Five monitoring wells (MW-12, MW-15, MW-19, MW-22 and MW-26), one matrix spike/matrix spike duplicate (MS/MSD) and one FR were analyzed for BTEX, PCP, naphthalene, dissolved metals (arsenic, copper, iron, manganese and zinc), methane, alkalinity, chloride, sulfate, nitrate, sulfide, total organic carbon (TOC) and hardness.

  - Two equipment/field blanks and nine trip blanks were collected during the sampling event to evaluate field sampling and decontamination procedures.

- Annual Sampling Event - October 2012
  - Five residential wells (RW-01, RW-02, RW-03, RW-04 and RW-05), one potable well (DW-01) and one FR were analyzed for BTEX, PCP and naphthalene.
  - Fifteen monitoring wells (MW-02, MW-03, MW-05, MW-06S, MW-07, MW-09, MW-10, MW-12, MW-15, MW-16, MW-17, MW-19, MW-22, MW-26, and MW-28), one MS/MSD and two FR's were analyzed for BTEX, PCP, naphthalene, dissolved metals (arsenic, copper, iron, manganese and zinc), methane, alkalinity, chloride, sulfate, nitrate, sulfide, TOC and hardness.
  - Two equipment/field blanks and fifteen trip blanks were collected during the sampling event to evaluate field sampling and decontamination procedures.

Both the semiannual and annual samples were analyzed by TestAmerica, Inc. of North Canton, Ohio. All monitoring well and residential well sample result packages were reviewed by the USEPA Environmental Services Assistance Team (ESAT) contractor. Attachment 1 contains the case narratives prepared by Techlaw ESAT during the data reviews. The findings of the reviews are summarized below.

Samples were collected and shipped by overnight carrier to the laboratories for analysis. Selected samples were analyzed for one or more of the analytes/methods in Table 1.

TABLE 1
Analytical Parameters

Parameter	Method	Laboratory
BTEX	SW-846 8260B	TestAmerica
PCP	SW-846 8151	TestAmerica
Naphthalene	SW-846 8270C	TestAmerica
Dissolved Metals	SW-846 6020	TestAmerica
Methane	RSK-175	TestAmerica
Alkalinity	EPA 310.1	TestAmerica
Chloride	EPA 325.2	TestAmerica
Sulfate	EPA 375.4	TestAmerica
Nitrate	EPA 300.0	TestAmerica
Sulfide	EPA 376.1	TestAmerica
Total Organic Carbon	SW-846 9060	TestAmerica
Hardness	Calculated	NA

NA = not applicable

The ESAT assessment of data included a review of the following:

- Chain-of-custody documentation
- Holding-time compliance
- Required QC samples at the specified frequencies
- Flagging for method blanks
- Laboratory control spiking samples
- Surrogate spike recoveries for organic analyses
- Analytical spike data
- MS/MSD samples on a site/location basis
- Calibration data
- Equipment/Field blank samples
- Field duplicate samples
- Trip blank samples

Standard data qualifiers are a means to classify these data with regard to their conformance to QC requirements. The applied data qualifiers are defined as follows:

[U] The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

[UJ] The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

[J] The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

The USEPA validation case narratives and worksheets indicate that some sample results should be qualified as biased based on the applicable QC limits or other National Functional Guidelines requirements.

The following sections summarize the data validation findings and usability of the final reportable results.

Findings

The following sections summarize the data validation findings and usability of the final reportable results. The sample numbers and locations do not include quality assurance/QC samples.

BTEX Data

BTEX data were assessed from 30 groundwater samples collected at 20 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the BTEX data, “U”, “UJ” or “J” qualifiers were applied to sample results that were potentially affected by QC deficiencies. The relative percent difference (RPD) for toluene for the MS/MSD associated with sample 13CB01-17 exceeded the control limit. The non-detected parent sample results were qualified and flagged “UJ” as undetected and estimated in quantity. Sample 13CB01-16 was analyzed at a five-fold dilution but no detections were reported. Non-detected parent sample results were qualified and flagged “UJ” as undetected and estimated in quantity. “J” qualifiers were

applied to sample results that were reported between the method detection limit (MDL) and the reporting limit (RL).

None of the reported BTEX results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

Naphthalene Data

Naphthalene data were assessed from 30 groundwater samples collected at 20 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the naphthalene data, "U" or "UJ" qualifiers were applied to sample results that were potentially affected by QC deficiencies. The RPD for the MS/MSD associated with sample 12CP02-24 exceeded the control limit. The non-detected parent sample result was qualified and flagged "UJ" as undetected and estimated in quantity.

None of the reported naphthalene results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

PCP Data

PCP data were assessed from 30 groundwater samples collected at 20 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the PCP data, "U", "UJ" or "J" qualifiers were applied to sample results that were potentially affected by QC deficiencies. One PCP surrogate, for samples 12CP02-31 and 12CP02-32, was recovered below the lower control limit. Detected parent sample results were qualified and flagged "J" as estimated in quantity. PCP was prepared outside the hold time for samples 13CB01-24, 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48 and 13CB01-49. Non-detected parent sample results were qualified and flagged "UJ" as undetected and estimated in quantity. Both the field and equipment blank detected PCP above the MDL for the samples collected during the October annual groundwater event, indicating possible contamination. Sample results less than five times the amount found in the blank were raised to the laboratory RL and qualified as "U," not detected above the MDL and considered not detected. The PCP RPD between the primary and confirmation columns was exceeded for sample 13CB01-03. The detected parent sample result was qualified and flagged "J" as estimated in quantity. "J" qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported PCP results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

Methane Data

Methane data were assessed for 20 groundwater samples collected at 15 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the methane data, "U" or "J" qualifiers were applied to sample results that were potentially affected by QC deficiencies. The field blank detected methane above the MDL for the samples collected during the October annual groundwater event, indicating possible contamination. Sample results less than five times the amount found in the blank were raised to the laboratory RL and qualified as "U," not detected above the MDL and considered not detected. "J" qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported methane results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

Metal Data

Metal data were assessed for 20 groundwater samples collected at 15 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the metal data, "U" or "J" qualifiers were applied to sample results that were potentially affected by QC deficiencies. The field, equipment and/or preparation blank detected arsenic, copper, manganese and zinc above the MDL for the samples collected during the May semiannual groundwater event, indicating possible contamination. The equipment and/or preparation blank detected copper, manganese and zinc above the MDL for the samples collected during the October annual groundwater event. Sample results less than five times the amount found in any blank were raised to the laboratory RL and qualified as "U," not detected above the MDL and considered not detected. Sample results found to be greater than five times the amount found in the blank were qualified and flagged "J" as estimated in quantity. "J" qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported metal results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

Wet Chemistry Data

Wet chemistry data were assessed for 20 groundwater samples collected at 15 locations. The data were analyzed through TestAmerica, and 100 percent were reviewed by the USEPA contractor, ESAT.

In summary of the metal data, "U", "UJ" or "J" qualifiers were applied to sample results that were potentially affected by QC deficiencies. Nitrate was analyzed past the 48-hour hold time for several samples collected during both the May semiannual and the October annual groundwater sampling events. Detected parent sample results were qualified and flagged "J" as estimated in quantity, and non-detected sample results were qualified and flagged "UJ" as undetected and estimated in quantity. The preparation and continuing calibration blank detected sulfate above the MDL for the samples collected during both the May semiannual and October annual groundwater events, indicating possible contamination. The continuing calibration blank detected chloride above the MDL for the samples collected during the October annual groundwater event. Sample results less than five times the amount found in any blank were raised to the laboratory RL and qualified as "U," not detected above the MDL and considered not detected. Sample results found to be greater than five times the amount found in the

blank were qualified and flagged "J" as estimated in quantity. "J" qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported wet chemistry results were rejected. One hundred percent of the data, as qualified, can be used to make project decisions.

Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meet the data quality objectives. The goal of the assessment was to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision making process. The following summary highlights the data evaluation findings for the above-defined events:

1. The completeness objective of 90 percent was met for all method/analyte combinations.
2. The precision and accuracy of the data, as measured by field and laboratory QC indicators, indicate that the data quality objectives were met.

References

CH2M HILL. 2005. *Quality Assurance Project Plan, Penta Wood Products Long-Term Response Action, Town of Daniels, Wisconsin.* February.

USEPA. 2008. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. June.

USEPA. 2010. *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*. January.

Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 2 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Manual SAS Data Validation package:

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11621-1 SDG Number: 12CP02-19SVOA

Number and Type of Samples: 5 Waters (Naphthalene)

Sample Numbers: 12CP02-19, 12CP02-20, 12CP02-21, 12CP02-23, 12CP02-24

Laboratory: TestAmerica Laboratories, Inc. – N. Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-19SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA Laboratories, Inc.

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

The five (5) groundwater samples, numbered 12CP02-19 - 12CP02-21, 12CP02-23, and 12CP02-24 were shipped to TestAmerica Laboratories, Inc. located in North Canton, OH. The samples were collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. All five (5) samples were analyzed for Naphthalene (NAPH). All samples were analyzed according to SW-846 Method 8270 and the SAS contracts for samples collected between April 2011 and December 2014.

Lab IDs	Client IDs	Station Location	Collection	
			Date	Time
240-11628-1	12CP02-19	PWP-MW12	05/22/2012	14:30
240-11628-2	12CP02-20	PWP-MW12FR	05/22/2012	14:30
240-11621-1	12CP02-21	PWP-MW15	05/22/2012	09:50
240-11621-2	12CP02-23	PWP-MW22	05/22/2012	11:10
240-11624-1	12CP02-24	PWP-MW26	05/22/2012	13:35

The method blanks are identified as MB 240-45337/22-A and MB 240-45343/11-A. The laboratory control samples are identified as LCS 240-45337/21-A and LCS 240-45343/10-A.

Sample 12CP02-24 was analyzed for the MS/MSD analyses and was submitted with this sample delivery group.

Samples 12CP02-19 and 12CP02-20 appear to be field duplicates.

The semivolatile compounds were extracted within the SAS holding time of 7 days after sample collection; therefore, the results do not require any qualifications for this criterion. The semivolatile analyses were performed within the SAS holding time of 40 days after sample collection; therefore, the results do not require any qualifications for this criterion.

1. HOLDING TIME

The five (5) groundwater samples, numbered 12CP02-19 - 12CP02-21, 12CP02-23, and 12CP02-24 were shipped to TestAmerica Laboratories, Inc. located in North Canton, OH. The samples were collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. All five (5) samples were analyzed for Naphthalene (NAPH). All samples were analyzed according to SW-846 Method 8270 and the SAS contracts for samples collected between April 2011 and December 2014.

The semivolatile compounds were extracted within the SAS holding time of 7 days after sample collection; therefore, the results do not require any qualifications for this criterion. The semivolatile analyses were performed within the SAS holding time of 40 days after sample collection; therefore, the results do not require any qualifications for this criterion.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTPP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

Two 9-pt Initial calibration were completed on May 24, 2012 (A4HP10) and May 30, 2012 (A4HP7) with the following concentrations; 0.1 ng/uL, 0.5 ng/uL, 1 ng/uL, 2 ng/uL, 5 ng/uL, 10 ng/uL, 15 ng/uL, 20 ng/uL and 25 ng/uL. The %RSDs for Naphthalene were less than or equal to 15%.

Three 1-pt continuing calibrations were conducted on May 24, May 29, and May 30, 2012. The percent differences (%Ds) for all compounds were less than 20%; therefore, the results do not require any qualifications for this criterion.

4. BLANKS

The method blanks are identified as MB 240-45337/22-A and MB 240-45343/11-A. No target compounds were detected in the method blanks. The Semivolatile method blank summaries (FORM IV) list the samples associated with each blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the QC limits for all samples; therefore the results do not require any qualification for this criterion.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 12CP02-24 was analyzed for the MS/MSD analyses and was submitted with this sample delivery group. The % Recoveries for the MS/MSD are within the SAS limits of 32-110%. The %RPD for Naphthalene (33%) is outside the SAS limit (20%). Non-detected Naphthalene in the unspiked sample (12CP02-24) is qualified "UJ".

6B. LABORATORY CONTROL SAMPLES

The laboratory control samples are identified as LCS 240-45337/21-A and LCS 240-45343/10-A. The %recoveries of Naphthalene were within the SAS QC limits of 31-110%; therefore, the results do not require any qualifications for this criterion.

7. FIELD BLANK AND FIELD DUPLICATE

Samples 12CP02-19 and 12CP02-20 appear to be field duplicates. Naphthalene was not detected in the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits (50-200%); therefore, the results do not require any qualifications for this criterion.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters. All target RLs were reported in µg/L units in accordance with the SAS.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 08, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.

2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group.
3) The SAS contracts state that MS/MSD and LSC/LCSD analyses are performed for every group of 20 field samples collected from the site; therefore MS/MSD and LSC/LCSD analyses are not included with every sample delivery group.
4) All target RLs were reported in µg/L units.
5) The SAS document states that the internal standards QC limits are listed as 50-100% response. If this is not a typo, then the lower QC limit is 50% of the 12-Hr Std and the upper QC limit is the 12-Hr Std. Under these conditions samples MB 240-45343/11-A, LCS 240-45343/10-A, 12CP02-19 and 12CP02-20 would be qualified for having internal standard area counts above the upper limit and all detections in both samples would be qualified "J", as estimated.

The Results tables are submitted as a separate Excel spreadsheet.

SAS Number: 12CP02 SDG Number: 12CP02-19SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA Laboratories, Inc.

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11646-1 SDG Number: 12CP02-01SV

Number and Type of Samples: 3 Waters (Naphthalene)

Sample Numbers: 12CP02-01 thru 12CP02-03

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-01SV
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Three (3) water samples; 12CP02-01 through 12CP02-03, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact with cooler temperatures between 1.6 °C and 3.4 °C. The samples were analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-02	240-11646-1	PWP-EB01	05-23-12	11:15	05-25-12
12CP02-01	240-11646-3	PWP-DW01	05-23-12	10:30	05-25-12
12CP02-03	240-11646-4	PWP-FB01	05-23-12	10:45	05-25-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB-240-45413 is the low level water semivolatile method blank.

LCS-240-45413 is the low level water semivolatile laboratory control sample. No laboratory control duplicate sample analysis was conducted for the semivolatile analyses.

Sample 12CP02-01 was identified as an equipment blank. Sample 12CP02-03 was identified as a field blank.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Three (3) water samples; 12CP02-01 through 12CP02-03, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact with cooler temperatures between 1.6 °C and 3.4 °C. The samples were analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTTP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 9-pt Initial calibration was completed on May 30, 2012 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL. The %RSDs for the semivolatile compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on May 30th and May 31st , 2012. The %Ds for all semivolatile compounds were less than 20 %D.

4. BLANKS

MB 240-45413 is the semivolatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-45413 is the semivolatile water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group. The semivolatile laboratory control sample recoveries were within the QC limits (31 – 110%) identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 12CP02-01 was identified as an equipment blank. Sample 12CP02-03 was identified as a field blank. Naphthalene was not detected in either sample.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 11, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual ‘Organics Analytical Data Sheet’.
3) The SAS document states that the internal standards QC limits are listed as 50-100% response. If this is not a typo, then the lower QC limit is 50% of the 12-Hr Std and the upper QC limit is the 12-Hr Std. All non-detected Naphthalene in the field samples, method blank and laboratory control sample should be qualified “UJ” with these tighter limits.

Sample results are submitted in the accompanying Excel spreadsheet

SAS Number: 12CP02 SDG Number: 12CP02-01SV
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11646-1 SDG Number: 12CP02-01VOA

Number and Type of Samples: 5 Waters (BTEX)

Sample Numbers: 12CP02-01, 12CP02-02, 12CP02-03, 12CP02-10, 12CP02-12

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Five (5) preserved water samples; 12CP02-01, 12CP02-02, 12CP02-03, 12CP02-10 and 12CP02-12, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23 - 24, 2012 and received on May 25, 2012 intact and within the temperature range of 1.6 °C to 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-02	240-11646-1	PWP-EB01	05-23-12	11:15	05-25-12
12CP02-12	240-11646-2TB	PWP-JS09	05-24-12	00:00	05-25-12
12CP02-01	240-11646-3	PWP-DW01	05-23-12	10:30	05-25-12
12CP02-03	240-11646-4	PWP-FB01	05-23-12	10:45	05-25-12
12CP02-10	240-11645-5TB	PWP-JS07	05-24-12	00:00	05-25-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB 240-46039 and MB 240-46161 are the low level water volatile method blanks.

LCS 240-46039 and LCS 240-46161 are the low level water laboratory control samples. No laboratory control duplicate sample analyses were conducted for this sample delivery group.

Two (2) samples; 12CP02-10 and 12CP02-12 were identified as trip blanks. Sample 12CP02-02 was identified as an equipment blank. Sample 12CP02-03 was identified as a field blank.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Five (5) preserved water samples; 12CP02-01, 12CP02-02, 12CP02-03, 12CP02-10 and 12CP02-12, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23 - 24, 2012 and received on May 25, 2012 intact and within the temperature range of 1.6 °C to 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

Two (2) 6-pt Initial calibrations were completed on May 9, 2012 and May 29, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L, 2 µg/L and 1 µg/L. The %RSDs for the BTEX compounds were less than the SAS limit of 15%; therefore, the initial calibrations are acceptable.

Four 1-pt continuing calibrations were conducted on May 9th, May 29th, June 1st, and June 4th, 2012. The %Ds for all BTEX compounds were less than 20%D.

4. BLANKS

MB 240-46039 and MB 240-46161 are the low level water volatile method blanks. The method blanks were free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The volatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-46039 and LCS 240-46161 are the low level water laboratory control samples. No laboratory control duplicate sample analyses were conducted for this sample delivery group. The volatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Two (2) samples; 12CP02-10 and 12CP02-12 were identified as trip blanks. Sample 12CP02-02 was identified as an equipment blank. Sample 12CP02-03 was identified as a field blank. No target compounds were detected in any of the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the SAS required reporting limits for all compounds, except Benzene.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 11, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual ‘Organics Analytical Data Sheet’.
3) The lowest calibration standard was 1 µg/L. The requested RL for Benzene is 0.5 µg/L.

The Results table may be included in the narrative or submitted as a separate Excel spreadsheet.

SAS Number: 12CP02 SDG Number: 12CP02-01VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 3 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CH2M Hill

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Project No.: 240-11646-1 SDG Number: 12CP02-02-METH

Number and Type of Samples: 3 water Samples (3 METHANE/ 2 PCP)

Sample Numbers: 12CP02-01, -02, -03

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 12CP02 SDG Number: 12CP02-02-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Three (3) water samples labeled 12CP02-01, 12CP02-02, and 12CP02-03 were shipped to TestAmerica located in North Canton, OH. Samples 12CP02-02, and 12CP02-03 were analyzed for Methane according to RSK-175 and the SAS contract for samples collected between April, 2011 and December, 2014. The North Canton laboratory sub-contracted the PCP analysis of samples 12CP02-01, 12CP02-02, and 12CP02-03 to the TestAmerica Pittsburgh laboratory which performed the analysis. All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-01	240-11646-3	PWP-DW01	05-23-12	10:30	05-25-12
12CP02-02	240-11646-1	PWP-EB01	05-23-12	11:15	05-25-12
12CP02-03	240-11646-4	PWP-FB01	05-23-12	10:45	05-25-12

Sample 12CP02-02 is identified as an equipment blank. Sample 12CP02-03 is identified as a field blank.

The Methane was extracted within the SAS holding time of 14 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol was extracted within the SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample extraction; therefore, the results are acceptable.

1. HOLDING TIME

Three (3) water samples labeled 12CP02-01, 12CP02-02 and 12CP02-03 were shipped to TestAmerica located in North Canton OH. Samples 12CP02-02 and 12CP02-03 were analyzed for Methane according to RSK 175 and the SAS contract for samples collected between April, 2011 and December, 2014.

The North Canton laboratory sub-contracted the PCP analysis of samples 12CP02-01, 12CP02-02, and 12CP02-03 to the TestAmerica Pittsburg laboratory which performed the analysis All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

The Methane was extracted within the SAS holding time of 14 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol was extracted within the SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample extraction; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The laboratory used a GC/FID instrument. It appeared that it was properly optimized for resolution of the target analyte and sensitivity. All samples were analyzed within the twelve (12) hour periods for instrument performance checks.

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both GC Columns (RTX-50 and RTX-1701).

3. CALIBRATION

A 9-pt Initial calibration was completed on 12/12/11 with the following concentrations; 0.251 ug/L, 0.965 ug/L, 3.86 ug/L, 11.6 ug/L, 38.6 ug/L, 116 ug/L, 347 ug/L, 772 ug/L and 1543 ug/L. The percent difference (%RSD) for Methane was less than 20%; therefore, the results are acceptable.

A 5-pt Initial calibration was completed on 5/31/12 with the following concentrations; 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng, and 0.040ng. The percent difference (%RSD) for Pentachlorophenol was less than 20%; therefore, the results are acceptable.

4. BLANKS

MB 180-37386/1 was Pentachlorophenol water method blank. MB 240-45745/40 is the Methane method blank. The method blanks contained no target analytes; therefore the results are acceptable. The method blanks are summarized (FORM IV) list samples associated with each blank. Although the PCP method blank was non-detect for the target analyte, it was at 5x the SAS required detection limit.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

1,1,1-Trifluoroethane (TFE) was utilized as the methane surrogate for this analysis. All %recoveries were within the SAS QC range, 10 - 168%; therefore, the results are acceptable.

The herbicide surrogate recoveries were within the QC limits (32 – 140%) identified in the laboratory data package for all samples; therefore the results are acceptable.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

6B. LABORATORY CONTROL SAMPLE

The sample ID for the Methane lab control spike is LCS 240-45745/83. Samples LCS 180-37386/2-A and LCSD 180-37386/3-A are the lab control spike and lab control spike duplicate for Pentachlorophenol. All compound recoveries were within the QC limits; therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 12CP02-02 is identified as an equipment blank. Sample 12CP02-03 is identified as a field blank.

	12CP02-02	12CP02-03
	PWP-EB01	PWP-FB01
Methane	0.5 U	0.11 J
Pentachlorophenol	0.095 U	0.1 U

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No used for RSK 175 or SW846 method 5151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all compounds were properly identified.

Case Number: 12CP02 SDG Number: 12CP02-02-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples are waters; therefore, all target RLs were properly reported. All target compound quantitations were properly reported. The reported detection limit for the method blank did not meet the SAS required detection limit. All concentrations detected between the laboratory's MDL and the SAS' RL are reported as estimated and qualified "J".

11. SYSTEM PERFORMANCE

The GC baselines for the analyses were acceptable.

12. ADDITIONAL INFORMATION

The laboratory met the requirement in Section 6 of analytical results in 21 calendar days of receipt of sample.

The laboratory failed to comply with the required Reporting limit in Table I of the Pentachlorophenol SAS for the Method blank. The method Blank was diluted 5 times greater than the samples.

Summary of Sample results

EPA/CLIENT ID:	12CP02-02		12CP02-03	
Station Location	PWP-EB01		PWP-FB01	
Units	ug/L		ug/L	
DIL	1		1	
METHANE	0.50	U	0.11	J
DIL	4		4	
Pentachlorophenol	0.0952	U	0.1	U

EPA/CLIENT ID:	12CP02-01	
Station Location	PWP-DW01	
Units	ug/L	
DIL	4	
Pentachlorophenol	0.028	J

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

Case Number: 12CP02 SDG Number: 12CP02-02-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11621-1 SDG Number: 12CP02-04VOA

Number and Type of Samples: 8 Waters (Benzene, Toluene, Ethylbenzene & Xylenes, total)

Sample Numbers: 12CP02-04, 12CP02-05, 12CP02-07, 12CP02-19 thru 12CP0-21, 12CP02-23, 12CP02-24

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eight (8) preserved water samples, 12CP02-04, 12CP02-05, 12CP02-07, 12CP02-19 through 12CP02-21, 12CP02-23 and 12CP02-24, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 22-23, 2012 and received on May 24, 2012 intact and within the preferred shipping temperature range of 2 - 6°C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-04	240-11621-3TB	PWP-JS01	05-23-12	00:00	05-24-12
12CP02-05	240-11628-3TB	PWP-JS02	05-23-12	00:00	05-24-12
12CP02-07	240-11624-2TB	PWP-JS04	05-23-12	00:00	05-24-12
12CP02-19	240-11628-1	PWP-MW12	05-22-12	14:30	05-24-12
12CP02-20	240-11628-2	PWP-MW12FR	05-22-12	14:30	05-24-12
12CP02-21	240-11621-1	PWP-MW15	05-22-12	09:50	05-24-12
12CP02-23	240-11621-2	PWP-MW22	05-22-12	11:10	05-24-12
12CP02-24	240-11624-1	PWP-MW26	05-22-12	13:35	05-24-12

Sample 12CP02-24 was chosen as the parent sample for the MS/MSD analyses.

MB 240-45978/5, MB 240-46002/5 and MB-240-46261/5 are the low level water volatile method blanks.

LCS 240-45978/4, LCS 240-46002/4 and LCS-240-46261/4 are the low level water laboratory control samples. No laboratory control duplicate sample analyses were conducted for this sample delivery group.

Samples 12CP02-04, 12CP02-05 and 12CP02-07 were identified as trip blanks. Sample 12CP02-20 was identified as a field replicate of sample 12CP02-19.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the sample results do not require any qualifications for this criterion.

1. HOLDING TIME

Eight (8) preserved water samples, 12CP02-04, 12CP02-05, 12CP02-07, 12CP02-19 through 12CP02-21, 12CP02-23 and 12CP02-24, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 22-23, 2012 and received on May 24, 2012 intact and within the preferred shipping temperature range of 2 - 6°C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the sample results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks; therefore, the sample results do not require any qualifications.

3. CALIBRATION

Three (3) 6-pt Initial calibrations were completed on April 9th , May 9th , and May 29, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L, 1 µg/L and 0.5 µg/L. The %RSDs for the BTEX compounds were less than the SAS limit of 15%; therefore, the sample results do not require any qualifications for this criterion.

Six (6) 1-pt continuing calibrations were conducted on the following days; April 9th , May 9th , May 29th , June 1st , and June 5th , 2012 . The %Ds for all BTEX compounds were less than 20%D; therefore, the sample results do not require any qualifications for this criterion.

4. BLANKS

MB 240-45978/5, MB 240-46002/5 and MB-240-46261/5 are the low level water volatile method blanks. No target compounds were detected in the method blanks. The volatile method blank summaries (Form IV GC/MS VOA) list the samples associated with each blank. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The volatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore, the sample results do not require any qualifications for this criterion.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 12CP02-24 was designated as the parent sample for the MS/MSD analyses. The volatile matrix spike sample and matrix spike duplicate sample recoveries were within the QC limits identified in the laboratory data package and the %RPD was less than 20%; therefore, the sample results do not require any qualifications for this criterion.

6B. LABORATORY CONTROL SAMPLES

LCS 240-45978/4, LCS 240-46002/4 and LCS-240-46261/4 are the water laboratory control samples. No laboratory control duplicate sample analyses were conducted for this sample delivery group.

The volatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore, the sample results do not require any qualifications for this criterion.

7. FIELD BLANK AND FIELD DUPLICATE

Samples 12CP02-04, 12CP02-05 and 12CP02-07 were identified as trip blanks. None of the blanks contained any of the BTEX compounds.

Sample 12CP02-20 was identified as a field replicate of sample 12CP02-19. Neither sample contained any of the BTEX compounds.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the required QC limits (50-200%) for all samples; therefore, no qualification of the sample results is required for this criterion.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were met or lower than the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 8, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual 'Organics Analytical Data Sheet'.
3) The lowest calibration standard was 0.5 µg/L.
4) In order to recreate the surrogate recoveries reported by the laboratory the spiking concentration had to be changed for each day of analysis. Samples analyzed on the GC identified as A3UX10 were spiked with a 12 µg/L spiking solution. Samples analyzed on the GC identified as A3UX11 were spiked with a 8.35 µg/L spiking solution. Samples analyzed on the GC identified as A3UX16 were spiked with a 10.2 µg/L spiking solution.

SAS Number: 12CP02 SDG Number: 12CP02-04VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11612-1 SDG Number: 12CP02-06VOA

Number and Type of Samples: 2 Waters (BTEX)

Sample Numbers: 12CP02-06, 12CP02-22

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Two (2) preserved water samples; 12CP02-06 and 12CP02-22 were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 22 - 23, 2012 and received on May 24, 2012 intact with cooler temperatures between 1.6 °C and 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-06	240-11612-2TB	PWP-JS03	05-23-12	00:00	05-24-12
12CP02-22	240-11612-1	PWP-MW19	05-22-12	16:00	05-24-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB-240-45913 is the low level water volatile method blank.

LCS-240-45913 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group.

One (1) sample, 12CP02-06, was identified as a trip blank. No samples were identified as either field blanks or field replicates.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Two (2) preserved water samples; 12CP02-06 and 12CP02-22 were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 22 - 23, 2012 and received on May 24, 2012 intact with cooler temperatures between 1.6 °C and 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 6-pt Initial calibration was completed on October 31, 2011 using the following concentrations; 80 µg/L, 40 µg/L, 20 µg/L, 10 µg/L, 1 µg/L and 0.5 µg/L. The %RSDs for the BTEX compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on October 31, 2011 and May 31, 2012. The %Ds for all BTEX compounds were less than 20%D.

4. BLANKS

MB-240-45913 is the low level water volatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The volatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS-240-45913 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group. The volatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

One (1) sample, 12CP02-06, was identified as a trip blank. No samples were identified as either field blanks or field replicates. No target compound was detected in the sample.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 8, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual ‘Organics Analytical Data Sheet’.
3) The lowest calibration standard was 0.5 µg/L.

The Results table may be included in the narrative or submitted as a separate Excel spreadsheet.

SAS Number: 12CP02 SDG Number: 12CP02-06VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11645-1 SDG Number: 12CP02-08VOA

Number and Type of Samples: 9 Waters (BTEX)

Sample Numbers: 12CP02-08, 12CP02-09, 12CP02-11, 12CP02-25 thru 12CP02-30

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) preserved water samples; 12CP02-08, 12CP02-09, 12CP02-11 and 12CP02-25 through 12CP02-30, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23 - 24, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-25	240-11645-1	PWP-RW01	05-23-12	12:40	05-25-12
12CP02-26	240-11645-2	PWP-RW01FR	05-23-12	12:40	05-25-12
12CP02-08	240-11645-3TB	PWP-JS05	05-24-12	00:00	05-25-12
12CP02-27	240-11645-4	PWP-RW02	05-23-12	13:10	05-25-12
12CP02-28	240-11645-5	PWP-RW03	05-23-12	13:50	05-25-12
12CP02-09	240-11645-6TB	PWP-JS06	05-24-12	00:00	05-25-12
12CP02-29	240-11645-7	PWP-RW04	05-23-12	13:35	05-25-12
12CP02-30	240-11645-8	PWP-RW05	05-23-12	14:40	05-25-12
12CP02-11	240-11645-9TB	PWP-JS08	05-24-12	00:00	05-25-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB-240-46039 is the low level water volatile method blank.

LCS-240-46039 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group.

Three (3) samples; 12CP02-08, 12CP02-09 and 12CP02-11 were identified as trip blanks. Sample 12CP02-26 was identified as a field replicate of sample 12CP02-25.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Nine (9) preserved water samples; 12CP02-08, 12CP02-09, 12CP02-11 and 12CP02-25 through 12CP02-30, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23 - 24, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 6-pt Initial calibration was completed on May 9, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L, 2 µg/L and 1 µg/L. The %RSDs for the BTEX compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on May 9th and June 1st , 2012. The %Ds for all BTEX compounds were less than 20%D.

4. BLANKS

MB-240-46039 is the low level water volatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The volatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS-240-46039 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group. The volatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Three (3) samples; 12CP02-08, 12CP02-09 and 12CP02-11 were identified as trip blanks. Sample 12CP02-26 was identified as a field replicate of sample 12CP02-25. No target compounds were detected in any of the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 11, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual 'Organics Analytical Data Sheet'.
3) The lowest calibration standard was 1 µg/L.

The Results table may be included in the narrative or submitted as a separate Excel spreadsheet.

SAS Number: 12CP02 SDG Number: 12CP02-08VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 3 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CH2M Hill

Level 4 Manual Data Validation:

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 SDG Number: 12CP02-19METH

Number and Type of Samples: 5 water Samples (METHANE)

Sample Numbers: 12CP02-19 -20, -21, -23, -24

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-19METH
Site Name: Penta Wood Products (WI) Laboratory: Test America - NC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Five (5) water samples labeled 12CP02-19, 12CP02-20, 12CP02-21, 12CP02-23 and 12CP02-24 were shipped to TestAmerica located in North Canton OH. All samples were analyzed for Methane according to RSK 175 and the SAS contract for samples collected between April, 2011 and December, 2014.

EPA Sample ID	Lab Sample ID	Station Location	Collect		Receipt
			Date	Time	
12CP02-21	240-11621-1	PWP-MW15	05-23-2012	09:50	05-24-2012
12CP02-23	240-11621-2	PWP-MW22	05-23-2012	11:10	05-24-2012
12CP02-24	240-11624-1	PWP-MW26	05-23-2012	13:35	05-24-2012
12CP02-19	240-11628-1	PWP-MW12	05-23-2012	14:30	05-24-2012
12CP02-20	240-11628-2	PWP-MW12FR	05-23-2012	14:30	05-24-2012

Sample 12CP02-24 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

Samples 12CP02-19 and 12CP02-20 are identified as field duplicates.

The Methane was analyzed within the SAS holding time of 14 days after sample collection; therefore, the results are acceptable.

SAS Number: 12CP02 SDG Number: 12CP02-19METH
Site Name: Penta Wood Products (WI) Laboratory: Test America - NC

1. HOLDING TIME

Five (5) water samples labeled 12CP02-19, 12CP02-20, 12CP02-21, 12CP02-23 and 12CP02-24 were shipped to TestAmerica located in North Canton OH. All samples were analyzed for Methane according to RSK 175 and the SAS contract for samples collected between April, 2011 and December, 2014.

The Methane was analyzed within the SAS holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The laboratory used a GC/FID instrument. It appeared that it was properly optimized for resolution of the target analyte and sensitivity. All samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 9-pt Initial calibration was completed on 12/12/11 with the following concentrations; 0.251 ug/L, 0.965 ug/L, 3.86 ug/L, 11.6 ug/L, 38.6 ug/L, 116 ug/L, 347 ug/L, 772 ug/L and 1543 ug/L. The percent difference (%RSD) for Methane was less than 20%; therefore, the results are acceptable.

4. BLANKS

MB 240-45745/83 was the water method blank. The method blank contained no target analytes; therefore the results are acceptable. The method blank summary (FORM IV) lists samples associated with the blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

1,1,1-Trifluoroethane (TFE) was utilized as the surrogate for this analysis. All %recoveries were within the SAS QC range, 10 - 168%; therefore, the results are acceptable.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 12CP02-24 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

All spike recoveries (75 – 114%) and RPDs (<20%) were within QC limits; therefore, the results are acceptable.

6B. LABORATORY CONTROL SAMPLE

The sample ID for the lab control spike is LCS 240-45745/83. All compound recoveries were within the QC limits (75 – 114%); therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks. Samples 12CP02-19 and 12CP02-20; are identified as field duplicate.

	12CP02-19	12CP02-20	%D
Pentanchlorophenol	0.5 U	0.5 U	0%

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No used for RSK 175 analyses.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples are waters; therefore, all target RLs were properly reported. All target compound quantitations were properly reported.

11. SYSTEM PERFORMANCE

The GC baselines for the analyses were acceptable.

12. ADDITIONAL INFORMATION

The laboratory met the requirement in Section 6 of analytical results in 21 calendar days of receipt of samples.

SAS Number: 12CP02
Site Name: Penta Wood Products (WI)

SDG Number: 12CP02-19METH
Laboratory: Test America - NC

Summary of Sample results

EPA/CLIENT ID:	12CP02-19	12CP02-20	12CP02-21	12CP02-23
Station Location	PWP-MW12	PWP-MW12FR	PWP-MW15	PWP-MW22
Units	µg/L	µg/L	µg/L	µg/L
DIL	1	1	1	1
METHANE	0.5	0.5	0.5	0.5
Qualifier	U	U	U	U

EPA/CLIENT ID:	12CP02-24			
Station Location	PWP-MW26			
Units	µg/L			
DIL	1			
METHANE	0.5			
Qualifier	U			

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

SAS Number: 12CP02 SDG Number: 12CP02-19METH
Site Name: Penta Wood Products (WI) Laboratory: Test America - NC

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 3 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CH2M Hill

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11612-1 SDG Number: 12CP02-22METH

Number and Type of Samples: 1 water Sample (METHANE)

Sample Numbers: 12CP02-22

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 12CP02 SDG Number: 12CP02-22-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

One (1) water samples labeled 12CP02-22 was shipped to TestAmerica located in North Canton OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. All samples were analyzed for Methane according to RSK 175 and the SAS contract for samples collected between April, 2011 and December, 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-22	240-11612-1	PWP-MW19	05-22-12	16:00	05-24-12

The Methane was analyzed within SAS holding time of 14 days after sample collection; therefore, the results are acceptable.

Case Number: 12CP02 SDG Number: 12CP02-22-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

1. HOLDING TIME

One (1) water samples labeled 12CP02-22 was shipped to TestAmerica located in North Canton OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. All samples were analyzed for Methane according to RSK 175 and the SAS contract for samples collected between April, 2011 and December, 2014.

The Methane was analyzed within SAS holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The laboratory used a GC/FID instrument. It appeared that it was properly optimized for resolution of the target analyte and sensitivity. All samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 9-pt Initial calibration was completed on 12/12/11 with the following concentrations; 0.251 ug/L, 0.965 ug/L, 3.86 ug/L, 11.6 ug/L, 38.6 ug/L, 116 ug/L, 347 ug/L, 772 ug/L and 1543 ug/L. The percent difference (%RSD) for Methane was less than 20%; therefore, the results are acceptable.

4. BLANKS

MB 240-45745/40 was water method blank. The method blank contained no target analytes; therefore, the results are acceptable. The method blank summary (FORM IV) lists samples associated with the blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

1,1,1-Trifluoroethane (TFE) was utilized as the surrogate for this analysis. All %recoveries were within the SAS QC range, 10 - 168%; therefore, the results are acceptable.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample was identified for the matrix spike/ spike duplicate analysis.

6B. LABORATORY CONTROL SAMPLE

The sample ID for the lab control spike is LCS 240-45745/83. All compound recoveries were within the QC limits (75 – 114 %Recovery); therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blank.

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No used for RSK 175.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples are waters; therefore, all target RLs were properly reported. All target compound quantitations were properly reported.

11. SYSTEM PERFORMANCE

The GC baselines for the analyses were acceptable.

12. ADDITIONAL INFORMATION

The laboratory met the requirement in Section 6 of analytical results in 21 calendar days of receipt of sample.

Summary of Sample results

EPA/CLIENT ID:	12CP02-22
Station Location	PWP-MW-19
	METHANE
DIL	1
	0.71
Units	ug/L

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

Case Number: 12CP02 SDG Number: 12CP02-22-METH
Site Name: Penta Wood Products (WI) Laboratory: Test America

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 3 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CH2M Hill

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Project No.: 240-11621-1 SDG Number: 12CP02-22Herb

Number and Type of Samples: 1 water Sample (PCP)

Sample Numbers: 12CP02-22

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 12CP02 SDG Number: 12CP02-22Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

One (1) water sample; 12CP02-22, was shipped to TestAmerica North Canton located in North Canton, OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. The North Canton laboratory sub-contracted the PCP analysis to the TestAmerica Pittsburgh laboratory which performed the analysis. All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-22	240-11612-1	PWP-MW19	05-22-12	16:00	05-24-12

The Pentachlorophenol was extracted within SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample collection/extraction; therefore, the results are acceptable.

Case Number: 12CP02 SDG Number: 12CP02-22Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

1. HOLDING TIME

One (1) water sample; 12CP02-22, was shipped to TestAmerica North Canton located in North Canton, OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. The North Canton laboratory sub-contracted the PCP analysis to the TestAmerica Pittsburgh laboratory which performed the analysis. All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

The Pentachlorophenol was extracted within SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample collection/extraction; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both GC Columns (RTX-50 and RTX-1701).

3. CALIBRATION

A 5-pt Initial calibration was completed on 5/31/12 with the following concentrations; 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng, and 0.040 ng. The percent difference (%RSD) for Pentachlorophenol was less than 20%; therefore, the results are acceptable.

Continuing calibrations were conducted on 6/1/12, 6/4/12 and 6/5/12. All %Ds were within the SAS QC criteria.

4. BLANKS

MB 180-37230/1-A was water method blank. The method blank contained no target analytes; therefore the results are acceptable. The method blank summary (FORM IV) lists samples associated with the blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The following sample, 12CP02-22, has surrogate recoveries below the lower limit criteria. The sample's dilution factor is greater than 5.0; therefore, the sample results are not qualified for this criterion. All other surrogate recoveries were within the SAS acceptance range of 32-140% Recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Not in this SDG.

6B. LABORATORY CONTROL SAMPLE

The sample ID for the lab control spike is LCS 180-37230/2-A. All compound recoveries were within the QC limits (32-140%); therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as a field blank or field duplicate.

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No used for Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all Herbicide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples are waters and several dilutions were run; therefore, all target RLs were properly reported. All target compound quantitations were properly reported. The reported detection limit for the method blank did not meet the SAS required detection limit.

