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CH2MHILL

November 16, 2009

Mr. Tom Williams
Work Assignment Manager (SR-6J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507

Subject: Final 2008 Annual Report
Penta Wood Products Site, Siren, WI
WA No. 004-LRLR-05WE, Contract No. EP-S5-06-01

Dear Mr. Williams:

Enclosed is the Final 2008 Annual Report for the Penta Wood Products Site in Siren, Wisconsin. We have sent a copy directly to Bill Schultz at the Wisconsin Department of Natural Resources.

If you have any questions, please feel free to call me at 414-847-0561.

Sincerely,

CH2M HILL

Marion Gene, signing for
Keli McKenna
Site Manager

Enclosures
c: Pat Vogtman, PO/U.S. EPA, Region 5 (w/o enclosure)
Parveen Vij, CO/U.S. EPA, Region 5 (w/o enclosure)
Bill Schultz/WDNR, Rhinelander
Ike Johnson, PM/CH2M HILL, Milwaukee
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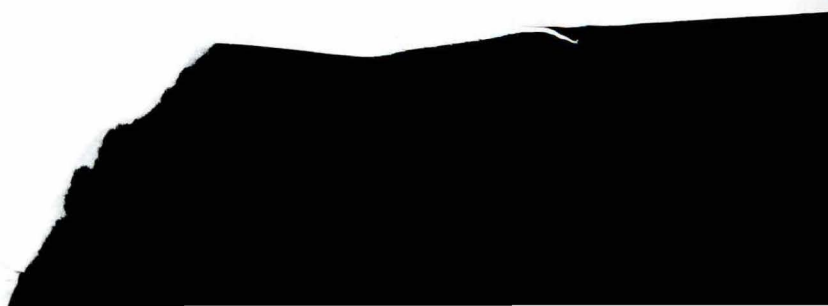

REGION 5 RAC2

REMEDIAL ACTION CONTRACT FOR

Remedial, Enforcement Oversight, and
Non-Time Critical Removal Activities at Sites of Release
or Threatened Release of Hazardous Substances in Region 5

2008 ANNUAL REPORT
PENTA WOOD PRODUCTS SITE
Town of Daniels, Wisconsin

Long-Term Response Action

WA No. 004-LRLR-05WE/Contract No. EP-S5-06-01

November 2009

PREPARED FOR

U.S. Environmental Protection Agency

PREPARED BY

CH2M HILL
Ecology and Environment, Inc.
Environmental Design International, Inc.
Teska Associates, Inc.

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2008 ANNUAL REPORT

PENTA WOOD PRODUCTS SITE

Town of Daniels, Wisconsin

Long-Term Response Action

WA No. 004-LRLR-05WE / Contract No. EP-S5-06-01

November 2009

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Abbreviations and Acronyms

µg/L	micrograms per liter
BTEX	benzene, toluene, ethylbenzene, and xylene
CAMU	Corrective Action Management Unit
COW	coalescing oil water
EMT	Environmental Monitoring Technologies
ES	Enforcement Standard
EW	extraction well
ft^3	cubic feet
g/cm^3	grams per cubic centimeter
GAC	granulated activated carbon
gal	gallon
gpm	gallons per minute
GW	groundwater
HVAC	heating, ventilating, and air conditioning
lb	pound
LNAPL	light nonaqueous phase liquid
MG	million gallons
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
MSDS	Material Safety Data Sheets
MW	monitoring well
ORP	oxidation-reduction potential
PAL	Preventive Action Limit
PCP	pentachlorophenol
psi	pound per square inch
PVC	polyvinyl chloride
QC	quality control
RA	remedial action
RDVF	rotary drum vacuum filter
scfm	standard cubic feet per minute
SM	Site Manager
SOP	standard operating procedure
STL	Severn Trent Laboratories

USEPA	United States Environmental Protection Agency
WA	Work Assignment
WAM	Work Assignment Manager
WDC	Water Development Corporation
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System

SECTION 1

Introduction

This annual report documents the groundwater monitoring, groundwater treatment system, and bioventing system operation, hazardous waste generation and disposal, and site inspection and maintenance activities at the Penta Wood Products Site as performed by CH2M HILL for the U.S. Environmental Protection Agency (USEPA) under Work Assignment (WA) No. 004-LRLR-05WE.

SECTION 2

2008 Groundwater Monitoring

The eighth year of post-remedial action (RA) groundwater monitoring at the Penta Wood Products site included two groundwater sampling events. The semiannual groundwater sampling event was conducted at the Penta Wood Products Site in May 2008 and consisted of sampling at five monitoring wells, five residential wells, and one onsite potable well, along with static water level measurements collected at all monitoring wells, and product level measurements in monitoring wells with light nonaqueous phase liquid (LNAPL). The annual groundwater sampling event was conducted in October 2008 and consisted of sampling 14 monitoring wells, five residential wells, and one onsite potable well; measuring static water levels in all monitoring wells; and measuring product levels in monitoring wells with LNAPL. This report presents the results of the two groundwater sampling events and includes tables and figures presenting historical groundwater data. It is an update of the previous year's report, retaining and updating 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 meet effluent criteria. Since it was restarted on February 27, 2004, the treatment system has been running continuously with the exception of occasional downtime from routine maintenance and repairs. The October 2008 monitoring well results reflect approximately 4.5 years of system operation since the groundwater treatment system was restarted. Future groundwater monitoring events will also evaluate impacts from the bioventing system which began operation in September 2007.