11. SYSTEM PERFORMANCE

The GC baselines for the herbicide analyses were acceptable.

12. ADDITIONAL INFORMATION

The laboratory met the requirement in Section 6 of analytical results in 21 calendar days of receipt of sample.

The laboratory failed to comply with the required Reporting limit in Table I of the SAS for the Method blank. The method Blank was diluted 5 times greater than the samples.

Case Number: 12CP02 SDG Number: 12CP02-22Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

Summary of Sample results

EPA/CLIENT ID:	12CP02-19			
Station Location	PWP-MW12			
Units	µg/L			
DIL	20000			
PCP	5300			
Qualifier				

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

Case Number: 12CP02 SDG Number: 12CP02-22Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11612-1 SDG Number: 12CP02-22SV

Number and Type of Samples: 1 Water (Naphthalene)

Sample Numbers: 12CP02-22

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-22SV
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

One (1) water sample; 12CP02-22, was shipped to TestAmerica North Canton located in North Canton, OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. The sample was analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-22	240-11612-1	PWP-MW19	05-22-12	16:00	05-24-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB 240-45337 is the water semivolatile method blank.

LCS 240-45337 is the water semivolatile laboratory control sample. No laboratory control duplicate sample analysis was conducted for the semivolatile analyses.

The sample was not identified as a field blank.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

1. HOLDING TIME

One (1) water sample; 12CP02-22, was shipped to TestAmerica North Canton located in North Canton, OH. The sample was collected May 22, 2012 and received on May 24, 2012 intact and with a cooler temperature between 1.9 °C and 3.7 °C. The sample was analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTTP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

A 9-pt Initial calibration was completed on May 30, 2012 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL. The %RSDs for the semivolatile compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on May 30th and June 1st , 2012. The %Ds for all semivolatile compounds were less than 20 %D.

4. BLANKS

MB 240-45337 is the semivolatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-4537 is the semivolatile water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group. The semivolatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

The sample was not identified as a field blank.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 8, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual ‘Organics Analytical Data Sheet’.
3) The SAS document states that the internal standards QC limits are listed as 50-100% response. If this is not a typo, then the lower QC limit is 50% of the 12-Hr Std and the upper QC limit is the 12-Hr Std. The internal standard recoveries are within these tighter limits for all samples.

Sample results are submitted in the accompanying Excel spreadsheet

SAS Number: 12CP02 SDG Number: 12CP02-22SV
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: July 3, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-11645-1 SDG Number: 12CP02-25ORG

Number and Type of Samples: 6 Waters (Naphthalene, Pentachlorophenol)

Sample Numbers: 12CP02-25 thru 12CP02-30

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-25ORG
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Six (6) water samples; 12CP02-25 through 12CP02-30, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The samples were analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014. The samples were also analyzed for Pentachlorophenol according to SW-846 Method 8151 and the SAS contract for samples collected between April 2011 and December 2014. The 8151 Chlorinated Herbicide analysis was performed at the TestAmerica Pittsburgh Laboratory.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-25	240-11645-1	PWP-RW01	05-23-12	12:40	05-25-12
12CP02-26	240-11645-2	PWP-RW01FR	05-23-12	12:40	05-25-12
12CP02-27	240-11645-4	PWP-RW02	05-23-12	13:10	05-25-12
12CP02-28	240-11645-5	PWP-RW03	05-23-12	13:50	05-25-12
12CP02-29	240-11645-7	PWP-RW04	05-23-12	13:35	05-25-12
12CP02-30	240-11645-8	PWP-RW05	05-23-12	14:40	05-25-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB-240-45413 is the low level water semivolatile method blank. MB-180-37386 is the water herbicide method blank.

LCS-240-45413 is the low level water semivolatile laboratory control sample. No laboratory control duplicate sample analysis was conducted for the semivolatile analyses. LCS-180-37386/ LCSD-180-37386 are the water herbicide laboratory control sample and laboratory control sample duplicate.

Sample 12CP02-26 was identified as a field replicate of sample 12CP02-25.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable. The herbicide samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Six (6) water samples; 12CP02-25 through 12CP02-30, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The samples were analyzed for Naphthalene according to SW-846 Method 8270 and the SAS contract for samples collected between April 2011 and December 2014. The samples were also analyzed for Pentachlorophenol according to SW-846 Method 8151 and the SAS contract for samples collected between April 2011 and December 2014. The 8151 Chlorinated Herbicide analysis was performed at the TestAmerica Pittsburgh Laboratory.

The semivolatile samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable. The herbicide samples were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTTP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both GC Columns (RTX-50 and RTX-1701).

3. CALIBRATION

A 9-pt Initial calibration was completed on May 30, 2012 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL. The %RSDs for the semivolatile compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on May 30th and May 31st , 2012. The %Ds for all semivolatile compounds were less than 20 %D.

A 5-pt Initial calibration was completed on May 9, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L and 2.5 µg/L. The %RSDs for the herbicide compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Two 1-pt continuing calibrations were conducted on June 7th , 2012. The %Ds for all herbicide compounds were less than 20 %D.

4. BLANKS

MB 240-45413 is the semivolatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

MB 180-37386 is the herbicide method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

The herbicide surrogate recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-45413 is the semivolatile water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group. The semivolatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

LCS 180-37386 and LCSD 180-37386 are the herbicide laboratory control sample and laboratory control sample duplicate. The herbicide laboratory control sample recoveries and RPDs were within the QC limits identified in the laboratory data package for all samples; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 12CP02-26 was identified as a field replicate of sample 12CP02-25. No semivolatile or herbicide target compounds were detected in any of the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits (50 – 200% area response) for all samples.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile and herbicide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run; therefore, no qualifications are required. All reporting limits were lower than or equal to the the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on June 11, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual 'Organics Analytical Data Sheet'.
3) The SAS document states that the internal standards QC limits are listed as 50-100% response. If this is not a typo, then the lower QC limit is 50% of the 12-Hr Std and the upper QC limit is the 12-Hr Std. Under these conditions samples MB 240-45343/23, LCS 240-45343/24, and 12CP02-25 thru 12CP02-30 would be qualified for having internal standard area counts above the upper limit and all detections in the samples would be qualified "J", as estimated.

Sample results are submitted in the accompanying Excel spreadsheet

SAS Number: 12CP02 SDG Number: 12CP02-25ORG
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: August 16, 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 12CP02 Job Number: 240-13140-1 SDG Number: 12CP02-31PCP

Number and Type of Samples: 2 Waters (Pentachlorophenol)

Sample Numbers: 12CP02-31, 12CP02-32

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 12CP02 SDG Number: 12CP02-31PCP
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Two (2) water samples; 12CP02-31 and 12CP02-32, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected July 11, 2012 and received on July 12, 2012 intact and within the proper shipping temperature range. The samples were analyzed for Pentachlorophenol according to SW-846 Method 8151 and the SAS contract for samples collected between April 2011 and December 2014. The 8151 Chlorinated Herbicide analysis was performed at the TestAmerica Pittsburgh Laboratory.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-31	240-13140-1	PWP-RW01-RE	07-11-12	10:00	07-12-12
12CP02-32	240-13140-2	PWP-RW01-REFR	07-11-12	10:00	07-12-12

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

MB 180-42125 and MB 180-42558 are the water herbicide method blanks.

LCS 180-42125, LCS 180-42558 / LCSD 180-42558 are the water herbicide laboratory control samples and laboratory control sample duplicate.

Sample 12CP02-32 was identified as a field replicate of sample 12CP02-31.

The herbicide samples, 12CP02-31 and 12CP02-32, were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable. Sample 12CP02-32RE was extracted 12 days following sample collection; therefore the detection of PCP is qualified as estimated, “J”.

1. HOLDING TIME

Two (2) water samples; 12CP02-31 and 12CP02-32, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected July 11, 2012 and received on July 12, 2012 intact and within the proper shipping temperature range. The samples were analyzed for Pentachlorophenol according to SW-846 Method 8151 and the SAS contract for samples collected between April 2011 and December 2014. The 8151 Chlorinated Herbicide analysis was performed at the TestAmerica Pittsburgh Laboratory.

The herbicide samples, 12CP02-32 and 12CP02-32, were extracted within 7 days of sample collection and analyzed within 40 days of sample collection; therefore, the results are acceptable. Sample 12CP02-32RE was extracted 12 days following sample collection; therefore the detection of PCP is qualified as estimated, "J".

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both GC Columns (RTX-50 and RTX-1701).

3. CALIBRATION

A 5-pt Initial calibration was completed on July 11, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L and 2.5 µg/L. The %RSDs for the herbicide compounds were less than the SAS limit of 15%; therefore, the initial calibration is acceptable.

Five 1-pt continuing calibrations were conducted on July 21st and 24th, 2012. The %Ds for all herbicide compounds were less than 20 %D; therefore, the continuing calibrations are acceptable.

4. BLANKS

MB 180-42125 and MB 180-42558 are the water herbicide method blanks. The method blanks were free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The herbicide surrogate recoveries were outside the SAS QC limits of 32-140% on the primary GC column for samples 12CP02-31, 12CP02-32 and MB 42125; therefore the detections of PCP are qualified as estimated, "J" and the non-detection of PCP in MB 42125 is qualified "UJ". All other surrogate recoveries were within the SAS QC limits.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No sample from this sample delivery group (SDGs) was designated for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 180-42125, LCS 180-42558 / LCSD 180-42558 are the water herbicide laboratory control samples and laboratory control sample duplicate. The herbicide laboratory control sample recoveries and RPDs were within the SAS QC limits; therefore the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 12CP02-32 was identified as a field replicate of sample 12CP02-31. The sample results are summarized in the following table:

	12CP02-31	**12CP02-32**	RPD	**12CP02-32RE**	RPD
	µg/L	µg/L	%	µg/L	%
Pentachlorophenol (RTX-1701)	0.02885	0.0334	14.6	0.03274	12.6
Pentachlorophenol (RTX-50)	0.02692	0.03497	26.0	0.03643	30.0

8. INTERNAL STANDARDS

Not applicable to this analysis.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all herbicide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and dilutions were properly calculated; therefore, no qualifications are required. All reporting limits for the field samples were lower than or equal to the SAS required reporting limits. Concentrations detected above the Method Detection Limit (MDL) but below the reporting limit (RL) are qualified as estimated "J".

11. SYSTEM PERFORMANCE

The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

1) Analytical results were submitted to Ch2m Hill, Inc. on July 25, 2012 within the SAS requested turn-around time of 21 calendar days from receipt of samples.
2) MDL studies are actually provided to the Users prior to the contract award and are therefore, not included with every sample delivery group. MDL Values are included on the individual 'Organics Analytical Data Sheet'.
3) The collection dates for the field samples was not identified on the Chain-of-Custody. The Reviewer deferred to the SDG Narrative. The SAS contract indicated that the samples were being delivered by overnight carrier. The samples were received on July 12, 2012 implying that the samples were therefore collected on July 11, 2012.

Sample results are submitted in the accompanying Excel spreadsheet

SAS Number: 12CP02 SDG Number: 12CP02-31PCP
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/11/12

SUBJECT: **Review of Data**
Received for review on 7/3/12

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Penta Wood Products (WI)

CASE NUMBER: 12CP02 **SDG NUMBER:** 12CP02-02 MET

Number and Type of Samples: 2 waters (metals)

Sample Numbers: 12CP02-02, -03

Laboratory: TestAmerica North Canton **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Narrative

Two (2) water samples, numbered 12CP02-02, -03, were collected on May 23, 2012. The lab received the sample on May 25, 2012 in good condition. All sample results are reported to the MDL. The samples were analyzed using SW846 6020 (ICP-MS) analysis procedures. Dissolved arsenic, calcium, copper, iron, magnesium, manganese and zinc are reported.

Sample ID	Lab ID	Station Location	Sample Date/Time
12CP02-02	240-11646-1	PWP-EB01	05-23-12/11:15
12CP02-03	240-11646-4	PWP-FB01	05-23-12/10:45

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets, airbills or sample tags were provided.

ICP-MS: No MS/MSD (required in the SAS) were performed; however, the samples are equipment/field blanks and therefore matrix QC is not necessary. MDLs provided are greater than 2 years old. The laboratory performed a 2 non-zero point calibration. Also, the lowest non-zero calibration point is required at or below the RL. Since the reported concentrations are all less than the upper calibration point and the RL check sample passed for all reported elements, none of the sample results are estimated for these discrepancies.

For As, the sample result for 12CP02-02 is between the MDL and the SAS required RL; it is considered estimated "J."

For Ca, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL, reported results are not estimated for this. Additionally, the result for 12CP02-03 is affected by a preparation blank greater than the MDL and a CCB whose result is less than the negative MDL; the result affected by an unknown bias and is considered estimated "J." The result is also between the MDL and SAS required RL.

For Cu, the sample result for 12CP02-02 is between the MDL and the SAS required RL; it is considered estimated "J."

For Mg, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL, reported results are not estimated for this.

For Mn, the sample result for 12CP02-03 is between the MDL and the SAS required RL; it is considered estimated "J."

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/19/2011

SUBJECT: **Review of Data**
Received for Review on: 7/3/12

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

Site Name: Penta Wood Products Site (WI)

Case Number: 12CP02 **SDG Number:** 12CP02-02WC

Number and Type of Samples: 2 waters (Alkalinity, Anions, Sulfide, TOC)

Sample Numbers: 12CP02-02, 12CP02-03

Laboratory: Test America Canton **Hrs for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case: 12CP02 SDG: 12CP02-02WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Narrative

Five (5) water samples, numbered 12CP02-19 thru -21, -23, and -24, were collected on May 23, 2012. The lab received the samples on May 25, 2012. All sample results are reported to the MDL. The samples were analyzed for alkalinity using SM 310.1, chloride using SM 325.2, nitrate using SM 300.0, sulfate using SM 375.4, sulfide using SM 376.1 and total organic carbon using SW-846 9060.

Sample ID	Lab ID	Station Location	Sample Date/Time
12CP02-02	240-11646-1	PWP-EB01	05-23-12/11:15
12CP02-03	240-11646-4	PWP-FB01	05-23-12/10:45

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. No MS/MSD (required in the SAS) were performed; however, the samples are equipment/field blanks and therefore matrix QC is not necessary. MDLs provided are greater than 2 years old.

Alkalinity: The SAS requires that the lowest calibration point be run at 5.0 mg/L. However, the alkalinity method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. The SAS required a laboratory duplicate; however, the laboratory performed a MS/MSD which is acceptable. All results are acceptable.

Chloride: The sample results for 12CP02-02 and 12CP02-03 are affected by a method blank greater than the MDL indicating possible contamination. Those results are estimated "J+." Additionally, the sample results for 12CP02-02 and 12CP02-03 are between the MDL and the SAS required RL; they are considered estimated "J."

Nitrate: The following samples were analyzed outside the 48 hour method holding time: 12CP02-02 and 12CP02-03. These sample results are estimated "UJ" due to analysis outside method holding time.

Sulfate: All results are acceptable.

Sulfide: The SAS requires that the lowest calibration point be run at 1.0 mg/L. However, the sulfide method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. It should be noted that the normality of the iodine solution used by the Laboratory was not the standard 0.0250 N but 0.0277 N. No sample results are qualified for this. All results are acceptable.

TOC: All results are acceptable.

Reviewed by: Deborah Connet
Date: July 19, 2012

Case: 12CP02 SDG: 12CP02-02WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Deborah Connet
Date: July 19, 2012

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/12/12

SUBJECT: **Review of Data**
Received for review on 7/3/12

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Penta Wood Products (WI)

CASE NUMBER: 12CP02 **SDG NUMBER:** 12CP02-19 MET

Number and Type of Samples: 5 waters (metals)

Sample Numbers: 12CP02-19 thru -21, -23, -24

Laboratory: TestAmerica North Canton **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Narrative

Five (5) water samples, numbered 12CP02-19 thru -21, -23, -24, were collected on May 22, 2012. The lab received the sample on May 24, 2012 in good condition. All sample results are reported to the MDL. The samples were analyzed using SW846 6020 (ICP-MS) analysis procedures. Dissolved arsenic, calcium, copper, iron, magnesium, manganese and zinc are reported.

Sample ID	Lab ID	Station Location	Sample Date/Time
12CP02-19	240-11628-1	PWP-MW12	05-22-12/14:30
12CP02-20	240-11628-2	PWP-MW12FR	05-22-12/14:30
12CP02-21	240-11621-1	PWP-MW15	05-22-12/09:50
12CP02-23	240-11621-2	PWP-MW22	05-22-12/11:10
12CP02-24	240-11624-1	PWP-MW26	05-22-12/13:35

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided.

ICP-MS: MDLs provided are greater than 2 years old. All sample results are reported with 2 significant figures. Some results (i.e. MS, MSD and LCS) were greater than the calibration range; however, Method 6020 allows the use of linear range and all reported results are within the reported linear range.

For As, the sample results for 12CP02-19 thru -21 and -24 are between the MDL and the SAS required RL; they are considered estimated "J."

For Ca, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this. The preparation blank had Ca present at a level greater than the SAS required RL; however, all reported sample results are greater than 5X the preparation blank value and are not considered affected. All Ca results are acceptable.

For Cu, the sample results for 12CP02-19 thru -21, -23 and -24 are affected by a preparation blank greater than the MDL indicating possible contamination. Those results are estimated "J+." Additionally, the sample results for 12CP02-19 thru -21, -23 and -24 are between the MDL and the SAS required RL; they are considered estimated "J."

For Mg, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this.

For Mn, the sample result for 12CP02-21 is between the MDL and the SAS required RL; it is considered estimated "J."

For Zn, the sample result for 12CP02-23 is affected by a preparation blank greater than the MDL indicating possible contamination. That result is estimated "J+." Additionally, the sample result for 12CP02-23 is between the MDL and the SAS required RL; it is considered estimated "J."

Reviewed by: Stephen Connet
Date: July 12, 2012

Other comments: No samples were identified as field/equipment blanks. Samples 12CP02-19 and -20 were identified as field duplicates and show good correlation. No sample results are qualified for field duplicates.

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: 3 July 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CH2M Hill

We have reviewed the data for the following case:

SITE Name: Pentawood Products Site (WI)

SAS Client No.: 12CP02 Project No.: 240-11621-1 SDG Number: 12CP02-19Herb

Number and Type of Samples: 5 water Samples (PCP)

Sample Numbers: 12CP02-19 -20, -21, -23, -24

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 12CP02 SDG Number: 12CP02-19Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Five (5) water samples labeled 12CP02-19, 12CP02-20, 12CP02-21, 12CP02-23 and 12CP02-24 were shipped to TestAmerica located in North Canton OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The North Canton laboratory sub-contracted the PCP analysis to the TestAmerica Pittsburg laboratory which performed the analyses. All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
12CP02-19	240-11628-1	PWP-MW12	05-22-12	14:30	05-24-12
12CP02-20	240-11628-2	PWP-MW12FR	05-22-12	14:30	05-24-12
12CP02-21	240-11621-1	PWP-MW15	05-22-12	09:50	05-24-12
12CP02-23	240-11621-2	PWP-MW22	05-22-12	11:10	05-24-12
12CP02-24	240-11624-1	PWP-MW26	05-22-12	13:35	05-24-12

Sample 12CP02-26 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

Samples 12CP02-19 and 12CP02-20 are identified as field duplicateS.

The Pentachlorophenol was extracted within the SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample collection/extraction; therefore, the results are acceptable.

Case Number: 12CP02 SDG Number: 12CP02-19Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

1. HOLDING TIME

Five (5) water samples labeled 12CP02-19, 12CP02-20, 12CP02-21, 12CP02-23 and 12CP02-24 were shipped to TestAmerica located in North Canton OH. The samples were collected May 23, 2012 and received on May 25, 2012 intact and within temperatures of 1.6 °C, 2.0 °C, 2.8 °C, 3.2 ° and 3.4 °C. The North Canton laboratory sub-contracted the PCP analysis to the TestAmerica Pittsburg laboratory which performed the analyses. All samples were analyzed for Pentachlorophenol according to SW846 Method 8151A and the SAS contract for samples collected between April, 2011 and December, 2014.

The Pentachlorophenol was extracted within the SAS holding time of 7 days after sample collection; therefore, the results are acceptable. The Pentachlorophenol analysis was performed within the technical holding time of 40 days after sample collection/extraction; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both GC Columns (RTX-50 and RTX-1701).

3. CALIBRATION

A 5-pt Initial calibration was completed on 5/31/12 with the following concentrations; 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng, and 0.040 ng. The relative percent difference (%RSD) for Pentachlorophenol was less than 20%; therefore, the results are acceptable.

4. BLANKS

MB 108-37230/1-A was a water method blank. The method blank contained no target analytes; therefore the results are acceptable. The method blank summary (FORM IV) lists the samples associated with the blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The herbicide surrogate recoveries for all samples, except 12CP02-19 and 12CP02-20, were within the QC limits identified in the laboratory data package for all samples; therefore their results are acceptable. Both samples 12CP02-19 and 12CP02-20 were diluted with a factor greater than 5.0; therefore their surrogate recoveries are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 12CP02-26 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

All spike recoveries (32-140%) and RPDs (<30%) were within QC limits; therefore, the results are acceptable.

6B. LABORATORY CONTROL SAMPLE

The sample ID for the lab control spike is LCS 108-37230/2-A. All compound recoveries were within the QC limits (40-140%); therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks. Samples 12CP02-20 and 12CP02-20 are identified as field duplicates.

	12CP02-19	12CP02-20	%D
Pentachlorophenol	21	16	27%

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No used for Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all Herbicide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples are waters and several dilutions were run; therefore, all target RLs were properly reported. All target compound quantitations were properly reported. The reported detection limit for the method blank did not meet the SAS required detection limit. Sample concentrations detected above the laboratory's MDL but below the SAS' RL are qualified as estimated, "J".

11. SYSTEM PERFORMANCE

The GC baselines for the semivolatile analyses were acceptable.

12. ADDITIONAL INFORMATION

The laboratory met the requirement in Section 6 of analytical results in 21 calendar days of receipt of sample.

The laboratory failed to comply with the required Reporting limit in Table I of the SAS for the Method blank. The method Blank was diluted 5 times greater than the samples.

Case Number: 12CP02
Site Name: Penta Wood Products (WI)

SDG Number: 12CP02-19Herb
Laboratory: Test America

Summary of Sample results

EPA/CLIENT ID:	12CP02-19	12CP02-20	12CP02-21	12CP02-23
Station Location	PWP-MW12	PWP-MW12FR	PWP-MW15	PWP-MW22
Units	µg/L	µg/L	µg/L	µg/L
DIL	200	200	4	4
PCP	21	16	0.024	0.084
Qual			J	J

EPA/CLIENT ID:	12CP02-24	12CP02-24MS	12CP02-24MSD	
Station Location	PWP-MW26	PWP-MW26MS	PWP-MW26MSD	
Units	µg/L	µg/L	µg/L	
DIL	4	4	4	
PCP	0.1	0.314	0.339	
Qual	U			

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

Case Number: 12CP02 SDG Number: 12CP02-19Herb
Site Name: Penta Wood Products (WI) Laboratory: Test America

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 2/28/2013

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/19/2011

SUBJECT: **Review of Data**
Received for Review on: 7/3/12

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

Site Name: Penta Wood Products Site (WI)

Case Number: 12CP02 **SDG Number:** 12CP02-19WC

Number and Type of Samples: 5 waters (Alkalinity, Anions, Sulfide, TOC)

Sample Numbers: 12CP02-19 thru -21, -23, -24

Laboratory: Test America Canton **Hrs for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case: 12CP02 SDG: 12CP02-19WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Narrative

Five (5) water samples, numbered 12CP02-19 thru -21, -23, and -24, were collected on May 22, 2012. The lab received the samples on May 24, 2012. All sample results are reported to the MDL. The samples were analyzed for alkalinity using SM 310.1, chloride using SM 325.2, nitrate using SM 300.0, sulfate using SM 375.4, sulfide using SM 376.1 and total organic carbon using SW-846 9060.

Sample ID	Lab ID	Station Location	Sample Date/Time
12CP02-19	240-11628-1	PWP-MW12	05-22-12/14:30
12CP02-20	240-11628-2	PWP-MW12FR	05-22-12/14:30
12CP02-21	240-11621-1	PWP-MW15	05-22-12/09:50
12CP02-23	240-11621-2	PWP-MW22	05-22-12/11:10
12CP02-24	240-11624-1	PWP-MW26	05-22-12/13:35

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. MDLs provided are greater than 2 years old.

Alkalinity: The SAS requires that the lowest calibration point be run at 5.0 mg/L. However, the alkalinity method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. The alkalinity data are acceptable based on the precision data from the LCS, laboratory duplicate and MS/MSD samples.

Chloride: Some CCBs and a method blank were above the MDL; however no samples were affected. All sample results are acceptable.

Nitrate: The following samples were analyzed outside the 48 hour method holding time: 12CP02-21 and 12CP02-23. These sample results are estimated "J" due to analysis outside method holding time.

Sulfate: The sample results for 12CP02-21 and 12CP02-23 are affected by a negative method blank or CCB indicating possible contamination. These results are estimated "J-." Additionally, the result for 12CP02-23 is between the MDL and RL and estimated "J". All other sample results are acceptable.

Sulfide: The SAS requires that the lowest calibration point be run at 1.0 mg/L. However, the sulfide method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. It should be noted that the normality of the iodine solution used by the Laboratory was not the standard 0.0250 N but 0.0278 N. No sample results are qualified for this. All sample results are acceptable.

TOC: The result for 12CP02-24 is between the MDL and RL and estimated "J". All other sample results are acceptable.

Other comments: No samples were identified as field/equipment blanks. Samples 12CP02-19 and -20 were identified as field duplicates and show good correlation for all parameters. No sample results are qualified for field duplicates.

Reviewed by: Deborah Connet
Date: July 19, 2012

Case: 12CP02 SDG: 12CP02-19WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Deborah Connet
Date: July 19, 2012

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 7/23/12

SUBJECT: **Review of Data**
Received for review on 7/3/12

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Penta Wood Products (WI)

CASE NUMBER: 12CP02 **SDG NUMBER:** 12CP02-22 INO

Number and Type of Samples: 1 water (metals/Alkalinity/Anions/Sulfide/TOC)

Sample Numbers: 12CP02-22

Laboratory: TestAmerica North Canton **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Narrative

One (1) water sample, numbered 12CP02-22, was collected on May 22, 2012. The lab received the sample on May 24, 2012 in good condition. All sample results are reported to the MDL. The samples were analyzed for metals using SW846 6020 (ICP-MS), alkalinity using SM 310.1, chloride using SM 325.2, nitrate using SM 300.0, sulfate using SM 375.4, sulfide using SM 376.1 and total organic carbon using SW-846 9060 analysis procedures. Only dissolved arsenic, calcium, copper, iron, magnesium, manganese and zinc are reported for metals.

Sample ID	Lab ID	Station Location	Sample Date/Time
12CP02-19	240-11612-1	PWP-MW19	05-22-12/16:00

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. All MDLs provided are greater than 2 years old. All sample results are reported with 2 significant figures.

The sample used for QC in this SDG is not from this SDG; however, it is from another SDG for this site. No sample results are qualified for this.

ICP-MS: Some results (i.e. MS, MSD and LCS) were greater than the calibration range; however, Method 6020 allows the use of linear range and all reported results are within the reported linear range.

For As, Fe, Mn and Zn, the results for 12CP02-22 are acceptable.

For Ca, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this. The preparation blank had Ca present at a level greater than the SAS required RL; however, the reported sample result is greater than 5X the preparation blank value and is not considered affected. The Ca result is acceptable.

For Cu, the sample result for 12CP02-22 is between the MDL and the SAS required RL; it is considered estimated "J."

For Mg, the laboratory RL is greater than the SAS required RL. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this.

Alkalinity: The SAS requires that the lowest calibration point be run at 5.0 mg/L. However, the alkalinity method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. The alkalinity result for 12CP02-22 is acceptable based on the precision data from the LCS, laboratory duplicate and MS/MSD samples.

Chloride: Some CCBs were above the MDL; however, the sample was not affected. The result for 12CP02-22 is acceptable.

Reviewed by: Stephen Connet
Date: July 23, 2012

Nitrate: The sample was analyzed inside the 48 hour method holding time. The result for 12CP02-22 is acceptable.

Sulfate: The result for 12CP02-22 is acceptable.

Sulfide: The SAS requires that the lowest calibration point be run at 1.0 mg/L. However, the sulfide method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. It should be noted that the normality of the iodine solution used by the Laboratory was not the standard 0.0250 N but 0.0278 N. No sample results are qualified for this. The result for 12CP02-22 is acceptable.

TOC: The result for 12CP02-22 is acceptable.

Other comments: No samples were identified as field/equipment blanks or field duplicates. No sample results are qualified for field duplicates.

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 2/13/13

SUBJECT: **Review of Data**
Received for review on 1/22/13

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Penta Wood Products (WI)

CASE NUMBER: 13CB01 **SDG NUMBER:** 13CB01-02INO

Number and Type of Samples: 10 waters (metals)

Sample Numbers: 13CB01-01, -02, -06, -10 thru -14, -16, -17

Laboratory: TestAmerica North Canton **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Narrative

Ten (10) water samples, numbered 13CB01-01, -02, -06, -10 thru -14, -16, and -17, were collected on December 16, 2012. The lab received the sample on October 18, 2012 in good condition. All sample results are reported to the MDL. The samples were analyzed using SW846 6020 (ICP-MS) analysis procedures. Dissolved arsenic, calcium, copper, iron, magnesium, manganese and zinc are reported.

Sample ID	Lab ID	Station Location	Sample Date/Time
13CB01-01	240-16577-8	PWP-MW02	10-16-12/12:00
13CB01-02	240-16577-1	PWP-MW03	10-16-12/09:25
13CB01-06	240-16577-2	PWP-MW09	10-16-12/12:00
13CB01-10	240-16577-9	PWP-MW12	10-16-12/15:10
13CB01-11	240-16577-10	PWP-MW12FR	10-16-12/15:10
13CB01-12	240-16577-3	PWP-MW15	10-16-12/10:25
13CB01-13	240-16577-6	PWP-MW16	10-16-12/16:10
13CB01-14	240-16577-4	PWP-MW17	10-16-12/17:15
13CB01-16	240-16577-7	PWP-MW22	10-16-12/09:30
13CB01-17	240-16577-5	PWP-MW26	10-16-12/12:25

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided.

ICP-MS: MDLs provided are greater than 3 years old. All sample results are reported with 2 significant figures. Some results (i.e. MS, MSD and LCS) were greater than the calibration range; however, Method 6020 allows the use of linear range and all reported results are within the reported linear range.

For As, the sample results for 13CB01-01, -02, -06, -10 thru -14, -16, and -17 are between the MDL and the SAS required RL; they are considered estimated "J."

For Ca, the laboratory reporting limit is 1000 ug/L. The SAS reporting limit is 100 ug/L. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this. The preparation blank had Ca present at a level greater than the SAS required RL; however, all reported sample results were high enough in concentration to not be affected by the preparation blank. All Ca results are acceptable.

For Cu, the sample results for 13CB01-01, -02, -06, -10 thru -14, -16, and -17 are affected by a preparation blank greater than the MDL indicating possible contamination. Those results are estimated "J+." Additionally, the sample results for 13CB01-01, -02, -06, -10 thru -14, -16, and -17 are between the MDL and the SAS required RL; they are considered estimated "J."

For Mg, the laboratory reporting limit is 1000 ug/L. The SAS reporting limit is 100 ug/L. Since the laboratory MDLs are less than half the SAS required RL and all reported results are greater than the laboratory RL, reported results are not estimated for this. All Mg results are acceptable.

For Mn, the sample results for 13CB01-02, -06 and -16 are between the MDL and the SAS required RL; they are considered estimated "J." All other sample results for Mn are acceptable.

For Zn, the sample results for 13CB01-01, -06 and -16 are affected by a preparation blank greater than the MDL indicating possible contamination. That result is estimated "J+." Additionally, the sample results for 13CB01-01, -06 and -16 are between the MDL and the SAS required RL; they are considered estimated "J." All other sample results for Zn are acceptable.

Other comments: No samples were identified as field/equipment blanks. Samples 13CB01-10 and -11 were identified as field duplicates and show good correlation for all parameters. No sample results are qualified for field duplicates.

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 2/14/13

SUBJECT: **Review of Data**
Received for review on 1/22/13

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Penta Wood Products (WI)

CASE NUMBER: 13CB01 **SDG NUMBER:** 13CB01-03INO

Number and Type of Samples: 9 waters (metals)

Sample Numbers: 13CB01-03 thru -05, -07, -08, -15, -19 thru -21

Laboratory: TestAmerica North Canton **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Narrative

Nine (9) water samples, numbered 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21, were collected on December 17-18, 2012. The lab received the sample on October 19, 2012 in good condition. All sample results are reported to the MDL. The samples were analyzed using SW846 6020 (ICP-MS) analysis procedures. Dissolved arsenic, calcium, copper, iron, magnesium, manganese and zinc are reported.

Sample ID	Lab ID	Station Location	Sample Date/Time
13CB01-03	240-16600-6	PWP-MW05	10-17-12/11:30
13CB01-04	240-16600-4	PWP-MW06S	10-17-12/13:00
13CB01-05	240-16600-3	PWP-MW07	10-17-12/10:30
13CB01-07	240-16600-7	PWP-MW10	10-17-12/16:45
13CB01-08	240-16600-8	PWP-MW10FR	10-17-12/16:45
13CB01-15	240-16600-9	PWP-MW19	10-17-12/17:15
13CB01-19	240-16600-5	PWP-MW28	10-17-12/15:40
13CB01-20	240-16600-1	PWP-EB01	10-18-12/08:00
13CB01-21	240-16600-2	PWP-FB01	10-18-12/07:45

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. The laboratory did not sign the COC/TR for samples 13CB01-03 and 13CB01-05.

ICP-MS: MDLs provided are greater than 3 years old. All sample results are reported with 2 significant figures. Some results (i.e. LCS) were greater than the calibration range; however, Method 6020 allows the use of linear range and all reported results are within the reported linear range.

The SAS requires a matrix spike and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "J" for detect and "UJ" for non-detect for all analytes.

For As, the sample results for 13CB01-03, -04, -07, -08, and -19 are between the MDL and the SAS required RL; they are considered estimated "J."

For Ca, the laboratory reporting limit is 1000 ug/L which is the level at which they performed their RL Check. The SAS required reporting limit is 100 ug/L. Sample 13CB01-20 is below the RL Check and is considered estimated "J" for this discrepancy. The sample result for 13CB01-20 is affected by a method blank/CCBs greater than the MDL indicating possible contamination. The result is estimated "J+." Additionally, the sample result for 13CB01-20 is between the MDL and the SAS required RL; it is considered estimated "J."

For Cu, the sample results for 13CB01-03, -04, -07, -08, -15, and -19 are affected by a preparation blank greater than the MDL indicating possible contamination. Those results are estimated "J+." Additionally, the sample results for 13CB01-03, -04, -07, -08, -15, and -19 are between the MDL

and the SAS required RL; they are considered estimated "J."

For Mg, the laboratory reporting limit is 1000 ug/L which is the level at which they performed their RL Check. The SAS required reporting limit is 100 ug/L. Sample 13CB01-20 is below the RL Check and is considered estimated "J" for this discrepancy. The sample result for 13CB01-20 is affected by a method blank/CCBs greater than the MDL indicating possible contamination. The result is estimated "J+." Additionally, the sample result for 13CB01-20 is between the MDL and the SAS required RL; it is considered estimated "J."

For Mn, the sample results for 13CB01-04 and -20 are between the MDL and the SAS required RL; they are considered estimated "J."

For Zn, as stated above, the sample results are only flagged "UJ" for not having the required matrix spike and matrix spike duplicate.

Other comments: Samples 13CB01-20 and 13CB01-21 are the field/equipment blanks. In 13CB01-20, calcium, magnesium and manganese were above the method detection limit (MDL). No other sample results were affected by the contamination. For 13CB01-21, no contamination was present. Samples 13CB01-07 and -08 were identified as field duplicates and show good correlation for all parameters. No sample results are qualified for field duplicates.

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-16577-1 SDG No: 13CB01-01 Herbicide

Number and Type of Samples: 10 water samples (Herbicide)

Sample Numbers: 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10, 13CB01-11,
13CB01-12, 13CB01-13, 13CB01-14, 13CB01-16, 13CB01-17

Laboratory: TestAmerica – Pittsburgh, PA Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Ten (10) preserved water samples identified in the following table were collected on 10/16/2012. The samples were received intact by TestAmerica Laboratories located in Pittsburgh, PA on 10/18/2012. The samples were received at temperatures ranging from 1.0 to 2.8°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-01	240-16577-8	PWP-MW02		10/16/2012	10/18/2012
13CB01-02	240-16577-1	PWP-MW03		10/16/2012	10/18/2012
13CB01-06	240-16577-2	PWP-MW09		10/16/2012	10/18/2012
13CB01-10	240-16577-9	PWP-MW12	FD	10/16/2012	10/18/2012
13CB01-11	240-16577-10	PWP-MW12FR	FD	10/16/2012	10/18/2012
13CB01-12	240-16577-3	PWP-MW15		10/16/2012	10/18/2012
13CB01-13	240-16577-6	PWP-MW16		10/16/2012	10/18/2012
13CB01-14	240-16577-4	PWP-MW17		10/16/2012	10/18/2012
13CB01-16	240-16577-7	PWP-MW22		10/16/2012	10/18/2012
13CB01-17	240-16577-5	PWP-MW26		10/16/2012	10/18/2012

FD = Field Duplicate

MB 180-52801/1-A is the method blank. LCS 180-52801/2-A is the Laboratory Control Sample.

Sample 13CB01-17 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No samples were identified as the QC blanks. Sample 13CB01-11 was identified as a field duplicate sample of sample 13CB01-10.

The samples were extracted within the SAS holding time of 7 days. Therefore, the results are acceptable.

1. HOLDING TIME

Ten (10) preserved water samples identified in the following table were collected on 10/16/2012. The samples were received intact by TestAmerica Laboratories located in Pittsburgh, PA on 10/18/2012. The samples were received at temperatures ranging from 1.0 to 2.8°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014.

The samples were extracted within the SAS holding time of 7 days. Therefore, the results are acceptable.

2. GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both RTX-50 (Primary) and RTX-1701 (Secondary) columns.

3. CALIBRATION

5-pt Initial calibration curves with the on-column concentrations of 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng and 0.040 ng (0.025 ug/L, 0.05 ug/L, 0.10 ug/L, 0.20 ug/Land 0.40 ug/L) were calibrated on 10/22/2012. An Initial Calibration Verification (second source standard) with concentration of 0.40 ug/L was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. Five (5) CCVs were analyzed for both primary column (RTX-50) and secondary column (RTX-1701) from 10/26/12 thru 10/29/12.

The RSDs for the Pentachlorophenol and the surrogate were within the SAS limits of less than 15%. All percent differences for the PCP in the CCVs were less than the method QC limits of 15%.

All PCP results were reported from primary column (RTX-50) with the exception of PCP results of sample 13CB01-01, 13CB01-02, 13CB01-12 and 13CB01-16 which were reported from the secondary column (RTX-1701).

4. BLANKS

MB 180-52801/1-A is the method blank. No PCP was detected in the method blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The surrogate recoveries were within the SAS QC limits of 32% - 140% for all samples except samples 13CB01-10 and 13CB01-11. Therefore, their results are acceptable.

The surrogate recoveries for samples 13CB01-10 and 13CB01-11 were outside the QC acceptance range. The dilution factors on both samples were greater than 5.0 therefore; the results are not qualified.

6A. MATRIX SPIKE/SPIKE DUPLICATE

Sample 13CB01-17 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. The recoveries of PCP in the MS and MSD analyses were within the SAS QC limits of 32% - 140%. The RPD for PCP in the MS and MSD analyses was within the SAS QC limits of less than 30%. Therefore, the results are acceptable.

6B. LABORATORY CONTROL SAMPLES

LCS 180-52801/2-A is the Laboratory Control Sample. The recovery of PCP in the LCS analysis was within the SAS QC limits of 40% - 140%. Therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as the QC blanks. Sample 13CB01-11 was identified as field a duplicate sample of sample 13CB01-10. The results for the duplicate samples are summarized in the following table.

	Sample ID	**13CB01-10**	**13CB01-11**	
Analytes	DF, units	80, ug/L	80, ug/L	RPDs
Pentachlorophenol		26	23	12

Sample results are not qualified based on the results of field duplicate samples.

8. INTERNAL STANDARDS

The internal standards were not required for SW-846 Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the PCP were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Due to matrix interference, all samples and QC samples were analyzed with a dilution factor greater than or equal to 4.0.

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

The following Herbicide sample has compound concentrations greater than the laboratory detection limits but less than the laboratory reporting limits. Detected compound is qualified "J".

13CB01-13
Pentachlorophenol

11. SYSTEM PERFORMANCE

GC baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The samples were extracted within the SAS holding time of 7 days. The data was submitted within 21 days from the date the samples were received. TA laboratories received the samples on 10/26/2012. The Laboratory Case Narrative was dated on 10/31/2012. Therefore, the requirements from section 6 of the SAS contract were met.

The samples were stored at 4.0°C until analyses. The samples were analyzed using SW-846 Method 8151A. Therefore, the requirements from section 7 of the SAS contract were met.

The most recent MDL study was not included in the data package as required by section 8A of the SAS contract. The laboratory detection limits listed on Sample Summary Reports and Form I were used to evaluate the reported results.

The concentration of the lowest standard (0.025 ug/L) in the initial standard calibration was less than the SAS reporting limits (0.10 ug/L) as required by section 8b of the SAS contract.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package. The air bills and sample tags were not included with the data package as required by section 10 of the SAS contract.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V SAS Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products (WI)

SAS Number: 13CB01 Job Number: 240-16577-1 SDG Number: 13CB01-01 MEE

Number and Type of Samples: 10 Waters (Methane)

Sample Numbers: 13CB01-01; 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-16, 13CB01-17

Laboratory: TestAmerica – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Ten (10) preserved water samples were shipped to TestAmerica Laboratories, Incorporated located in North Canton, OH. The samples were collected October 16 - 17, 2012. All samples were received on October 18, 2012 intact. The laboratory narrative identifies the cooler temperatures as ranging between 1.0 °C and 2.8 °C. The preferred shipping range is 2 – 4 °C. The sample results are not qualified for this discrepancy. The samples were analyzed for Methane by Method RSK-175 (Dissolved Gas Analysis in Water Sample Using a GC Headspace Equilibration Technique) and the SAS contract for samples collected between April 2011 and December 2014. All field samples are identified in the following table:

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
13CB01-01	240-16577-8	PWP-MW02	10-16-12	12:00	10-18-12
13CB01-02	240-16577-1	PWP-MW03	10-16-12	09:25	10-18-12
13CB01-06	240-16577-2	PWP-MW09	10-16-12	12:00	10-18-12
13CB01-10	240-16577-9	PWP-MW12	10-16-12	15:10	10-18-12
13CB01-11	240-16577-10	PWP-MW12FR	10-16-12	15:10	10-18-12
13CB01-12	240-16577-3	PWP-MW15	10-16-12	10:25	10-18-12
13CB01-13	240-16577-6	PWP-MW16	10-16-12	16:10	10-18-12
13CB01-14	240-16577-4	PWP-MW17	10-16-12	17:15	10-18-12
13CB01-16	240-16577-7	PWP-MW22	10-16-12	09:30	10-18-12
13CB01-17	240-16577-5	PWP-MW26	10-16-12	12:25	10-18-12

Sample MB 240-62245/30 is the method blank. Sample LCS 240-62245/31 is the laboratory control sample. No LCSD analyses were conducted.

Sample 13CB01-17 was used for the MS/MSD analyses for this sample delivery group.

No samples were identified as trip blanks or field blanks. Sample 13CB01-11 was identified as a field replicate of sample 13CB01-10.

All samples were analyzed less than fourteen days (14) from sample collection; therefore, the results are acceptable.

1. HOLDING TIME

Ten (10) preserved water samples were shipped to TestAmerica Laboratories, Incorporated located in North Canton, OH. The samples were collected October 16 - 17, 2012. All samples were received on October 18, 2012 intact. The laboratory narrative identifies the cooler temperatures as ranging between 1.0 °C and 2.8 °C. The preferred shipping range is 2 – 4 °C. The sample results are not qualified for this discrepancy. The samples were analyzed for Methane by Method RSK-175 (Dissolved Gas Analysis in Water Sample Using a GC Headspace Equilibration Technique) and the SAS contract for samples collected between April 2011 and December 2014.

All samples were analyzed less than fourteen days (14) from sample collection; therefore, the results did not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The laboratory used a GC/FID instrument. It appeared that it was properly optimized for resolution of the target analyte and sensitivity. All samples were analyzed within twelve (12) hours of the instrument performance check samples; therefore all acceptance criteria was met.

3. CALIBRATION

A 9-pt Initial calibration curve was generated on September 21, 2012 and evaluated for a coefficient of correlation ≥ 0.995. Calibration curve appears to span 0.5 to 1500 µg/L. The %RSDs were less than 30%; therefore, the results did not require any qualifications.

Three 1-pt continuing calibrations were conducted on September 21, 2012 and October 22, 2012. The percent differences (%D) for Methane and the surrogate were less than 30%; therefore, the results did not require any qualifications.

4. BLANKS

Sample MB 240-62245/30 is the method blank. No methane was detected above the laboratory's method detection limit of 0.1 µg/L; therefore, the results did not require any qualifications. The volatile method blank summary (FORM IV) lists the samples associated with the blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

1,1,1-Trifluoroethane (TFE) was utilized as the surrogate for this analysis. All %recoveries were within the SAS QC range, 10 - 168%; therefore, the results did not require any qualifications.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 13CB01-17 was used for the MS/MSD analyses for this sample delivery group. All %recoveries were within the SAS QC range, 75 - 114% and the RPD was less than 20%; therefore, the results did not require any qualifications.

6B FOR LABORATORY CONTROL SAMPLES:

Sample LCS 240-62245/31 is the laboratory control sample. No LCSD analyses were conducted.

The percent recoveries of Methane were within the SAS QC limits of 75 – 114%; therefore, the results did not require any qualifications.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as trip blanks or field blanks. Sample 13CB01-11 was identified as a field replicate of sample 13CB01-10.

The results and RPD for the replicate pair are presented in the following table:

	13CB01-10	13CB01-11	RPD
	µg/L	µg/L	%
Methane	0.10	NR	200

NR – Not Reportable, below MDL.

8. INTERNAL STANDARDS

Not required for this method.

9. COMPOUND IDENTIFICATION

Target analytes were properly identified and quantitated.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The samples were waters and dilutions were not run. All target RLs were properly reported. All target compound quantitations were properly reported and met the SAS required reporting limit (RL) of 2.0 µg/L. All concentrations detected below the laboratory's method detection limit (mdl) of 0.10 µg/L are qualified as non-detects. All concentrations detected between the mdl (0.10 µg/L) and the SAS reporting limit (2.0 µg/L) are qualified "J" as estimated.

11. SYSTEM PERFORMANCE

The FID baseline appears acceptable.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 14-day holding time identified in Section 6 of the SAS contract was met. The Laboratory's Case Narrative dated October 31, 2012 indicates that the lab did meet the 21 calendar day results turnaround time identified in Section 6.

All samples appear to have been analyzed by a method 'equivalent' to RSK 175 and not RSK 175 itself. Raw data did not identify responses as ppmV, did not identify volume of headspace, temperature of the samples, etc. The reviewer was unable to find a Henry's Law constant for the surrogate 1,1,1-Trifluoroethane. The reviewer was unable to determine the appropriate density values as no temperature was provided.

The results were calculated following the calculations used for Pesticide analyses.
All requests identified in Section 8, 9 and 10 of the SAS contract appear to have been satisfied. No copies of sample tags were submitted with this sample delivery group.

All QC Requirements identified in Table II of the SAS contract were satisfied with the exceptions that no LCSD analyses were conducted.

The concentration of the surrogate spiked into the LCS, MS and MSD samples appears be slightly larger than the concentration used to spike the field samples and the method blank. The %recovery values calculated by the Reviewer are less that the values reported by the laboratory but still within the SAS QC acceptance range.

All sample results are summarized in the accompanying Excel spreadsheet.

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations reported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: Ch2mHill
Email: dave.shekosk@ch2m.com; adrienne.korpela@ch2m.com

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 13CB01 Job Number: 240-16577-1 SDG Number: 13CB01-01SVOA

Number and Type of Samples: 10 Waters (SVOA - Naphthalene)

Sample Numbers: 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-16, 13CB01-17

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

SAS Number: 13CB01 SDG Number: 13CB01-01SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Ten (10) water samples, 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-16, and 13CB01-17; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 16, 2012 and received October 18, 2012. All samples were received intact with the exception of 13CB01-14, which had one 1L amber bottle broken upon receipt. Samples were received in six (6) coolers at shipping temperatures of 1.0°C, 1.2°C, 1.4°C, 1.4°C, 2.4°C, and 2.8°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab	Station	Collection		Receipt	Extraction	Analysis
Sample	**ID**	**Location**	**Date**	**Time**	**Date**	**Date**	**Date**
13CB01-01	240-16577-8	PWP-MW02	10/16/12	12:00	10/18/12	10/22/12	10/24/12
13CB01-02	240-16577-1	PWP-MW03	10/16/12	09:25	10/18/12	10/22/12	10/24/12
13CB01-06	240-16577-2	PWP-MW09	10/16/12	12:00	10/18/12	10/22/12	10/24/12
13CB01-10	240-16577-9	PWP-MW12	10/16/12	15:10	10/18/12	10/22/12	10/24/12
13CB01-11	240-16577-10	PWP-MW12 FR	10/16/12	15:10	10/18/12	10/22/12	10/24/12
13CB01-12	240-16577-3	PWP-MW15	10/16/12	10:25	10/18/12	10/22/12	10/24/12
13CB01-13	240-16577-6	PWP-MW16	10/16/12	16:10	10/18/12	10/22/12	10/24/12
13CB01-14	240-16577-4	PWP-MW17	10/16/12	17:15	10/18/12	10/22/12	10/24/12
13CB01-16	240-16577-7	PWP-MW22	10/16/12	09:30	10/18/12	10/22/12	10/24/12
13CB01-17	240-16577-5	PWP-MW26	10/16/12	12:25	10/18/12	10/22/12	10/24/12

MB 240-62179/23-A is the semivolatile method blank.

LCS 240-62179/24-A is the semivolatile laboratory control sample. No LCSD analyses were conducted for this sample delivery group.

Sample 13CB01-17 was designated by the samplers for MS/MSD analyses.

No samples were identified as field blanks. Sample 13CB01-11 was identified as a field duplicate of sample 13CB01-10.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

1. HOLDING TIME

Ten (10) water samples, 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-16, and 13CB01-17; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 16, 2012 and received October 18, 2012. All samples were received intact with the exception of 13CB01-14, which had one 1L amber bottle broken upon receipt. Samples were received in six (6) coolers at shipping temperatures of 1.0°C, 1.2°C, 1.4°C, 1.4°C, 2.4°C, and 2.8°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTPP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

One (1) 9-pt initial calibration was completed on October 18, 2012 on instrument A4HP7 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL . The %RSD for Naphthalene was less than the SAS limit of 15%; therefore, the sample results do not require any qualifications.

One (1) 1-pt continuing calibration was conducted on instrument A4HP7 October 24, 2012. The %D for Naphthalene was less than 20%; therefore, the sample results do not require any qualifications.

4. BLANKS

MB 240-62179/23-A is the semivolatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the laboratory QC limits for all samples with the exception of sample 13CB01-16. The % recovery of Terphenyl-d_{14} (10%), a basic compound, was below the Terphenyl-d_{14} lower QC limit of 24%. Samples are only

qualified if two or more base/neutral surrogates are out of specifications. Since only one base/neutral surrogate was out of specification, the reviewer did not qualify the results for this sample.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 13CB01-17 was designated by the samplers for MS/MSD analyses.

The semivolatile MS/MSD percent recoveries were within the QC limits (32 – 110%) and the %RPD was less than 20% as identified in the SAS contract for all samples; therefore, the results do not require any qualification.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62179/24-A is the semivolatile laboratory control sample. No LCSD analyses were conducted for this sample delivery group.

The semivolatile laboratory control sample recoveries were within the QC limits (31 – 110%) identified in the SAS contract for all samples; therefore, the results do not require any qualification.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks. Sample 13CB01-11 was identified as a field duplicate of sample 13CB01-10. Naphthalene was not detected in the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits for all samples; therefore, the results do not require any qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters. No dilutions were required. The samples do not require any qualification. All reporting limits were reported in ug/L units and were lower than the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 7-day holding time to sample extraction and 40 day time to sample analysis identified in Section 6 of the SAS contract were met. The Laboratory's Analytical Report dated October 31, 2012 indicates that the lab met the 21 calendar day results turnaround time identified in Section 6.

Not all criteria specified in Section 8 of the SAS contract were met. The most recent MDL study was not included in the data package as required by Section 8A of the SAS contract. MDL studies are actually provided to the Users prior to the contract award and are therefore not included with every sample delivery group. MDL values listed on the Sample Summary Reports were used to evaluate the reported results. The lowest calibration standard was 0.1 ng/uL. The initial calibration curve contained 9 calibration levels.

All criteria specified in Section 9 of the SAS contract were met.

MS/MSD criteria specified in Section 10 of the SAS contract were met.

Chain-of-Custodies were included in the data package as required by Section 10 of the SAS contract. However, photocopies of airbills and sample tags were not included with the data package.

The Required Reporting Limits identified in Table I of the SAS contract were met or bettered. The QC Requirements identified in Table II of the SAS contract were met with the exception of internal standards as the SAS is written. Table II QC Requirements states that the internal standards QC limits are listed as 50-100% response. If the response range is not a typo, the lower QC limits is 50% of the 12-Hr Std and the upper QC limits is the 12-Hr Std. Under these conditions, samples 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-17 MS, and 13CB01-17 MSD would be qualified for having internal standard area counts above the upper limit, and all detections would be qualified "J" for these samples. The reviewer believes the QC limits are to be interpreted as 50-200% response of the 12-Hr Std. No samples were qualified if within 50-200% response of the 12-Hr Std.

The Sample Summary Reports in Excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-01SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations reported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 13CB01 Job Number: 240-16577-1 SDG Number: 13CB01-01VOA

Number and Type of Samples: 16 Waters (Benzene, Toluene, Ethylbenzene & Xylenes, total)

Sample Numbers: 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 thru 13CB01-14, 13CB01-16, 13CB01-17, 13CB01-29 thru 13CB01-34

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) preserved water samples, 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 through 13CB01-14, 13CB01-16, 13CB01-17 and 13CB01-29 through 13CB01-34, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected October 16-17, 2012 and received October 18, 2012 with corrected sample temperatures between 1.0 and 2.8°C. One (1-L) amber bottle for sample 13CB01-14 arrived at the laboratory broken. The amber bottles are not used for the volatile analyses; therefore, the broken bottle did not affect this sample delivery group. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA	Lab ID	Station	Collection		Receipt
Sample		Location	Date	Time	Date
13CB01-01	240-16577-8	PWP-MW02	10-16-12	12:00	10-18-12
13CB01-02	240-16577-1	PWP-MW03	10-16-12	09:25	10-18-12
13CB01-06	240-16577-2	PWP-MW09	10-16-12	12:00	10-18-12
13CB01-10	240-16577-9	PWP-MW12	10-16-12	15:10	10-18-12
13CB01-11	240-16577-10	PWP-MW12FR	10-16-12	15:10	10-18-12
13CB01-12	240-16577-3	PWP-MW15	10-16-12	10:25	10-18-12
13CB01-13	240-16577-6	PWP-MW16	10-16-12	16:10	10-18-12
13CB01-14	240-16577-4	PWP-MW17	10-16-12	17:15	10-18-12
13CB01-16	240-16577-7	PWP-MW22	10-16-12	09:30	10-18-12
13CB01-17	240-16577-5	PWP-MW26	10-16-12	12:25	10-18-12
13CB01-29	240-16577-11	PWP-JS01	10-17-12	00:00	10-18-12
13CB01-30	240-16577-12	PWP-JS02	10-17-12	00:00	10-18-12
13CB01-31	240-16577-13	PWP-JS03	10-17-12	00:00	10-18-12
13CB01-32	240-16577-14	PWP-JS04	10-17-12	00:00	10-18-12
13CB01-33	240-16577-15	PWP-JS05	10-17-12	00:00	10-18-12
13CB01-34	240-16577-16	PWP-JS06	10-17-12	00:00	10-18-12

Sample 13CB01-17 was designated as the parent sample for the MS/MSD analyses.

MB-240-62635/5 is the low level water volatile method blank.

LCS-240-62635/4 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group.

No samples were identified as trip blanks or field blanks. However six (6) samples; 13CB01-29 through 13CB01-34, have “JS” in their station location identifications. The “JS” designation has been identified as trip blanks in previous sample delivery groups; therefore, these

samples will be evaluated as trip blanks. Sample 13CB01-11 was identified as a field replicate of sample 13CB01-10.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the sample results do not require any qualifications.

1. HOLDING TIME

Sixteen (16) preserved water samples, 13CB01-01, 13CB01-02, 13CB01-06, 13CB01-10 through 13CB01-14, 13CB01-16, 13CB01-17 and 13CB01-29 through 13CB01-34, were shipped to TestAmerica North Canton located in North Canton, OH. The samples were collected October 16-17, 2012 and received October 18, 2012 with corrected sample temperatures between 1.0 and 2.8°C. One (1-L) amber bottle for sample 13CB01-14 arrived at the laboratory broken. The amber bottles are not used for the volatile analyses; therefore, the broken bottle did not affect this sample delivery group. The samples were analyzed for Benzene, Toluene, Ethylbenzene and total Xylenes according to SW-846 Method 8260 and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days after sample collection; therefore, the sample results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks; therefore, the sample results do not require any qualifications.

3. CALIBRATION

A 6-pt Initial calibration was completed on October 2, 2012 using the following concentrations; 40 µg/L, 20 µg/L, 10 µg/L, 5 µg/L, 1 µg/L and 0.5 µg/L. The %RSDs for the BTEX compounds were less than the SAS limit of 15%; therefore, the sample results do not require any qualifications. The %RSD for the surrogate – 1,2-Dichloroethane-d4 – was calculated as greater than 15% by the reviewer, but reported as less than 15% by the laboratory. Sample results are not qualified based on the calibration data of the surrogate compounds.

Two 1-pt continuing calibrations were conducted on October 2nd and October 24th, 2012. The %Ds for all BTEX compounds were less than 20%D; therefore, the sample results do not require any qualifications.

4. BLANKS

MB-240-62635/5 is the low level water volatile method blank. The method blank was free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The percent recoveries of 1,2-Dichloroethane-d_4 were above the upper QC acceptance limit of 129% in samples 13CB01-10 and 13CB01-32. The percent recoveries of Dibromofluoromethane were above the upper QC acceptance limit of 121% in samples

13CB01-01 and 13CB01-10. The BTEX target compounds were not detected in samples 13CB01-01, 13CB01-10 and 13CB01-32. The non-detected BTEX target compounds are not qualified for this criterion.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 13CB01-17 was designated as the parent sample for the MS/MSD analyses. The volatile matrix spike sample and matrix spike duplicate sample recoveries were within the QC limits identified in the laboratory data package. The RPD for Toluene was greater than the SAS limit of 20% between 13CB01-17MS and 13CB01-17MSD; therefore, the non-detected quantitation limit for Toluene in the unspiked sample 13CB01-17 is qualified "UJ".

6B. LABORATORY CONTROL SAMPLES

LCS-240-62635/4 is the low level water laboratory control sample. No laboratory control duplicate sample analysis was conducted for this sample delivery group.

The volatile laboratory control sample recoveries were within the QC limits identified in the laboratory data package for all samples; therefore, the sample results do not require any qualifications.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as trip blanks or field blanks. However six (6) samples; 13CB01-29 through 13CB01-34, have "JS" in their station location identifications. The "JS" designation has been identified as trip blanks in previous sample delivery groups; therefore, these samples will be evaluated as trip blanks. The samples contained no target compounds.

Sample 13CB01-11 was identified as a field replicate of sample 13CB01-10. Neither sample contained any of the BTEX compounds.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the required QC limits (50-200%) for all samples; therefore, no qualification of the sample results is required.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and dilutions were run. The SAS Reporting Limits were properly adjusted for the dilutions. All reporting limits were lower than the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 14-day holding time identified in Section 6 of the SAS contract was met. The Laboratory's Case Narrative dated October 31, 2012 indicates that the lab did meet the 21 calendar day results turnaround time identified in Section 6.

All criteria specified in Sections 8, 9 and 10 of the SAS contract were met. MDL Values are included on the individual 'Organics Analytical Data Sheet'. The lowest calibration standard was 0.5 µg/L.

The Required Reporting Limits identified in Table I of the SAS contract were met or bettered. The QC Requirements identified in Table II of the SAS contract were met, with the exception of the frequency for the continuing calibrations (CCV). There are sixteen (16) samples in this data package; therefore, there should have been at least two CCVs, one per every 10 samples.

Sample 13CB01-16 was analyzed at a five-fold dilution with no initial analysis demonstrating that one or more compounds exceeded the instrument's calibration range. The lack of detected target compounds may be an artifact of the dilution and not a demonstration that the sample had no target compounds; therefore the quantitation of all the compounds are qualified "UJ".

One (1-L) amber bottle for sample 13CB01-14 (PWP-MW17) arrived at the laboratory broken. The amber bottles are not used for the volatile analyses; therefore, the broken bottle did not affect this sample delivery group.

No photocopies of the air bills or sample tags were included with this SDG.

All sample results are summarized in the accompanying Excel spreadsheet.

SAS Number: 13CB01 SDG Number: 13CB01-01VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-16600-1 SDG No: 13CB01-03 Herbicide

Number and Type of Samples: 9 water samples (Herbicide)

Sample Numbers: 13CB01-03, 13CB01-04, 13CB01-05, 13CB01-07, 13CB01-08,
13CB01-15, 13CB01-19, 13CB01-20, 13CB01-21

Laboratory: TestAmerica – Pittsburgh, PA Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) preserved water samples identified in the following table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in Pittsburgh, PA on 10/19/2012. The samples were received at temperatures ranging from 1.2 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-03	240-16600-6	PWP-MW05		10/17/12	10/19/12
13CB01-04	240-16600-4	PWP-MW06S		10/17/12	10/19/12
13CB01-05	240-16600-3	PWP-MW07		10/17/12	10/19/12
13CB01-07	240-16600-7	PWP-MW10	FD	10/17/12	10/19/12
13CB01-08	240-16600-8	PWP-MW10 FR	FD	10/17/12	10/19/12
13CB01-15	240-16600-9	PWP-MW19		10/17/12	10/19/12
13CB01-19	240-16600-5	PWP-MW28		10/17/12	10/19/12
13CB01-20	240-16600-1	PWP-EB01	EB	10/18/12	10/19/12
13CB01-21	240-16600-2	PWP-FB01	FB	10/18/12	10/19/12

FD = Field Duplicate EB=Equipment blank FB=Field blank

MB 180-52801/1-A and MB 180-52963/1-A are the method blanks. LCS 180-52801/2-A and LCS 180-52963/2-A are the Laboratory Control Samples. LCSD 180-52963/3-A is the Laboratory Control Sample Duplicate.

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed.

Sample 13CB01-20 was identified as the equipment blank and sample 13CB01-21 was identified as the field blank. Sample 13CB01-08 was identified as field duplicate sample of sample 13CB01-07.

The samples were extracted within the SAS holding time of 7 days. Therefore, the results are acceptable.

1. HOLDING TIME

Nine (9) preserved water samples identified in the above table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in Pittsburgh, PA on 10/19/2012. The samples were received at temperatures ranging from 1.2 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014.

The samples were extracted within the SAS holding time of 7 days. Therefore, the results are acceptable.

2. GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both RTX-50 (Primary) and RTX-1701 (Secondary) columns.

3. CALIBRATION

5-pt Initial calibration curves with the on-column concentrations of 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng and 0.040 ng (0.025 ug/L, 0.05 ug/L, 0.10 ug/L, 0.20 ug/Land 0.40 ug/L) were calibrated on 10/22/2012. An Initial Calibration Verification (second source standard) with concentration of 0.40 ug/L was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. Eleven (11) CCVs were analyzed for both primary column (RTX-50) and secondary column (RTX-1701) from 10/26/12 thru 10/31/12.

The RSDs for the Pentachlorophenol and the surrogate were within the SAS limits of less than 15%. All percent differences for the PCP in the CCVs were less than the method QC limits of 15%.

All PCP results were reported from the primary column (RTX-50) with the exception of PCP results of samples 13CB01-03, 13CB01-05, LCS 180-52963/2-A and LCSD 180-52963/3-A which were reported from the secondary column (RTX-1701). The PCP result (0.040 ug/L) for sample 13CB01-21 was reported from Primary column RTX-50. However the opening CCV associated with this analysis was not submitted with the data package. Therefore, the PCP result (0.032 ug/L) from the secondary column should be used for result validation.

4. BLANKS

MB 180-52801/1-A and MB 180-52963/1-A are the method blanks. No PCP was detected in the method blanks.

Sample 13CB01-20 was identified as the equipment blank and sample 13CB01-21 was identified as the field blank. The following Herbicide sample has analyte concentrations reported less than the laboratory reporting limits. The associated field blank concentration is less than the laboratory reporting limits. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the laboratory reporting limits.

PCP
13CB01-20

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted herbicide samples have surrogate recoveries ooutside the SAS QC limits of 32% - 140%. Detected and non-detected compounds are not qualified because the samples have a dilution factor of 5.0 or greater.

13CB01-07, 13CB01-08, 13CB01-15

6A. MATRIX SPIKE/SPIKE DUPLICATE

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed. Sample results are not qualified for this deficiency.

6B. LABORATORY CONTROL SAMPLES

LCS 180-52801/2-A and LCS 180-52963/2-A are the Laboratory Control Samples. LCSD 180-52963/3-A is the Laboratory Control Sample Duplicate. The recoveries of PCP in the LCS and LCSD analyses were within the SAS QC limits of 40% - 140%. The RPD for PCP in the LCS 180-52963/2-A and LCSD 180-52963/3-A analyses was within the SAS QC limits of less than 30%. Therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 13CB01-20 was identified as the equipment blank and sample 13CB01-21 was identified as the field blank. PCP results for the QC blanks are summarized in the following table:

QC blank IDs Sample IDs Units	Field Blank 13CB01-21 ug/L	Equip. Blank 13CB01-20 ug/L
Pentachlorophenol	0.032	ND

Sample 13CB01-08 was identified as field duplicate sample of sample 13CB01-07. The results for the duplicate samples are summarized in the following table.

	Sample ID	**13CB01-07**	**13CB01-08**	
Analytes	DF, units	40, ug/L	80, ug/L	RPDs
Pentachlorophenol		8.7	14	47

Sample results are not qualified based on the results of field duplicate samples.

8. INTERNAL STANDARDS

The internal standards were not required for SW-846 Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the PCP were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Due to matrix interference, all samples and QC samples were analyzed with a dilution factor greater than or equal to 4.0.

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

The relative percent difference between analyte results for the following herbicide sample is greater than 25%. The results are greater than 25% of the laboratory and SAS reporting limits. The detected compound is qualified "J" as estimated.

13CB01-03
Pentachlorophenol

11. SYSTEM PERFORMANCE

GC baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The samples were extracted within the SAS holding time of 7 days. The data was submitted within 21 days from the date the samples were received. TA laboratories received the samples on 10/19/2012. The Laboratory Case Narrative was dated on 11/02/12. Therefore, the requirements from section 6 of the SAS contract were met.

The samples were stored at 4.0°C until analyses. The samples were analyzed using SW-846 Method 8151A. Therefore, the requirements from section 7 of the SAS contract were met.

The most recent MDL study was not included in the data package as required by section 8A of the SAS contract. The laboratory detection limits listed on Sample Summary Reports and Form I were used to evaluate the reported results.

The concentration of the lowest standard (0.025 ug/L) in the initial standard calibration was less than the SAS reporting limits (0.10 ug/L) as required by section 8b of the SAS contract.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

No MS / MSD were analyzed as required by section 10 of the SAS contract. Sample results are not qualified for this deficiency.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package. The air bills and sample tags were not included with the data package as required by section 10 of the SAS contracts.

The PCP result (0.040 ug/L) for sample 13CB01-21 was reported from Primary column RTX-50. However the opening CCV associated with this analysis was not submitted with the data package. Therefore, the PCP result (0.032 ug/L) from the secondary column should be used for result validation.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-16601-1 SDG No: 13CB01-03 MEE

Number and Type of Samples: 9 water samples (Methane)

Sample Numbers: 13CB01-03, 13CB01-04, 13CB01-05, 13CB01-07, 13CB01-08,
13CB01-15, 13CB01-19, 13CB01-20, 13CB01-21

Laboratory: TestAmerica – North Canton, OH Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 13CB01 SDG Number: 13CB01-03 MEE
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) preserved water samples identified in the following table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at temperatures ranging from 1.2 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Methane according to standard method RSK 175 and the SAS MEE – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-03	240-16600-6	PWP-MW05		10/17/12	10/19/12
13CB01-04	240-16600-4	PWP-MW06S		10/17/12	10/19/12
13CB01-05	240-16600-3	PWP-MW07		10/17/12	10/19/12
13CB01-07	240-16600-7	PWP-MW10	FD	10/17/12	10/19/12
13CB01-08	240-16600-8	PWP-MW10 FR	FD	10/17/12	10/19/12
13CB01-15	240-16600-9	PWP-MW19		10/17/12	10/19/12
13CB01-19	240-16600-5	PWP-MW28		10/17/12	10/19/12
13CB01-20	240-16600-1	PWP-EB01	EB	10/18/12	10/19/12
13CB01-21	240-16600-2	PWP-FB01	FB	10/18/12	10/19/12

FD = Field Duplicate EB=Equipment blank FB=Field blank

MB 240-62245/30 is the method blank. LCS 240-62245/31 is the Laboratory Control Sample.

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed.

Sample 13CB01-20 was identified as the equipment blank and sample 13CB01-21 was identified as the field blank. Sample 13CB01-08 was identified as field duplicate sample of sample 13CB01-07.

The MEE samples were analyzed within the SAS holding time of 14 days; therefore, the results are acceptable.

1. HOLDING TIME

Nine (9) preserved water samples identified in the above table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at temperatures ranging from 1.2 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Methane according to standard method RSK 175 and the SAS MEE – water contract for samples collected between April 2011 and December 2014.

The MEE samples were analyzed within the SAS holding time of 14 days; therefore, the results are acceptable.

2. GC INSTRUMENT PERFORMANCE

The laboratory used a GC/FID instrument. It appeared that it was properly optimized for resolution of the target analyte and sensitivity. All samples were analyzed within twelve (12) hours of the instrument performance check samples; therefore all acceptance criteria was met.

3. CALIBRATION

A 9-pt Initial calibration curve for Methane with concentrations ranging from 0.25 ug/L to 1500 ug/L was calibrated on 09/21/2012. An Initial Calibration Verification (second source standard) was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. One (1) CCV was analyzed on 10/22/2012.

The standard deviation of Methane was reported by the laboratory for the initial calibration instead of the correlation coefficient (r^2) as required by the SAS. The correlation coefficient (r^2) for Methane was calculated by the reviewer and it was greater than 0.99 as required by the SAS. The %D for Methane was less than the method QC limit of 15%.

4. BLANKS

MB 240-62245/30 is the method blank. Methane was not detected in the method blank.

Sample 13CB01-20 was identified as the equipment blank and sample 13CB01-21 was identified as the field blank. The following MEE samples have analyte concentrations reported less than the laboratory reporting limits. The associated field blank concentration is greater than the laboratory reporting limits. Detected compounds are qualified "U". Non-detected compounds

are not qualified. Reported sample concentrations have been elevated to the laboratory reporting limits.

Methane
13CB01-19, 13CB01-20

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The surrogate recoveries for the MEE analyses were within the SAS QC limits of 10% - 168%. Therefore, no actions were required.

6A. MATRIX SPIKE/SPIKE DUPLICATE

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed. Sample results are not qualified for this deficiency.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62245/31 is the Laboratory Control Sample. The recovery of Methane in the LCS analysis was within the SAS QC limit of 75% - 114%. Therefore, no actions were required.

7. FIELD BLANK AND FIELD DUPLICATE

13CB01-20 was identified as the equipment blank. 13CB01-21 was identified as the field blank. Methane results for the QC blanks are summarized in the following table:

QC blank IDs Sample IDs Units	Field Blank 13CB01-21 ug/L	Equip. Blank 13CB01-20 ug/L
Methane	0.15	ND

Sample 13CB01-08 was identified as field duplicate of sample 13CB01-07. Methane results for the field duplicate samples are summarized in the following table:

	Sample ID	13CB01-07	13CB01-08	
Analytes	DF, units	1, ug/L	1, ug/L	RPDs
Methane		12	12	0

8. INTERNAL STANDARDS

The internal standards were not required for method RSK 175.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Methane were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

The following MEE sample has compound concentrations greater than the laboratory detection limits but less than the laboratory reporting limits. Detected compound is qualified "J".

13CB01-21
Methane

11. SYSTEM PERFORMANCE

GC baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

TA laboratories received the samples on 10/19/2012. The Laboratory Case Narrative was dated on 11/02/2012. Therefore, the data was submitted within 21 days from the date the samples were received as required by section 6 of the SAS contract for MEE analyses.

The samples were properly preserved in the field with HCL to pH<2 with no headspace. The samples were analyzed using standard method RSK 175. Therefore, the requirements from section 7 of the SAS contract for MEE were in compliance.

The most recent MDL study was not included in the data package as required by section 8a of the SAS contract. The laboratory detection limits listed on Sample Summary Reports were used to evaluate the reported results.

The concentration of the lowest standard (0.25 ug/L) in the initial standard calibration was less than the SAS reporting limit (2.0 ug/L) as required by section 8C of the SAS contract.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

No MS / MSD were analyzed as required by section 10 of the SAS contract. Sample results are not qualified for this deficiency.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package as required by section 10 of the SAS contract. However, air bills and sample tags were not included with the data package.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-03 MEE
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: Ch2mHill
Email: dave.shekosk@ch2m.com; adrienne.korpela@ch2m.com

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 13CB01 Job Number: 240-16600-1 SDG Number: 13CB01-03SVOA

Number and Type of Samples: 9 Waters (SVOA - Naphthalene)

Sample Numbers: 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, 13CB01-19 thru 13CB01-21

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

SAS Number: 13CB01 SDG Number: 13CB01-03SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) water samples, 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, and 13CB01-19 thru 13CB01-21; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in five (5) coolers at shipping temperatures of 1.2°C, 1.4°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab	Station	Collection		Receipt	Extraction	Analysis
Sample	ID	Location	Date	Time	Date	Date	Date
13CB01-03	240-16600-6	PWP-MW05	10/17/12	11:30	10/19/12	10/24/12	10/29/12
13CB01-04	240-16600-4	PWP-MW06S	10/17/12	13:00	10/19/12	10/24/12	10/29/12
13CB01-05	240-16600-3	PWP-MW07	10/17/12	10:30	10/19/12	10/24/12	10/30/12
13CB01-07	240-16600-7	PWP-MW10	10/17/12	16:45	10/19/12	10/24/12	10/29/12
13CB01-08	240-16600-8	PWP-MW10 FR	10/17/12	16:45	10/19/12	10/24/12	10/31/12
13CB01-15	240-16600-9	PWP-MW19	10/17/12	17:15	10/19/12	10/24/12	10/29/12
13CB01-19	240-16600-5	PWP-MW28	10/17/12	15:40	10/19/12	10/24/12	10/30/12
13CB01-20	240-16600-1	PWP-EB01	10/18/12	08:00	10/19/12	10/25/12	10/29/12
13CB01-21	240-16600-2	PWP-FB01	10/18/12	07:45	10/19/12	10/25/12	10/29/12

MB 240-62508/23-A and MB 240-62729/23-A are the two (2) semivolatile method blanks.

LCS 240-62508/24-A and LCS 240-62729/24-A are the two (2) semivolatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

Sample 13CB01-20 was identified as an equipment blank. Sample 13CB01-21 was identified as a field blank. Sample 13CB01-08 was identified as a field duplicate of sample 13CB01-07.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

1. HOLDING TIME

Nine (9) water samples, 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, and 13CB01-19 thru 13CB01-21; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in five (5) coolers at shipping temperatures of 1.2°C, 1.4°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTPP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

One (1) 9-pt initial calibration was completed on October 22, 2012 on instrument A4AG2 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL . The %RSD for Naphthalene was less than the SAS limit of 15%; therefore, the sample results do not require any qualifications.

One (1) 9-pt initial calibration was completed on October 25, 2012 on instrument A4HP7 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL . The %RSD for Naphthalene was less than the SAS limit of 15%; therefore, the sample results do not require any qualifications.

One (1) 1-pt continuing calibration was conducted on instrument A4AG2 October 29, 2012. The %D for Naphthalene was less than 20%; therefore, the sample results do not require any qualifications.

Three (3) 1-pt continuing calibrations were conducted on instrument A4HP7 on October 29, October 30, and October 31, 2012. The %Ds for Naphthalene were less than 20%; therefore, the sample results do not require any qualifications.

4. BLANKS

MB 240-62508/23-A and MB 240-62729/23-A are the two (2) semivolatile method blanks. The method blanks were free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the laboratory QC limits for all samples. Sample results do not require any qualifications for this criterion.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62508/24-A and LCS 240-62729/24-A are the two (2) semivolatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

The semivolatile laboratory control sample recoveries were within the QC limits (31 – 110%) identified in the SAS contract for all samples; therefore, the results do not require any qualification.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 13CB01-20 was identified as an equipment blank. Sample 13CB01-21 was identified as a field blank. The field generated blanks were free of contamination. Sample results do not require any qualifications for this criterion.

Sample 13CB01-08 was identified as a field duplicate of sample 13CB01-07. Naphthalene was not detected in the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits for all samples; therefore, the results do not require any qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters. The samples do not require any qualification. All reporting limits were reported in ug/L units and were lower than the SAS required reporting limits.

A 10x dilution was performed on sample 13CB01-15. The sample result, SAS reporting limit, laboratory reporting limit, and laboratory detection limit were adjusted according to the sample dilution.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 7-day holding time to sample extraction and 40 day time to sample analysis identified in Section 6 of the SAS contract were met. The Laboratory's Analytical Report dated November 2, 2012 indicates that the lab met the 21 calendar day results turnaround time identified in Section 6.

Not all criteria specified in Section 8 of the SAS contract were met. The most recent MDL study was not included in the data package as required by Section 8A of the SAS contract. MDL studies are actually provided to the Users prior to the contract award and are therefore not included with every sample delivery group. MDL values listed on the Sample Summary Reports were used to evaluate the reported results. The lowest calibration standard was 0.1 ng/uL. The initial calibration curve contained 9 calibration levels. All samples exceeding the highest calibration standard were run at dilution, however, the undiluted result was not reported as required in section 8F of the SAS contract.

All criteria specified in Section 9 of the SAS contract were met.

MS/MSD criteria specified in Section 10 of the SAS contract were not met. The laboratory did not perform an MS/MSD analysis for this sample delivery group. Per Table II QC Requirements – at least one MS/MSD should be analyzed per group of 20 or fewer samples; therefore MS/MSD analyses are not included with every sample delivery group. No samples in this sample delivery group were requested for MS/MSD analysis by the samplers. Sample results are not qualified for this deficiency.

Chain-of-Custodies were included in the data package as required by Section 10 of the SAS contract. However, photocopies of airbills and sample tags were not included with the data package.

The Required Reporting Limits identified in Table I of the SAS contract were met or bettered. The QC Requirements identified in Table II of the SAS contract were met with the exception of internal standards as the SAS is written. Table II QC Requirements states that the internal standards QC limits are listed as 50-100% response. If the response range is not a typo, the lower QC limits is 50% of the 12-Hr Std and the upper QC limits is the 12-Hr Std. Under these conditions, samples LCS 240-62508/24-A, 13CB01-03, 13CB01-04, 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, and 13CB01-19 thru 13CB01-21 would be qualified for having internal standard area counts above the upper limit, and all detections would be qualified "J" for these samples. The reviewer believes the QC limits are to be interpreted as 50-200% response of the 12-Hr Std. No samples were qualified if within 50-200% response of the 12-Hr Std.

The Sample Summary Reports in Excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-03SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations reported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: Ch2mHill
Email: dave.shekosk@ch2m.com; adrienne.korpela@ch2m.com

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 13CB01 Job Number: 240-16600-1 SDG Number: 13CB01-03VOA

Number and Type of Samples: 14 Waters (VOA - BTEX)

Sample Numbers: 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, 13CB01-19 thru 13CB01-21, 13CB01-38 thru 13CB01-42

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

SAS Number: 13CB01 SDG Number: 13CB01-03VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Fourteen (14) preserved water samples, 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, 13CB01-19 thru 13CB01-21, and 13CB01-38 thru 13CB01-42; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in five (5) coolers at shipping temperatures of 1.2°C, 1.4°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes) according to SW-846 Method 8260B and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab	Station	Collection		Receipt	Analysis
Sample	ID	Location	Date	Time	Date	Date
13CB01-03	240-16600-6	PWP-MW05	10/17/12	11:30	10/19/12	10/25/12
13CB01-04	240-16600-4	PWP-MW06S	10/17/12	13:00	10/19/12	10/25/12
13CB01-05	240-16600-3	PWP-MW07	10/17/12	10:30	10/19/12	10/25/12
13CB01-07	240-16600-7	PWP-MW10	10/17/12	16:45	10/19/12	10/25/12
13CB01-08	240-16600-8	PWP-MW10 FR	10/17/12	16:45	10/19/12	10/25/12
13CB01-15	240-16600-9	PWP-MW19	10/17/12	17:15	10/19/12	10/25/12
13CB01-19	240-16600-5	PWP-MW28	10/17/12	15:40	10/19/12	10/25/12
13CB01-20	240-16600-1	PWP-EB01	10/18/12	08:00	10/19/12	10/25/12
13CB01-21	240-16600-2	PWP-FB01	10/18/12	07:45	10/19/12	10/25/12
13CB01-38	240-16600-10	PWP-JS10	10/18/12	---	10/19/12	10/29/12
13CB01-39	240-16600-11	PWP-JS11	10/18/12	---	10/19/12	10/29/12
13CB01-40	240-16600-12	PWP-JS12	10/18/12	---	10/19/12	10/29/12
13CB01-41	240-16600-13	PWP-JS13	10/18/12	---	10/19/12	10/29/12
13CB01-42	240-16600-14	PWP-JS14	10/18/12	---	10/19/12	10/29/12

MB 240-62634/5 and MB 240-63095/5 are the two (2) volatile method blanks.