During the groundwater sampling events, samples are collected to monitor groundwater contaminant levels. Parameters that are analyzed include pentachlorophenol (PCP); naphthalene; benzene, toluene, ethylbenzene, and xylene (BTEX); dissolved metals; and natural attenuation parameters (see the analytical results in Appendix A and B). Water level and LNAPL measurements are made to determine the remaining LNAPL thickness and the groundwater flow direction(s) in the unconfined and semiconfined aquifers. Water level measurements collected during each sampling event to assess groundwater flow direction are provided 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. The capture zone analysis and parameters help to assess the effectiveness of the groundwater and LNAPL extraction, treatment, and natural attenuation.

2.1 Water Levels and LNAPL Measurements

Water levels in all monitoring wells were measured in May and October 2008. 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 product

surface (if present) and water surface was measured from the top of the inner well casing using an oil/water interface probe. Water level and LNAPL measurements are provided in Appendix C.

The following sections provide a discussion of LNAPL thickness and distribution, and effects of the groundwater extraction well network on the unconfined and semiconfined aquifers.

2.1.1 Light Nonaqueous Phase Liquid Thickness

In May 2008, LNAPL was observed in monitoring well MW-10S (0.40 feet), MW-18 (1.19 feet), MW-19 (0.90 feet), and MW-20 (1.71 feet). During October 2008, LNAPL was again observed in MW-10S (0.14 feet), MW-18 (0.04 feet). In October 2008, the presence of LNAPL could not be determined in MW-19 and MW-20. Obstructions in the wells prevented the interface probe from reaching either the top or bottom of the LNAPL and the thickness could not be determined. Groundwater elevations, oil/water interface measurement data, historic LNAPL thickness data, and other observations are included in Appendix C.

The LNAPL thickness measured in May 2008 is at or near the greatest thicknesses measured in MW-18, MW-19, and MW-20. MW-19 and MW-20 are located in the same general area of the Corrective Action Management Unit (CAMU) and are surrounded by extraction wells. The LNAPL appears to be pooling in the hydraulic capture zone resulting from the operation of the extraction wells and increased LNAPL thickness in the wells centrally located within the capture zone. MW-10S and MW-18 are located near the edge of the CAMU and outside the immediate vicinity of the extraction wells. A regionally depressed water table can also contribute to greater measured LNAPL thicknesses.

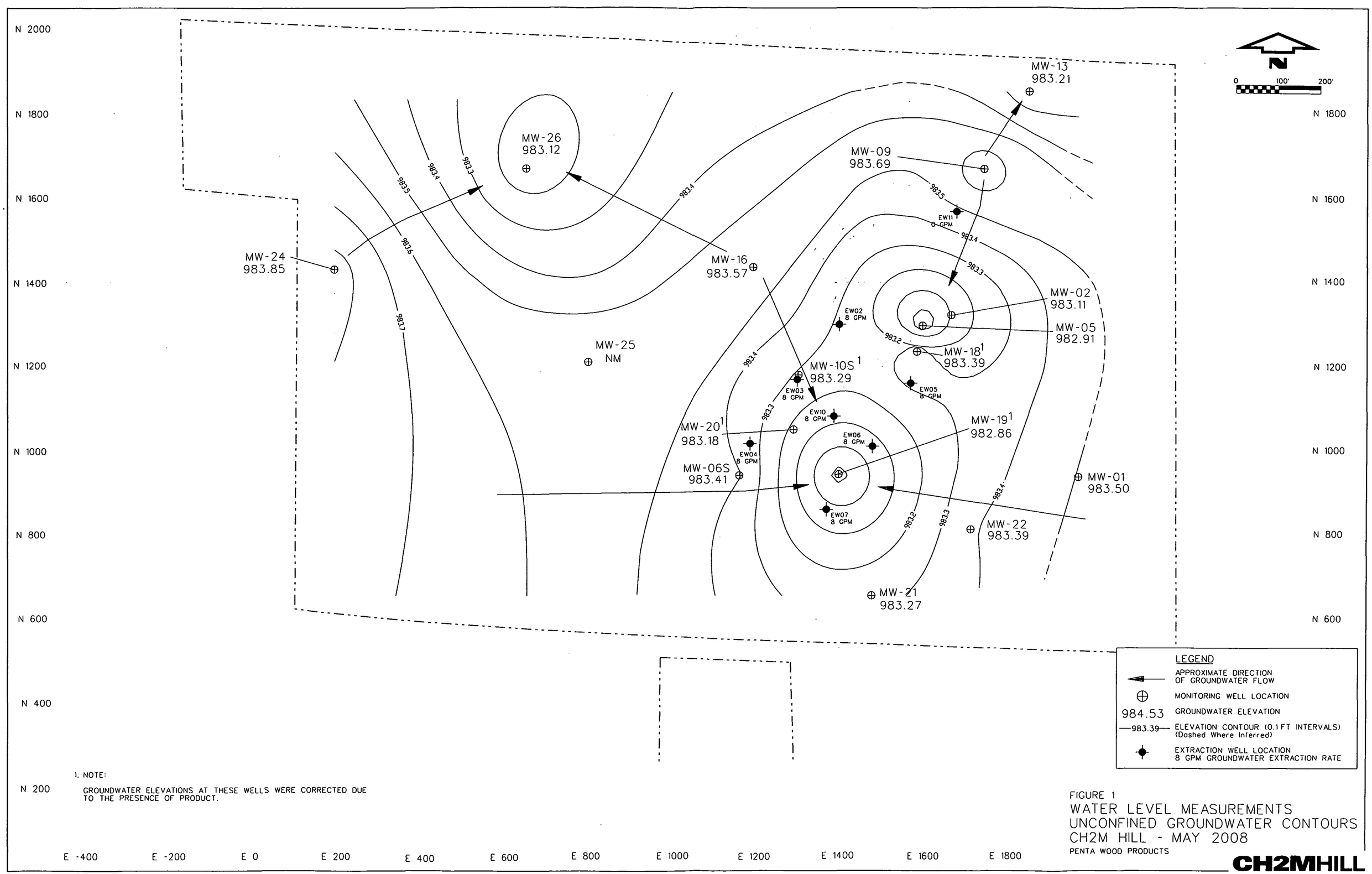
2.1.2 Unconfined Aquifer Hydraulic Capture