LCS 240-62634/4 and LCS 240-63095/4 are the two (2) volatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

Sample 13CB01-20 was identified as an equipment blank. Sample 13CB01-21 was identified as a field blank. Five (5) samples, 13CB01-38 thru 13CB01-42, are possible trip blanks. Sample 13CB01-08 was identified as a field duplicate of sample 13CB01-07.

The volatile analyses were performed within the technical holding time of 14 days; therefore, the results do not require any qualifications.

1. HOLDING TIME

Fourteen (14) preserved water samples, 13CB01-03 thru 13CB01-05, 13CB01-07, 13CB01-08, 13CB01-15, 13CB01-19 thru 13CB01-21, and 13CB01-38 thru 13CB01-42; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in five (5) coolers at shipping temperatures of 1.2°C, 1.4°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes) according to SW-846 Method 8260B and the SAS contract for samples collected between April 2011 and December 2014.

The volatile analyses were performed within the technical holding time of 14 days; therefore, the results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB. All BTEX samples were analyzed within the twelve (12) hour periods from instrument performance checks; therefore, the sample results do not require any qualifications.

3. CALIBRATION

One (1) 6-pt initial calibration was completed on September 12, 2012 on instrument A3UX10 using the following concentrations; 40 ug/L, 20 ug/L, 10 ug/L, 5 ug/L, 2 ug/L, and 1 ug/L. The %RSDs for Toluene and Ethylbenzene were less than the SAS limit of 30%; the %RSDs for Benzene and Xylenes were less than the SAS limit of 15%; therefore, the sample results do not require any qualifications.

Two (2) 1-pt continuing calibrations were conducted for instrument A3UX10 on October 25 and 29, 2012. The %Ds for Toluene and Ethylbenzene were less than 20%; the %Ds for Benzene and Xylenes were less than 15%; therefore, the sample results do not require any qualifications.

Surrogate 4-Bromofluorobenzene was outside the 15%D limit in the continuing calibration analyzed on October 29, 2012. Samples are not qualified based on the %D results of surrogates; therefore, the sample results do not require any qualifications.

4. BLANKS

MB 240-62634/5 and MB 240-63095/5 are the two (2) volatile method blanks. The method blanks were free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the laboratory QC limits for all samples; therefore, the results do not require any qualification.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62634/4 and LCS 240-63095/4 are the two (2) volatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

The semivolatile laboratory control sample recoveries were within the laboratory QC limits for all samples; therefore, the results do not require any qualification.

7. FIELD BLANK AND FIELD DUPLICATE

Sample 13CB01-20 was identified as an equipment blank. Sample 13CB01-21 was identified as a field blank. The field generated blanks were free of contamination. Sample results do not require any qualifications for this criterion.

Five (5) samples, 13CB01-38 thru 13CB01-42, are possible trip blanks. These samples were free of contamination. Sample results do not require any qualifications for this criterion.

Sample 13CB01-08 was identified as a field duplicate of sample 13CB01-07. No BTEX compounds were detected in the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the volatile analyses were within the SAS limits for all samples; therefore, the results do not require any qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters. All reporting limits were reported in ug/L units. The laboratory reporting limits were lower than the SAS required reporting limits for Toluene, Ethylbenzene, and Xylenes. The laboratory reported the SAS required reporting limit for

Benzene (0.5 ug/L), however, the lowest point on the calibration curve performed is above this reporting limit (1.0 ug/L). The reviewer believes that all samples should have a reporting limit of 1.0 ug/L instead of 0.5 ug/L. No data was qualified for Benzene since the laboratory reported to their method detection limit (0.13 ug/L undiluted), which is below the required SAS reporting limit.

A 4x dilution was performed on sample 13CB01-15. The sample result, SAS reporting limit, laboratory reporting limit, and laboratory detection limit were adjusted according to the sample dilution.

The following volatile sample has compound concentrations greater than the method detection limit but less than the reporting limit. Detected compounds are qualified "J".

13CB01-15
Toluene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 14-day holding time to sample analysis identified in Section 6 of the SAS contract was met. The Laboratory's Analytical Report dated November 2, 2012 indicates that the lab met the 21 calendar day results turnaround time identified in Section 6.

Not all criteria specified in Section 8 of the SAS contract were met. The most recent MDL study was not included in the data package as required by Section 8A of the SAS contract. MDL studies are actually provided to the Users prior to the contract award and are therefore not included with every sample delivery group. MDL values listed on the Sample Summary Reports were used to evaluate the reported results. The lowest calibration standard was 1 ug/L, which met the requirement of Section 8B of the SAS contract for all compounds except Benzene. Section 8B requires that the lowest calibration standard should be, at a minimum, equal to the required reporting limit (0.5 ug/L for Benzene). The initial calibration curve contained 6 calibration levels. All samples exceeding the highest calibration standard were run at dilution, however, the undiluted result was not reported as required in Section 8F of the SAS contract.

All criteria specified in Section 9 of the SAS contract were met.

MS/MSD criteria specified in Section 10 of the SAS contract were not met. The laboratory did not perform an MS/MSD analysis for this sample delivery group. Per Table II QC Requirements – at least one MS/MSD should be analyzed per group of 20 or fewer samples; therefore MS/MSD analyses are not included with every sample delivery group. No samples in

this sample delivery group were requested for MS/MSD analysis by the samplers. Sample results are not qualified for this deficiency.

Chain-of-Custodies were included in the data package as required by Section 10 of the SAS contract. However, photocopies of airbills and sample tags were not included with the data package.

The Required Reporting Limits identified in Table I of the SAS contract were met or bettered for Toluene, Ethylbenzene, and Xylenes. The laboratory reported the SAS required reporting limit for Benzene (0.5 ug/L), however, the lowest point on the calibration curve performed is above this reporting limit (1.0 ug/L). The reviewer believes that all samples should have a reporting limit of 1.0 ug/L instead of 0.5 ug/L. No data was qualified for Benzene since the laboratory reported to their method detection limit (0.13 ug/L undiluted), which is below the required SAS reporting limit. The QC Requirements identified in Table II of the SAS contract were met.

The Sample Summary Reports in Excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-03VOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations reported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-16601-1 SDG No: 13CB01-22 BTEX

Number and Type of Samples: 11 water samples (BTEX)

Sample Numbers: 13CB01-22 thru 13CB01-28, 13CB01-35 thru 13CB01-37, 13CB01-43

Laboratory: TestAmerica – North Canton, OH Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

SAS Number: 13CB01 SDG Number: 13CB01-22 BTEX
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eleven (11) preserved water samples identified in the following table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at temperatures ranging from 0.6 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Benzene, Toluene, Ethylbenzene and Xylenes according to the SW-846 Method 8260B and the SAS BTEX – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-22	240-16601-5	PWP-RW01	FD	10/17/12	10/19/12
13CB01-23	240-16601-6	PWP-RW01 FR	FD	10/17/12	10/19/12
13CB01-24	240-16601-1	PWP-RW02		10/17/12	10/19/12
13CB01-25	240-16601-2	PWP-RW03		10/17/12	10/19/12
13CB01-26	240-16601-3	PWP-RW04		10/17/12	10/19/12
13CB01-27	240-16601-4	PWP-RW05		10/17/12	10/19/12
13CB01-28	240-16601-7	PWP-DW01		10/18/12	10/19/12
13CB01-35	240-16601-8	PWP-JS07		10/18/12	10/19/12
13CB01-36	240-16601-9	PWP-JS08		10/18/12	10/19/12
13CB01-37	240-16601-10	PWP-JS09		10/18/12	10/19/12
13CB01-43	240-16601-11	PWP-JS15		10/18/12	10/19/12

FD = Field Duplicate

MB 240-62460/4, MB 240-62634/5 and MB 240-63031/5 are the method blanks. LCS 240-62460/3, LCS 240-62634/4 and LCS 240-63031/4 are the Laboratory Control Samples.

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed.

No samples in this SDG were identified as trip blanks, equipment blanks or field blanks. Four (4) samples, 13CB01-35 thru 13CB01-37 and 13CB01-43 had the letters “JS” included in their station location IDs, and these letters have been used in previous sampling events to designate trip blanks. Sample 13CB01-23 was identified as field duplicate sample of sample 13CB01-22.

The BTEX samples were analyzed within the technical holding time of 14 days; therefore, the results are acceptable.

1. HOLDING TIME

Eleven (11) preserved water samples identified in the above table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at temperatures ranging from 0.6 to 2.2°C. The cooler temperatures were not recorded on the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Benzene, Toluene, Ethylbenzene and Xylenes according to the SW-846 Method 8260B and the SAS BTEX – water contract for samples collected between April 2011 and December 2014.

The BTEX samples were analyzed within the technical holding time of 14 days; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for BFB. All BTEX samples were analyzed within the twelve (12) hour periods from instrument performance checks; therefore, the results are acceptable.

3. CALIBRATION

A 6-pt Initial calibration curve with the concentrations of 1, 2, 5, 10, 20 and 40 ug/L were calibrated on 09/12/2012. An Initial Calibration Verification (second source standard) with concentrations of 10 ug/L was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. Three (3) continuing standards were analyzed on 10/23/2012, 10/25/2012 and 10/28/2012.

The RSDs for the BTEX compounds in the initial calibration were within the SAS limits of less than 30% for the CCCs and 15% for the other compounds. The CCCs (Calibration Check Compounds) are: Toluene and Ethylbenzene. All percent differences for the BTEX compounds in the CCVs were less than 20% for the CCCs and less than 15% for all other analytes as required (per method 8000B page 26 section 7.7).

M,p-Xylene and o-Xylene were calibrated separately in the Initial Calibration. The Xylenes (total) were reported for the sample results as the sum of m,p-Xylenes and o-Xylene detected in the samples.

4. BLANKS

MB 240-62460/4, MB 240-62634/5 and MB 240-63031/5 are the method blanks. MB 240-62460/4 contains Ethylbenzene (0.235 ug/L), Toluene (0.201 ug/L) and Xylenes, total (0.578

ug/L). However, these compounds were not detected in the associated samples. Therefore, no actions were required.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The surrogate recoveries for the BTEX analyses were within the laboratory QC limits. Therefore, no actions were required.

6A. MATRIX SPIKE/SPIKE DUPLICATE or LABORATORY DUPLICATE

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed. Sample results are not qualified for this deficiency.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62460/3, LCS 240-62634/4 and LCS 240-63031/4 are the Laboratory Control Samples. The recoveries of the BTEX compounds in the LCS analyses were within the laboratory QC limits. Therefore, no actions were required.

7. FIELD BLANK AND FIELD DUPLICATE

No samples in this SDG were identified as trip blanks, equipment blanks or field blanks. Four (4) samples, 13CB01-35 thru 13CB01-37 and 13CB01-43 had the letters “JS” included in their station location IDs, and these letters have been used in previous sampling events to designate trip blanks. No target compounds were detected in the samples.

Sample 13CB01-23 was identified as field duplicate sample of sample 13CB01-22. No target compounds were detected in the field duplicate samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the BTEX analyses were within the SAS QC limits for all samples; therefore, the results do not require any qualifications.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that all BTEX compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

The following BTEX sample has compound concentrations greater than the laboratory detection limits but less than the laboratory reporting limits. Detected compounds are qualified "J".

MB 240-62460/4
Ethylbenzene, Toluene, Xylenes (total)

11. SYSTEM PERFORMANCE

GC/MS baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

The data was not submitted within 21 days from the date the samples were received as required by section 6 of the SAS contract for BTEX analyses. TA laboratories received the samples on 10/19/2012. The Laboratory Case Narrative was dated on 11/13/2012. The data was received by EPA Region V on 01/22/2013. However, the BTEX samples were analyzed within the technical holding time of 14 days. Therefore, the sample results are not qualified for this non-compliance.

The samples were properly preserved in the field with HCL to pH<2 with no headspace. The samples were analyzed using Analytical protocol taken from SW-846 Method 8260B. Therefore, the requirements from section 7 of the SAS contract for BTEX were in compliance.

The most recent MDL study was not included in the data package as required by section 8a of the SAS contract. The laboratory detection limits listed on Sample Summary Reports were used to evaluate the reported results.

The concentration of the lowest standards in the initial standard calibration were less than the SAS reporting limits as required by section 8b of the SAS contract.

The internal standards area counts for the BTEX samples were greater than 50% and less than 200% compared to the associated CCVs as required by section 8d of the SAS contract.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

No MS / MSD were analyzed as required by section 10 of the SAS contract. Sample results are not qualified for this deficiency.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package as required by section 10 of the SAS contract. However, air bills and sample tags were not included with the data package.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-22 BTEX
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-16601-1 SDG No: 13CB01-22 Herbicide

Number and Type of Samples: 7 water samples (Herbicide)

Sample Numbers: 13CB01-22 thru 13CB01-28

Laboratory: TestAmerica – North Canton, OH Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seven (7) preserved water samples identified in the following table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at the temperature ranging from 0.6 to 2.2°C. The cooler temperatures were not recorded in the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-22	240-16601-5	PWP-RW01	FD	10/17/12	10/19/12
13CB01-23	240-16601-6	PWP-RW01 FR	FD	10/17/12	10/19/12
13CB01-24	240-16601-1	PWP-RW02		10/17/12	10/19/12
13CB01-24 RE1	240-16601-1	PWP-RW02		10/17/12	10/19/12
13CB01-24RE2	240-16601-1	PWP-RW02		10/17/12	10/19/12
13CB01-25	240-16601-2	PWP-RW03		10/17/12	10/19/12
13CB01-26	240-16601-3	PWP-RW04		10/17/12	10/19/12
13CB01-27	240-16601-4	PWP-RW05		10/17/12	10/19/12
13CB01-28	240-16601-7	PWP-DW01		10/18/12	10/19/12

FD = Field Duplicate

MB 180-52963/1-A and MB 180-54435/1-A are the method blanks. LCS 180-52963/2-A and LCS 180-54435/2-A are the Laboratory Control Samples. LCSD 180-52963/3-A and LCSD 180-54435/3-A are the Laboratory Control Sample Duplicates.

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed.

No samples in this SDG were identified as the trip blank, equipment blank or field blank. Sample 13CB01-23 was identified as a field duplicate sample of sample 13CB01-22.

The samples were extracted within the SAS holding time of 7 days with the exception of sample 13CB01-24 RE2 which was extracted 20 days after sample collection. The extracts were analyzed within 40 days following the extraction. Non-detected Pentachlorophenol in sample 13CB01-24 RE2 is qualified as estimated “UJ”.

1. HOLDING TIME

Seven (7) preserved water samples identified in the above table were collected on 10/17/2012 and 10/18/2012. The samples were received intact by TestAmerica Laboratories located in North Canton, OH on 10/19/2012. The samples were received at the temperature ranging from 0.6 to 2.2°C. The cooler temperatures were not recorded in the C-O-C. The cooler temperatures were recorded on the laboratory Cooler Receipt Form but the cooler numbers were not recorded on the C-O-C. Therefore, it was not clear which samples were received outside the required shipping temperature range of 2 - 6°C. Samples received in coolers outside the proper shipping temperature range of 2 - 6°C were not qualified for this discrepancy. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014.

The samples were extracted within the SAS holding time of 7 days with the exception of sample 13CB01-24 RE2 which was extracted 20 days after sample collection. The extracts were analyzed within 40 days following the extraction. Non-detected Pentachlorophenol in sample 13CB01-24 RE2 is qualified as estimated "UJ".

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

5-pt Initial calibration curves with the on-column concentrations of 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng and 0.040 ng (0.025 ug/L, 0.05 ug/L, 0.10 ug/L, 0.20 ug/Land 0.40 ug/L) were calibrated on 10/22/2012. An Initial Calibration Verification (second source standard) with concentrations of 0.40 ug/L was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. Seven (7) CCVs were analyzed for primary column (RTX-50) from 10/30/2012 thru 11/09/2012. Five (5) CCVs were analyzed for secondary column (RTX-1701) from 10/30/2012 thru 11/08/2012.

The RSDs for the Pentachlorophenol and the surrogate were within the SAS limits of less than 15%. All percent differences for the PCP in the CCVs were less than the method QC limits of 15%.

The opening CCV for secondary column (RTX-1701) on 10/30/12 was analyzed prior to sample 13CB01-28 and was not reported in the analytical sequence. The raw data for this CCV was not included with the data package. No qualification was required because the PCP result for 13CB01-28 was reported from primary column (RTX-50).

All PCP results were reported from primary column (RTX-50) with the exception of PCP result of samples 13CB01-25, LCS 180-52963/2-A and LCSD 180-52963/3-A which were reported from secondary column (RTX-1701).

4. BLANKS

MB 180-52963/1-A and MB 180-54435/1-A are the method blanks. No PCP was detected in the method blanks.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The surrogate recoveries for the Herbicide analyses were within the SAS QC limits of 32% - 140%. Therefore, no actions were required.

6A. MATRIX SPIKE/SPIKE DUPLICATE or LABORATORY DUPLICATE

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed. Sample results are not qualified for this deficiency.

6B. LABORATORY CONTROL SAMPLES

LCS 180-52963/2-A and LCS 180-54435/2-A are the Laboratory Control Samples. LCSD 180-52963/3-A and LCSD 180-54435/3-A are the Laboratory Control Sample Duplicates. The recoveries of PCP in the LCS and LCSD analyses were within the SAS QC limits of 40% - 140%. The RPDs for PCP in the LCS and LCSD analyses were within the SAS QC limits of less than 30%. Therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples in this SDG were identified as the trip blank, equipment blank or field blank. Sample 13CB01-23 was identified as a field duplicate sample of sample 13CB01-22. The results for the duplicate samples are summarized in the following table.

	Sample ID	**13CB01-22**	**13CB01-23**	
Analytes	DF, units	4, ug/L	4, ug/L	RPDs
Pentachlorophenol		0.045	0.035	25

Sample results are not qualified based on the results of field duplicate samples.

8. INTERNAL STANDARDS

The internal standards were not required for SW-846 Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the PCP were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Due to matrix interference, all samples and QC samples were analyzed at 4 or 20 dilution factors.

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

The following Herbicide samples have compound concentrations greater than the laboratory detection limits but less than the laboratory reporting limits. Detected compounds are qualified "J".

13CB01-22, 13CB01-23, 13CB01-24, 13CB01-24 RE1, 13CB01-26, 13CB01-27, 13CB01-28
Pentachlorophenol

The relative percent difference between analyte results for the following herbicide sample is greater than 25%. The results are less than 25% of the laboratory and SAS reporting limits. The detected compound is qualified "U" as a false positive. The reported sample concentration has been elevated to the laboratory reporting limit.

13CB01-25
Pentachlorophenol

11. SYSTEM PERFORMANCE

GC baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

Sample 13CB01-24 was re-extracted outside the 7-day holding time. Please, refer to section 1 of this narrative for result qualification. TA laboratories received the samples on 10/19/2012. The Laboratory Case Narrative was dated on 11/13/2012. The data was received by EPA Region V on 01/22/2013. The data was not submitted within 21 days from the date the samples were received as required by section 6 of the SAS contracts for Herbicide analyses.

The samples were stored at 4.0°C until analyses. The samples were analyzed using SW-846 Method 8151A. Therefore, the requirements from section 7 of the SAS contracts for Herbicide were met.

The most recent MDL study was not included in the data package as required by section 8A of the SAS contract. The laboratory detection limits listed on Sample Summary Reports and Form I were used to evaluate the reported results.

The concentration of the lowest standard (0.025 ug/L) in the initial standard calibration was less than the SAS reporting limits (0.10 ug/L) as required by section 8b of the SAS contracts.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

No MS / MSD were analyzed as required by section 10 of the SAS contracts. Sample results are not qualified for this deficiency.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package. The air bills and sample tags were not included with the data package as required by section 10 of the SAS contracts.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-22 Herbicide
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: Ch2mHill

Level 4 Manual Data Validation

We have reviewed the data for the following case:

SITE Name: Penta Wood Products Site (WI)

SAS Client No.: 13CB01 Job Number: 240-16601-1 SDG Number: 13CB01-22SVOA

Number and Type of Samples: 7 Waters (SVOA - Naphthalene)

Sample Numbers: 13CB01-22 thru 13CB01-28

Laboratory: Test America – North Canton Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

SAS Number: 13CB01 SDG Number: 13CB01-22SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seven (7) water samples, 13CB01-22 thru 13CB01-28; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in 4 coolers at shipping temperatures of 0.6°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

EPA	Lab	Station	Collection		Receipt	Extraction	Analysis
Sample	ID	Location	Date	Time	Date	Date	Date
13CB01-22	240-16601-5	PWP-RW01	10/17/12	13:20	10/19/12	10/24/12	10/29/12
13CB01-23	240-16601-6	PWP-RW01 FR	10/17/12	13:21	10/19/12	10/24/12	10/29/12
13CB01-24	240-16601-1	PWP-RW02	10/17/12	11:12	10/19/12	10/24/12	10/29/12
13CB01-25	240-16601-2	PWP-RW03	10/17/12	11:43	10/19/12	10/24/12	10/29/12
13CB01-26	240-16601-3	PWP-RW04	10/17/12	12:14	10/19/12	10/24/12	10/29/12
13CB01-27	240-16601-4	PWP-RW05	10/17/12	12:48	10/19/12	10/24/12	10/29/12
13CB01-28	240-16601-7	PWP-DW01	10/18/12	08:15	10/19/12	10/26/12	10/31/12

MB 240-62508/23-A and MB 240-62867/20-A are the two (2) semivolatile method blanks.

LCS 240-62508/24-A and LCS 240-62867/21-A are the two (2) semivolatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

No samples were identified as field blanks. Sample 13CB01-23 was identified as a field duplicate of sample 13CB01-22.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

1. HOLDING TIME

Seven (7) water samples, 13CB01-22 thru 13CB01-28; were shipped to TestAmerica-North Canton located in North Canton, OH. The samples were collected on October 17 and 18, 2012 and received October 19, 2012 intact. Samples were received in 4 coolers at shipping temperatures of 0.6°C, 1.6°C, 1.8°C, and 2.2°C. The preferred shipping temperature range is 2 - 6°C. It cannot be determined which shipping temperature belong to which coolers, and therefore which samples would be below the preferred temperature range. No samples were qualified for temperature deficiency. The samples were analyzed for Naphthalene according to SW-846 Method 8270C and the SAS contract for samples collected between April 2011 and December 2014.

The semivolatile extractions were performed within the technical holding time of 7 days after sample collection and analyzed within the 40 days after extraction; therefore, the results do not require any qualifications.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

All GC/MS tuning complied with the mass list and ion abundance criteria for DFTPP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

One (1) 9-pt initial calibration was completed on October 25, 2012 using the following concentrations; 25 ng/uL, 20 ng/uL, 15 ng/uL, 10 ng/uL, 5 ng/uL, 2 ng/uL, 1 ng/uL, 0.5 ng/uL and 0.1 ng/uL . The %RSD for Naphthalene was less than the SAS limit of 15%; therefore, the sample results do not require any qualifications.

Three (3) 1-pt continuing calibrations were conducted on October 29, October 30, and October 31, 2012. The %Ds for Naphthalene were less than 20%; therefore, the sample results do not require any qualifications.

4. BLANKS

MB 240-62508/23-A and MB 240-62867/20-A are the two (2) semivolatile method blanks. The method blanks were free of contamination. Sample results do not require any qualifications for this criterion.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The semivolatile surrogate recoveries were within the laboratory QC limits for all samples. Sample results do not require any qualifications for this criterion.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No samples were designated by the samplers for MS/MSD analyses. No MS/MSD analyses were conducted for this sample delivery group.

6B. LABORATORY CONTROL SAMPLES

LCS 240-62508/24-A and LCS 240-62867/21-A are the two (2) semivolatile laboratory control samples. No LCSD analyses were conducted for this sample delivery group.

The semivolatile laboratory control sample recoveries were within the QC limits (31 – 110%) identified in the SAS contract for all samples; therefore, the results do not require any qualification.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks. Sample 13CB01-23 was identified as a field duplicate of sample 13CB01-22. Naphthalene was not detected in the samples.

8. INTERNAL STANDARDS

The internal standards retention times and area counts for the semivolatile analyses were within the required QC limits for all samples; therefore, the results do not require any qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters. No dilutions were required. The samples do not require any qualification. All reporting limits were reported in ug/L units and lower than the SAS required reporting limits.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

All SAS criteria were met with the following exceptions and highlights:

The 7-day holding time to sample extraction and 40 day time to sample analysis identified in Section 6 of the SAS contract were met. The Laboratory's Analytical Report dated November 13, 2012 indicates that the lab did not meet the 21 calendar day results turnaround time identified in Section 6.

All criteria specified in Sections 8 and 9 of the SAS contract were met. The most recent MDL study was not included in the data package as required by Section 8A of the SAS contract. MDL studies are actually provided to the Users prior to the contract award and are therefore not included with every sample delivery group. MDL values listed on the Sample Summary Reports were used to evaluate the reported results. The lowest calibration standard was 0.1 ng/uL. The initial calibration curve contained 9 calibration levels.

MS/MSD criteria specified in Section 10 of the SAS contract were not met. The laboratory did not perform an MS/MSD analysis for this sample delivery group. Per Table II QC Requirements – at least one MS/MSD should be analyzed per group of 20 or fewer samples; therefore MS/MSD analyses are not included with every sample delivery group. No samples in this sample delivery group were requested for MS/MSD analysis by the samplers. Sample results are not qualified for this deficiency.

Chain-of-Custodies were included in the data package as required by Section 10 of the SAS contract. However, photocopies of airbills and sample tags were not included with the data package.

The Required Reporting Limits identified in Table I of the SAS contract were met or bettered. The QC Requirements identified in Table II of the SAS contract were met with the exception of internal standards as the SAS is written. Table II QC Requirements states that the internal standards QC limits are listed as 50-100% response. If the response range is not a typo, the lower QC limits is 50% of the 12-Hr Std and the upper QC limits is the 12-Hr Std. Under these conditions samples LCS 240-62508/24-A, LCS 240-62867/20-A, 13CB01-22, 13CB01-24 thru 13CB01-26, and 13CB01-28 would be qualified for having internal standard area counts above the upper limit, and all detections would be qualified "J" for these samples. The reviewer believes the QC limits are to be interpreted as 50-200% response of the 12-Hr Std. No samples were qualified if within 50-200% response of the 12-Hr Std.

The Sample Summary Reports in Excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-22SVOA
Site Name: Penta Wood Products Site (WI) Laboratory: TA – North Canton

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations reported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on: January 22, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: Ch2m Hill
Email addresses: dshekosk@Ch2m.com; Shannon.olson@ch2m.com;
Adrienne.korpela@ch2m.com

Level 4 Data Validation

We have reviewed the data for the following case:

Site Name: Penta Wood Products (WI)

SAS Client No: 13CB01 Job No: 240-18303-1 SDG No: 13CB01-44 Herbicide

Number and Type of Samples: 6 water samples (Herbicide)

Sample Numbers: 13CB01-44 thru 13CB01-49

Laboratory: TestAmerica – North Canton, OH Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Six (6) preserved water samples identified in the following table were collected on 12/03/2012 and 12/04/2012. The samples were received by TestAmerica Laboratories located in North Canton, OH on 12/05/2012. The samples were received intact and within the proper shipping temperature range of 2 - 6°C. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014. The Chain-Of-Custodies for this sample delivery group are summarized in the following table:

EPA sample ID	TA sample ID	Sample location	Field QC type	Collection date	receipt date
13CB01-44	240-18303-5	PWP-RW01-RE	FD	12/03/12	12/05/12
13CB01-45	240-18303-6	PWP-RW01-RE FR	FD	12/03/12	12/05/12
13CB01-46	240-18303-1	PWP-RW02-RE		12/03/12	12/05/12
13CB01-47	240-18303-2	PWP-RW03-RE		12/03/12	12/05/12
13CB01-48	240-18303-3	PWP-RW04-RE		12/03/12	12/05/12
13CB01-49	240-18303-4	PWP-RW05-RE		12/04/12	12/05/12

FD = Field Duplicate

MB 180-57813/1-A and MB 180-58408/1-A are the method blanks. LCS 180-57813/2-A and LCS 180-58408/2-A are the Laboratory Control Samples. LCSD 180-57813/3-A and LCSD 180-58408/3-A are the Laboratory Control Sample Duplicates.

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed.

No samples in this SDG were identified as trip blanks, equipment blanks or field blanks. Sample 13CB01-45 was identified as a field duplicate of sample 13CB01-44.

Samples 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48, 13CB01-49 were extracted within the SAS holding time of 7 days. The re-extracted samples 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE were extracted 11 days after sample collection. Non-detected Pentachlorophenol in samples 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE is qualified as estimated “UJ”.

1. HOLDING TIME

Six (6) preserved water samples identified in the above table were collected on 12/03/2012 and 12/04/2012. The samples were received by TestAmerica Laboratories located in North Canton, OH on 12/05/2012. The samples were received intact and within the proper shipping temperature range of 2 - 6°C. The samples were analyzed for Pentachlorophenol according to the SW-846 Method 8151A and the SAS Herbicide – water contract for samples collected between April 2011 and December 2014.

Samples 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48, 13CB01-49 were extracted within the SAS holding time of 7 days. The re-extracted samples 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE were extracted 11 days after sample collection. Non-detected Pentachlorophenol in samples 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE is qualified as estimated "UJ".

2. GC INSTRUMENT PERFORMANCE

GC Resolution met the minimum resolution criteria as defined in SW846 Method 8000B and 8151A for both RTX-50 (Primary) and RTX-1701 (Secondary) columns.

3. CALIBRATION

5-pt Initial calibration curves with the on-column concentrations of 0.0025 ng, 0.005 ng, 0.010 ng, 0.020 ng and 0.040 ng (0.025 ug/L, 0.05 ug/L, 0.10 ug/L, 0.20 ug/Land 0.40 ug/L) were calibrated on 12/12/2012. An Initial Calibration Verification (second source standard) with concentration of 0.40 ug/L was analyzed right after the initial calibration standards to verify the standard concentrations of the initial calibration before the samples were analyzed. Five (5) CCVs were analyzed for both primary column (RTX-50) and secondary column (RTX-1701) on 12/13/12 and 12/18/2012.

The RSDs for the Pentachlorophenol and the surrogate were within the SAS limits of less than 15%. All percent differences for the PCP in the CCVs were less than the method QC limits of 15%.

All PCP results were reported from primary column (RTX-50) with the exception of PCP result of sample 13CB01-45RE which was reported from secondary column (RTX-1701).

4. BLANKS

MB 180-57813/1-A and MB 180-58408/1-A are the method blanks. No PCP was detected in the method blanks.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The surrogate recoveries for Samples 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48, 13CB01-49, MB 180-57813/1-A, LCS 180-57813/2-A and LCSD 180-57813/3-A were below the SAS QC limits of 32% - 140%. Detected Pentachlorophenol in LCS 180-57813/2-A and LCSD 180-57813/3-A is qualified as estimated "J". Non-detected Pentachlorophenol in samples 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48, 13CB01-49 and MB 180-57813/1-A is qualified as estimated "UJ".

6A. MATRIX SPIKE/SPIKE DUPLICATE

No samples were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. No MS / MSD were analyzed. Sample results are not qualified for this deficiency.

6B. LABORATORY CONTROL SAMPLES

LCS 180-57813/2-A and LCS 180-58408/2-A are the Laboratory Control Samples. LCSD 180-57813/3-A and LCSD 180-58408/3-A are the Laboratory Control Sample Duplicates. The recoveries of PCP in the LCS and LCSD analyses were within the SAS QC limits of 40% - 140%. The RPDs for PCP in the LCS and LCSD analyses were within the SAS QC limits of less than 30%. Therefore, the results are acceptable.

7. FIELD BLANK AND FIELD DUPLICATE

No samples in this SDG were identified as trip blanks, equipment blanks or field blanks. Sample 13CB01-45 was identified as a field duplicate of sample 13CB01-44. Pentachlorophenol was not detected in the field duplicate samples.

8. INTERNAL STANDARDS

The internal standards were not required for SW-846 Method 8151A.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the PCP were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Due to matrix interference, all samples and QC samples were analyzed at 4 fold dilution factor.

Sample results, SAS reporting limits, laboratory reporting limits and laboratory detection limits on the laboratory result forms and sample summary spreadsheets were adjusted according to the sample dilutions.

11. SYSTEM PERFORMANCE

GC baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

The original samples; 13CB01-44, 13CB01-45, 13CB01-46, 13CB01-47, 13CB01-48, 13CB01-49 and their associated QC samples were spiked with a 10 ug/L concentration of the surrogate. The re-extracted samples; 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE and their associated QC samples were spiked with a 2 ug/L concentration of the surrogate.

The re-extracted samples 13CB01-44RE, 13CB01-45RE, 13CB01-46RE, 13CB01-47RE, 13CB01-48RE, 13CB01-49RE were extracted outside the 7-day holding time. Therefore, the laboratory was not in compliance with the first requirement of section 6 in the SAS contract. Please, refer to section 1 of this narrative for result qualification.

TA laboratories received the samples on 12/05/2012. The Laboratory Case Narrative was dated on 12/19/2012. The data was submitted within 21 days from the date the samples were received as stated in second requirement of section 6 of the SAS contract.

The samples were stored at 4.0°C until analyses. The samples were analyzed using SW-846 Method 8151A. Therefore, the requirements from section 7 of the SAS contract were met.

The most recent MDL study was not included in the data package as required by section 8A of the SAS contract. The laboratory detection limits listed on Sample Summary Reports and Form I were used to evaluate the reported results.

The concentration of the lowest standard (0.025 ug/L) in the initial standard calibration was less than the SAS reporting limits (0.10 ug/L) as required by section 8b of the SAS contracts.

The laboratory reporting limits and MDL were less than the SAS reporting limits listed in Table I of the SAS contract.

No MS / MSD were analyzed as required by section 10 of the SAS contracts. Sample results are not qualified for this deficiency.

Photocopies of the chain of custodies (with no record of the location of the original) were included in the data package. The air bills and sample tags were not included with the data package as required by section 10 of the SAS contracts.

The Sample Summary Reports in excel spreadsheet format with the final qualifiers were generated by the reviewer and included with the deliverable data package.

SAS Number: 13CB01 SDG Number: 13CB01-44 Herbicide
Site Name: Penta Wood Products (WI) Laboratory: TestAmerica

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 1/31/2013

SUBJECT: **Review of Data**
Received for Review on: 1/22/13

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User:** CH2M Hill
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

Site Name: Penta Wood Products Site (WI)

Case Number: 13CB01 **SDG Number:** 13CB01-01WC

Number and Type of Samples: 10 waters (Alkalinity, Anions, Sulfide, TOC)

Sample Numbers: 13CB01-01, -02, -06, -10 thru -14, -16, -17

Laboratory: Test America Canton **Hrs for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case: 13CB01 SDG: 13CB01-01WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Narrative

Ten (10) water samples, numbered 13CB01-01, -02, -06, -10 thru -14, -16, and -17, were collected on October 16, 2012. The lab received the samples on October 18, 2012. All sample results are reported to the MDL. The samples were analyzed for alkalinity using SM 310.1, chloride using SM 325.2, nitrate using SM 300.0, sulfate using SM 375.4, sulfide using SM 376.1 and total organic carbon using SW-846 9060.

Sample ID	Lab ID	Station Location	Sample Date/Time
13CB01-01	240-16577-8	PWP-MW02	10-16-12/12:00
13CB01-02	240-16577-1	PWP-MW03	10-16-12/09:25
13CB01-06	240-16577-2	PWP-MW09	10-16-12/12:00
13CB01-10	240-16577-9	PWP-MW12	10-16-12/15:10
13CB01-11	240-16577-10	PWP-MW12FR	10-16-12/15:10
13CB01-12	240-16577-3	PWP-MW15	10-16-12/10:25
13CB01-13	240-16577-6	PWP-MW16	10-16-12/16:10
13CB01-14	240-16577-4	PWP-MW17	10-16-12/17:15
13CB01-16	240-16577-7	PWP-MW22	10-16-12/09:30
13CB01-17	240-16577-5	PWP-MW26	10-16-12/12:25

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. The SAS required a laboratory duplicate; however, the laboratory performed a MS/MSD which is acceptable. MDLs provided are greater than 2 years old.

Alkalinity: The SAS requires that the lowest calibration point be run at 5.0 mg/L. However, the alkalinity method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. The alkalinity data are acceptable based on the precision data from the LCS, laboratory duplicate and MS/MSD samples.

Chloride: The sample result for 13CB01-06 is affected by a CCB greater than the MDL indicating possible contamination. Those results are estimated "J+." All other results are acceptable.

Nitrate: All samples were analyzed outside the 48 hour method holding time except 13CB01-14. These sample results are estimated "J" due to analysis outside method holding time. The result from 13CB01-14 is acceptable.

Sulfate: The sample results for 13CB01-01, -06, -12, -16, and -17 are affected by a method blank or CCB greater than the MDL indicating possible contamination. Those results are estimated "J+." The matrix spike duplicate percent recovery is out of criteria; therefore all the samples are qualified "J+" due to possible contamination.

Sulfide: The SAS requires that the lowest calibration point be run at 1.0 mg/L. However, the sulfide method does not require a calibration curve. The sample results are not qualified for the absence of this

standard requirement. It should be noted that the normality of the iodine solution used by the Laboratory was not the standard 0.0250 N but 0.028125 N. No sample results are qualified for this. The sulfide data are acceptable based on the precision data from the LCS and MS/MSD samples.

TOC: The sample results for 13CB01-12, -14 and -17 are between the MDL and the SAS required RL; they are considered estimated "J." All other results are acceptable.

Other comments: No samples were identified as field/equipment blanks. Samples 13CB01-10 and -11 were identified as field duplicates and show good correlation for all parameters. No sample results are qualified for field duplicates.

Case: 13CB01 SDG: 13CB01-01WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Deborah Connet
Date: January 31, 2013

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: **2/7/2013**

SUBJECT: **Review of Data**
Received for Review on: 1/22/13

FROM: **Timothy Prendiville, Supervisor, Chief (SRT-6J)**
Superfund Contract Management Section

TO: **Data User: CH2M Hill**
Email address: dshekosk@CH2M.com

LEVEL 4 DATA VALIDATION

We have reviewed the data for the following case:

Site Name: Penta Wood Products Site (WI)

Case Number: 13CB01 **SDG Number: 13CB01-03WC**

Number and Type of Samples: 9 waters (Alkalinity, Anions, Sulfide, TOC)

Sample Numbers: 13CB01-03 thru -05, -07, -08, -15, -19 thru -21

Laboratory: Test America Canton **Hrs for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case: 13CB01 SDG: 13CB01-03WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Narrative

Nine (9) water samples, numbered 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21, were collected on October 17-18, 2012. The lab received the samples on October 19, 2012. All sample results are reported to the MDL. The samples were analyzed for alkalinity using SM 310.1, chloride using SM 325.2, nitrate using SM 300.0, sulfate using SM 375.4, sulfide using SM 376.1 and total organic carbon using SW-846 9060.

Sample ID	Lab ID	Station Location	Sample Date/Time
13CB01-03	240-16600-6	PWP-MW05	10-17-12/11:30
13CB01-04	240-16600-4	PWP-MW06S	10-17-12/13:00
13CB01-05	240-16600-3	PWP-MW07	10-17-12/10:30
13CB01-07	240-16600-7	PWP-MW10	10-17-12/16:45
13CB01-08	240-16600-8	PWP-MW10FR	10-17-12/16:45
13CB01-15	240-16600-9	PWP-MW19	10-17-12/17:15
13CB01-19	240-16600-5	PWP-MW28	10-17-12/15:40
13CB01-20	240-16600-1	PWP-EB01	10-18-12/08:00
13CB01-21	240-16600-2	PWP-FB01	10-18-12/07:45

Evidential Audit: All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 sheets or sample tags were provided. The SAS required a laboratory duplicate; however, the laboratory performed a MS/MSD which is acceptable. MDLs provided are greater than 2 years old.

Alkalinity: The SAS requires that the lowest calibration point be run at 5.0 mg/L. However, the alkalinity method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. The SAS requires a matrix spike and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "J" for detect and "UJ" for non-detect.

Chloride: The SAS requires a duplicate, matrix spike and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "J" for detect and "UJ" for non-detect. Additionally, the sample result for 13CE01-20 is between the MDL and the SAS required RL; it is considered estimated "J."

Nitrate: Samples 13CB01-03, -04 and -05 were analyzed outside the 48 hour method holding time. These sample results are estimated "J" due to analysis outside method holding time. The SAS requires a duplicate and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "J" for detect and "UJ" for non-detect. Additionally, the sample results for 13CE01-07 and 13CE01-08 are between the MDL and the SAS required RL; they are considered estimated "J."

Sulfate: The SAS requires a duplicate, matrix spike and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated

Case: 13CB01 SDG: 13CB01-03WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

"J" for detect. The sample results for 13CB01-04, -07, -08, -15, -19, -20 and -21 are affected by a method blank or CCB greater than the MDL indicating possible contamination. Additionally, the sample results for 13CE01-20 and 13CE01-21 are between the MDL and the SAS required RL; they are considered estimated "J."

Sulfide: The SAS requires that the lowest calibration point be run at 1.0 mg/L. However, the sulfide method does not require a calibration curve. The sample results are not qualified for the absence of this standard requirement. It should be noted that the normality of the iodine solution used by the Laboratory was not the standard 0.0250 N but 0.028125 N. No sample results are qualified for this. The SAS requires a duplicate, matrix spike and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "UJ" for non-detect.

TOC: The SAS requires a duplicate and matrix spike duplicate. These QC were not present, therefore, samples 13CB01-03 thru -05, -07, -08, -15, and -19 thru -21 are considered estimated "J" for detect and "UJ" for non-detect. The sample results for 13CB01-05 and -19 are between the MDL and the SAS required RL; they are considered estimated "J."

Other comments: Sample 13CB01-20 and 13CB01-21 are the field/equipment blanks. Sulfate was detected. Samples are unaffected due to qualification already applied from the instrument blanks. For Chloride, samples are sufficiently high to be unaffected at the field blank contamination levels. Samples 13CB01-07 and -08 were identified as field duplicates and show good correlation for all parameters. No sample results are qualified for field duplicates.

Case: 13CB01 SDG: 13CB01-03WC
Site: Penta Wood Products Site (WI) Laboratory: Test America Canton

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Deborah Connet
Date: February 7, 2013

Data Usability Evaluation of the Treatment System Samples Collected at the Penta Wood Products Site, Siren, Wisconsin

PREPARED FOR: U.S. Environmental Protection Agency

PREPARED BY: Shannon Olson/CH2M HILL

DATE: February 28, 2013

This memorandum presents the data usability evaluation of the treatment system samples collected during 2012 conducted at the Penta Wood Products Site in Siren, Wisconsin. The sampling was performed by CH2M HILL. The analyses were performed by Test America, Inc. of North Canton, Ohio.

The onsite treatment system is monitored per the Wisconsin Pollutant Discharge Elimination System (WPDES) permit WI-0061531-01-0, and is therefore required to collect the following:

- Quarterly sampling of the influent for pentachlorophenol (PCP) by SW-846 8151
- Weekly sampling of the effluent for PCP by SW-846 8151
- Monthly sampling of the effluent for naphthalene by SW-846 8270C and diesel range organics (DRO) by Wisconsin DRO method
- Quarterly sampling of the effluent for chloride by EPA 325.2 and total metals (arsenic, copper, iron, manganese and zinc) by SW-846 6020
- Annual sampling of the effluent for benzene, toluene, ethylbenzene and xylenes (BTEX) by SW-846 8260B, phenol by SW-846 8270C and 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) by SW-846 8290

One hundred percent of the data set underwent a forms review by CH2M HILL staff to assess the accuracy and precision of the data. Individual method requirements and guidelines from the Quality Assurance Project Plan (QAPP) (CH2M HILL, February 2005), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (January 2010) were used in this assessment. Completeness of the data set was then derived. Data qualifiers were added by CH2M HILL validators when the QC statistics indicated a possible bias to specific compounds or analytes associated with a particular method and sample batch.

Standard data qualifiers were used as a means of classifying the data as to their conformance to QC requirements. The applied data qualifiers are defined as follows:

[U] The sample target was analyzed for, but was not detected above the level of the associated limit of detection or quantitation.

[UB] The analyte was detected in the associated blank above the level of the associated limit of detection or quantitation. The associated data were found to be less than five times the

concentration detected in the blank and were qualified as not detected at the concentration measured.

[J] The associated value is an estimated quantity. This qualifier was appended when the data indicated the presence of a specific target analyte but was below the stated reporting (or quantitation) limit, and/or when quality control statistics alluded to an analytical bias.

[UJ] The component was analyzed for, but was not detected at a level equal to or greater than the level of detection or quantification (often the reporting limit). This flag is used when QC measurements indicate a possible low bias in the analytical data.

Findings

The overall summaries of the data validation are contained in the following sections.

Holding Time and Preservation

The preparation holding time for PCP was exceeded for samples 12CP03-41, 13CP01-03 and 13CB01-49. The analytical holding time for DRO was exceeded for sample 13CP01-12. The non-detect results in the associated samples were qualified and flagged "UJ" as undetected and estimated in quantity.

Calibration

Initial and continuing calibration analyses were performed as required by the methods. All acceptance criteria were met with the following exceptions:

The percent difference for the continuing calibration verification (CCV) for samples 12CP03-21, 12CP03-25, 13CP01-01 and 13CP01-14 exceeded acceptance criteria for PCP. The non-detect results in the associated samples were qualified and flagged "UJ" as undetected and estimated in quantity.

Blanks

Method and calibration blanks were analyzed at the required frequency and were free of contamination with the following exceptions:

DRO was detected at a concentration greater than the method detection limit (MDL) in the method blank associated with samples 12CP03-21, 12CP03-25, 12CP03-43 and 13CP01-08. The data were qualified as not detected at the concentration measured and flagged "UB" when the associated sample concentrations were less than five times the concentration detected in the blanks.

Zinc was detected at a concentration greater than the MDL in the method blank associated with samples 12CP03-30 and 12CP03-40. Copper, iron and zinc were detected at concentrations greater than the MDL in the method blank associated with sample 12CP03-18. Copper and zinc were detected at concentrations greater than the MDL in the method blank associated with sample 13CP01-03. The data were qualified as not detected at the concentration measured and flagged "UB" when the associated sample concentrations were less than five times the concentration detected in the blanks. Sample results found to be greater than five times the amount found in the blank or were nondetect were not qualified.

Surrogates

Surrogates were added to all samples for the methods requiring their use and all acceptance criteria were met.

Internal Standards

Internal standards were added to the method, and all acceptance criteria were met.

Laboratory Control Samples

Laboratory control spike/laboratory control spike duplicates (LCS/LCSDs) were analyzed as required and all accuracy and precision criteria were met with the following exceptions:

DRO was recovered less than the lower control limit in a LCS and/or LCSD associated with samples 12CP03-25, 12CP03-43 and 13CP01-03. The non-detect results in the associated samples were qualified and flagged "UJ" as undetected and estimated in quantity.

PCP reported a relative percent difference (RPD) greater than the control limits in a LCS/LCSD for sample 12CP03-21. The data were not qualified because the associated sample did not contain reportable levels of PCP.

Matrix Spike

Matrix spike/matrix spike duplicates (MS/MSDs) were analyzed as required and all accuracy and precision criteria were met.

Post Digestion Spikes

Post digestion spikes were analyzed according to methods requiring their use and all acceptance criteria were met.

Chain of Custody

Required procedures were followed and were free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision making process. The following summary highlights the PARCC findings for the above-defined events:

- Precision of the data was verified through the review of the field and laboratory data quality indicators that include LCS/LCSD and MS/MSD RPDs. Precision was acceptable.
- Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, post-digestion spike, internal standard and surrogate recoveries. Accuracy was generally acceptable with a few analytes being qualified as estimated detected results due to calibration and LCS/LCSD issues. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.
- Representativeness of the data was verified through the sample's collection, storage and preservation procedures, verification of holding-time compliance and evaluation of method and calibration blank data. The laboratory did not note any discrepancies with sample

collection, storage or preservation procedures. The preparation hold time criterion for PCP in three samples and the analytical hold time criterion for DRO in one sample was exceeded, resulting in the data being qualified as estimated. All other data were reported from analyses within the USEPA-recommended holding time. The method and calibration blank samples were generally free of contamination with DRO, copper and zinc being qualified as nondetected results in a few samples due to low-level detections in the blanks.

- Comparability of the data was ensured through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data are considered valid. The completeness goal of 90 percent was met for all method/analyte combinations.

References

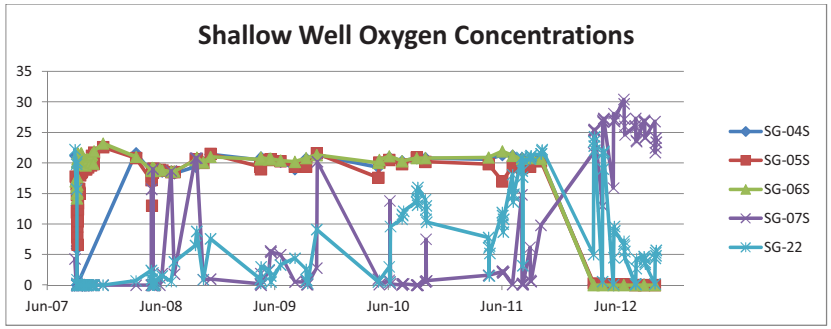
CH2M HILL. 2005. *Quality Assurance Project Plan, Penta Wood Products Long-Term Response Action, Town of Daniels, Wisconsin.* February.

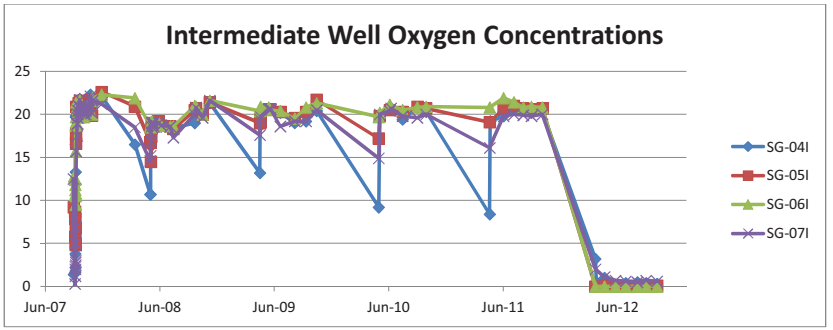
USEPA. 2008. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. June.

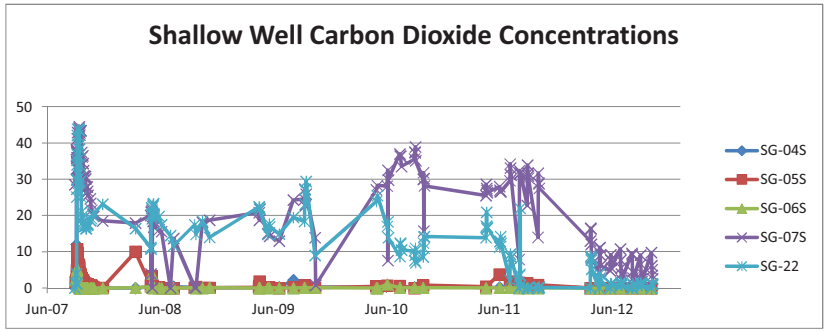
USEPA. 2010. *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*. January.

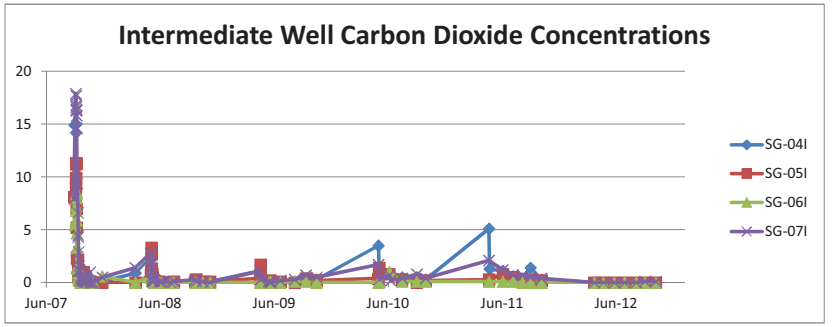
Appendix F

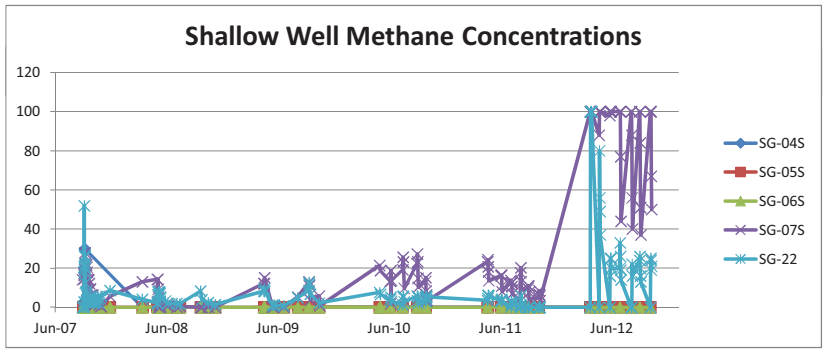
Treatment System Analytical Results

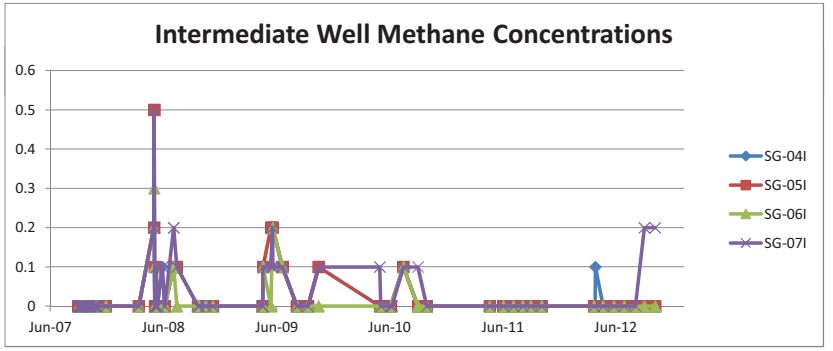

Shallow Well Oxygen Concentrations
35
30
25
20
15
10
5
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04S
SG-05S
SG-06S
SG-07S
SG-22

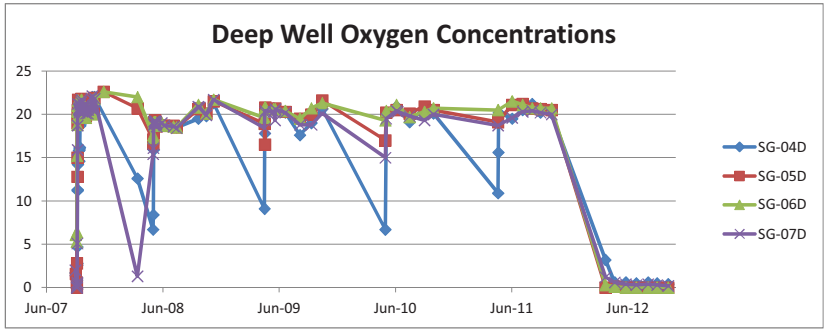

Intermediate Well Oxygen Concentrations
25
20
15
10
5
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04I
SG-05I
SG-06I
SG-07I

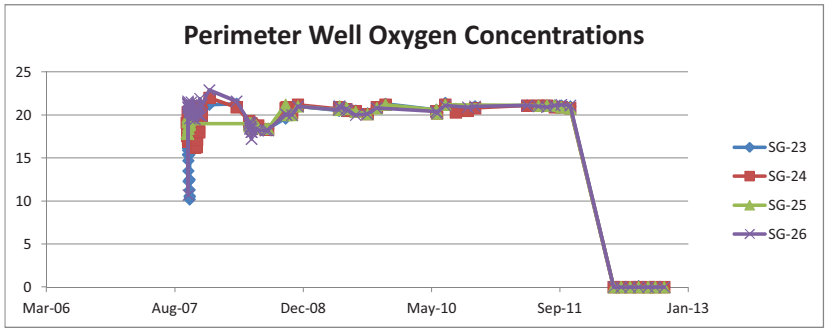

Shallow Well Carbon Dioxide Concentrations
50
40
30
20
10
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04S
SG-05S
SG-06S
SG-07S
SG-22

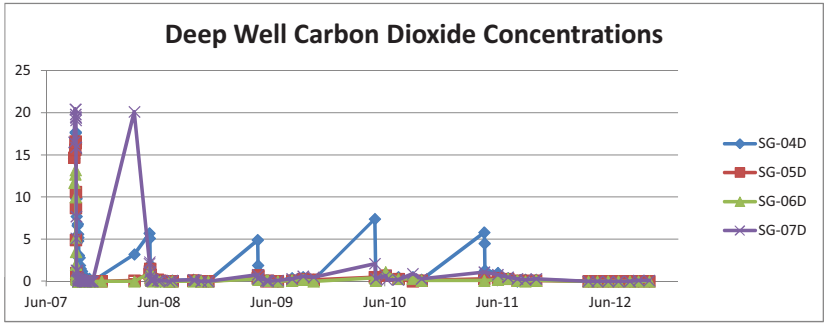

Intermediate Well Carbon Dioxide Concentrations
20
15
10
5
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04I
SG-05I
SG-06I
SG-07I

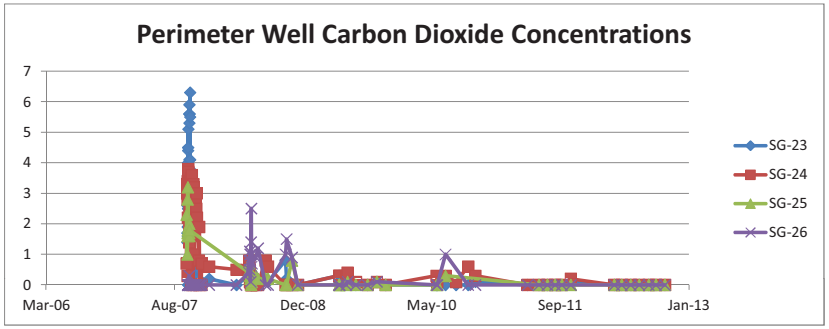

Shallow Well Methane Concentrations
120
100
80
60
40
20
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04S
SG-05S
SG-06S
SG-07S
SG-22

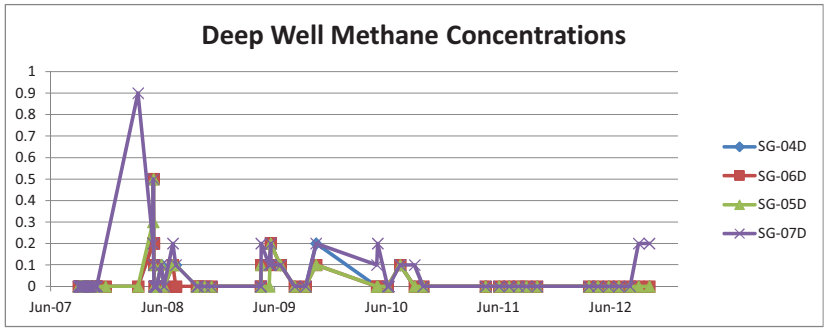

Intermediate Well Methane Concentrations
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04I
SG-05I
SG-06I
SG-07I

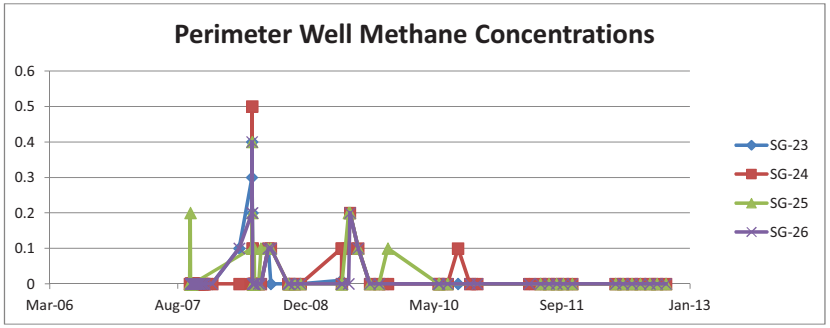

Deep Well Oxygen Concentrations
25
20
15
10
5
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04D
SG-05D
SG-06D
SG-07D


Perimeter Well Oxygen Concentrations
25
20
15
10
5
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Jan-13
SG-23
SG-24
SG-25
SG-26

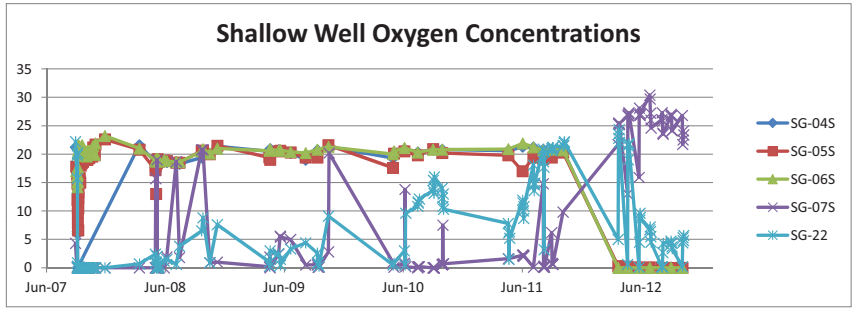

Deep Well Carbon Dioxide Concentrations
25
20
15
10
5
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04D
SG-05D
SG-06D
SG-07D


Perimeter Well Carbon Dioxide Concentrations
7
6
5
4
3
2
1
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Jan-13
SG-23
SG-24
SG-25
SG-26


Deep Well Methane Concentrations
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-07
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
SG-04D
SG-06D
SG-05D
SG-07D


Perimeter Well Methane Concentrations
0.6
0.5
0.4
0.3
0.2
0.1
0
Mar-06
Aug-07
Dec-08
May-10
Sep-11
Jan-13
SG-23
SG-24
SG-25
SG-26

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
9/20/2007	21.2	9/21/2007	17.8	9/21/2007	17	9/19/2007	4.3	9/19/2007	22.2
9/24/2007	13	9/24/2007	16.5	9/24/2007	16.1	9/24/2007	0	9/24/2007	15.7
9/25/2007	6	9/25/2007	14.8	9/25/2007	15	9/25/2007	0.2	9/24/2007	19.8
9/25/2007	6.4	9/25/2007	11.9	9/25/2007	14.2	9/25/2007	0	9/25/2007	20.2
9/26/2007	0	9/26/2007	10.4	9/26/2007	15.2	9/25/2007	0	9/25/2007	0.9
4/2/2008	21.6	9/26/2007	9.6	9/26/2007	16.4	9/26/2007	0	9/25/2007	0
5/21/2008	18.6	9/26/2007	7.8	9/26/2007	17.7	9/26/2007	0	9/25/2007	0.3
5/22/2008	18.7	9/27/2007	6.6	9/26/2007	20.1	9/26/2007	0	9/26/2007	0
5/23/2008	17.7	9/27/2007	10.5	9/27/2007	20.6	9/27/2007	0	9/26/2007	0
5/24/2008	18.7	9/28/2007	12.4	9/27/2007	20.2	9/27/2007	0	9/26/2007	0
5/25/2008	18.9	9/28/2007	13.4	9/27/2007	20.2	9/28/2007	0	9/27/2007	0
5/26/2008	19	10/2/2007	15.2	9/28/2007	21.6	10/1/2007	0.1	9/27/2007	0
5/27/2008	19	10/2/2007	15.8	10/1/2007	21.1	10/2/2007	0	9/28/2007	0
5/28/2008	19.1	10/3/2007	15	10/2/2007	20.8	10/3/2007	0	10/1/2007	0
5/29/2008	19	10/3/2007	15	10/2/2007	20.9	10/3/2007	0	10/2/2007	0
5/30/2008	19	10/5/2007	18.4	10/2/2007	20.6	10/4/2007	0	10/2/2007	0
5/31/2008	18.9	10/5/2007	18	10/2/2007	20.6	10/5/2007	0	10/3/2007	0
6/1/2008	18.6	10/8/2007	18.4	10/2/2007	20.8	10/5/2007	0	10/3/2007	0
6/17/2008	18.9	10/9/2007	19.8	10/3/2007	20.5	10/8/2007	0	10/4/2007	0
6/25/2008	18.6	10/11/2007	18.6	10/3/2007	19.7	10/9/2007	0	10/5/2007	0
7/24/2008	18.6	10/12/2007	18.7	10/4/2007	20.9	10/11/2007	0	10/5/2007	0
8/3/2008	18.3	10/15/2007	19.3	10/5/2007	21.2	10/12/2007	0	10/8/2007	0
10/10/2008	19.4	10/16/2007	19.4	10/5/2007	20.9	10/15/2007	0	10/9/2007	0
10/14/2008	20.6	10/17/2007	19.2	10/5/2007	20.8	10/16/2007	0	10/11/2007	0
11/4/2008	20.1	10/18/2007	20.3	10/8/2007	20.7	10/17/2007	0	10/12/2007	0
11/27/2008	21.4	10/19/2007	19.3	10/9/2007	21.6	10/18/2007	0	10/15/2007	0
5/6/2009	20.5	10/23/2007	19	10/9/2007	21.3	10/19/2007	0	10/16/2007	0
5/7/2009	20.4	10/24/2007	19.2	10/11/2007	20.3	10/23/2007	0	10/17/2007	0
5/8/2009	20.9	10/25/2007	19	10/11/2007	20.9	10/24/2007	0	10/18/2007	0
6/3/2009	20.7	10/26/2007	19.7	10/12/2007	19.7	10/25/2007	0	10/19/2007	0
6/8/2009	20.6	10/29/2007	19.4	10/15/2007	20	10/26/2007	0	10/23/2007	0
7/10/2009	20.2	10/30/2007	19.5	10/16/2007	20.6	10/29/2007	0	10/24/2007	0
8/25/2009	19	10/31/2007	19.3	10/17/2007	20.6	10/30/2007	0	10/25/2007	0
9/30/2009	20.7	11/8/2007	20.4	10/18/2007	20.3	10/31/2007	0	10/26/2007	0
11/3/2009	21.3	11/9/2007	19.6	10/19/2007	20.2	11/8/2007	0	10/29/2007	0
5/20/2010	19.3	11/12/2007	21.2	10/23/2007	19.6	11/9/2007	0	10/30/2007	0
5/23/2010	20.2	11/17/2007	19.8	10/24/2007	20.5	11/12/2007	0	10/31/2007	0
6/24/2010	20.9	11/19/2007	21.7	10/25/2007	20.4	11/17/2007	0	11/8/2007	0
8/4/2010	20.3	12/18/2007	22.6	10/26/2007	20.6	11/19/2007	0	11/9/2007	0
9/20/2010	20.8	4/2/2008	20.8	10/29/2007	20.3	12/18/2007	0	11/12/2007	0
10/18/2010	20.8	5/21/2008	17.2	10/30/2007	20.6	4/2/2008	0	11/17/2007	0
5/9/2011	20.6	5/22/2008	17.9	10/31/2007	20.5	5/21/2008	0	11/19/2007	0
6/22/2011	21.3	5/23/2008	13	11/8/2007	20.1	5/22/2008	15.7	12/18/2007	0
7/25/2011	21.2	5/24/2008	18.4	11/9/2007	21.1	5/23/2008	0	4/2/2008	0.7
8/24/2011	20.8	5/25/2008	18.4	11/12/2007	21.4	5/24/2008	0	5/21/2008	2.4
9/19/2011	20.3	5/26/2008	18.8	11/17/2007	19.9	5/25/2008	0	5/22/2008	0.9
10/24/2011	20.7	5/27/2008	18.9	11/19/2007	21.9	5/26/2008	19	5/23/2008	1
4/10/2012	0.1	5/28/2008	19.1	12/18/2007	23.2	5/27/2008	0	5/24/2008	0
5/9/2012	0.5	5/29/2008	19	4/2/2008	21	5/28/2008	0	5/25/2008	0

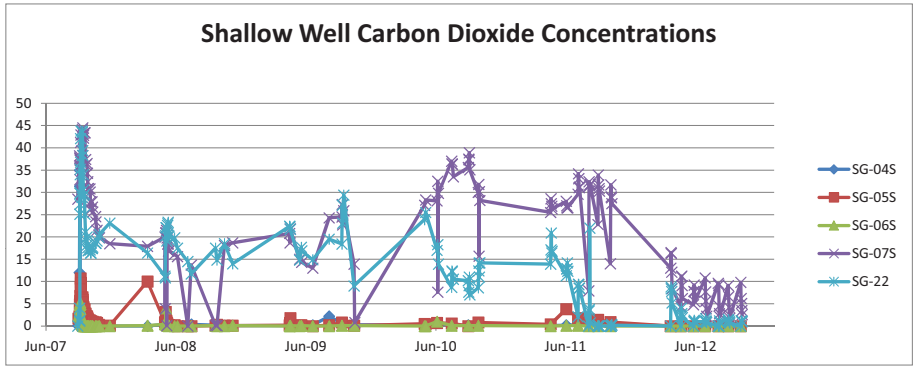


SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
6/13/2012	0.0	5/30/2008	19	5/21/2008	18.9	5/29/2008	0	5/26/2008	2
7/16/2012	0.1	5/31/2008	18.8	5/22/2008	18.7	5/30/2008	0	5/27/2008	0.5
8/22/2012	0.2	6/1/2008	18.7	5/23/2008	18.8	5/31/2008	0	5/28/2008	0
9/19/2012	0.1	6/17/2008	18.9	5/24/2008	19.2	6/1/2008	0	5/29/2008	0
10/24/2012	0.1	6/25/2008	18.8	5/25/2008	19.1	6/17/2008	0	5/30/2008	0
		7/24/2008	18.5	5/26/2008	19	6/25/2008	1.9	5/31/2008	0.3
		8/3/2008	18.5	5/27/2008	19.1	7/24/2008	18.7	6/1/2008	0.7
		10/10/2008	20.6	5/28/2008	19.1	8/3/2008	1.8	6/17/2008	1.2
		10/14/2008	20.6	5/29/2008	19.1	10/10/2008	20.8	6/25/2008	1.5
		11/4/2008	20	5/30/2008	18.9	10/14/2008	20.8	7/24/2008	0.6
		11/27/2008	21.5	5/31/2008	19	11/4/2008	0.9	8/3/2008	3.8
		5/6/2009	19.4	6/1/2008	18.7	11/27/2008	1	10/10/2008	6.5
		5/7/2009	19.6	6/17/2008	19	5/6/2009	0.2	10/14/2008	8.8
		5/8/2009	19	6/25/2008	18.8	5/7/2009	1.9	11/4/2008	0.9
		6/3/2009	20.5	7/24/2008	18.6	5/8/2009	0	11/27/2008	7.6
		6/8/2009	20.6	8/3/2008	18.6	6/3/2009	2.4	5/6/2009	1
		7/10/2009	20.3	10/10/2008	20.5	6/8/2009	5.6	5/7/2009	0.3
		8/25/2009	19.4	10/14/2008	20.9	6/9/2009	5.4	5/8/2009	3
		9/30/2009	19.4	11/4/2008	20.1	7/10/2009	5	6/3/2009	2.5
		11/3/2009	21.6	11/27/2008	21	8/25/2009	0.5	6/8/2009	1.5
		5/20/2010	17.6	5/6/2009	20.6	9/30/2009	0.5	6/9/2009	0.5
		5/23/2010	20.1	5/7/2009	20.8	10/1/2009	0.7	7/10/2009	3.3
		6/24/2010	20.5	5/8/2009	20.9	10/2/2009	0.1	8/25/2009	4.4
		8/4/2010	19.8	6/3/2009	20.6	10/5/2009	0.1	9/30/2009	2.6
		9/20/2010	20.9	6/8/2009	20.7	11/3/2009	2.8	10/1/2009	0.8
		10/18/2010	20.2	7/10/2009	20.4	11/5/2009	20.2	10/2/2009	0.8
		5/9/2011	19.8	8/25/2009	20.2	5/20/2010	1	10/5/2009	0.3
		6/22/2011	17.0	9/30/2009	20.8	5/23/2010	0.1	11/3/2009	9.1
		7/25/2011	19.4	11/3/2009	21.3	6/24/2010	0.8	5/20/2010	0.5
		8/24/2011	19.2	5/20/2010	20	6/26/2010	0.5	5/23/2010	0.8
		9/19/2011	19.4	5/23/2010	20.5	6/26/2010	13.8	6/24/2010	3
		10/24/2011	20.3	6/24/2010	21.1	6/28/2010	0.2	6/26/2010	0.5
		4/10/2012	0.3	8/4/2010	20.3	8/4/2010	0	6/28/2010	9.6
		5/9/2012	0.2	9/20/2010	20.8	8/5/2010	0.2	8/4/2010	10.8
		6/13/2012	0.1	10/18/2010	20.8	8/6/2010	0.2	8/5/2010	11.6
		7/16/2012	0.1	*5/9/2011*	20.9	8/9/2010	0.2	8/6/2010	11.4
		8/22/2012	0.0	*6/22/2011*	21.9	9/20/2010	0	8/9/2010	12.1
		9/19/2012	0.0	*7/25/2011*	21.2	9/21/2010	0	9/20/2010	13.6
		10/24/2012	0.0	*8/24/2011*	20.7	9/22/2010	0	9/21/2010	15.4
				9/19/2011	20.8	9/23/2010	0	9/22/2010	14.1
				10/24/2011	20.7	9/24/2010	0	9/23/2010	13.1
				4/10/2012	0.0	10/18/2010	0.5	9/24/2010	16
				5/9/2012	0.0	10/19/2010	0.6	10/18/2010	14
				6/13/2012	0.0	10/20/2010	7.5	10/19/2010	12.3
				7/16/2012	0.0	10/21/2010	0.7	10/20/2010	10.8
				8/22/2012	0.0	10/22/2010	0.7	10/21/2010	13
				9/19/2012	0.0	*5/9/2011*	1.6	10/22/2010	10.3
				10/24/2012	0.0	*6/22/2011*	2.2	*5/9/2011*	7.8
						6/23/2011	2.3	*5/10/2011*	6.1
						6/24/2011	2.0	*5/11/2011*	1.5

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	O2 (%)	Date	O2 (%)	Date	O2 (%)	Date	O2 (%)	Date	O2 (%)
						6/25/2011	2.1	5/12/2011	6.4
						6/26/2011	2.1	5/13/2011	5.2
						7/25/2011	0.1	6/22/2011	11.9
						8/24/2011	14.8	6/23/2011	11.4
						8/25/2011	0.1	6/24/2011	10.0
						8/26/2011	0.2	6/25/2011	8.7
						8/27/2011	0.3	6/26/2011	10.8
						8/28/2011	0.1	7/25/2011	18.1
						9/19/2011	6.2	7/26/2011	14.8
						9/20/2011	0.8	7/27/2011	13.6
						9/21/2011	0.7	7/28/2011	14.6
						9/22/2011	0.6	7/29/2011	14.9
						9/23/2011	0.6	8/24/2011	20.9
						10/24/2011	9.8	8/25/2011	18.7
						4/10/2012	21.7	8/26/2011	17.7
						4/11/2012	25.3	8/27/2011	3.2
						4/12/2012	25.5	8/28/2011	20.5
						4/13/2012	25.4	9/19/2011	20.6
						4/14/2012	25.2	9/20/2011	21.0
						5/9/2012	13.0	9/21/2011	20.8
						5/10/2012	26.9	9/22/2011	21.2
						5/11/2012	26.7	9/23/2011	21.2
						5/12/2012	27.1	10/24/2011	21.5
						5/13/2012	27.3	10/25/2011	21.5
						6/13/2012	15.9	10/26/2011	21.5
						6/14/2012	28.1	10/27/2011	22.0
						6/15/2012	26.9	10/28/2011	22.2
						6/16/2012	26.8	4/10/2012	5.0
						6/17/2012	27.1	4/11/2012	23.5
						7/16/2012	30.4	4/12/2012	22.8
						7/17/2012	29.7	4/13/2012	24.3
						7/18/2012	27.2	4/14/2012	22.1
						7/19/2012	26.0	5/9/2012	0.6
						7/20/2012	24.6	5/10/2012	21.5
						8/22/2012	26.1	5/11/2012	19.0
						8/23/2012	27.3	5/12/2012	21.7
						8/24/2012	25.8	5/13/2012	21.9
						8/25/2012	23.7	6/13/2012	0.1
						8/26/2012	23.5	6/14/2012	4.5
						9/19/2012	26.7	6/15/2012	8.4
						9/20/2012	27.0	6/16/2012	9.6
						9/21/2012	26.8	6/17/2012	8.9
						9/22/2012	24.1	7/16/2012	6.7
						9/23/2012	24.2	7/17/2012	7.2
						10/24/2012	26.8	7/18/2012	6.4
						10/25/2012	21.7	7/19/2012	5.5
						10/26/2012	22.5	7/20/2012	4.5
						10/27/2012	24.1	8/22/2012	0.2
						10/28/2012	23.4	8/23/2012	0.2
								8/24/2012	0.1

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
								8/25/2012	2.7
								8/26/2012	4.3
								9/19/2012	4.7
								9/20/2012	4.4
								9/21/2012	4.3
								9/22/2012	3.7
								9/23/2012	3.4
								10/24/2012	0.2
								10/25/2012	4.4
								10/26/2012	5.3
								10/27/2012	4.8
								10/28/2012	5.7

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
9/20/2007	0.1	9/21/2007	1.7	9/21/2007	2.3	9/19/2007	28.5	9/19/2007	0
9/24/2007	12	9/24/2007	2.2	9/24/2007	3	9/24/2007	38.2	9/24/2007	4
9/25/2007	35	9/25/2007	3.4	9/25/2007	4	9/25/2007	32.9	9/24/2007	1.1
9/25/2007	31.4	9/25/2007	4.9	9/25/2007	4.7	9/25/2007	37.8	9/25/2007	1.3
9/26/2007	0	9/26/2007	5.6	9/26/2007	4.9	9/25/2007	37.6	9/25/2007	27.3
4/2/2008	0	9/26/2007	5.7	9/26/2007	5.3	9/26/2007	37.2	9/25/2007	25.1
5/21/2008	0.4	9/26/2007	6.8	9/26/2007	4.9	9/26/2007	36	9/25/2007	29.8
5/22/2008	0.7	9/27/2007	10.7	9/26/2007	3.8	9/26/2007	37.5	9/26/2007	29.9
5/23/2008	1.0	9/27/2007	8.8	9/27/2007	2.4	9/27/2007	37.2	9/26/2007	34
5/24/2008	0.7	9/28/2007	9.7	9/27/2007	1.7	9/27/2007	41.2	9/26/2007	35.2
5/25/2008	0.4	9/28/2007	8.3	9/27/2007	1.2	9/28/2007	42.9	9/27/2007	36.8
5/26/2008	0.2	10/2/2007	6.5	9/28/2007	0.6	10/1/2007	39.4	9/27/2007	42.1
5/27/2008	0.1	10/2/2007	6.3	10/1/2007	0.6	10/2/2007	44.1	9/28/2007	43.8
5/28/2008	0.2	10/3/2007	5.9	10/2/2007	0.7	10/3/2007	44.5	10/1/2007	28.9
5/29/2008	0.2	10/3/2007	5.4	10/2/2007	0.5	10/3/2007	38.3	10/2/2007	43.7
5/30/2008	0.2	10/5/2007	4.3	10/2/2007	0.4	10/4/2007	43.2	10/2/2007	43.5
5/31/2008	0.1	10/5/2007	4.1	10/2/2007	0.3	10/5/2007	42.8	10/3/2007	39.4
6/1/2008	0.2	10/8/2007	3.8	10/2/2007	0.3	10/5/2007	42.2	10/3/2007	38.3
6/17/2008	0.1	10/9/2007	2.8	10/3/2007	0.2	10/8/2007	43.4	10/4/2007	34
6/25/2008	0	10/11/2007	2.8	10/3/2007	0.1	10/9/2007	43.4	10/5/2007	30.6
7/24/2008	0.3	10/12/2007	2.3	10/4/2007	0.1	10/11/2007	37.4	10/5/2007	29.3
8/3/2008	0.4	10/15/2007	2.2	10/5/2007	0.1	10/12/2007	36.2	10/8/2007	29.6
10/10/2008	0.2	10/16/2007	1.8	10/5/2007	0	10/15/2007	36.5	10/9/2007	25.1
10/14/2008	0.4	10/17/2007	1.7	10/5/2007	0	10/16/2007	34.3	10/11/2007	21.1
11/4/2008	0.1	10/18/2007	0.1	10/8/2007	0.1	10/17/2007	32.4	10/12/2007	19.1
11/27/2008	0.1	10/19/2007	1.4	10/9/2007	0	10/18/2007	30.9	10/15/2007	20
5/6/2009	0.1	10/23/2007	1.3	10/9/2007	0	10/19/2007	30.9	10/16/2007	18.2
5/7/2009	0.2	10/24/2007	1	10/11/2007	0	10/23/2007	30.8	10/17/2007	17.6
5/8/2009	0.1	10/25/2007	1.1	10/11/2007	0.1	10/24/2007	30.1	10/18/2007	16.9
6/3/2009	0.1	10/26/2007	1.1	10/12/2007	0	10/25/2007	27.9	10/19/2007	17
6/8/2009	0.1	10/29/2007	0.9	10/15/2007	0	10/26/2007	26.2	10/23/2007	17.6
7/10/2009	0.2	10/30/2007	0.8	10/16/2007	0	10/29/2007	27.9	10/24/2007	17.1
8/25/2009	2.2	10/31/2007	1	10/17/2007	0	10/30/2007	26.7	10/25/2007	16.4
9/30/2009	0.6	11/8/2007	0.8	10/18/2007	0	10/31/2007	25.6	10/26/2007	16.4
11/3/2009	0.3	11/9/2007	0.8	10/19/2007	0	11/8/2007	24.6	10/29/2007	17.4
5/20/2010	0.2	11/12/2007	0.7	10/23/2007	0	11/9/2007	23.4	10/30/2007	17.4
5/23/2010	0.1	11/17/2007	0.3	10/24/2007	0	11/12/2007	21.5	10/31/2007	17.7
6/24/2010	0.8	11/19/2007	0.1	10/25/2007	0	11/17/2007	20.4	11/8/2007	18.6
8/4/2010	0.2	12/18/2007	0.1	10/26/2007	0	11/19/2007	19.8	11/9/2007	18.6
9/20/2010	0.2	4/2/2008	10	10/29/2007	0	12/18/2007	18.5	11/12/2007	19.1
10/18/2010	0.6	5/21/2008	0.8	10/30/2007	0	4/2/2008	17.9	11/17/2007	20.0
5/9/2011	0.1	5/22/2008	1	10/31/2007	0	5/21/2008	20	11/19/2007	20.6
6/22/2011	0.2	5/23/2008	3.2	11/8/2007	0	5/22/2008	3.9	12/18/2007	23.1
7/25/2011	0.3	5/24/2008	1.3	11/9/2007	0	5/23/2008	20.9	4/2/2008	16.4
8/24/2011	0.5	5/25/2008	1.2	11/12/2007	0	5/24/2008	21	5/21/2008	11.2
9/19/2011	0.8	5/26/2008	0.8	11/17/2007	0	5/25/2008	21.5	5/22/2008	10.8
10/24/2011	0.6	5/27/2008	0.6	11/19/2007	0	5/26/2008	0.1	5/23/2008	20.3
4/10/2012	0.0	5/28/2008	0.3	12/18/2007	0	5/27/2008	19.8	5/24/2008	22.1