To evaluate the hydraulic capture in the unconfined aquifer, potentiometric surface maps were created. Horizontal gradients were also calculated using wells located inside and outside the capture zone created by the extraction wells.

Potentiometric Surface

The water levels recorded in May 2008 (Figure 1) and October 2008 (Figure 2) continue to show a consistent capture zone in the unconfined aquifer resulting from the operation of the groundwater collection system. Water levels in Figure 2 are inferred around the locations of MW-19 and MW-20. Obstructions in the well prevented the measurement of the LNAPL and water interface in October 2008. The potentiometric surface was created based on the effects of operation of the extraction wells and consistent gradients between measured well pairs from May to October 2008.

Groundwater in the unconfined aquifer displays a varied local flow pattern across the site. The May and October 2008 potentiometric surfaces indicate a groundwater divide existing beneath the site, running from the southwest to the northeast. Monitoring wells MW-09 and MW-16 exhibit the local groundwater highs within this divide, possibly indicating infiltration within the unconfined aquifer as a result of surface water runoff from the CAMU. The capture zone is bounded by MW-09 on the north, MW-16 on the west, MW-21 on the south, and MW-22 on the east as indicated by the lower water levels in the CAMU monitoring wells.



1. NOTE:

GROUNDWATER ELEVATIONS AT THESE WELLS WERE CORRECTED DUE TO THE PRESENCE OF PRODUCT.

FIGURE 1
WATER LEVEL MEASUREMENTS
UNCONFINED GROUNDWATER CONTOURS
CH2M HILL - MAY 2008
PENTA WOOD PRODUCTS

CH2MHILL

N 2000
N 1800
N 1600
N 1400
N 1200
N 1000
N 800
N 600
N 400
N 200

E -400 E -200 E 0 E 200 E 400 E 600 E 800 E 1000 E 1200 E 1400 E 1600 E 1800

INFILTRATION BASIN

MW-26
982.97

MW-13
982.99

MW-09
983.51

MW-16
983:36

MW-24
983.33

MW-25

MW-10S
983.04

MW-02
982.93

MW-05
982.76

MW-18
983.42

MW-20
NM

MW-19
NM

MW-06S
983.21

MW-01
983.36

MW-22
983.25

MW-21
983.13

EW11
0 GPM

EW02
8 GPM

EW03
8 GPM

EW05
8 GPM

EW10
8 GPM

EW04
8 GPM

EW06
8 GPM

EW07
8 GPM

983.1
983.2
983.3
983.0

0 100' 200'

NOTE:

1. GROUNDWATER ELEVATIONS AT THESE WELLS WERE CORRECTED DUE TO THE PRESENCE OF PRODUCT.
2. GROUNDWATER ELEVATIONS AT MW-19 AND MW-20 WERE NOT MEASURED.