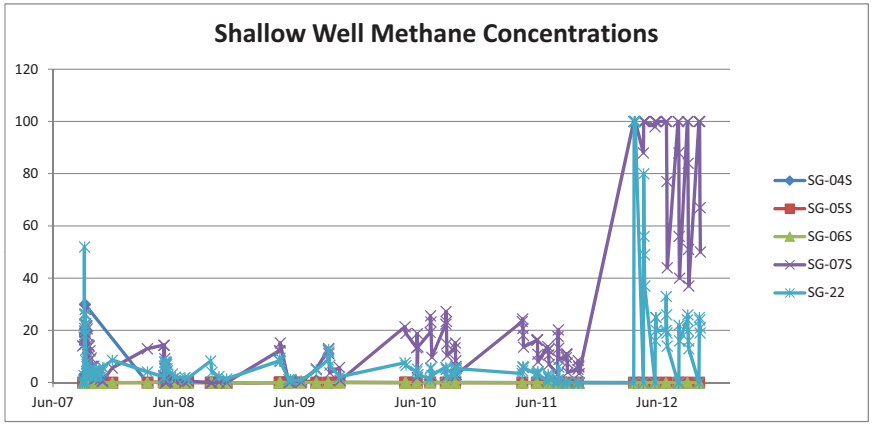


SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
5/9/2012	0.0	5/29/2008	0.2	4/2/2008	0.1	5/28/2008	19.3	5/25/2008	22.1
6/13/2012	0.0	5/30/2008	0.2	5/21/2008	0.4	5/29/2008	18.4	5/26/2008	19.1
7/16/2012	0.0	5/31/2008	0.2	5/22/2008	0.8	5/30/2008	18.5	5/27/2008	20.5
8/22/2012	0.0	6/1/2008	0.1	5/23/2008	0.6	5/31/2008	16.8	5/28/2008	22.6
9/19/2012	0.0	6/17/2008	0.2	5/24/2008	4	6/1/2008	16.9	5/29/2008	23
10/24/2012	0.0	6/25/2008	0	5/25/2008	0.2	6/17/2008	16.1	5/30/2008	23.3
		7/24/2008	0	5/26/2008	0.2	6/25/2008	15.6	5/31/2008	20.3
		8/3/2008	0	5/27/2008	0.2	7/24/2008	0	6/1/2008	20.1
		10/10/2008	0.1	5/28/2008	0.1	8/3/2008	13.7	6/17/2008	19.8
		10/14/2008	0.3	5/29/2008	0.1	10/10/2008	0.2	6/25/2008	17.5
		11/4/2008	0.1	5/30/2008	0.1	10/14/2008	0.1	7/24/2008	14.5
		11/27/2008	0.1	5/31/2008	0	11/4/2008	18.1	8/3/2008	11.7
		5/6/2009	0.2	6/1/2008	0.1	11/27/2008	18.7	10/10/2008	17.5
		5/7/2009	0.7	6/17/2008	0	5/6/2009	20.8	10/14/2008	14.8
		5/8/2009	1.8	6/25/2008	0	5/7/2009	18.7	11/4/2008	18.5
		6/3/2009	0.1	7/24/2008	0	5/8/2009	21.8	11/27/2008	14
		6/8/2009	0.2	8/3/2008	0	6/3/2009	15	5/6/2009	22.4
		7/10/2009	0	10/10/2008	0.1	6/8/2009	15.2	5/7/2009	22.3
		8/25/2009	0.2	10/14/2008	0	6/9/2009	14.3	5/8/2009	21.7
		9/30/2009	0.8	11/4/2008	0	7/10/2009	13	6/3/2009	14.8
		11/3/2009	0.1	11/27/2008	0.1	8/25/2009	24.3	6/8/2009	17.7
		5/20/2010	0.5	5/6/2009	0	9/30/2009	24.5	6/9/2009	16.9
		5/23/2010	0.4	5/7/2009	0	10/1/2009	27.3	7/10/2009	14.9
		6/24/2010	0.7	5/8/2009	0.1	10/2/2009	22.7	8/25/2009	19.5
		8/4/2010	0.6	6/3/2009	0	10/5/2009	25.9	9/30/2009	18.4
		9/20/2010	0	6/8/2009	0.1	11/3/2009	13.9	10/1/2009	27.1
		10/18/2010	0.8	7/10/2009	0	11/5/2009	0.8	10/2/2009	23.1
		5/9/2011	0.4	8/25/2009	0	5/20/2010	27.1	10/5/2009	29.4
		6/22/2011	3.8	9/30/2009	0.1	5/23/2010	28.3	11/3/2009	9
		7/25/2011	1.8	11/3/2009	0.1	6/24/2010	28.1	5/20/2010	23.9
		8/24/2011	1.5	5/20/2010	0	6/26/2010	32.5	5/23/2010	25.5
		9/19/2011	1.4	5/23/2010	0	6/26/2010	7.6	6/24/2010	17
		10/24/2011	0.9	6/24/2010	1	6/28/2010	29.8	6/26/2010	18.3
		4/10/2012	0.0	8/4/2010	0.1	8/4/2010	37	6/28/2010	13.9
		5/9/2012	0.0	9/20/2010	0.1	8/5/2010	36.4	8/4/2010	8.7
		6/13/2012	0.0	10/18/2010	0.1	8/6/2010	36.3	8/5/2010	12.4
		7/16/2012	0.0	*5/9/2011*	0.0	8/9/2010	33.5	8/6/2010	12.2
		8/22/2012	0.0	*6/22/2011*	0.1	9/20/2010	35.6	8/9/2010	10.5
		9/19/2012	0.0	*7/25/2011*	0.1	9/21/2010	37.5	9/20/2010	10.2
		10/24/2012	0.0	*8/24/2011*	0.0	9/22/2010	37.3	9/21/2010	7.6
				9/19/2011	0.0	9/23/2010	38.9	9/22/2010	9.1
				10/24/2011	0.0	9/24/2010	35.1	9/23/2010	11
				4/10/2012	0.0	10/18/2010	30	9/24/2010	7
				5/9/2012	0.0	10/19/2010	31.8	10/18/2010	8.6
				6/13/2012	0.0	10/20/2010	15.7	10/19/2010	12.4
				7/16/2012	0.0	10/21/2010	30.2	10/20/2010	14.1
				8/22/2012	0.0	10/22/2010	28.2	10/21/2010	11
				9/19/2012	0.0	*5/9/2011*	25.5	10/22/2010	14.2
				10/24/2012	0.0	*5/10/2011*	28.6	*5/9/2011*	13.9

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	CO2 (%)	Date	CO2 (%)	Date	CO2 (%)	Date	CO2 (%)	Date	CO2 (%)
						5/11/2011	27.5	5/10/2011	17.1
						5/12/2011	26.9	5/11/2011	20.9
						5/13/2011	26.3	5/12/2011	16.4
						6/22/2011	28.0	5/13/2011	16.8
						6/23/2011	27.0	6/22/2011	11.3
						6/24/2011	26.6	6/23/2011	12.8
						6/25/2011	26.6	6/24/2011	12.9
						6/26/2011	26.6	6/25/2011	14.2
						7/25/2011	29.6	6/26/2011	12.3
						7/26/2011	34.2	7/25/2011	2.1
						7/27/2011	33.1	7/26/2011	9.4
						7/28/2011	31.1	7/27/2011	9.3
						7/29/2011	31.2	7/28/2011	8.5
						8/24/2011	7.9	7/29/2011	8.5
						8/25/2011	32.4	8/24/2011	0.0
						8/26/2011	31.5	8/25/2011	3.4
						8/27/2011	31.7	8/26/2011	3.8
						8/28/2011	31.8	8/27/2011	22.0
						9/19/2011	22.8	8/28/2011	0.7
						9/20/2011	33.9	9/19/2011	0.1
						9/21/2011	31.7	9/20/2011	0.0
						9/22/2011	30.9	9/21/2011	0.0
						9/23/2011	30.3	9/22/2011	0.0
						10/24/2011	14.0	9/23/2011	0.0
						10/25/2011	31.7	10/24/2011	0.0
						10/26/2011	29.0	10/25/2011	0.0
						10/27/2011	28.8	10/26/2011	0.0
						10/28/2011	27.5	10/27/2011	0.4
						4/10/2012	13.0	10/28/2011	0.2
						4/11/2012	16.5	4/10/2012	0.0
						4/12/2012	16.3	4/11/2012	8.8
						4/13/2012	12.1	4/12/2012	8.4
						4/14/2012	8.4	4/13/2012	7.8
						5/9/2012	4.4	4/14/2012	5.2
						5/10/2012	11.1	5/9/2012	0.0
						5/11/2012	11.2	5/10/2012	4.0
						5/12/2012	9.1	5/11/2012	2.8
						5/13/2012	6.2	5/12/2012	2.4
						6/13/2012	4.8	5/13/2012	1.9
						6/14/2012	7.8	6/13/2012	0.0
						6/15/2012	9.2	6/14/2012	1.0
						6/16/2012	7.7	6/15/2012	1.3
						6/17/2012	5.5	6/16/2012	1.2
						7/16/2012	10.8	6/17/2012	1.0
						7/17/2012	7.7	7/16/2012	1.0
						7/18/2012	5.6	7/17/2012	1.7
						7/19/2012	3.9	7/18/2012	1.2
						7/20/2012	2.2	7/19/2012	1.0
						8/22/2012	9.6	7/20/2012	0.8

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
						8/23/2012	9.2	*8/22/2012*	0.0
						8/24/2012	4.5	*8/23/2012*	0.0
						8/25/2012	2.8	*8/24/2012*	0.0
						8/26/2012	2.1	*8/25/2012*	1.2
						9/19/2012	9.1	*8/26/2012*	0.8
						9/20/2012	6.6	*9/19/2012*	1.5
						9/21/2012	4.2	*9/20/2012*	1.3
						9/22/2012	2.5	*9/21/2012*	1.0
						9/23/2012	1.8	*9/22/2012*	0.9
						10/24/2012	9.8	*9/23/2012*	0.7
						10/25/2012	6.2	*10/24/2012*	0.0
						10/26/2012	5.1	*10/25/2012*	1.2
						10/27/2012	3.5	*10/26/2012*	1.2
						10/28/2012	2.6	*10/27/2012*	1.0
								10/28/2012	1.0

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
9/20/2007	0.1	9/21/2007	0	9/21/2007	0	9/19/2007	14.1	9/19/2007	0
9/24/2007	3	9/24/2007	0	9/24/2007	0	9/24/2007	17.4	9/24/2007	2.7
9/25/2007	20.5	9/25/2007	0	9/25/2007	0	9/25/2007	14.6	9/24/2007	0.8
9/25/2007	17.9	9/25/2007	0	9/25/2007	0	9/25/2007	16.4	9/25/2007	0
9/26/2007	30	9/26/2007	0	9/26/2007	0	9/25/2007	16.5	9/25/2007	18.3
4/2/2008	0	9/26/2007	0	9/26/2007	0	9/26/2007	16.7	9/25/2007	51.9
5/21/2008	0.2	9/26/2007	0	9/26/2007	0	9/26/2007	16.8	9/25/2007	20.8
5/22/2008	0.5	9/27/2007	0	9/26/2007	0	9/26/2007	19.4	9/26/2007	19.9
5/23/2008	0.1	9/27/2007	0	9/27/2007	0	9/27/2007	28	9/26/2007	25.9
5/24/2008	0	9/28/2007	0	9/27/2007	0	9/27/2007	26.1	9/26/2007	26.4
5/25/2008	0	9/28/2007	0	9/27/2007	0	9/28/2007	22.5	9/27/2007	26.1
5/26/2008	0	10/2/2007	0	9/28/2007	0	10/1/2007	21.3	9/27/2007	22
5/27/2008	0	10/2/2007	0	10/1/2007	0	10/2/2007	21.9	9/28/2007	12.4
5/28/2008	0	10/3/2007	0	10/2/2007	0	10/3/2007	20.6	10/1/2007	8.1
5/29/2008	0	10/3/2007	0	10/2/2007	0	10/3/2007	3.4	10/2/2007	7
5/30/2008	0	10/5/2007	0	10/2/2007	0	10/4/2007	18	10/2/2007	6.1
5/31/2008	0	10/5/2007	0	10/2/2007	0	10/5/2007	14.6	10/3/2007	4
6/1/2008	0	10/8/2007	0	10/2/2007	0	10/5/2007	13.4	10/3/2007	3.4
6/17/2008	0	10/9/2007	0	10/3/2007	0	10/8/2007	14	10/4/2007	2.7
6/25/2008	0	10/11/2007	0	10/3/2007	0	10/9/2007	14	10/5/2007	2.7
7/24/2008	0.1	10/12/2007	0	10/4/2007	0	10/11/2007	12.2	10/5/2007	2.6
8/3/2008	0.1	10/15/2007	0	10/5/2007	0	10/12/2007	8.8	10/8/2007	4.9
10/10/2008	0	10/16/2007	0	10/5/2007	0	10/15/2007	9.4	10/9/2007	3.9
10/14/2008	0	10/17/2007	0	10/5/2007	0	10/16/2007	6.3	10/11/2007	3.5
11/4/2008	0	10/18/2007	0	10/8/2007	0	10/17/2007	5.4	10/12/2007	3.3
11/27/2008	0	10/19/2007	0	10/9/2007	0	10/18/2007	5.9	10/15/2007	5.2
5/6/2009	0	10/23/2007	0	10/9/2007	0	10/19/2007	6.2	10/16/2007	4
5/7/2009	0	10/24/2007	0	10/11/2007	0	10/23/2007	6.3	10/17/2007	3
5/8/2009	0.1	10/25/2007	0	10/11/2007	0	10/24/2007	3.9	10/18/2007	2.5
6/3/2009	0.1	10/26/2007	0	10/12/2007	0	10/25/2007	2.1	10/19/2007	2.6
6/8/2009	0.1	10/29/2007	0	10/15/2007	0	10/26/2007	1.5	10/23/2007	4.5
7/10/2009	0.1	10/30/2007	0	10/16/2007	0	10/29/2007	2.6	10/24/2007	3.7
8/25/2009	0.9	10/31/2007	0	10/17/2007	0	10/30/2007	1.8	10/25/2007	2.6
9/30/2009	0.1	11/8/2007	0	10/18/2007	0	10/31/2007	1.6	10/26/2007	2.1
11/3/2009	0.1	11/9/2007	0	10/19/2007	0	11/8/2007	2.9	10/29/2007	4
5/20/2010	0	11/12/2007	0	10/23/2007	0	11/9/2007	3.6	10/30/2007	2.9
5/23/2010	0	11/17/2007	0	10/24/2007	0	11/12/2007	1.3	10/31/2007	2.7
6/24/2010	0	11/19/2007	0	10/25/2007	0	11/17/2007	0.5	11/8/2007	5.5
8/4/2010	0.1	12/18/2007	0	10/26/2007	0	11/19/2007	0.5	11/9/2007	4.2
9/20/2010	0	4/2/2008	0	10/29/2007	0	12/18/2007	5.6	11/12/2007	2.2
10/18/2010	0.1	5/21/2008	0.2	10/30/2007	0	4/2/2008	13	11/17/2007	4.3
5/9/2011	0.0	5/22/2008	0.5	10/31/2007	0	5/21/2008	14.3	11/19/2007	5.8
6/22/2011	0.0	5/23/2008	0.2	11/8/2007	0	5/22/2008	2.7	12/18/2007	8.6
7/25/2011	0.0	5/24/2008	0	11/9/2007	0	5/23/2008	14.3	4/2/2008	4.1
8/24/2011	0.1	5/25/2008	0	11/12/2007	0	5/24/2008	9.2	5/21/2008	2.2
9/19/2011	0.2	5/26/2008	0	11/17/2007	0	5/25/2008	5.3	5/22/2008	1.8
10/24/2011	0.1	5/27/2008	0	11/19/2007	0	5/26/2008	0	5/23/2008	6.3
4/10/2012	0.0	5/28/2008	0	12/18/2007	0	5/27/2008	1.8	5/24/2008	7.8

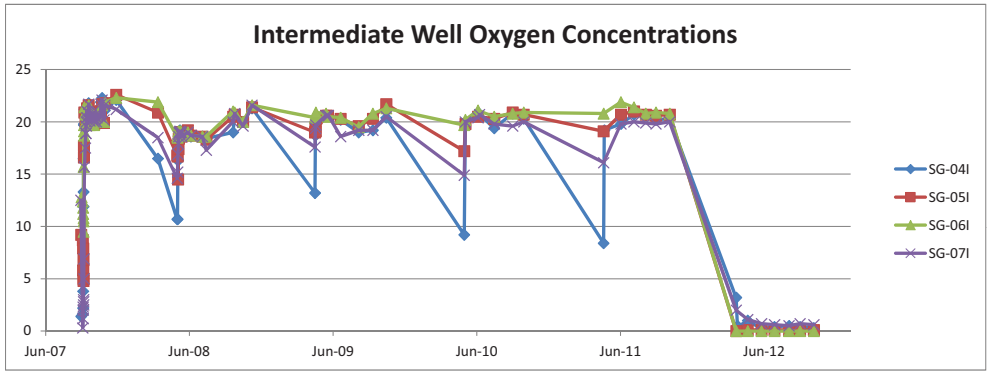


SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
5/9/2012	0.0	5/29/2008	0	4/2/2008	0	5/28/2008	1	5/25/2008	7.9
6/13/2012	0.0	5/30/2008	0	5/21/2008	0.2	5/29/2008	0.6	5/26/2008	6.5
7/16/2012	0.0	5/31/2008	0	5/22/2008	0.4	5/30/2008	0.4	5/27/2008	7.1
8/22/2012	0.0	6/1/2008	0	5/23/2008	0.2	5/31/2008	0.3	5/28/2008	7.9
9/19/2012	0.0	6/17/2008	0	5/24/2008	0	6/1/2008	0.4	5/29/2008	7.6
10/24/2012	0.0	6/25/2008	0	5/25/2008	0	6/17/2008	1.3	5/30/2008	6.9
		7/24/2008	0.1	5/26/2008	0	6/25/2008	0.8	5/31/2008	5.3
		8/3/2008	0.1	5/27/2008	0	7/24/2008	0.1	6/1/2008	4.6
		10/10/2008	0	5/28/2008	0	8/3/2008	0.5	6/17/2008	3.3
		10/14/2008	0	5/29/2008	0	10/10/2008	0	6/25/2008	2.1
		11/4/2008	0	5/30/2008	0	10/14/2008	0	7/24/2008	2
		11/27/2008	0	5/31/2008	0	11/4/2008	0.1	8/3/2008	1.7
		5/6/2009	0	6/1/2008	0	11/27/2008	0	10/10/2008	8.3
		5/7/2009	0	6/17/2008	0	5/6/2009	12.3	10/14/2008	4
		5/8/2009	0.1	6/25/2008	0	5/7/2009	12	11/4/2008	2.4
		6/3/2009	0.1	7/24/2008	0.1	5/8/2009	15.2	11/27/2008	1.4
		6/8/2009	0.2	8/3/2008	0	6/3/2009	0.1	5/6/2009	8.3
		7/10/2009	0.1	10/10/2008	0	6/8/2009	0.2	5/7/2009	9.4
		8/25/2009	0	10/14/2008	0	6/9/2009	1	5/8/2009	8.1
		9/30/2009	0	11/4/2008	0	7/10/2009	0.1	6/3/2009	1.2
		11/3/2009	0.1	11/27/2008	0	8/25/2009	5.3	6/8/2009	1.1
		5/20/2010	0	5/6/2009	0	9/30/2009	12.5	6/9/2009	1
		5/23/2010	0	5/7/2009	0	10/1/2009	13.1	7/10/2009	0.8
		6/24/2010	0	5/8/2009	0.1	10/2/2009	11.1	8/25/2009	4.9
		8/4/2010	0.1	6/3/2009	0.1	10/5/2009	3.7	9/30/2009	8.7
		9/20/2010	0	6/8/2009	0.2	11/3/2009	5.8	10/1/2009	12.8
		10/18/2010	0	7/10/2009	0.1	11/5/2009	0.8	10/2/2009	11.7
		5/9/2011	0.0	8/25/2009	0	5/20/2010	21.4	10/5/2009	6.7
		6/22/2011	0.0	9/30/2009	0	5/23/2010	18.8	11/3/2009	2.2
		7/25/2011	0.0	11/3/2009	0.1	6/24/2010	13.4	5/20/2010	7.6
		8/24/2011	0.0	5/20/2010	0	6/26/2010	18.8	5/23/2010	6.6
		9/19/2011	0.0	5/23/2010	0	6/26/2010	2	6/24/2010	4.1
		10/24/2011	0.0	6/24/2010	0	6/28/2010	13.7	6/26/2010	5.2
		4/10/2012	0.0	8/4/2010	0.1	8/4/2010	19.2	6/28/2010	3.1
		5/9/2012	0.0	9/20/2010	0	8/5/2010	25.6	8/4/2010	1.3
		6/13/2012	0.0	10/18/2010	0	8/6/2010	23.2	8/5/2010	5.4
		7/16/2012	0.0	*5/9/2011*	0.0	8/9/2010	9.7	8/6/2010	5.7
		8/22/2012	0.0	*6/22/2011*	0.0	9/20/2010	22.4	8/9/2010	2.8
		9/19/2012	0.0	*7/25/2011*	0.0	9/21/2010	27.3	9/20/2010	5.9
		10/24/2012	0.0	*8/24/2011*	0.0	9/22/2010	23.4	9/21/2010	3.4
				9/19/2011	0.0	9/23/2010	14.8	9/22/2010	5.1
				10/24/2011	0.0	9/24/2010	10.3	9/23/2010	5.4
				4/10/2012	0.0	10/18/2010	13.3	9/24/2010	2.1
				5/9/2012	0.0	10/19/2010	15.2	10/18/2010	2.9
				6/13/2012	0.0	10/20/2010	8.4	10/19/2010	5
				7/16/2012	0.0	10/21/2010	6.3	10/20/2010	5.7
				8/22/2012	0.0	10/22/2010	3.1	10/21/2010	4.1
				9/19/2012	0.0	*5/9/2011*	23.4	10/22/2010	5.4
				10/24/2012	0.0	*5/10/2011*	24.4	***5/9/2011***	**3.5**

SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
						5/11/2011	20.7	*5/10/2011*	4.5
						5/12/2011	18.1	*5/11/2011*	6.2
						5/13/2011	13.6	*5/12/2011*	5.8
						6/22/2011	16.2	*5/13/2011*	5.8
						6/23/2011	16.4	*6/22/2011*	3.1
						6/24/2011	16.5	*6/23/2011*	3.6
						6/25/2011	10.9	*6/24/2011*	3.6
						6/26/2011	8.0	*6/25/2011*	4.2
						7/25/2011	13.8	*6/26/2011*	3.3
						7/26/2011	12.6	*7/25/2011*	0.2
						7/27/2011	12.6	*7/26/2011*	3.2
						7/28/2011	10.6	*7/27/2011*	2.5
						7/29/2011	7.0	*7/28/2011*	1.9
						8/24/2011	3.3	*7/29/2011*	1.4
						8/25/2011	17.7	*8/24/2011*	0.0
						8/26/2011	20.2	*8/25/2011*	1.1
						8/27/2011	13.2	*8/26/2011*	1.0
						8/28/2011	8.9	*8/27/2011*	6.0
						9/19/2011	9.6	*8/28/2011*	0.2
						9/20/2011	11.1	*9/19/2011*	0.0
						9/21/2011	10.8	*9/20/2011*	0.0
						9/22/2011	7.6	*9/21/2011*	0.0
						9/23/2011	3.9	*9/22/2011*	0.0
						10/24/2011	5.1	*9/23/2011*	0.0
						10/25/2011	8.5	*10/24/2011*	0.0
						10/26/2011	6.5	*10/25/2011*	0.0
						10/27/2011	6.0	*10/26/2011*	0.0
						10/28/2011	3.5	*10/27/2011*	0.0
						4/10/2012	100.0	*10/28/2011*	0.0
						4/11/2012	100.0	*4/10/2012*	0.0
						4/12/2012	100.0	*4/11/2012*	100.0
						4/13/2012	100.0	*4/12/2012*	100.0
						4/14/2012	100.0	*4/13/2012*	100.0
						5/9/2012	88.0	*4/14/2012*	100.0
						5/10/2012	100.0	*5/9/2012*	0.0
						5/11/2012	100.0	*5/10/2012*	80.0
						5/12/2012	100.0	*5/11/2012*	56.0
						5/13/2012	100.0	*5/12/2012*	49.0
						6/13/2012	98.0	*5/13/2012*	37.0
						6/14/2012	100.0	*6/13/2012*	0.0
						6/15/2012	100.0	*6/14/2012*	16.0
						6/16/2012	100.0	*6/15/2012*	25.0
						6/17/2012	100.0	*6/16/2012*	25.0
						7/16/2012	100.0	*6/17/2012*	20.0
						7/17/2012	100.0	*7/16/2012*	20.0
						7/18/2012	100.0	*7/17/2012*	33.0
						7/19/2012	77.0	*7/18/2012*	26.0
						7/20/2012	44.0	*7/19/2012*	19.0
						8/22/2012	100.0	*7/20/2012*	14.0

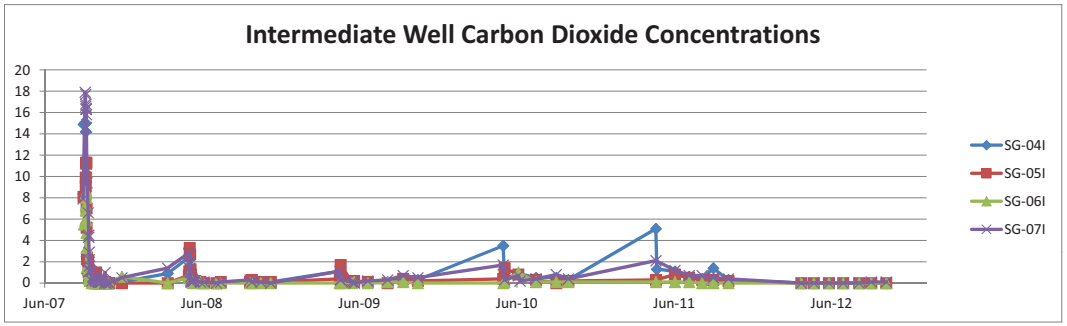
SG-04S		SG-05S		SG-06S		SG-07S		SG-22	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
						8/23/2012	100.0	*8/22/2012*	0.0
						8/24/2012	88.0	*8/23/2012*	0.0
						8/25/2012	56.0	*8/24/2012*	0.0
						8/26/2012	40.0	*8/25/2012*	22.0
						9/19/2012	100.0	*8/26/2012*	16.0
						9/20/2012	100.0	*9/19/2012*	24.0
						9/21/2012	84.0	*9/20/2012*	26.0
						9/22/2012	51.0	*9/21/2012*	20.0
						9/23/2012	37.0	*9/22/2012*	16.0
						10/24/2012	100.0	*9/23/2012*	13.0
						10/25/2012	100.0	*10/24/2012*	0.0
						10/26/2012	100.0	*10/25/2012*	25.0
						10/27/2012	67.0	*10/26/2012*	24.0
						10/28/2012	50.0	*10/27/2012*	19.0
								10/28/2012	21.0

SG-04I		SG-05I		SG-06I		SG-07I	
SG-04I		SG-05I		SG-06I		SG-07I	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
9/20/2007	1.4	9/20/2007	9.2	9/21/2007	12.8	9/19/2007	12.5
9/24/2007	1.6	9/24/2007	8.7	9/24/2007	12.4	9/24/2007	0.3
9/25/2007	2.2	9/25/2007	7.9	9/25/2007	11.8	9/25/2007	1.2
9/25/2007	3.8	9/25/2007	5.8	9/25/2007	11.2	9/25/2007	2
9/26/2007	11.9	9/26/2007	4.8	9/26/2007	10.5	9/25/2007	2.3
9/26/2007	13.3	9/26/2007	5	9/26/2007	9.5	9/26/2007	2.5
9/26/2007	16.5	9/26/2007	6.8	9/26/2007	10.8	9/26/2007	2.8
9/27/2007	19.7	9/27/2007	16.6	9/26/2007	15.7	9/26/2007	3
9/27/2007	19.8	9/27/2007	17.7	9/27/2007	18.7	9/27/2007	5
9/28/2007	21.2	9/28/2007	20.9	9/27/2007	19.1	9/27/2007	6.9
10/1/2007	20.5	10/1/2007	19.9	9/27/2007	19.7	9/28/2007	15.7
10/2/2007	20.7	10/2/2007	20.5	9/28/2007	21.4	10/1/2007	17.5
10/3/2007	20.4	10/2/2007	20.8	10/1/2007	20.9	10/2/2007	18.9
10/3/2007	20.3	10/3/2007	20.2	10/2/2007	20.7	10/2/2007	18.9
10/4/2007	20.8	10/3/2007	19.8	10/3/2007	20.4	10/3/2007	19.6
10/5/2007	21.2	10/5/2007	21.3	10/3/2007	19.9	10/3/2007	20
10/5/2007	20.6	10/5/2007	19.7	10/4/2007	20.9	10/4/2007	20.4
10/8/2007	21.1	10/8/2007	21.3	10/5/2007	21.1	10/5/2007	21
10/9/2007	21.8	10/9/2007	21.6	10/5/2007	20.8	10/5/2007	20.4
10/11/2007	20.5	10/11/2007	20.7	10/8/2007	20.8	10/8/2007	20.9
10/12/2007	20	10/12/2007	20.1	10/9/2007	21.6	10/9/2007	21.7
10/15/2007	20.4	10/15/2007	20.5	10/11/2007	20.3	10/11/2007	20.8
10/16/2007	20.6	10/16/2007	20.5	10/12/2007	19.7	10/12/2007	20.1
10/17/2007	20.6	10/17/2007	20.6	10/15/2007	19.9	10/15/2007	20.7
10/18/2007	20.4	10/18/2007	20.3	10/16/2007	20.5	10/16/2007	20.6
10/19/2007	20.4	10/19/2007	20.2	10/17/2007	20.7	10/17/2007	20.5
10/23/2007	19.9	10/23/2007	19.8	10/18/2007	20.3	10/18/2007	20.3
10/24/2007	20.5	10/24/2007	20.2	10/19/2007	20	10/19/2007	20.3
10/25/2007	20.5	10/25/2007	20.3	10/23/2007	19.7	10/23/2007	20
10/26/2007	21	10/26/2007	20.7	10/24/2007	20.3	10/24/2007	20.6
10/29/2007	20.3	10/29/2007	20	10/25/2007	20.3	10/25/2007	20.3
10/30/2007	20.6	10/30/2007	20.3	10/26/2007	20.5	10/26/2007	20.5
10/31/2007	20.9	10/31/2007	20.3	10/29/2007	20.3	10/29/2007	20
11/8/2007	21.2	11/8/2007	21	10/30/2007	20.7	10/30/2007	20.4
11/9/2007	21.9	11/9/2007	21	10/31/2007	20.4	10/31/2007	20.6
11/12/2007	22.3	11/12/2007	21.7	11/8/2007	20.2	11/8/2007	20.5
11/17/2007	20.1	11/17/2007	19.9	11/9/2007	20.1	11/9/2007	21.7
11/19/2007	21.1	11/19/2007	21.8	11/12/2007	21.6	11/12/2007	22.1
12/18/2007	22.1	12/18/2007	22.6	11/17/2007	20.0	11/17/2007	20.2
4/2/2008	16.5	4/2/2008	20.9	11/19/2007	21.9	11/19/2007	21.6
5/21/2008	10.7	5/21/2008	16.8	12/18/2007	22.3	12/18/2007	21.2
5/22/2008	10.7	5/22/2008	16.7	4/2/2008	21.9	4/2/2008	18.5
5/23/2008	16.3	5/23/2008	14.5	5/21/2008	18.6	5/21/2008	14.6
5/24/2008	18.4	5/24/2008	17.4	5/22/2008	18.5	5/22/2008	15.2
5/25/2008	18.7	5/25/2008	18.4	5/23/2008	18.7	5/23/2008	16.9
5/26/2008	18.8	5/26/2008	18.8	5/24/2008	19.1	5/24/2008	17.9
5/27/2008	18.9	5/27/2008	18.9	5/25/2008	19	5/25/2008	18.6



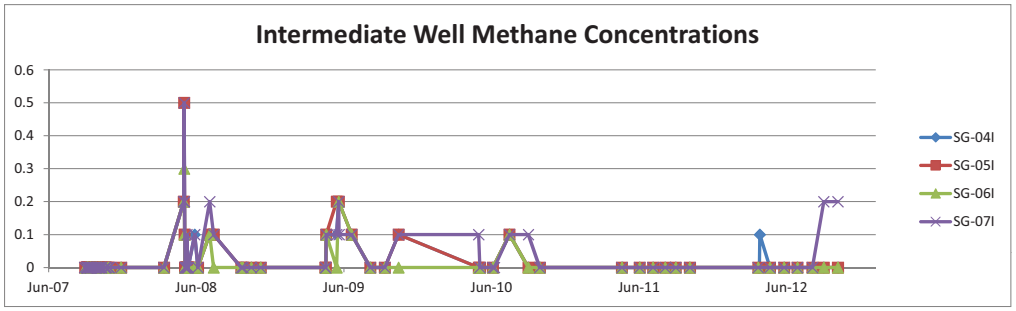
SG-04I		SG-05I		SG-06I		SG-07I	
SG-04I		SG-05I		SG-06I		SG-07I	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
5/28/2008	19.2	5/28/2008	19	5/26/2008	19	5/26/2008	19
5/29/2008	19	5/29/2008	19	5/27/2008	19	5/27/2008	18.9
5/30/2008	19	5/30/2008	19	5/28/2008	19.1	5/28/2008	19.1
5/31/2008	18.8	5/31/2008	18.9	5/29/2008	19.1	5/29/2008	19
6/1/2008	18.6	6/1/2008	18.6	5/30/2008	19	5/30/2008	19
6/17/2008	18.8	6/17/2008	19.2	5/31/2008	19	5/31/2008	19
6/25/2008	18.6	6/25/2008	18.7	6/1/2008	18.7	6/1/2008	18.6
7/24/2008	18.6	7/24/2008	18.6	6/17/2008	19	6/17/2008	19
8/3/2008	18.4	8/3/2008	18.3	6/25/2008	18.7	6/25/2008	18.7
10/10/2008	19	10/10/2008	20.5	7/24/2008	18.6	7/24/2008	18.6
10/14/2008	20.6	10/14/2008	20.7	8/3/2008	18.6	8/3/2008	17.3
11/4/2008	20	11/4/2008	20	10/10/2008	21	10/10/2008	20
11/27/2008	21.3	11/27/2008	21.4	10/14/2008	20.9	10/14/2008	20.8
5/6/2009	13.2	5/6/2009	19	11/4/2008	20	11/4/2008	19.6
5/7/2009	18.7	5/7/2009	19.5	11/27/2008	21.6	11/27/2008	21.6
5/8/2009	19.9	5/8/2009	19.1	5/6/2009	20.4	5/6/2009	17.6
6/3/2009	20.6	6/3/2009	20.6	5/7/2009	20.7	5/7/2009	19.4
6/8/2009	20.6	6/8/2009	20.6	5/8/2009	20.9	5/8/2009	19.7
7/10/2009	20.2	7/10/2009	20.3	6/3/2009	20.8	6/3/2009	20.6
8/25/2009	19	8/25/2009	19.6	6/8/2009	20.5	6/8/2009	20.6
9/30/2009	19.2	9/30/2009	20.3	7/10/2009	20.4	6/9/2009	20.6
11/3/2009	20.4	11/3/2009	21.7	8/25/2009	19.5	7/10/2009	18.6
5/20/2010	9.2	5/20/2010	17.2	9/30/2009	20.8	8/25/2009	19.2
5/23/2010	20	5/23/2010	19.8	11/3/2009	21.3	9/30/2009	19.2
6/24/2010	20.9	6/24/2010	20.5	5/20/2010	19.7	11/3/2009	20.5
8/4/2010	19.4	8/4/2010	20.3	5/23/2010	20.2	5/20/2010	14.9
9/20/2010	20.8	9/20/2010	20.9	6/24/2010	21.1	5/23/2010	20
10/18/2010	20.3	10/18/2010	20.7	8/4/2010	20.5	6/24/2010	20.4
5/9/2011	8.4	*5/9/2011*	19.1	9/20/2010	20.8	6/28/2010	20.7
5/11/2011	19.2	*6/22/2011*	20.7	10/18/2010	20.9	8/4/2010	19.8
6/22/2011	19.8	*7/25/2011*	21.0	*5/9/2011*	20.8	9/20/2010	19.6
7/25/2011	20.7	*8/24/2011*	20.7	*6/22/2011*	21.9	10/18/2010	20
8/24/2011	20.6	*9/19/2011*	20.6	*7/25/2011*	21.4	*5/9/2011*	16.1
9/19/2011	20.2	*10/24/2011*	20.7	*8/24/2011*	20.8	*6/22/2011*	19.8
10/24/2011	20.3	*4/10/2012*	0.0	*9/19/2011*	20.9	*7/25/2011*	20.0
4/10/2012	3.2	*5/9/2012*	0.1	*10/24/2011*	20.8	*8/24/2011*	19.9
4/13/2012	0.5	*6/13/2012*	0.1	*4/10/2012*	0.0	*9/19/2011*	19.8
4/14/2012	0.4	*7/16/2012*	0.1	*5/9/2012*	0.0	*10/24/2011*	20.0
5/9/2012	1.0	*8/22/2012*	0.1	*6/13/2012*	0.0	*4/10/2012*	2.0
6/13/2012	0.2	*9/19/2012*	0.1	*7/16/2012*	0.0	*5/9/2012*	1.1
7/16/2012	0.4	*10/24/2012*	0.1	*8/22/2012*	0.0	*6/13/2012*	0.7
8/22/2012	0.5			*9/19/2012*	0.0	*7/16/2012*	0.6
9/19/2012	0.4			*10/24/2012*	0.0	*8/22/2012*	0.5
10/24/2012	0.3					*9/19/2012*	0.7
						10/24/2012	0.6

SG-04I		SG-05I		SG-06I		SG-07I	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
9/20/2007	14.9	9/20/2007	8.1	9/21/2007	5.5	9/19/2007	7.9
9/24/2007	15	9/24/2007	8.1	9/24/2007	5.9	9/24/2007	17.9
9/25/2007	15	9/25/2007	9.1	9/25/2007	6.8	9/25/2007	17.7
9/25/2007	14.2	9/25/2007	9.9	9/25/2007	7.3	9/25/2007	16.8
9/26/2007	11	9/26/2007	11.2	9/26/2007	8	9/25/2007	16.6
9/26/2007	10.3	9/26/2007	11.3	9/26/2007	8.5	9/26/2007	16.3
9/26/2007	8	9/26/2007	11.3	9/26/2007	8.6	9/26/2007	16.3
9/27/2007	2.5	9/27/2007	7	9/26/2007	8.4	9/26/2007	16.4
9/27/2007	1.8	9/27/2007	5.2	9/27/2007	5.9	9/27/2007	15.8
9/28/2007	0.9	9/28/2007	2.4	9/27/2007	4.7	9/27/2007	14.6
10/1/2007	1.1	10/1/2007	2.1	9/27/2007	3.3	9/28/2007	9.4
10/2/2007	0.6	10/2/2007	1.2	9/28/2007	1.5	10/1/2007	6.6
10/3/2007	0.4	10/2/2007	1	10/1/2007	1.3	10/2/2007	4.5
10/3/2007	0.2	10/3/2007	0.7	10/2/2007	0.9	10/2/2007	4.3
10/4/2007	0.2	10/3/2007	0.5	10/3/2007	0.6	10/3/2007	2.9
10/5/2007	0.1	10/5/2007	0.3	10/3/2007	0.4	10/3/2007	2.2
10/5/2007	0.1	10/5/2007	0.4	10/4/2007	0.3	10/4/2007	1.6
10/8/2007	0.1	10/8/2007	0.3	10/5/2007	0.2	10/5/2007	1.2
10/9/2007	0.1	10/9/2007	0.3	10/5/2007	0.2	10/5/2007	1.1
10/11/2007	0.1	10/11/2007	0.2	10/8/2007	0.2	10/8/2007	1.1
10/12/2007	0.1	10/12/2007	0.2	10/9/2007	0	10/9/2007	0.2
10/15/2007	0.1	10/15/2007	0.2	10/11/2007	0.1	10/11/2007	0.6
10/16/2007	0	10/16/2007	0.1	10/12/2007	0.1	10/12/2007	0.5
10/17/2007	0	10/17/2007	0.1	10/15/2007	0	10/15/2007	0.5
10/18/2007	0	10/18/2007	0.1	10/16/2007	0	10/16/2007	0.4
10/19/2007	0	10/19/2007	1	10/17/2007	0	10/17/2007	0.3
10/23/2007	0	10/23/2007	0.1	10/18/2007	0	10/18/2007	0.2
10/24/2007	0	10/24/2007	0.1	10/19/2007	0	10/19/2007	0.2
10/25/2007	0	10/25/2007	0	10/23/2007	0	10/23/2007	0.2
10/26/2007	0	10/26/2007	0	10/24/2007	0	10/24/2007	0.1
10/29/2007	0	10/29/2007	0	10/25/2007	0	10/25/2007	0.1
10/30/2007	0	10/30/2007	0	10/26/2007	0	10/26/2007	0.1
10/31/2007	0	10/31/2007	0.1	10/29/2007	0	10/29/2007	0.1
11/8/2007	0	11/8/2007	0.1	10/30/2007	0	10/30/2007	0.1
11/9/2007	0	11/9/2007	0.1	10/31/2007	0	10/31/2007	0.1
11/12/2007	0	11/12/2007	0	11/8/2007	0	11/8/2007	0
11/17/2007	0	11/17/2007	0	11/9/2007	0	11/9/2007	1
11/19/2007	0	11/19/2007	0	11/12/2007	0	11/12/2007	0
12/18/2007	0.1	12/18/2007	0	11/17/2007	0	11/17/2007	0
4/2/2008	0.9	4/2/2008	0	11/19/2007	0	11/19/2007	0
5/21/2008	2.4	5/21/2008	0.7	12/18/2007	0.6	12/18/2007	0.5
5/22/2008	2.7	5/22/2008	1.1	4/2/2008	0	4/2/2008	1.4
5/23/2008	2.2	5/23/2008	3.3	5/21/2008	0.5	5/21/2008	2.8
5/24/2008	1.1	5/24/2008	2.7	5/22/2008	0.8	5/22/2008	2.7
5/25/2008	0.6	5/25/2008	1.3	5/23/2008	0.7	5/23/2008	1.4
5/26/2008	0.4	5/26/2008	0.8	5/24/2008	0.5	5/24/2008	1
5/27/2008	0.4	5/27/2008	0.5	5/25/2008	0.3	5/25/2008	0.6
5/28/2008	0.2	5/28/2008	0.3	5/26/2008	0.2	5/26/2008	0.1