LEGEND

- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- MONITORING WELL LOCATION
- 984.53 GROUNDWATER ELEVATION
- 983.39 ELEVATION CONTOUR (0.1 FT INTERVALS) (Dashed Where Inferred)
- EXTRACTION WELL LOCATION 8 GPM GROUNDWATER EXTRACTION RATE

FIGURE 2
WATER LEVEL MEASUREMENTS
UNCONFINED GROUNDWATER CONTOURS
CH2M HILL - OCTOBER 2008
PENTA WOOD PRODUCTS

CH2MHILL

The effect of the discharge of the treated groundwater at the infiltration basin has continued to show minimal to no response on the unconfined aquifer. The variability of the water table surface observed in the unconfined aquifer in 2008 is likely a function of both the influence of the treatment system's pumping wells and varying surface infiltration rates across the site.

Hydraulic Gradients

Horizontal hydraulic gradients were calculated using monitoring wells screened in the unconfined aquifer located inside and outside the capture zone created by the extraction wells. The gradients were calculated for 2004, which represents the treatment system operation shortly after startup and for 2008. The calculated gradients are summarized in Table 1.

TABLE 1
Horizontal Hydraulic Gradients in the Unconfined Aquifer
Penta Wood Products Site

Monitoring Well Outside Capture Zone	Monitoring Well Inside Capture Zone	Gradients					
		May 2004	May 2007	May 2008	September 2004	September 2007	October 2008
MW-16	MW-10S	0.0009	0.0019	0.0011	0.0015	0.0016	0.0016
MW-6S	MW-19	0.0019	0.0020	0.0023	--	0.0026	--
MW-22	MW-19	0.0012	0.0014	0.0016	0.0013	0.0017	--
MW-09	MW-05	0.0012	0.0013	0.0019	0.0025	0.0020	0.0019

The horizontal gradients indicate that hydraulic capture was maintained to a greater level in May 2008 than in 2004 and generally at an increase over May 2007. In October 2008, the gradient between MW-16 and MW-10S was slightly greater than that of September 2004. The horizontal gradient calculated between MW-09 and MW-05 in October 2008 was slightly less than in 2004 and 2007, although there was still a significant inward gradient at this location. This gradient may have been slightly decreased since EW-11 is currently not operating. EW-11 is located outside the high concentration and LNAPL areas. The gradients to MW-19 could not be calculated in October 2008 because the water level could not be measured due to an obstruction in the well and lower water table elevations.

The calculated hydraulic gradients support the definition of the capture zone created by the extraction wells.

2.1.3 Semiconfined Aquifer Hydraulic Capture

To evaluate the hydraulic capture in the semiconfined aquifer, potentiometric surface maps were created. Horizontal gradients were also calculated using wells located inside and outside the capture zone created by the extraction wells.

Potentiometric Surface

Groundwater in the semiconfined aquifer exhibited similar flow patterns between May 2008 (Figure 3) and October 2008 (Figure 4) with a groundwater divide that ran north-south beneath the site intersecting the infiltration basin.

West of this divide, groundwater flow direction was to the west and northwest. Water levels recorded near the extraction wells in May 2008 indicate a localized groundwater depression on the eastern half of the divide that results from extraction well pumping. The water levels in October 2008 may not have returned to steady state operating conditions after the 2-month shutdown prior to the sampling event and show slightly more varied conditions.

The continued treatment system optimization has led to increased capture. This is shown with the localized depression in the area of the CAMU in May 2008. Continued pumping from extraction wells is expected to result in the continued presence or expansion of the localized depression as observed in May 2008.

In August 2008, a power surge resulted in a 2-month shutdown of the treatment system until repairs could be completed and additional protective equipment could be ordered and installed. The treatment system operated for approximately 2 weeks prior to the October 2008 sampling event and the effects on capture were not fully observed at that time in the semi-confined aquifer.

The effect of the recharge from the infiltration basin continues to show an elevated potentiometric surface in this area. The effects of the infiltration basin do not impact the collection of contaminated groundwater by the groundwater collection system.

Hydraulic Gradients

Horizontal hydraulic gradients were calculated using monitoring wells screened in the semi-confined aquifer located inside and outside the capture zone created by the extraction wells. The gradients were calculated for 2004, which represents the treatment system operation shortly after startup, and for 2008. The calculated gradients are summarized in Table 2.

Operation of the extraction wells is expected to result in a capture zone around the extraction wells. Continued treatment system optimizations have resulted in increased capture. This is shown with the positive horizontal gradients in May 2008 supporting potential for flow towards MW-10 and the capture zone. The negative horizontal gradients in October 2008 are most likely the result of the 2-month shutdown of the treatment system following the power surge.

Continued pumping from extraction wells is expected to result in the continued presence or expansion of the localized depression as observed in May 2008.

The hydraulic gradients support the conclusion from the potentiometric surface maps that the extents of the May 2008 groundwater capture zone are greater than the extents of the 2004 groundwater capture zone. The October 2008 capture zone indicates the semi-confined aquifer had not fully returned to conditions observed under steady state operation.