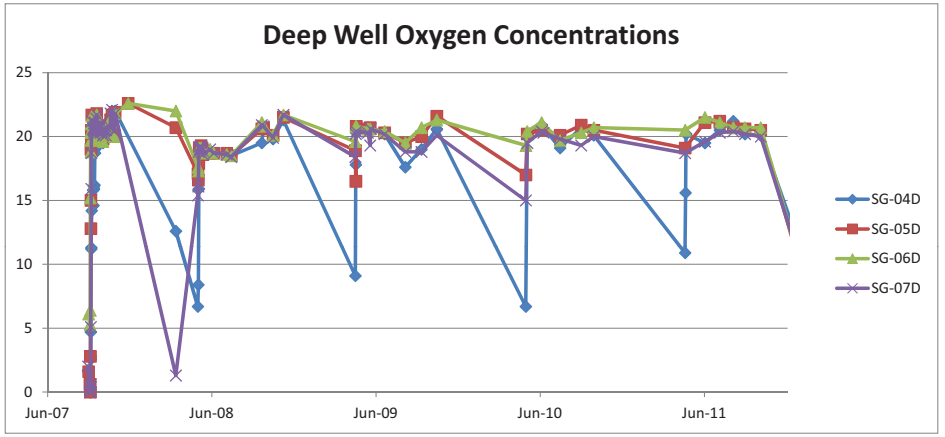
SG-04I		SG-05I		SG-06I		SG-07I	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
5/29/2008	0.1	5/29/2008	0.1	5/27/2008	0.3	5/27/2008	0.4
5/30/2008	0.2	5/30/2008	0.1	5/28/2008	0.1	5/28/2008	0.2
5/31/2008	0.2	5/31/2008	0.2	5/29/2008	0.1	5/29/2008	0.3
6/1/2008	0.2	6/1/2008	0.2	5/30/2008	0.1	5/30/2008	0.2
6/17/2008	0.2	6/17/2008	0.1	5/31/2008	0	5/31/2008	0.2
6/25/2008	0.1	6/25/2008	0	6/1/2008	0.1	6/1/2008	0.2
7/24/2008	0	7/24/2008	0	6/17/2008	0.1	6/17/2008	0.1
8/3/2008	0.1	8/3/2008	0.1	6/25/2008	0	6/25/2008	0.1
10/10/2008	0.2	10/10/2008	0.1	7/24/2008	0	7/24/2008	0
10/14/2008	0.2	10/14/2008	0.3	8/3/2008	0	8/3/2008	0.1
11/4/2008	0.1	11/4/2008	0.1	10/10/2008	0	10/10/2008	0.3
11/27/2008	0.1	11/27/2008	0.1	10/14/2008	0	10/14/2008	0.1
5/6/2009	1.1	5/6/2009	0.4	11/4/2008	0	11/4/2008	0.1
5/7/2009	0.9	5/7/2009	0.7	11/27/2008	0	11/27/2008	0
5/8/2009	0.8	5/8/2009	1.7	5/6/2009	0	5/6/2009	1.1
6/3/2009	0.1	6/3/2009	0.1	5/7/2009	0	5/7/2009	0.3
6/8/2009	0.1	6/8/2009	0.2	5/8/2009	0.1	5/8/2009	0.3
7/10/2009	0	7/10/2009	0.1	6/3/2009	0	6/3/2009	0.1
8/25/2009	0.1	8/25/2009	0	6/8/2009	0.1	6/8/2009	0.1
9/30/2009	0.4	9/30/2009	0.4	7/10/2009	0	6/9/2009	0
11/3/2009	0.3	11/3/2009	0.2	8/25/2009	0.1	7/10/2009	0.2
5/20/2010	3.5	5/20/2010	0.4	9/30/2009	0.1	8/25/2009	0.3
5/23/2010	0.4	5/23/2010	1.4	11/3/2009	0	9/30/2009	0.7
6/24/2010	0.9	6/24/2010	0.8	5/20/2010	0	11/3/2009	0.5
8/4/2010	0.5	8/4/2010	0.3	5/23/2010	0.1	5/20/2010	1.7
9/20/2010	0.5	9/20/2010	0	6/24/2010	1	5/23/2010	0.3
10/18/2010	0.3	10/18/2010	0.2	8/4/2010	0.1	6/24/2010	0.7
5/9/2011	5.1	*5/9/2011*	0.3	9/20/2010	0.1	6/28/2010	0.2
5/11/2011	1.3	*6/22/2011*	0.8	10/18/2010	0.1	8/4/2010	0.4
6/22/2011	1.1	*7/25/2011*	0.5	*5/9/2011*	0.1	9/20/2010	0.8
7/25/2011	0.6	*8/24/2011*	0.3	*6/22/2011*	0.1	10/18/2010	0.4
8/24/2011	0.4	*9/19/2011*	0.3	*7/25/2011*	0.1	*5/9/2011*	2.1
9/19/2011	1.4	*10/24/2011*	0.2	*8/24/2011*	0.0	*6/22/2011*	1.2
10/24/2011	0.3	*4/10/2012*	0.0	*9/19/2011*	0.0	*7/25/2011*	0.7
4/10/2012	0.0	*5/9/2012*	0.0	*10/24/2011*	0.0	*8/24/2011*	0.7
4/13/2012	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0	*9/19/2011*	0.5
4/14/2012	0.0	*7/16/2012*	0.0	*5/9/2012*	0.0	*10/24/2011*	0.4
5/9/2012	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0
6/13/2012	0.0	*9/19/2012*	0.0	*7/16/2012*	0.0	*5/9/2012*	0.0
7/16/2012	0.0	*10/24/2012*	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0
8/22/2012	0.0			*9/19/2012*	0.0	*7/16/2012*	0.0
9/19/2012	0.0			*10/24/2012*	0.0	*8/22/2012*	0.0
10/24/2012	0.0					*9/19/2012*	0.1
						10/24/2012	0.1

SG-04I		SG-05I		SG-06I		SG-07I	
Date	CH4 (%)	Date	CH4 (%)	Date	CH4 (%)	Date	CH4 (%)
9/20/2007	0	9/20/2007	0	9/21/2007	0	9/19/2007	0
9/24/2007	0	9/24/2007	0	9/24/2007	0	9/24/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/25/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/25/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/25/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/26/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/26/2007	0
9/27/2007	0	9/27/2007	0	9/26/2007	0	9/26/2007	0
9/27/2007	0	9/27/2007	0	9/27/2007	0	9/27/2007	0
9/28/2007	0	9/28/2007	0	9/27/2007	0	9/27/2007	0
10/1/2007	0	10/1/2007	0	9/27/2007	0	9/28/2007	0
10/2/2007	0	10/2/2007	0	9/28/2007	0	10/1/2007	0
10/3/2007	0	10/2/2007	0	10/1/2007	0	10/2/2007	0
10/3/2007	0	10/3/2007	0	10/2/2007	0	10/2/2007	0
10/4/2007	0	10/3/2007	0	10/3/2007	0	10/3/2007	0
10/5/2007	0	10/5/2007	0	10/3/2007	0	10/3/2007	0
10/5/2007	0	10/5/2007	0	10/4/2007	0	10/4/2007	0
10/8/2007	0	10/8/2007	0	10/5/2007	0	10/5/2007	0
10/9/2007	0	10/9/2007	0	10/5/2007	0	10/5/2007	0
10/11/2007	0	10/11/2007	0	10/8/2007	0	10/8/2007	0
10/12/2007	0	10/12/2007	0	10/9/2007	0	10/9/2007	0
10/15/2007	0	10/15/2007	0	10/11/2007	0	10/11/2007	0
10/16/2007	0	10/16/2007	0	10/12/2007	0	10/12/2007	0
10/17/2007	0	10/17/2007	0	10/15/2007	0	10/15/2007	0
10/18/2007	0	10/18/2007	0	10/16/2007	0	10/16/2007	0
10/19/2007	0	10/19/2007	0	10/17/2007	0	10/17/2007	0
10/23/2007	0	10/23/2007	0	10/18/2007	0	10/18/2007	0
10/24/2007	0	10/24/2007	0	10/19/2007	0	10/19/2007	0
10/25/2007	0	10/25/2007	0	10/23/2007	0	10/23/2007	0
10/26/2007	0	10/26/2007	0	10/24/2007	0	10/24/2007	0
10/29/2007	0	10/29/2007	0	10/25/2007	0	10/25/2007	0
10/30/2007	0	10/30/2007	0	10/26/2007	0	10/26/2007	0
10/31/2007	0	10/31/2007	0	10/29/2007	0	10/29/2007	0
11/8/2007	0	11/8/2007	0	10/30/2007	0	10/30/2007	0
11/9/2007	0	11/9/2007	0	10/31/2007	0	10/31/2007	0
11/12/2007	0	11/12/2007	0	11/8/2007	0	11/8/2007	0
11/17/2007	0	11/17/2007	0	11/9/2007	0	11/9/2007	0
11/19/2007	0	11/19/2007	0	11/12/2007	0	11/12/2007	0
12/18/2007	0	12/18/2007	0	11/17/2007	0	11/17/2007	0
4/2/2008	0	4/2/2008	0	11/19/2007	0	11/19/2007	0
5/21/2008	0.2	5/21/2008	0.2	12/18/2007	0	12/18/2007	0
5/22/2008	0.5	5/22/2008	0.5	4/2/2008	0	4/2/2008	0
5/23/2008	0.1	5/23/2008	0.1	5/21/2008	0.2	5/21/2008	0.2
5/24/2008	0	5/24/2008	0	5/22/2008	0.3	5/22/2008	0.5
5/25/2008	0	5/25/2008	0	5/23/2008	0.1	5/23/2008	0.2
5/26/2008	0	5/26/2008	0	5/24/2008	0	5/24/2008	0
5/27/2008	0	5/27/2008	0	5/25/2008	0	5/25/2008	0
5/28/2008	0	5/28/2008	0	5/26/2008	0	5/26/2008	0



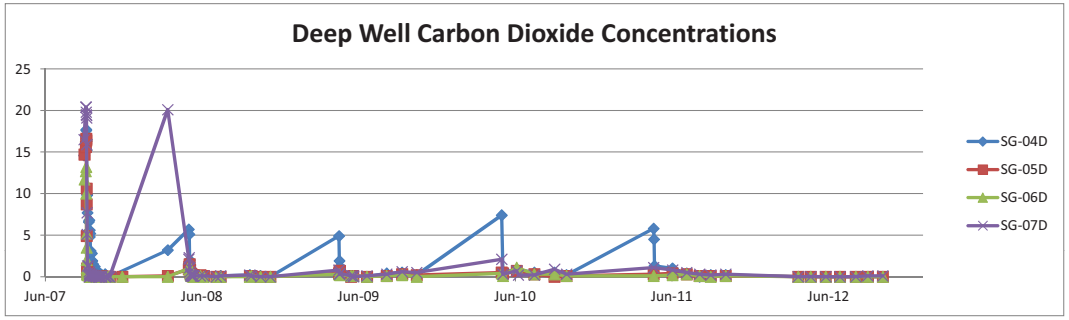
SG-04I		SG-05I		SG-06I		SG-07I	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
5/29/2008	0	5/29/2008	0	5/27/2008	0	5/27/2008	0
5/30/2008	0	5/30/2008	0	5/28/2008	0	5/28/2008	0
5/31/2008	0	5/31/2008	0	5/29/2008	0	5/29/2008	0.1
6/1/2008	0	6/1/2008	0	5/30/2008	0	5/30/2008	0
6/17/2008	0.1	6/17/2008	0	5/31/2008	0	5/31/2008	0
6/25/2008	0	6/25/2008	0	6/1/2008	0	6/1/2008	0
7/24/2008	0.1	7/24/2008	0.1	6/17/2008	0	6/17/2008	0.1
8/3/2008	0.1	8/3/2008	0.1	6/25/2008	0	6/25/2008	0
10/10/2008	0	10/10/2008	0	7/24/2008	0.1	7/24/2008	0.2
10/14/2008	0	10/14/2008	0	8/3/2008	0	8/3/2008	0.1
11/4/2008	0	11/4/2008	0	10/10/2008	0	10/10/2008	0
11/27/2008	0	11/27/2008	0	10/14/2008	0	10/14/2008	0
5/6/2009	0	5/6/2009	0	11/4/2008	0	11/4/2008	0
5/7/2009	0	5/7/2009	0	11/27/2008	0	11/27/2008	0
5/8/2009	0.1	5/8/2009	0.1	5/6/2009	0	5/6/2009	0
6/3/2009	0.1	6/3/2009	0.2	5/7/2009	0	5/7/2009	0
6/8/2009	0.2	6/8/2009	0.2	5/8/2009	0.1	5/8/2009	0.1
7/10/2009	0.1	7/10/2009	0.1	6/3/2009	0	6/3/2009	0.1
8/25/2009	0	8/25/2009	0	6/8/2009	0.2	6/8/2009	0.2
9/30/2009	0	9/30/2009	0	7/10/2009	0.1	6/9/2009	0.1
11/3/2009	0.1	11/3/2009	0.1	8/25/2009	0	7/10/2009	0.1
5/20/2010	0	5/20/2010	0	9/30/2009	0	8/25/2009	0
5/23/2010	0	5/23/2010	0	11/3/2009	0	9/30/2009	0
6/24/2010	0	6/24/2010	0	5/20/2010	0	11/3/2009	0.1
8/4/2010	0.1	8/4/2010	0.1	5/23/2010	0	5/20/2010	0.1
9/20/2010	0	9/20/2010	0	6/24/2010	0	5/23/2010	0
10/18/2010	0	10/18/2010	0	8/4/2010	0.1	6/24/2010	0
5/9/2011	0.0	*5/9/2011*	0.0	9/20/2010	0	6/28/2010	0
5/11/2011	0.0	*6/22/2011*	0.0	10/18/2010	0	8/4/2010	0.1
6/22/2011	0.0	*7/25/2011*	0.0	*5/9/2011*	0.0	9/20/2010	0.1
7/25/2011	0.0	*8/24/2011*	0.0	*6/22/2011*	0.0	10/18/2010	0
8/24/2011	0.0	*9/19/2011*	0.0	*7/25/2011*	0.0	*5/9/2011*	0.0
9/19/2011	0.0	*10/24/2011*	0.0	*8/24/2011*	0.0	*6/22/2011*	0.0
10/24/2011	0.0	*4/10/2012*	0.0	*9/19/2011*	0.0	*7/25/2011*	0.0
4/10/2012	0.0	*5/9/2012*	0.0	*10/24/2011*	0.0	*8/24/2011*	0.0
4/13/2012	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0	*9/19/2011*	0.0
4/14/2012	0.1	*7/16/2012*	0.0	*5/9/2012*	0.0	*10/24/2011*	0.0
5/9/2012	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0
6/13/2012	0.0	*9/19/2012*	0.0	*7/16/2012*	0.0	*5/9/2012*	0.0
7/16/2012	0.0	*10/24/2012*	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0
8/22/2012	0.0			*9/19/2012*	0.0	*7/16/2012*	0.0
9/19/2012	0.0			*10/24/2012*	0.0	*8/22/2012*	0.0
10/24/2012	0.0					*9/19/2012*	0.2
						10/24/2012	0.2

SG-04D		SG-05D		SG-06D		SG-07D	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
9/20/2007	1.7	9/21/2007	1.6	9/21/2007	6.1	9/20/2007	2
9/24/2007	0	9/24/2007	0.6	9/24/2007	5.3	9/24/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	6.4	9/25/2007	0
9/25/2007	0.8	9/25/2007	2.8	9/25/2007	15.2	9/25/2007	0
9/26/2007	2.6	9/26/2007	12.8	9/26/2007	18.8	9/25/2007	0.2
9/26/2007	2.8	9/26/2007	15	9/26/2007	19.7	9/26/2007	0.4
9/26/2007	4.7	9/26/2007	19	9/26/2007	20.3	9/26/2007	0.6
9/27/2007	11.2	9/27/2007	20.5	9/26/2007	21	9/26/2007	5.1
9/27/2007	11.3	9/27/2007	20	9/27/2007	21	9/27/2007	15.9
9/28/2007	14.2	9/28/2007	21.7	9/27/2007	20.5	9/27/2007	18.7
10/1/2007	15.8	10/1/2007	20.5	9/27/2007	20.4	9/28/2007	21.2
10/2/2007	14.6	10/2/2007	20.8	9/28/2007	21.6	10/1/2007	20.6
10/3/2007	15.9	10/2/2007	21.1	10/1/2007	20.8	10/2/2007	20.7
10/3/2007	16.1	10/3/2007	20.5	10/2/2007	21	10/2/2007	20.5
10/4/2007	16.2	10/4/2007	20	10/3/2007	20.4	10/3/2007	20.4
10/5/2007	19	10/5/2007	21.3	10/3/2007	19.7	10/3/2007	20.2
10/5/2007	18.7	10/5/2007	20.5	10/4/2007	20.8	10/4/2007	20.6
10/8/2007	19.4	10/8/2007	21.3	10/5/2007	21	10/5/2007	21.1
10/9/2007	20.7	10/9/2007	21.8	10/5/2007	20.8	10/5/2007	20.8
10/11/2007	19.6	10/11/2007	20.5	10/8/2007	20.8	10/8/2007	21.4
10/12/2007	19.3	10/12/2007	20	10/9/2007	21.7	10/9/2007	21.7
10/15/2007	19.7	10/15/2007	20	10/11/2007	20.3	10/11/2007	20.8
10/16/2007	20.1	10/16/2007	20.8	10/12/2007	19.8	10/12/2007	20.3
10/17/2007	20.3	10/17/2007	20.6	10/15/2007	20	10/15/2007	21
10/18/2007	20	10/18/2007	20.4	10/16/2007	20.5	10/16/2007	20.8
10/19/2007	20.1	10/19/2007	20.2	10/17/2007	20.5	10/17/2007	20.7
10/23/2007	19.5	10/23/2007	19.8	10/18/2007	20.2	10/18/2007	20.3
10/24/2007	20.1	10/24/2007	20.4	10/19/2007	20.3	10/19/2007	20.4
10/25/2007	20.4	10/25/2007	20.4	10/23/2007	19.6	10/23/2007	20.1
10/26/2007	20.8	10/26/2007	20.7	10/24/2007	20.4	10/24/2007	20.5
10/29/2007	20.3	10/29/2007	20.2	10/25/2007	20.4	10/25/2007	20.5
10/30/2007	20.5	10/30/2007	20.7	10/26/2007	20.5	10/26/2007	20.6
10/31/2007	20.9	10/31/2007	20.5	10/29/2007	20.1	10/29/2007	20.1
11/8/2007	21.0	11/8/2007	20.5	10/30/2007	20.7	10/30/2007	20.5
11/9/2007	21.7	11/9/2007	21.3	10/31/2007	20.5	10/31/2007	20.7
11/12/2007	22.0	11/12/2007	21.7	11/8/2007	20.2	11/8/2007	20.7
11/17/2007	20.2	11/17/2007	20.1	11/9/2007	21.2	11/9/2007	21.8
11/19/2007	22.0	11/19/2007	21.9	11/12/2007	21.6	11/12/2007	22.1
4/2/2008	12.6	12/18/2007	22.6	11/17/2007	20.0	11/17/2007	20.4
5/21/2008	6.7	4/2/2008	20.7	11/19/2007	21.8	11/19/2007	21.8
5/22/2008	8.4	5/21/2008	17.1	12/18/2007	22.6	4/2/2008	1.3
5/23/2008	15.9	5/22/2008	16.6	4/2/2008	22	5/21/2008	15.4
5/24/2008	18.9	5/23/2008	17.9	5/21/2008	17.6	5/22/2008	16.1
5/25/2008	19	5/24/2008	19.1	5/22/2008	17.3	5/23/2008	18.8
5/26/2008	19	5/25/2008	19	5/23/2008	19	5/24/2008	19.2
5/27/2008	19.1	5/26/2008	18.9	5/24/2008	19.1	5/25/2008	19



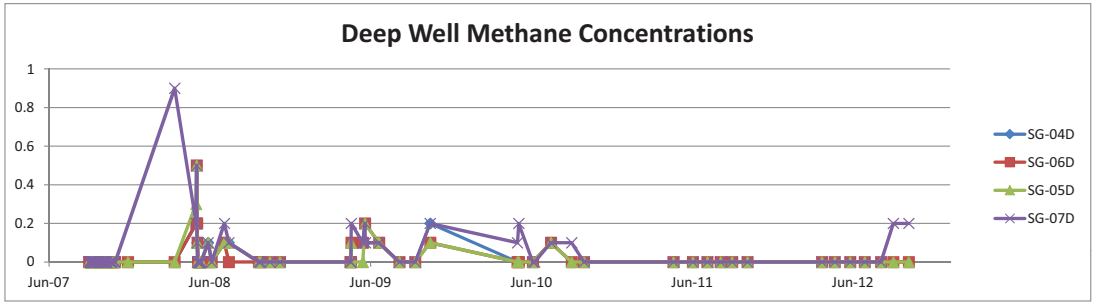
SG-04D		SG-05D		SG-06D		SG-07D	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**	**Date**	**O2 (%)**
5/28/2008	19.2	5/27/2008	19	5/25/2008	19.1	5/26/2008	19
5/29/2008	19.1	5/28/2008	19.3	5/26/2008	19	5/27/2008	19.2
5/30/2008	19	5/29/2008	19.1	5/27/2008	19	5/28/2008	19.2
5/31/2008	18.9	5/30/2008	19.1	5/28/2008	19.1	5/29/2008	19.1
6/1/2008	18.7	5/31/2008	18.9	5/29/2008	19.1	5/30/2008	19.1
6/17/2008	18.9	6/1/2008	18.6	5/30/2008	19	5/31/2008	18.9
6/25/2008	18.7	6/17/2008	18.7	5/31/2008	18.9	6/1/2008	18.6
7/24/2008	18.6	6/25/2008	18.7	6/1/2008	18.7	6/17/2008	19
8/3/2008	18.5	7/24/2008	18.7	6/17/2008	19	6/25/2008	18.7
10/10/2008	19.5	8/3/2008	18.5	6/25/2008	18.7	7/24/2008	18.6
10/14/2008	20.7	10/10/2008	20.6	7/24/2008	18.6	8/3/2008	18.4
11/4/2008	19.8	10/14/2008	20.7	8/3/2008	18.5	10/10/2008	20.9
11/27/2008	21.3	11/4/2008	20.1	10/10/2008	21.1	10/14/2008	20.8
5/6/2009	9.1	11/27/2008	21.5	10/14/2008	20.8	11/4/2008	19.9
5/7/2009	17.8	5/6/2009	18.9	11/4/2008	20.1	11/27/2008	21.7
5/8/2009	20.3	5/7/2009	16.5	11/27/2008	21.7	5/6/2009	18.4
6/3/2009	20.7	5/8/2009	20.8	5/6/2009	19.6	5/7/2009	20.2
6/8/2009	20.6	6/3/2009	20.6	5/7/2009	20.8	5/8/2009	20.4
7/10/2009	20.2	6/8/2009	20.7	5/8/2009	20.8	6/3/2009	20.3
8/25/2009	17.6	7/10/2009	20.3	6/3/2009	20.6	6/8/2009	19.3
9/30/2009	19	8/25/2009	19.5	6/8/2009	20.6	6/9/2009	20.6
11/3/2009	20.6	9/30/2009	20	7/10/2009	20.4	7/10/2009	20.2
5/20/2010	6.7	11/3/2009	21.6	8/25/2009	19.5	8/25/2009	18.8
5/23/2010	20.2	5/20/2010	17	9/30/2009	20.7	9/30/2009	18.8
6/24/2010	20.9	5/23/2010	20.2	11/3/2009	21.3	11/3/2009	20.1
8/4/2010	19.1	6/24/2010	20.5	5/20/2010	19.3	5/20/2010	15
9/20/2010	20.7	8/4/2010	20.1	5/23/2010	20.4	5/23/2010	19.5
10/18/2010	20.1	9/20/2010	20.9	6/24/2010	21.1	6/24/2010	20.4
5/9/2011	10.9	10/18/2010	20.5	8/4/2010	19.7	6/28/2010	20.3
5/10/2011	15.6	*5/9/2011*	19.1	9/20/2010	20.3	8/4/2010	19.8
5/11/2011	20.2	*6/22/2011*	21.1	10/18/2010	20.7	9/20/2010	19.3
6/22/2011	19.5	*7/25/2011*	21.2	*5/9/2011*	20.5	10/18/2010	20
7/25/2011	20.5	*8/24/2011*	20.7	*6/22/2011*	21.5	*5/9/2011*	18.7
8/24/2011	21.2	*9/19/2011*	20.6	*7/25/2011*	21.1	*6/22/2011*	19.6
9/19/2011	20.2	*10/24/2011*	20.5	*8/24/2011*	20.7	*7/25/2011*	20.3
10/24/2011	20.1	*4/10/2012*	0.0	*9/19/2011*	20.7	*8/24/2011*	20.4
4/10/2012	3.2	*5/9/2012*	0.1	*10/24/2011*	20.7	*9/19/2011*	20.2
5/9/2012	0.6	*6/13/2012*	0.0	*4/10/2012*	0.3	*10/24/2011*	20.0
6/13/2012	0.6	*7/16/2012*	0.0	*5/9/2012*	0.1	*4/10/2012*	1.2
7/16/2012	0.5	*8/22/2012*	0.0	*6/13/2012*	0.0	*5/9/2012*	0.6
8/22/2012	0.6	*9/19/2012*	0.0	*7/16/2012*	0.0	*6/13/2012*	0.4
9/19/2012	0.5	*10/24/2012*	0.0	*8/22/2012*	0.0	*7/16/2012*	0.3
10/24/2012	0.4			*9/19/2012*	0.0	*8/22/2012*	0.4
				10/24/2012	0.0	*9/19/2012*	0.3
						10/24/2012	0.2

SG-04D		SG-05D		SG-06D		SG-07D	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
9/20/2007	14.6	9/21/2007	14.7	9/21/2007	11.7	9/20/2007	16.5
9/24/2007	17	9/24/2007	15.6	9/24/2007	12.7	9/24/2007	20.4
9/25/2007	17.7	9/25/2007	16.6	9/25/2007	13.2	9/25/2007	20.4
9/25/2007	17.6	9/25/2007	16.4	9/25/2007	10	9/25/2007	19.8
9/26/2007	16.5	9/26/2007	10.6	9/26/2007	5.2	9/25/2007	19.5
9/26/2007	16.3	9/26/2007	8.7	9/26/2007	3.5	9/26/2007	19.4
9/26/2007	15.2	9/26/2007	4.9	9/26/2007	2	9/26/2007	19.1
9/27/2007	9.9	9/27/2007	1	9/26/2007	1	9/26/2007	15.9
9/27/2007	9.8	9/27/2007	0.6	9/27/2007	0.7	9/27/2007	7.7
9/28/2007	7.7	9/28/2007	0.3	9/27/2007	0.5	9/27/2007	5.1
10/1/2007	6.6	10/1/2007	0.4	9/27/2007	0.3	9/28/2007	1.3
10/2/2007	6.8	10/2/2007	0.3	9/28/2007	0.2	10/1/2007	1.3
10/3/2007	5.6	10/2/2007	0.2	10/1/2007	0.5	10/2/2007	0
10/3/2007	4.8	10/3/2007	0.2	10/2/2007	0.2	10/2/2007	0.6
10/4/2007	5.2	10/4/2007	0.1	10/3/2007	0.1	10/3/2007	0.4
10/5/2007	3.1	10/5/2007	0	10/3/2007	0	10/3/2007	0.3
10/5/2007	2.8	10/5/2007	0.1	10/4/2007	0	10/4/2007	0.2
10/8/2007	2.8	10/8/2007	0.1	10/5/2007	0	10/5/2007	0.1
10/9/2007	1.9	10/9/2007	0.1	10/5/2007	0	10/5/2007	0.1
10/11/2007	1.5	10/11/2007	0	10/8/2007	0	10/8/2007	0.2
10/12/2007	1.1	10/12/2007	0	10/9/2007	0.1	10/9/2007	0.2
10/15/2007	1.2	10/15/2007	0	10/11/2007	0	10/11/2007	0.1
10/16/2007	0.9	10/16/2007	0	10/12/2007	0	10/12/2007	0.1
10/17/2007	0.7	10/17/2007	0	10/15/2007	0.1	10/15/2007	0.1
10/18/2007	0.4	10/18/2007	0	10/16/2007	0	10/16/2007	0.1
10/19/2007	0.3	10/19/2007	0	10/17/2007	0	10/17/2007	0.1
10/23/2007	0.5	10/23/2007	0	10/18/2007	0	10/18/2007	0
10/24/2007	0.3	10/24/2007	0	10/19/2007	0	10/19/2007	0
10/25/2007	0.2	10/25/2007	0	10/23/2007	0	10/23/2007	0
10/26/2007	0.1	10/26/2007	0	10/24/2007	0	10/24/2007	0
10/29/2007	0.3	10/29/2007	0	10/25/2007	0	10/25/2007	0
10/30/2007	0.2	10/30/2007	0	10/26/2007	0	10/26/2007	0
10/31/2007	0.2	10/31/2007	0	10/29/2007	0	10/29/2007	0
11/8/2007	0.3	11/8/2007	0	10/30/2007	0	10/30/2007	0
11/9/2007	0.2	11/9/2007	0	10/31/2007	0	10/31/2007	0
11/12/2007	0	11/12/2007	0	11/8/2007	0	11/8/2007	0
11/17/2007	0	11/17/2007	0	11/9/2007	0	11/9/2007	0
11/19/2007	0	11/19/2007	0	11/12/2007	0	11/12/2007	0
4/2/2008	3.2	12/18/2007	0	11/17/2007	0	11/17/2007	0
5/21/2008	5.7	4/2/2008	0.1	11/19/2007	0	11/19/2007	0
5/22/2008	5.1	5/21/2008	0.9	12/18/2007	0	4/2/2008	20.1
5/23/2008	2	5/22/2008	1.2	4/2/2008	0	5/21/2008	2.1
5/24/2008	1.4	5/23/2008	1.5	5/21/2008	1	5/22/2008	2.3
5/25/2008	0.6	5/24/2008	0.8	5/22/2008	1.3	5/23/2008	1.1
5/26/2008	0.4	5/25/2008	0.4	5/23/2008	0.8	5/24/2008	0.6
5/27/2008	0.3	5/26/2008	0.3	5/24/2008	0.4	5/25/2008	0.3
5/28/2008	0.2	5/27/2008	0.3	5/25/2008	0.2	5/26/2008	0.1
5/29/2008	0.2	5/28/2008	0.1	5/26/2008	0.2	5/27/2008	0.2



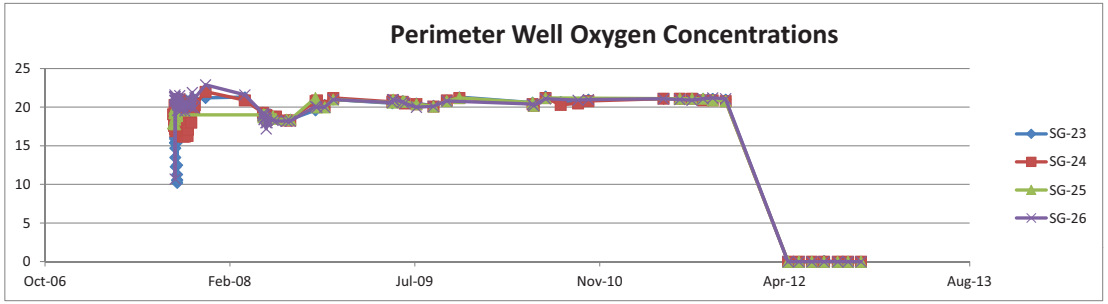
SG-04D		SG-05D		SG-06D		SG-07D	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**	**Date**	**CO2 (%)**
5/30/2008	0.2	5/29/2008	0.1	5/27/2008	0.1	5/28/2008	0.1
5/31/2008	0.1	5/30/2008	0.1	5/28/2008	0.1	5/29/2008	0.1
6/1/2008	0.1	5/31/2008	0.1	5/29/2008	0.1	5/30/2008	0.1
6/17/2008	0.1	6/1/2008	0.2	5/30/2008	0.1	5/31/2008	0.1
6/25/2008	0	6/17/2008	0.2	5/31/2008	0	6/1/2008	0.1
7/24/2008	0	6/25/2008	0.1	6/1/2008	0.1	6/17/2008	0.1
8/3/2008	0.1	7/24/2008	0	6/17/2008	0.1	6/25/2008	0.1
10/10/2008	0.2	8/3/2008	0	6/25/2008	0	7/24/2008	0
10/14/2008	0.1	10/10/2008	0.1	7/24/2008	0	8/3/2008	0.1
11/4/2008	0.1	10/14/2008	0.1	8/3/2008	0	10/10/2008	0.2
11/27/2008	0	11/4/2008	0	10/10/2008	0	10/14/2008	0.1
5/6/2009	4.9	11/27/2008	0	10/14/2008	0.1	11/4/2008	0
5/7/2009	1.9	5/6/2009	0.4	11/4/2008	0	11/27/2008	0
5/8/2009	1.2	5/7/2009	0.7	11/27/2008	0	5/6/2009	0.8
6/3/2009	0.1	5/8/2009	0.7	5/6/2009	0.3	5/7/2009	0.3
6/8/2009	0.1	6/3/2009	0	5/7/2009	0.3	5/8/2009	0.4
7/10/2009	0	6/8/2009	0.1	5/8/2009	0.2	6/3/2009	0.1
8/25/2009	0.4	7/10/2009	0	6/3/2009	0.1	6/8/2009	0.1
9/30/2009	0.5	8/25/2009	0.1	6/8/2009	0.1	6/9/2009	0
11/3/2009	0.2	9/30/2009	0.3	7/10/2009	0	7/10/2009	0.1
5/20/2010	7.4	11/3/2009	0.2	8/25/2009	0.1	8/25/2009	0.3
5/23/2010	0.5	5/20/2010	0.5	9/30/2009	0.2	9/30/2009	0.6
6/24/2010	0.9	5/23/2010	0.4	11/3/2009	0	11/3/2009	0.5
8/4/2010	0.5	6/24/2010	0.7	5/20/2010	0.4	5/20/2010	2.1
9/20/2010	0.5	8/4/2010	0.3	5/23/2010	0.1	5/23/2010	0.3
10/18/2010	0.2	9/20/2010	0	6/24/2010	1.1	6/24/2010	0.7
5/9/2011	5.8	10/18/2010	0.1	8/4/2010	0.3	6/28/2010	0.2
5/10/2011	4.5	*5/9/2011*	0.3	9/20/2010	0.3	8/4/2010	0.2
5/11/2011	1.3	*6/22/2011*	0.4	10/18/2010	0.1	9/20/2010	0.9
6/22/2011	1.0	*7/25/2011*	0.3	*5/9/2011*	0.1	10/18/2010	0.3
7/25/2011	0.4	*8/24/2011*	0.1	*6/22/2011*	0.2	*5/9/2011*	1.1
8/24/2011	0.0	*9/19/2011*	0.1	*7/25/2011*	0.3	*6/22/2011*	0.8
9/19/2011	0.2	*10/24/2011*	0.1	*8/24/2011*	0.1	*7/25/2011*	0.5
10/24/2011	0.2	*4/10/2012*	0.0	*9/19/2011*	0.0	*8/24/2011*	0.3
4/10/2012	0.0	*5/9/2012*	0.0	*10/24/2011*	0.1	*9/19/2011*	0.2
5/9/2012	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0	*10/24/2011*	0.3
6/13/2012	0.0	*7/16/2012*	0.0	*5/9/2012*	0.0	*4/10/2012*	0.0
7/16/2012	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0	*5/9/2012*	0.0
8/22/2012	0.0	*9/19/2012*	0.0	*7/16/2012*	0.0	*6/13/2012*	0.0
9/19/2012	0.0	*10/24/2012*	0.0	*8/22/2012*	0.0	*7/16/2012*	0.0
10/24/2012	0.0			*9/19/2012*	0.0	*8/22/2012*	0.0
				10/24/2012	0.0	*9/19/2012*	0.1
						10/24/2012	0.1

SG-04D		SG-05D		SG-06D		SG-07D	
Date	CH4 (%)	Date	CH4 (%)	Date	CH4 (%)	Date	CH4 (%)
9/20/2007	0	9/21/2007	0	9/21/2007	0	9/20/2007	0
9/24/2007	0	9/24/2007	0	9/24/2007	0	9/24/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/25/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/25/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/25/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/26/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/26/2007	0
9/27/2007	0	9/27/2007	0	9/26/2007	0	9/26/2007	0
9/27/2007	0	9/27/2007	0	9/27/2007	0	9/27/2007	0
9/28/2007	0	9/28/2007	0	9/27/2007	0	9/27/2007	0
10/1/2007	0	10/1/2007	0	9/27/2007	0	9/28/2007	0
10/2/2007	0	10/2/2007	0	9/28/2007	0	10/1/2007	0
10/3/2007	0	10/2/2007	0	10/1/2007	0	10/2/2007	0
10/3/2007	0	10/3/2007	0	10/2/2007	0	10/2/2007	0
10/4/2007	0	10/4/2007	0	10/3/2007	0	10/3/2007	0
10/5/2007	0	10/5/2007	0	10/3/2007	0	10/3/2007	0
10/5/2007	0	10/5/2007	0	10/4/2007	0	10/4/2007	0
10/8/2007	0	10/8/2007	0	10/5/2007	0	10/5/2007	0
10/9/2007	0	10/9/2007	0	10/5/2007	0	10/5/2007	0
10/11/2007	0	10/11/2007	0	10/8/2007	0	10/8/2007	0
10/12/2007	0	10/12/2007	0	10/9/2007	0	10/9/2007	0
10/15/2007	0	10/15/2007	0	10/11/2007	0	10/11/2007	0
10/16/2007	0	10/16/2007	0	10/12/2007	0	10/12/2007	0
10/17/2007	0	10/17/2007	0	10/15/2007	0	10/15/2007	0
10/18/2007	0	10/18/2007	0	10/16/2007	0	10/16/2007	0
10/19/2007	0	10/19/2007	0	10/17/2007	0	10/17/2007	0
10/23/2007	0	10/23/2007	0	10/18/2007	0	10/18/2007	0
10/24/2007	0	10/24/2007	0	10/19/2007	0	10/19/2007	0
10/25/2007	0	10/25/2007	0	10/23/2007	0	10/23/2007	0
10/26/2007	0	10/26/2007	0	10/24/2007	0	10/24/2007	0
10/29/2007	0	10/29/2007	0	10/25/2007	0	10/25/2007	0
10/30/2007	0	10/30/2007	0	10/26/2007	0	10/26/2007	0
10/31/2007	0	10/31/2007	0	10/29/2007	0	10/29/2007	0
11/8/2007	0	11/8/2007	0	10/30/2007	0	10/30/2007	0
11/9/2007	0	11/9/2007	0	10/31/2007	0	10/31/2007	0
11/12/2007	0	11/12/2007	0	11/8/2007	0	11/8/2007	0
11/17/2007	0	11/17/2007	0	11/9/2007	0	11/9/2007	0
11/19/2007	0	11/19/2007	0	11/12/2007	0	11/12/2007	0
4/2/2008	0	12/18/2007	0	11/17/2007	0	11/17/2007	0
5/21/2008	0.2	4/2/2008	0	11/19/2007	0	11/19/2007	0
5/22/2008	0.5	5/21/2008	0.3	12/18/2007	0	4/2/2008	0.9
5/23/2008	0.1	5/22/2008	0.5	4/2/2008	0	5/21/2008	0.2
5/24/2008	0.1	5/23/2008	0.1	5/21/2008	0.2	5/22/2008	0.5
5/25/2008	0	5/24/2008	0	5/22/2008	0.5	5/23/2008	0.1
5/26/2008	0	5/25/2008	0	5/23/2008	0.2	5/24/2008	0
5/27/2008	0	5/26/2008	0	5/24/2008	0.1	5/25/2008	0
5/28/2008	0	5/27/2008	0	5/25/2008	0	5/26/2008	0
5/29/2008	0	5/28/2008	0	5/26/2008	0	5/27/2008	0



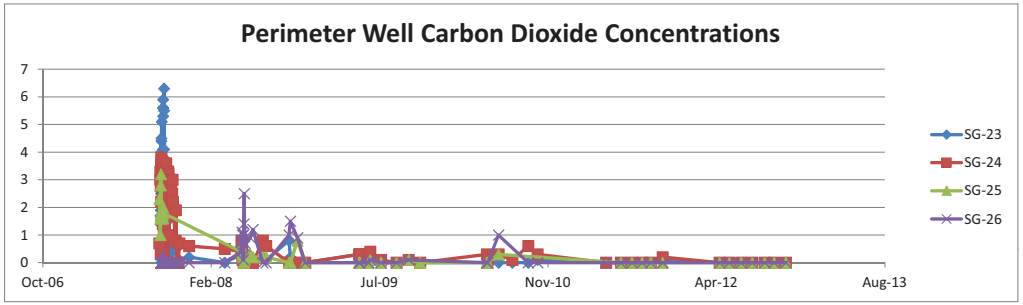
SG-04D		SG-05D		SG-06D		SG-07D	
Date	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**	**Date**	**CH4 (%)**
5/30/2008	0	5/29/2008	0	5/27/2008	0	5/28/2008	0
5/31/2008	0	5/30/2008	0	5/28/2008	0	5/29/2008	0
6/1/2008	0	5/31/2008	0	5/29/2008	0	5/30/2008	0
6/17/2008	0.1	6/1/2008	0	5/30/2008	0	5/31/2008	0
6/25/2008	0	6/17/2008	0.1	5/31/2008	0	6/1/2008	0
7/24/2008	0.1	6/25/2008	0	6/1/2008	0	6/17/2008	0.1
8/3/2008	0.1	7/24/2008	0.1	6/17/2008	0	6/25/2008	0
10/10/2008	0	8/3/2008	0.1	6/25/2008	0	7/24/2008	0.2
10/14/2008	0	10/10/2008	0	7/24/2008	0.1	8/3/2008	0.1
11/4/2008	0	10/14/2008	0	8/3/2008	0	10/10/2008	0
11/27/2008	0	11/4/2008	0	10/10/2008	0	10/14/2008	0
5/6/2009	0	11/27/2008	0	10/14/2008	0	11/4/2008	0
5/7/2009	0	5/6/2009	0	11/4/2008	0	11/27/2008	0
5/8/2009	0.1	5/7/2009	0.1	11/27/2008	0	5/6/2009	0
6/3/2009	0.1	5/8/2009	0	5/6/2009	0	5/7/2009	0
6/8/2009	0.1	6/3/2009	0	5/7/2009	0	5/8/2009	0.2
7/10/2009	0.1	6/8/2009	0.2	5/8/2009	0.1	6/3/2009	0.1
8/25/2009	0	7/10/2009	0.1	6/3/2009	0.1	6/8/2009	0.2
9/30/2009	0	8/25/2009	0	6/8/2009	0.2	6/9/2009	0.1
11/3/2009	0.2	9/30/2009	0	7/10/2009	0.1	7/10/2009	0.1
5/20/2010	0	11/3/2009	0.1	8/25/2009	0	8/25/2009	0
5/23/2010	0	5/20/2010	0	9/30/2009	0	9/30/2009	0
6/24/2010	0	5/23/2010	0	11/3/2009	0.1	11/3/2009	0.2
8/4/2010	0.1	6/24/2010	0	5/20/2010	0	5/20/2010	0.1
9/20/2010	0	8/4/2010	0.1	5/23/2010	0	5/23/2010	0.2
10/18/2010	0	9/20/2010	0	6/24/2010	0	6/24/2010	0
5/9/2011	0.0	10/18/2010	0	8/4/2010	0.1	6/28/2010	0
5/10/2011	0.0	*5/9/2011*	0.0	9/20/2010	0	8/4/2010	0.1
5/11/2011	0.0	*6/22/2011*	0.0	10/18/2010	0	9/20/2010	0.1
6/22/2011	0.0	*7/25/2011*	0.0	*5/9/2011*	0.0	10/18/2010	0
7/25/2011	0.0	*8/24/2011*	0.0	*6/22/2011*	0.0	*5/9/2011*	0.0
8/24/2011	0.0	*9/19/2011*	0.0	*7/25/2011*	0.0	*6/22/2011*	0.0
9/19/2011	0.0	*10/24/2011*	0.0	*8/24/2011*	0.0	*7/25/2011*	0.0
10/24/2011	0.0	*4/10/2012*	0.0	*9/19/2011*	0.0	*8/24/2011*	0.0
4/10/2012	0.0	*5/9/2012*	0.0	*10/24/2011*	0.0	*9/19/2011*	0.0
5/9/2012	0.0	*6/13/2012*	0.0	*4/10/2012*	0.0	*10/24/2011*	0.0
6/13/2012	0.0	*7/16/2012*	0.0	*5/9/2012*	0.0	*4/10/2012*	0.0
7/16/2012	0.0	*8/22/2012*	0.0	*6/13/2012*	0.0	*5/9/2012*	0.0
8/22/2012	0.0	*9/19/2012*	0.0	*7/16/2012*	0.0	*6/13/2012*	0.0
9/19/2012	0.0	*10/24/2012*	0.0	*8/22/2012*	0.0	*7/16/2012*	0.0
10/24/2012	0.0			*9/19/2012*	0.0	*8/22/2012*	0.0
				10/24/2012	0.0	*9/19/2012*	0.2
						10/24/2012	0.2

SG-23		SG-24		SG-25		SG-26	
Date	**O2 (%)**	**Date**	**O2 (%)**	**Date / Time**	**O2 (%)**	**Date / Time**	**O2 (%)**
9/24/2007	18.3	9/21/2007	19.1	9/21/2007	17.9	9/25/2007	21.3
9/24/2007	19	9/24/2007	17.6	9/24/2007	19.3	9/26/2007	21.4
9/24/2007	17.2	9/24/2007	17.6	9/25/2007	19.7	9/26/2007	21.6
9/25/2007	18.6	9/25/2007	20.3	9/25/2007	17.9	9/26/2007	20.9
9/25/2007	17.8	9/25/2007	17.9	9/25/2007	19.8	9/26/2007	21.4
9/26/2007	17.5	9/25/2007	17.8	9/26/2007	19.4	9/26/2007	21.2
9/26/2007	16.1	9/26/2007	18.8	9/26/2007	19.2	9/27/2007	20.8
9/26/2007	15.4	9/26/2007	17.9	9/26/2007	17.8	9/27/2007	20.9
9/26/2007	15.9	9/26/2007	17.2	9/27/2007	18.7	9/27/2007	10.7
9/26/2007	15.4	9/26/2007	17.7	9/27/2007	18.4	9/28/2007	21.1
9/27/2007	14.7	9/27/2007	17.2	9/28/2007	19.6	10/1/2007	21.1
9/27/2007	20.8	9/27/2007	17.2	10/1/2007	18.9	10/2/2007	20.8
9/27/2007	13.5	9/27/2007	16.9	10/2/2007	19.3	10/2/2007	21
9/28/2007	12.3	9/28/2007	18	10/2/2007	18.9	10/2/2007	20.7
10/1/2007	15.4	10/1/2007	19.2	10/2/2007	19	10/2/2007	20.5
10/2/2007	12.5	10/2/2007	18.8	5/21/2008	19	10/2/2007	20.8
10/2/2007	11.3	10/2/2007	18.6	5/22/2008	18.7	10/3/2007	20.4
10/2/2007	10.2	10/2/2007	17	5/23/2008	19.1	10/3/2007	19.6
10/2/2007	10.6	10/2/2007	17.9	5/24/2008	19	10/4/2007	20.3
10/2/2007	10.5	10/3/2007	18	5/25/2008	19	10/5/2007	20.3
10/3/2007	16.7	10/3/2007	17.6	5/26/2008	18.9	10/5/2007	20.5
10/3/2007	16.1	10/4/2007	18.7	5/27/2008	19	10/5/2007	20.6
10/4/2007	18.7	10/5/2007	17.1	5/28/2008	19	10/8/2007	20.6
10/5/2007	18.6	10/5/2007	17.3	5/29/2008	19	10/9/2007	21.5
10/5/2007	19	10/5/2007	17	5/30/2008	18.7	10/9/2007	21.1
10/5/2007	19.4	10/8/2007	18.4	5/31/2008	18.8	10/11/2007	20.1
10/8/2007	20	10/9/2007	21	6/1/2008	18.5	10/11/2007	20.1
10/9/2007	21	10/9/2007	17.1	6/17/2008	18.8	10/12/2007	19.6
10/9/2007	20.1	10/11/2007	17.9	6/25/2008	18.5	10/15/2007	19.8
10/11/2007	18.7	10/11/2007	17.1	7/24/2008	18.4	10/16/2007	20.3
10/11/2007	20	10/12/2007	16.8	8/3/2008	18.4	10/17/2007	20.4
10/12/2007	20	10/15/2007	16.9	10/10/2008	21.2	10/18/2007	20.2
10/15/2007	20.6	10/16/2007	16.5	10/14/2008	20	10/19/2007	20
10/16/2007	19.8	10/17/2007	16.7	11/4/2008	20	10/23/2007	19.5
10/17/2007	20.2	10/18/2007	16.2	11/27/2008	21	10/24/2007	20.3
10/18/2007	19.8	10/19/2007	19.7	5/6/2009	20.6	10/25/2007	20.5
10/19/2007	19.8	10/23/2007	16.2	5/7/2009	20.9	10/26/2007	20.6
10/23/2007	20.6	10/24/2007	17.9	5/8/2009	21	10/29/2007	20.2
10/24/2007	20.7	10/25/2007	17	6/3/2009	20.8	10/30/2007	20.2
10/25/2007	20.0	10/26/2007	17	6/8/2009	20.7	10/31/2007	20.3
10/26/2007	20.9	10/29/2007	17	7/10/2009	20.4	11/8/2007	20
10/29/2007	20.2	10/30/2007	16.3	8/25/2009	20.1	11/9/2007	20.8
10/30/2007	20.7	10/31/2007	17.1	9/30/2009	20.8	11/12/2007	21.9
10/31/2007	20.5	11/8/2007	18.4	11/3/2009	21.2	11/17/2007	19.9
11/8/2007	21.0	11/9/2007	18	5/20/2010	20.6	11/19/2007	21.2
11/9/2007	20.8	11/12/2007	20.5	5/23/2010	20.2	12/18/2007	22.9
11/12/2007	20.3	11/17/2007	19.7	6/24/2010	21.2	4/2/2008	21.6
11/17/2007	19.9	11/19/2007	20.3	*6/22/2011*	21.1	5/21/2008	19.2



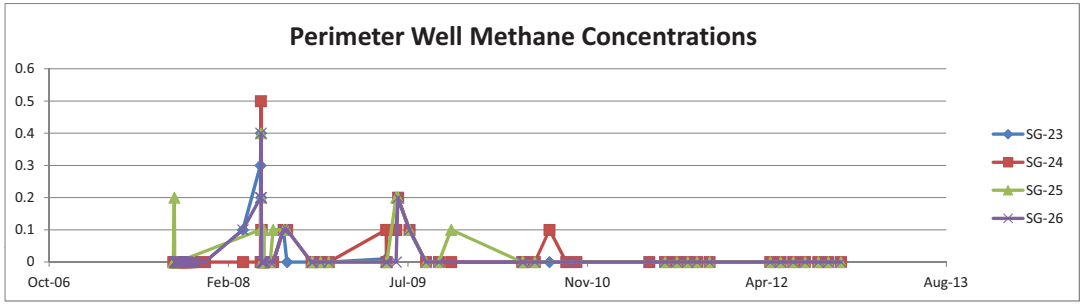
SG-23		SG-24		SG-25		SG-26	
11/19/2007	21.0	12/18/2007	22	*7/25/2011*	21.1	5/22/2008	18.9
12/18/2007	21.2	4/2/2008	20.9	*8/24/2011*	21.1	5/23/2008	19
4/2/2008	21.3	5/21/2008	19.3	*9/19/2011*	20.9	5/24/2008	18.4
5/21/2008	19.3	5/22/2008	18.9	*10/24/2011*	20.8	5/25/2008	18.5
5/22/2008	19.1	5/23/2008	19.1	*4/10/2012*	0.0	5/26/2008	18.7
5/23/2008	19.2	5/24/2008	19	*5/9/2012*	0.0	5/27/2008	19.1
5/24/2008	19.2	5/25/2008	19	*6/13/2012*	0.0	5/28/2008	18.6
5/25/2008	19	5/26/2008	18.9	*7/16/2012*	0.0	5/29/2008	18
5/26/2008	19.1	5/27/2008	18.9	*8/22/2012*	0.0	5/30/2008	17.2
5/27/2008	19	5/28/2008	19	*9/19/2012*	0.0	5/31/2008	18.4
5/28/2008	19.2	5/29/2008	19	*10/24/2012*	0.0	6/1/2008	18
5/29/2008	19	5/30/2008	19			6/17/2008	18.3
5/30/2008	19	5/31/2008	18.9			6/25/2008	18.2
5/31/2008	18.9	6/1/2008	18.4			7/24/2008	18.2
6/1/2008	18.6	6/17/2008	18.7			8/3/2008	18.2
6/17/2008	18.8	6/25/2008	18.8			10/10/2008	20.1
6/25/2008	18.8	7/24/2008	18.3			10/14/2008	20
7/24/2008	18.3	8/3/2008	18.3			11/4/2008	20
8/3/2008	18.4	10/10/2008	20.8			11/27/2008	21
10/10/2008	19.6	10/14/2008	20.9			5/6/2009	20.6
10/14/2008	20.8	11/4/2008	20.2			5/7/2009	21
11/4/2008	20.3	11/27/2008	21.2			5/8/2009	21
11/27/2008	21	5/6/2009	20.7			6/3/2009	20.7
5/6/2009	20.5	5/7/2009	20.9			6/8/2009	20.5
5/7/2009	20.9	5/8/2009	20.8			7/10/2009	20
5/8/2009	20.8	6/3/2009	20.7			8/25/2009	20.1
6/3/2009	20.8	6/8/2009	20.5			9/30/2009	20.8
6/8/2009	20.6	7/10/2009	20.4			5/20/2010	20.4
7/10/2009	20.5	8/25/2009	20.1			5/23/2010	20.2
8/25/2009	20.2	9/30/2009	20.9			6/24/2010	21.1
9/30/2009	20.9	11/3/2009	21.2			9/20/2010	20.9
11/3/2009	21.3	5/20/2010	20.4			10/18/2010	21
5/20/2010	20.6	5/23/2010	20.2			*5/9/2011*	21.1
5/23/2010	20.3	6/24/2010	21.2			*6/22/2011*	21.0
6/24/2010	21.4	8/4/2010	20.3			*7/25/2011*	20.9
8/4/2010	20.7	9/20/2010	20.5			*8/24/2011*	21.1
9/20/2010	20.6	10/18/2010	20.8			*9/19/2011*	21.2
10/18/2010	21	*5/9/2011*	21.1			*10/24/2011*	21.1
5/9/2011	21.1	*6/22/2011*	21.1			*4/10/2012*	0.0
6/22/2011	21.1	*7/25/2011*	21.1			*5/9/2012*	0.0
7/25/2011	21.1	*8/24/2011*	20.9			*6/13/2012*	0.0
8/24/2011	21.1	*9/19/2011*	20.9			*7/16/2012*	0.0
9/19/2011	21.1	*10/24/2011*	20.8			*8/22/2012*	0.0
10/24/2011	21.0	*4/10/2012*	0.0			*9/19/2012*	0.0
4/10/2012	0.0	*5/9/2012*	0.0			*10/24/2012*	0.0
5/9/2012	0.0	*6/13/2012*	0.0				
6/13/2012	0.0	*7/16/2012*	0.0				
7/16/2012	0.1	*8/22/2012*	0.0				
8/22/2012	0.0	*9/19/2012*	0.0				
9/19/2012	0.0	*10/24/2012*	0.0				
10/24/2012	0.0						

SG-23		SG-24		SG-25		SG-26	
Date	**CO2 (%)**	**Date**	**CO2 (%)**	**Date / Time**	**CO2 (%)**	**Date / Time**	**CO2 (%)**
9/24/2007	1.7	9/21/2007	0.7	9/21/2007	2.3	9/25/2007	0
9/24/2007	1.4	9/24/2007	3	9/24/2007	1	9/26/2007	0
9/24/2007	2.6	9/24/2007	3.3	9/25/2007	1.6	9/26/2007	0
9/25/2007	1.6	9/25/2007	0.3	9/25/2007	2.8	9/26/2007	0
9/25/2007	1.9	9/25/2007	2.8	9/25/2007	1.7	9/26/2007	0
9/26/2007	2.5	9/25/2007	3	9/26/2007	1.8	9/26/2007	0
9/26/2007	3.3	9/26/2007	2.2	9/26/2007	1.6	9/27/2007	0
9/26/2007	3.5	9/26/2007	3.4	9/26/2007	3.2	9/27/2007	0
9/26/2007	3.6	9/26/2007	3.4	9/27/2007	1.8	9/27/2007	0
9/26/2007	4	9/26/2007	3.3	9/27/2007	1.8	9/28/2007	0
9/27/2007	4.4	9/27/2007	3.8	9/28/2007	1.9	10/1/2007	0
9/27/2007	0	9/27/2007	3.6	10/1/2007	1.7	10/2/2007	0
9/27/2007	4.5	9/27/2007	3.7	10/2/2007	1.6	10/2/2007	0
9/28/2007	5.1	9/28/2007	3	10/2/2007	2	10/2/2007	0
10/1/2007	3.1	10/1/2007	1.4	10/2/2007	1.8	10/2/2007	0
10/2/2007	4.1	10/2/2007	1.9	5/21/2008	0.4	10/2/2007	0.3
10/2/2007	5.3	10/2/2007	1.7	5/22/2008	0.7	10/3/2007	0
10/2/2007	5.6	10/2/2007	3.4	5/23/2008	0.5	10/3/2007	0
10/2/2007	5.6	10/2/2007	2.5	5/24/2008	0.4	10/4/2007	0
10/2/2007	5.9	10/3/2007	2.3	5/25/2008	0.3	10/5/2007	0
10/3/2007	3.1	10/3/2007	1.9	5/26/2008	0.3	10/5/2007	0
10/3/2007	3.8	10/4/2007	2.1	5/27/2008	0.2	10/5/2007	0
10/4/2007	3.6	10/5/2007	3.3	5/28/2008	0.2	10/8/2007	0
10/5/2007	6.3	10/5/2007	3.4	5/29/2008	0	10/9/2007	0
10/5/2007	5.5	10/5/2007	3.4	5/30/2008	0.3	10/9/2007	0
10/5/2007	4.1	10/8/2007	1.6	5/31/2008	0.1	10/11/2007	0
10/8/2007	0	10/9/2007	0	6/1/2008	0.2	10/11/2007	0
10/9/2007	0	10/9/2007	3.5	6/17/2008	0.3	10/12/2007	0
10/9/2007	2.8	10/11/2007	2	6/25/2008	0.2	10/15/2007	0
10/11/2007	2.5	10/11/2007	3.6	7/24/2008	0.2	10/16/2007	0
10/11/2007	2.5	10/12/2007	2.9	8/3/2008	0.2	10/17/2007	0
10/12/2007	2	10/15/2007	2	10/10/2008	0	10/18/2007	0
10/15/2007	1.5	10/16/2007	0	10/14/2008	0	10/19/2007	0
10/16/2007	2.8	10/17/2007	3.3	11/4/2008	0.8	10/23/2007	0
10/17/2007	1.6	10/18/2007	3.2	11/27/2008	0	10/24/2007	0
10/18/2007	2.8	10/19/2007	1	5/6/2009	0	10/25/2007	0
10/19/2007	0.5	10/23/2007	3	5/7/2009	0	10/26/2007	0
10/23/2007	0.6	10/24/2007	1.7	5/8/2009	0	10/29/2007	0
10/24/2007	0.7	10/25/2007	3	6/3/2009	0	10/30/2007	0
10/25/2007	0.5	10/26/2007	2.7	6/8/2009	0.1	10/31/2007	0
10/26/2007	0.4	10/29/2007	2.5	7/10/2009	0	11/8/2007	0
10/29/2007	0.4	10/30/2007	3	8/25/2009	0	11/9/2007	0
10/30/2007	0.5	10/31/2007	2.2	9/30/2009	0.1	11/12/2007	0
10/31/2007	0.5	11/8/2007	0.8	11/3/2009	0	11/17/2007	0
11/8/2007	0.5	11/9/2007	1.9	5/20/2010	0	11/19/2007	0
11/9/2007	0.5	11/12/2007	0	5/23/2010	0	12/18/2007	0
11/12/2007	0	11/17/2007	0	6/24/2010	0.3	4/2/2008	0
11/17/2007	0	11/19/2007	0.7	*6/22/2011*	0.0	5/21/2008	0.4



SG-23		SG-24		SG-25		SG-26	
11/19/2007	0.1	12/18/2007	0.6	*7/25/2011*	0.0	5/22/2008	0.8
12/18/2007	0.2	4/2/2008	0.5	*8/24/2011*	0.0	5/23/2008	0.5
4/2/2008	0	5/21/2008	0.4	*9/19/2011*	0.0	5/24/2008	1.1
5/21/2008	0.3	5/22/2008	0.8	*10/24/2011*	0.0	5/25/2008	1
5/22/2008	0.8	5/23/2008	0.5	*4/10/2012*	0.0	5/26/2008	0.8
5/23/2008	0.5	5/24/2008	0.3	*5/9/2012*	0.0	5/27/2008	0.1
5/24/2008	0.3	5/25/2008	0.1	*6/13/2012*	0.0	5/28/2008	1
5/25/2008	0.1	5/26/2008	0.1	*7/16/2012*	0.0	5/29/2008	1.4
5/26/2008	0.1	5/27/2008	0.1	*8/22/2012*	0.0	5/30/2008	2.5
5/27/2008	0.1	5/28/2008	0	*9/19/2012*	0.0	5/31/2008	0.6
5/28/2008	0.1	5/29/2008	0	*10/24/2012*	0.0	6/1/2008	0.7
5/29/2008	0	5/30/2008	0			6/17/2008	0.9
5/30/2008	0	5/31/2008	0			6/25/2008	1.2
5/31/2008	0	6/1/2008	0			7/24/2008	0
6/1/2008	0.1	6/17/2008	0			8/3/2008	0
6/17/2008	0.2	6/25/2008	0			10/10/2008	1
6/25/2008	0	7/24/2008	0.8			10/14/2008	1.5
7/24/2008	0.2	8/3/2008	0.6			11/4/2008	0.9
8/3/2008	0.1	10/10/2008	0			11/27/2008	0
10/10/2008	0.8	10/14/2008	0			5/6/2009	0
10/14/2008	0.2	11/4/2008	0			5/7/2009	0
11/4/2008	0	11/27/2008	0			5/8/2009	0
11/27/2008	0	5/6/2009	0.3			6/3/2009	0
5/6/2009	0.3	5/7/2009	0.3			6/8/2009	0.1
5/7/2009	0.1	5/8/2009	0.3			7/10/2009	0
5/8/2009	0.1	6/3/2009	0.3			8/25/2009	0
6/3/2009	0.1	6/8/2009	0.4			9/30/2009	0.1
6/8/2009	0.2	7/10/2009	0.1			5/20/2010	0
7/10/2009	0	8/25/2009	0			5/23/2010	0
8/25/2009	0	9/30/2009	0.1			6/24/2010	1
9/30/2009	0.1	11/3/2009	0			9/20/2010	0
11/3/2009	0	5/20/2010	0.3			10/18/2010	0
5/20/2010	0	5/23/2010	0.1			*5/9/2011*	0.0
5/23/2010	0	6/24/2010	0.3			*6/22/2011*	0.0
6/24/2010	0	8/4/2010	0.1			*7/25/2011*	0.0
8/4/2010	0	9/20/2010	0.6			*8/24/2011*	0.0
9/20/2010	0	10/18/2010	0.3			*9/19/2011*	0.0
10/18/2010	0.1	*5/9/2011*	0.0			*10/24/2011*	0.0
5/9/2011	0.0	*6/22/2011*	0.0			*4/10/2012*	0.0
6/22/2011	0.0	*7/25/2011*	0.0			*5/9/2012*	0.0
7/25/2011	0.0	*8/24/2011*	0.0			*6/13/2012*	0.0
8/24/2011	0.0	*9/19/2011*	0.0			*7/16/2012*	0.0
9/19/2011	0.0	*10/24/2011*	0.2			*8/22/2012*	0.0
10/24/2011	0.1	*4/10/2012*	0.0			*9/19/2012*	0.0
4/10/2012	0.0	*5/9/2012*	0.0			*10/24/2012*	0.0
5/9/2012	0.0	*6/13/2012*	0.0				
6/13/2012	0.0	*7/16/2012*	0.0				
7/16/2012	0.0	*8/22/2012*	0.0				
8/22/2012	0.0	*9/19/2012*	0.0				
9/19/2012	0.0	*10/24/2012*	0.0				
10/24/2012	0.0						

SG-23		SG-24		SG-25		SG-26	
Date	CH4 (%)	Date	CH4 (%)	Date / Time	CH4 (%)	Date / Time	CH4 (%)
9/24/2007	0	9/21/2007	0	9/21/2007	0	9/25/2007	0
9/24/2007	0	9/24/2007	0	9/24/2007	0.2	9/26/2007	0
9/24/2007	0	9/24/2007	0	9/25/2007	0	9/26/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/26/2007	0
9/25/2007	0	9/25/2007	0	9/25/2007	0	9/26/2007	0
9/26/2007	0	9/25/2007	0	9/26/2007	0	9/26/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/27/2007	0
9/26/2007	0	9/26/2007	0	9/26/2007	0	9/27/2007	0
9/26/2007	0	9/26/2007	0	9/27/2007	0	9/27/2007	0
9/26/2007	0	9/26/2007	0	9/27/2007	0	9/28/2007	0
9/27/2007	0	9/27/2007	0	9/28/2007	0	10/1/2007	0
9/27/2007	0	9/27/2007	0	10/1/2007	0	10/2/2007	0
9/27/2007	0	9/27/2007	0	10/2/2007	0	10/2/2007	0
9/28/2007	0	9/28/2007	0	10/2/2007	0	10/2/2007	0
10/1/2007	0	10/1/2007	0	10/2/2007	0	10/2/2007	0
10/2/2007	0	10/2/2007	0	5/21/2008	0.1	10/2/2007	0
10/2/2007	0	10/2/2007	0	5/22/2008	0.4	10/3/2007	0
10/2/2007	0	10/2/2007	0	5/23/2008	0.2	10/3/2007	0
10/2/2007	0	10/2/2007	0	5/24/2008	0	10/4/2007	0
10/2/2007	0	10/3/2007	0	5/25/2008	0	10/5/2007	0
10/3/2007	0	10/3/2007	0	5/26/2008	0	10/5/2007	0
10/3/2007	0	10/4/2007	0	5/27/2008	0	10/5/2007	0
10/4/2007	0	10/5/2007	0	5/28/2008	0	10/8/2007	0
10/5/2007	0	10/5/2007	0	5/29/2008	0	10/9/2007	0
10/5/2007	0	10/5/2007	0	5/30/2008	0.1	10/9/2007	0
10/5/2007	0	10/8/2007	0	5/31/2008	0	10/11/2007	0
10/8/2007	0	10/9/2007	0	6/1/2008	0	10/11/2007	0
10/9/2007	0	10/9/2007	0	6/17/2008	0	10/12/2007	0
10/9/2007	0	10/11/2007	0	6/25/2008	0.1	10/15/2007	0
10/11/2007	0	10/11/2007	0	7/24/2008	0.1	10/16/2007	0
10/11/2007	0	10/12/2007	0	8/3/2008	0.1	10/17/2007	0
10/12/2007	0	10/15/2007	0	10/10/2008	0	10/18/2007	0
10/15/2007	0	10/16/2007	0	10/14/2008	0	10/19/2007	0
10/16/2007	0	10/17/2007	0	11/4/2008	0	10/23/2007	0
10/17/2007	0	10/18/2007	0	11/27/2008	0	10/24/2007	0
10/18/2007	0	10/19/2007	0	5/6/2009	0	10/25/2007	0
10/19/2007	0	10/23/2007	0	5/7/2009	0	10/26/2007	0
10/23/2007	0	10/24/2007	0	5/8/2009	0	10/29/2007	0
10/24/2007	0	10/25/2007	0	6/3/2009	0.2	10/30/2007	0
10/25/2007	0	10/26/2007	0	6/8/2009	0.2	10/31/2007	0
10/26/2007	0	10/29/2007	0	7/10/2009	0.1	11/8/2007	0
10/29/2007	0	10/30/2007	0	8/25/2009	0	11/9/2007	0
10/30/2007	0	10/31/2007	0	9/30/2009	0	11/12/2007	0
10/31/2007	0	11/8/2007	0	11/3/2009	0.1	11/17/2007	0
11/8/2007	0	11/9/2007	0	5/20/2010	0	11/19/2007	0
11/9/2007	0	11/12/2007	0	5/23/2010	0	12/18/2007	0
11/12/2007	0	11/17/2007	0	6/24/2010	0	4/2/2008	0.1
11/17/2007	0	11/19/2007	0	*6/22/2011*	0.0	5/21/2008	0.2



SG-23		SG-24		SG-25		SG-26	
11/19/2007	0	12/18/2007	0	*7/25/2011*	0.0	5/22/2008	0.4
12/18/2007	0	4/2/2008	0	*8/24/2011*	0.0	5/23/2008	0.2
4/2/2008	0.1	5/21/2008	0	*9/19/2011*	0.0	5/24/2008	0
5/21/2008	0.3	5/22/2008	0.5	*10/24/2011*	0.0	5/25/2008	0
5/22/2008	0.4	5/23/2008	0.1	*4/10/2012*	0.0	5/26/2008	0
5/23/2008	0.2	5/24/2008	0.1	*5/9/2012*	0.0	5/27/2008	0
5/24/2008	0.1	5/25/2008	0	*6/13/2012*	0.0	5/28/2008	0
5/25/2008	0	5/26/2008	0	*7/16/2012*	0.0	5/29/2008	0
5/26/2008	0	5/27/2008	0	*8/22/2012*	0.0	5/30/2008	0
5/27/2008	0	5/28/2008	0	*9/19/2012*	0.0	5/31/2008	0
5/28/2008	0	5/29/2008	0	*10/24/2012*	0.0	6/1/2008	0
5/29/2008	0	5/30/2008	0			6/17/2008	0
5/30/2008	0	5/31/2008	0			6/25/2008	0
5/31/2008	0	6/1/2008	0			7/24/2008	0.1
6/1/2008	0	6/17/2008	0			8/3/2008	0.1
6/17/2008	0	6/25/2008	0			10/10/2008	0
6/25/2008	0	7/24/2008	0.1			10/14/2008	0
7/24/2008	0.1	8/3/2008	0.1			11/4/2008	0
8/3/2008	0	10/10/2008	0			11/27/2008	0
10/10/2008	0	10/14/2008	0			5/6/2009	0
10/14/2008	0	11/4/2008	0			5/7/2009	0
11/4/2008	0	11/27/2008	0			5/8/2009	0
11/27/2008	0	5/6/2009	0.1			6/3/2009	0
5/6/2009	0.01	5/7/2009	0			6/8/2009	0.2
5/7/2009	0	5/8/2009	0.1			7/10/2009	0.1
5/8/2009	0.1	6/3/2009	0.1			8/25/2009	0
6/3/2009	0.1	6/8/2009	0.2			9/30/2009	0
6/8/2009	0.2	7/10/2009	0.1			5/20/2010	0
7/10/2009	0.1	8/25/2009	0			5/23/2010	0
8/25/2009	0	9/30/2009	0			6/24/2010	0
9/30/2009	0	11/3/2009	0			9/20/2010	0
11/3/2009	0	5/20/2010	0			10/18/2010	0
5/20/2010	0	5/23/2010	0			***5/9/2011***	**0.0**
5/23/2010	0	6/24/2010	0			*6/22/2011*	0.0
6/24/2010	0	8/4/2010	0.1			*7/25/2011*	0.0
8/4/2010	0	9/20/2010	0			*8/24/2011*	0.0
9/20/2010	0	10/18/2010	0			*9/19/2011*	0.0
10/18/2010	0	***5/9/2011***	**0.0**			*10/24/2011*	0.0
5/9/2011	**0.0**	*6/22/2011*	0.0			*4/10/2012*	0.0
6/22/2011	0.0	*7/25/2011*	0.0			*5/9/2012*	0.0
7/25/2011	0.0	*8/24/2011*	0.0			*6/13/2012*	0.0
8/24/2011	0.0	*9/19/2011*	0.0			*7/16/2012*	0.0
9/19/2011	0.0	*10/24/2011*	0.0			*8/22/2012*	0.0
10/24/2011	0.0	*4/10/2012*	0.0			*9/19/2012*	0.0
4/10/2012	0.0	*5/9/2012*	0.0			*10/24/2012*	0.0
5/9/2012	0.0	*6/13/2012*	0.0				
6/13/2012	0.0	*7/16/2012*	0.0				
7/16/2012	0.0	*8/22/2012*	0.0				
8/22/2012	0.0	*9/19/2012*	0.0				
9/19/2012	0.0	*10/24/2012*	0.0				
10/24/2012	0.0						

	Well ID	Shallow	SG-22	SG-04S	SG-07S	SG-05S	SG-06S	Intermediate	SG-04I	SG-07I	SG-05I	SG-06I	Deep	SG-04D	SG-07D	SG-05D	SG-06D	Perimeter	SG-23 (3')	SG-24 (5')	SG-25 (5')	SG-26 (5')
	2 hours after startup (4/10/2012)																					
O2			5.0	0.1	21.7	0.3	0.0		3.2	2.0	0.0	0.0		3.2	1.2	0.0	0.3		0.0	0.0	0.0	0.0
O2	*4/11/2012*		23.5	NM	25.3	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*4/12/2012*		22.8	NM	25.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*4/13/2012*		24.3	NM	25.4	NM	NM		0.5	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*4/14/2012*		22.1	NM	25.2	NM	NM		0.4	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*5/9/2012*		0.6	0.5	13.0	0.2	0.0		1.0	1.1	0.1	0.0		0.6	0.6	0.1	0.1		0.0	0.0	0.0	0.0
O2	*5/10/2012*		21.5	NM	26.9	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*5/11/2012*		19.0	NM	26.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*5/12/2012*		21.7	NM	27.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*5/13/2012*		21.9	NM	27.3	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*6/13/2012*		0.1	0.0	15.9	0.1	0.0		0.2	0.7	0.1	0.0		0.6	0.4	0.0	0.0		0.0	0.0	0.0	0.0
O2	*6/14/2012*		4.5	NM	28.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*6/15/2012*		8.4	NM	26.9	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*6/16/2012*		9.6	NM	26.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*6/17/2012*		8.9	NM	27.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*7/16/2012*		6.7	0.1	30.4	0.1	0.0		0.4	0.6	0.1	0.0		0.5	0.3	0.0	0.0		0.1	0.0	0.0	0.0
O2	*7/17/2012*		7.2	NM	29.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*7/18/2012*		6.4	NM	27.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*7/19/2012*		5.5	NM	26.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*7/20/2012*		4.5	NM	24.6	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*8/22/2012*		0.2	0.2	26.1	0.0	0.0		0.5	0.5	0.1	0.0		0.6	0.4	0.0	0.0		0.0	0.0	0.0	0.0
O2	*8/23/2012*		0.2	NM	27.3	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*8/24/2012*		0.1	NM	25.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*8/25/2012*		2.7	NM	23.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*8/26/2012*		4.3	NM	23.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*9/19/2012*		4.7	0.1	26.7	0.0	0.0		0.4	0.7	0.1	0.0		0.5	0.3	0.0	0.0		0.0	0.0	0.0	0.0
O2	*9/20/2012*		4.4	NM	27.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*9/21/2012*		4.3	NM	26.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*9/22/2012*		3.7	NM	24.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*9/23/2012*		3.4	NM	24.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*10/24/2012*		0.2	0.1	26.8	0.0	0.0		0.3	0.6	0.1	0.0		0.4	0.2	0.0	0.0		0.0	0.0	0.0	0.0
O2	*10/25/2012*		4.4	NM	21.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*10/26/2012*		5.3	NM	22.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*10/27/2012*		4.8	NM	24.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
O2	*10/28/2012*		5.7	NM	23.4	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
	2 hours after startup (4/10/2012)																					
CO2			0.0	0.0	13.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CO2	*4/11/2012*		8.8	NM	16.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*4/12/2012*		8.4	NM	16.3	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*4/13/2012*		7.8	NM	12.1	NM	NM		0.0	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*4/14/2012*		5.2	NM	8.4	NM	NM		0.0	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*5/9/2012*		0.0	0.0	4.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CO2	*5/10/2012*		4.0	NM	11.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*5/11/2012*		2.8	NM	11.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	*5/12/2012*		2.4	NM	9.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM

	Well ID	Shallow	SG-22	SG-04S	SG-07S	SG-05S	SG-06S	Intermediate	SG-04I	SG-07I	SG-05I	SG-06I	Deep	SG-04D	SG-07D	SG-05D	SG-06D	Perimeter	SG-23 (3')	SG-24 (5')	SG-25 (5')	SG-26 (5')
CO2	5/13/2012		1.9	NM	6.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	6/13/2012		0.0	0.0	4.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CO2	6/14/2012		1.0	NM	7.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	6/15/2012		1.3	NM	9.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	6/16/2012		1.2	NM	7.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	6/17/2012		1.0	NM	5.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	7/16/2012		1.0	0.0	10.8	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CO2	7/17/2012		1.7	NM	7.7	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	7/18/2012		1.2	NM	5.6	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	7/19/2012		1.0	NM	3.9	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	7/20/2012		0.8	NM	2.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	8/22/2012		0.0	0.0	9.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CO2	8/23/2012		0.0	NM	9.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	8/24/2012		0.0	NM	4.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	8/25/2012		1.2	NM	2.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	8/26/2012		0.8	NM	2.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	9/19/2012		1.5	0.0	9.1	0.0	0.0		0.0	0.1	0.0	0.0		0.0	0.1	0.0	0.0		0.0	0.0	0.0	0.0
CO2	9/20/2012		1.3	NM	6.6	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	9/21/2012		1.0	NM	4.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	9/22/2012		0.9	NM	2.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	9/23/2012		0.7	NM	1.8	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	10/24/2012		0.0	0.0	9.8	0.0	0.0		0.0	0.1	0.0	0.0		0.0	0.1	0.0	0.0		0.0	0.0	0.0	0.0
CO2	10/25/2012		1.2	NM	6.2	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	10/26/2012		1.2	NM	5.1	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	10/27/2012		1.0	NM	3.5	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CO2	10/28/2012		1.0	NM	2.6	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	2 hours after startup (4/10/2012)		0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CH4	4/11/2012		100.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	4/12/2012		100.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	4/13/2012		100.0	NM	100.0	NM	NM		0.0	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	4/14/2012		100.0	NM	100.0	NM	NM		0.1	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	5/9/2012		0.0	0.0	88.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CH4	5/10/2012		80.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	5/11/2012		56.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	5/12/2012		49.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	5/13/2012		37.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	6/13/2012		0.0	0.0	98.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CH4	6/14/2012		16.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	6/15/2012		25.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	6/16/2012		25.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	6/17/2012		20.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	7/16/2012		20.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
CH4	7/17/2012		33.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	7/18/2012		26.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	7/19/2012		19.0	NM	77.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	7/20/2012		14.0	NM	44.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	8/22/2012		0.0	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

	Well ID	Shallow	SG-22	SG-04S	SG-07S	SG-05S	SG-06S	Intermediate	SG-04I	SG-07I	SG-05I	SG-06I	Deep	SG-04D	SG-07D	SG-05D	SG-06D	Perimeter	SG-23 (3')	SG-24 (5')	SG-25 (5')	SG-26 (5')
CH4	8/23/2012		0.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	8/24/2012		0.0	NM	88.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	8/25/2012		22.0	NM	56.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	8/26/2012		16.0	NM	40.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	9/19/2012		24.0	0.0	100.0	0.0	0.0		0.0	0.2	0.0	0.0		0.0	0.2	0.0	0.0		0.0	0.0	0.0	0.0
CH4	9/20/2012		26.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	9/21/2012		20.0	NM	84.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	9/22/2012		16.0	NM	51.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	9/23/2012		13.0	NM	37.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	10/24/2012		0.0	0.0	100.0	0.0	0.0		0.0	0.2	0.0	0.0		0.0	0.2	0.0	0.0		0.0	0.0	0.0	0.0
CH4	10/25/2012		25.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	10/26/2012		24.0	NM	100.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	10/27/2012		19.0	NM	67.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM
CH4	10/28/2012		21.0	NM	50.0	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM		NM	NM	NM	NM