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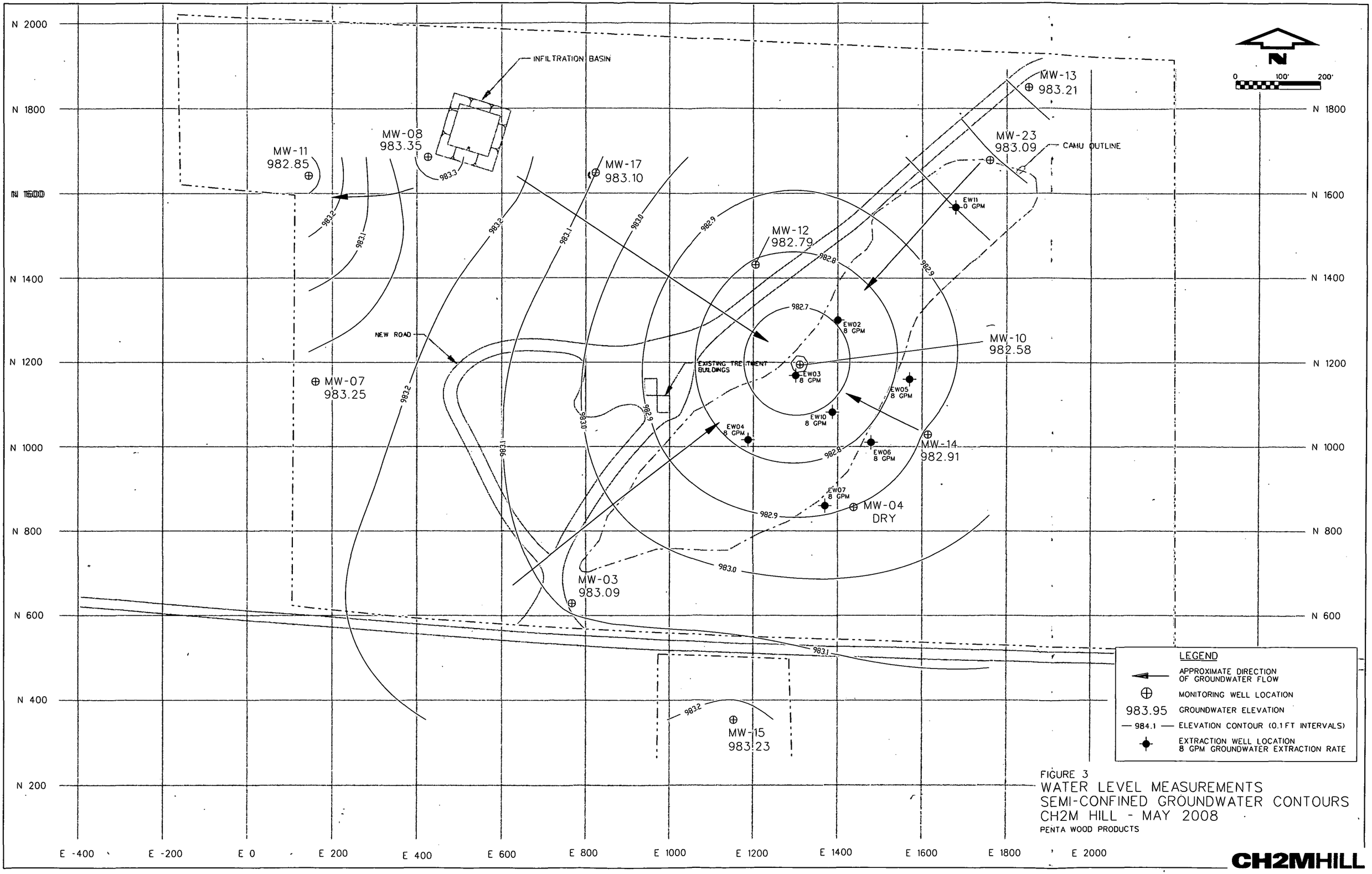


FIGURE 3
WATER LEVEL MEASUREMENTS
SEMI-CONFINED GROUNDWATER CONTOURS
CH2M HILL - MAY 2008
PENTA WOOD PRODUCTS

CH2MHILL

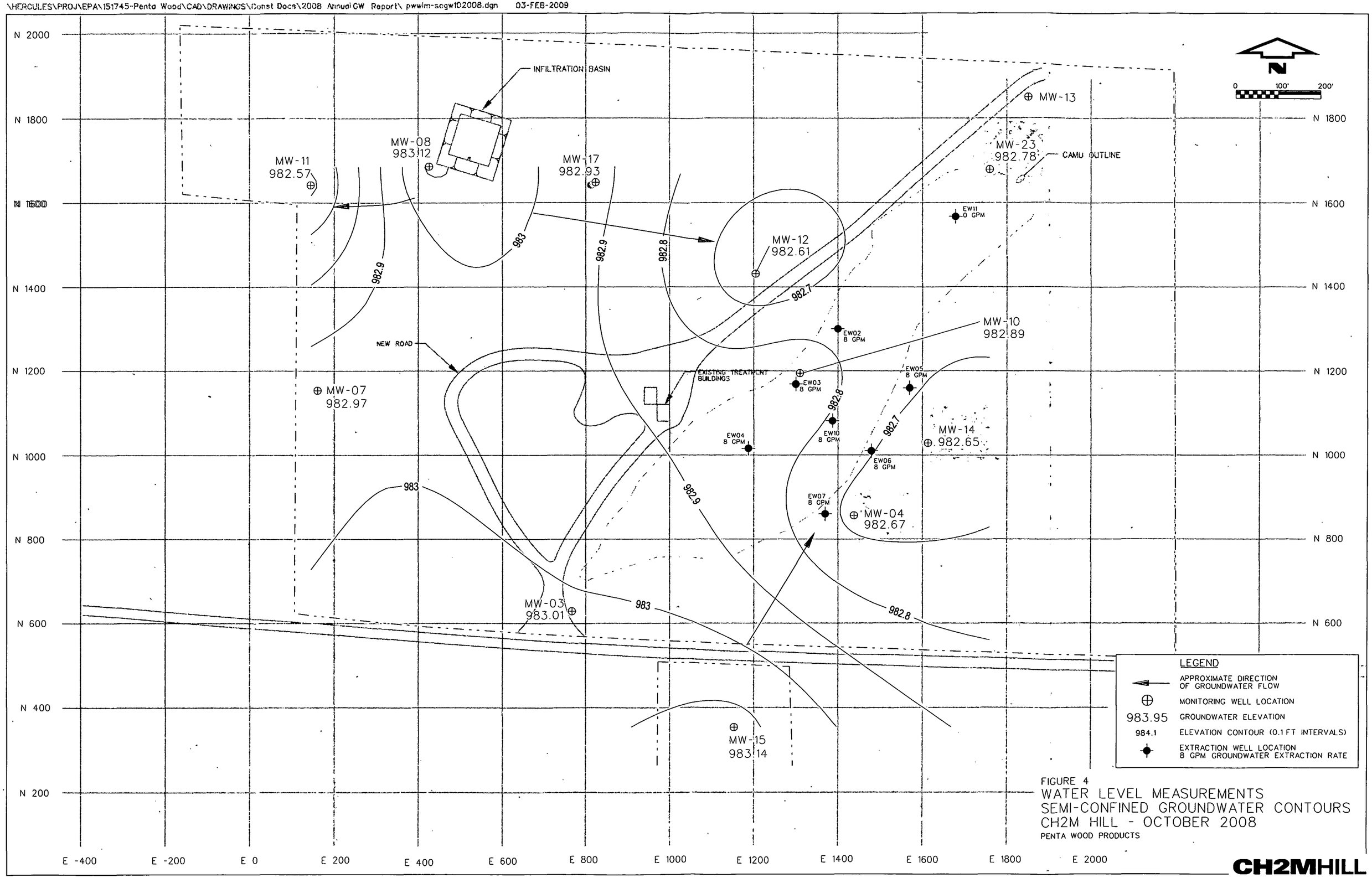


FIGURE 4
WATER LEVEL MEASUREMENTS
SEMI-CONFINED GROUNDWATER CONTOURS
CH2M HILL - OCTOBER 2008
PENTA WOOD PRODUCTS

CH2MHILL

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

Monitoring Well Outside Capture Zone	Monitoring Well Inside Capture Zone	Gradients					
		May 2004	May 2007	May 2008	September 2004	September 2007	October 2008
MW-12	MW-10	-0.0005	-0.0019	0.0008	-0.0034	0.0009	-0.0011
MW-14	MW-10	-0.0013	-0.0011	0.0010	0.0008	0.0007	-0.0007
MW-23	MW-10	-0.0005	-0.0004	0.0008	0.0007	0.0005	-0.0002

2.2 Groundwater Sampling and Analysis

Groundwater analytical data is presented to evaluate the performance of the RA at the site. The data is 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 reinfiltration 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.

A proposed monitoring well reduction to the sampling program was proposed on August 24, 2007. Where multiple wells are located in the same area and screened in the same aquifer, the sampling program will be streamlined to eliminate redundant wells that are not providing additional benefit to the monitoring program. The proposal was approved by USEPA and the Wisconsin Department of Natural Resources (WDNR) and implementation was planned during the semiannual event in 2008. The reduced sampling program was implemented during the semiannual event in May 2008. Due to the power surge that resulted in a 2-month shutdown of the treatment system, the well reduction was not implemented due to the unknown effects that this downtime would have on the monitoring wells. All monitoring wells in the original sampling program were sampled to monitor for any effects that may have occurred from the extended shutdown. The sampling program with the reduced number of monitoring wells will be implemented in 2009.

Severn Trent Laboratories (STL) of Chicago, Illinois, analyzed the semiannual samples. Environmental Monitoring Technologies (EMT) of Morton Grove, Illinois, analyzed the annual samples. Quality control (QC) samples consisting of field blanks, duplicate samples, and matrix spike/matrix spike duplicate (MS/MSD) 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 Region 5 Central Regional Laboratory for data validation.

2.2.1 Residential Well Sampling Procedures

Five residential wells and one onsite potable well were sampled during the semiannual sampling (May 2008) and annual sampling (October 2008). The residential wells and potable well were resampled in December 2008 after the annual sampling event data were rejected due to laboratory issues.

Semiannual sampling (May 2008) results received from STL showed that PCP was present at low concentrations at one residential well (RW-01). PCP concentrations were 0.060 micrograms per liter (µg/L) in the residential well, below the NR 140 Preventive Action Limit (PAL) of 0.1 µg/L. PCP at RW-01 is within the range of previous detections. No other site contaminants (BTEX or naphthalene) were detected in the semiannual residential well groundwater samples. Annual sampling (December 2008) results received from EMT showed that PCP, BTEX, and naphthalene were not detected in the residential wells or in the onsite potable well.

The residential well sample information (names, addresses, and telephone numbers) and the analytical results were submitted under separate cover to Tom Williams, USEPA Work Assignment Manager (WAM), on June 19, 2008 and January 8, 2009 (Appendix D).

2.2.2 Monitoring Well Sampling Procedures

For the semiannual sampling event conducted in May 2008, five monitoring wells were sampled. The following monitoring wells were selected for this event:

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

MW-19 was chosen to represent the unconfined groundwater in the LNAPL area; MW-15 was chosen to assess southern, off property contamination; MW-12 and MW-22 were chosen to assess the impacts of plant operation to the perimeter of the plume, particularly in the direction of residential wells; and MW-26 was chosen to monitor groundwater quality near the treated water infiltration basin. Sampling of these wells was started on May 20 and completed on May 21. All monitoring wells were purged of at least three well volumes before sampling. MW-22 was purged and sampled using disposable polyvinyl chloride (PVC) bailers. The remaining monitoring wells were purged and sampled with dedicated Grundfos pumps installed in 2005.

For the annual sampling event conducted during October 2008, 21 monitoring wells were sampled. The following monitoring wells were sampled for this event:

- MW-01
- MW-02
- MW-03
- MW-05
- MW-06S
- MW-07
- MW-08
- MW-09
- MW-10
- MW-10S
- MW-11
- MW-12
- MW-13
- MW-15
- MW-16
- MW-17
- MW-19
- MW-20
- MW-21
- MW-22
- MW-26

Sampling of the wells was completed between October 21 and October 24, 2008. MW-10S was only sampled for BTEX, naphthalene, sulfide, and methane because the well went dry during sampling. All monitoring wells, with the exception of MW-01, MW-02, MW-13, MW-16, MW-20, MW-21, and MW-22, were purged and sampled with dedicated Grundfos Redi-Flo 2 pumps, which were installed in 2005. Wells MW-01, MW-02, MW-13, MW-16, MW-20, MW-21, and MW-22 were purged and sampled using disposable PVC bailers.

With the installation of the new dedicated Grundfos Redi-Flo 2 MP1 pumps in September 2005, more representative sampling occurred because the task of bailing from these wells was eliminated. Bailing of wells that contained free product required repeated passing of the bailer through the LNAPL to sample the groundwater. This caused the introduction of product to the sample and biased results higher than expected. The Grundfos Redi-Flo 2 pumps allowed for more reliable samples, which could result in lower concentrations being observed.

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

2.2.3 PCP Plume

The monitoring well analytical results tables presented in Appendix A are formatted into two unique tables: the May 2008 semiannual sampling results and the October 2008 annual sampling results.

To observe PCP trends over time, PCP concentration contours that exceed 1,000 µg/L are presented in Figure C-1 of Appendix C. PCP concentration contours that exceed the Wisconsin NR 140 enforcement standard of 1 µg/L are presented in Figure C-2 of Appendix C. The 1997 contour represents baseline conditions prior to the operation of the groundwater extraction and treatment system. The 2007 contours are also presented to show changes in the contours over the last year.

A comparison of the 1,000 µg/L PCP contour lines in Figure C-1 (Appendix C) for 1997, 2007, and 2008 shows that the high concentration plume has shrunk from the 1997 baseline and the extent of the 2008 plume remains similar to the 2007 contour. Larger reductions in plume size are not anticipated until a more significant amount of LNAPL is removed, given the large mass of PCP that can solubilize from the LNAPL residual.

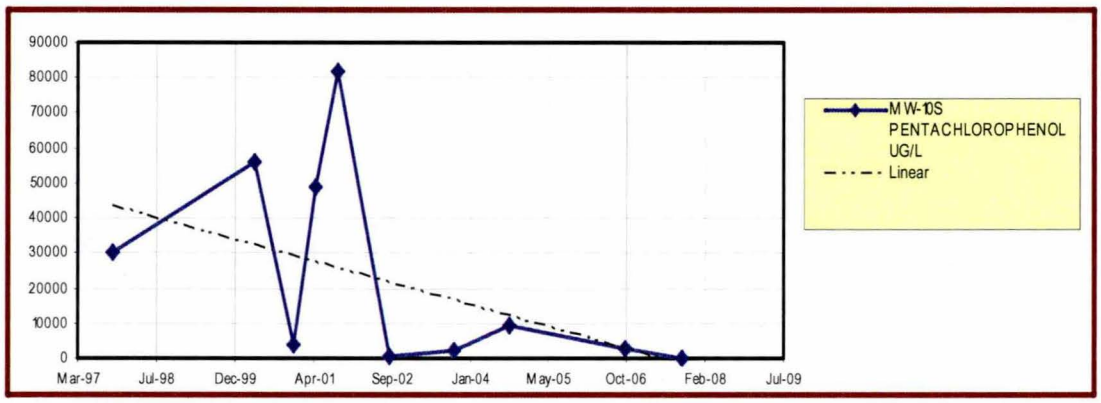
The 2008 extent of the plume exceeding the 1 µg/L contour, as shown in Figure C-2 (Appendix C), remains similar to the 2007 contour. A low-level detection in MW-06 (2.65 µg/L) in October 2008 caused a slight increase in the 1 µg/L contour. This location will continue to be monitored during future sampling events. There continues to be a sharp decline in PCP concentrations between the high concentration area where LNAPL is present and the surrounding perimeter of the plume, that is, the 1-µg/L contour is only slightly larger than the 1,000-µg/L contour. This is likely due to a combination of the groundwater collection system drawing water towards the approximate center of the plume and biodegradation resulting from the availability of oxygen in groundwater around the plume perimeter.

PCP trends are discussed below for individual monitoring wells within the PCP plume.

MW-10S

Monitoring well MW-10S has shown wide fluctuations in PCP during groundwater collection periods, as shown in Figure 5. Since 2002, the presence of LNAPL (sheen or measurable product) has been inconsistent at MW-10S. The intermittent presence of LNAPL and change in sampling methods results in a wide range of PCP concentrations with concentrations significantly decreased since the use of a dedicated sampling pump. LNAPL was measured in MW-10S in May 2008 at a thickness of 0.40 feet and a thickness of 0.14 feet in October 2008. The presence of free product is likely the result of extraction well EW-03 pulling product towards it while actively pumping. Overall, PCP has declined from a concentration of 56,100 µg/L prior to groundwater extraction, to less than the detection limit in 2005 (less than 0.11 µg/L) and was detected at 24 µg/L in September 2007. The well went dry during sampling in October 2008 and was unable to be sampled for PCP.

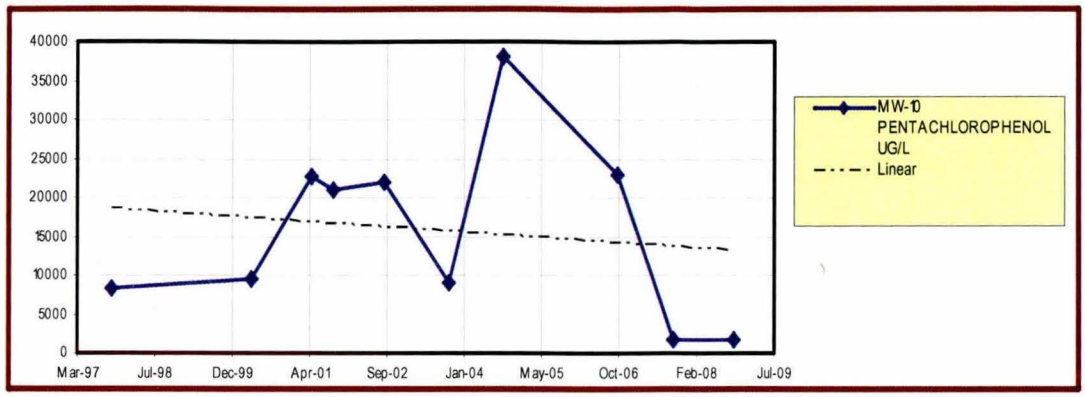
FIGURE 5
MW-10S PCP Concentration



MW-10

PCP in monitoring well MW-10 increased from a concentration of 9,530 µg/L shortly before the startup of the treatment system to 22,000 µg/L in August 2002 (see Figure 6). Concentrations in the well did not drop immediately, but by September 2003, concentrations had fallen to 9,000 µg/L. In September 2004, PCP concentrations at MW-10 increased to 38,000 µg/L. This is likely a result of the extraction system restart in February 2004. MW-10 is located very close to extraction well EW-03, which pulls product toward it while actively pumping. In September 2006, a concentration of 23,000 µg/L was reported, but by October 2008, PCP concentrations at MW-10 decreased to 1,630 µg/L and were consistent with concentrations observed in 2007.

FIGURE 6
MW-10 PCP Concentration



MW-05

PCP concentration in monitoring well MW-05 has dropped sharply from 20,600 µg/L, prior to groundwater treatment system operation, to 206 µg/L in the most recent sample in October 2008 (see Figure 7). PCP concentrations remain low in this area because nearby uncontaminated groundwater is being drawn radially toward 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.

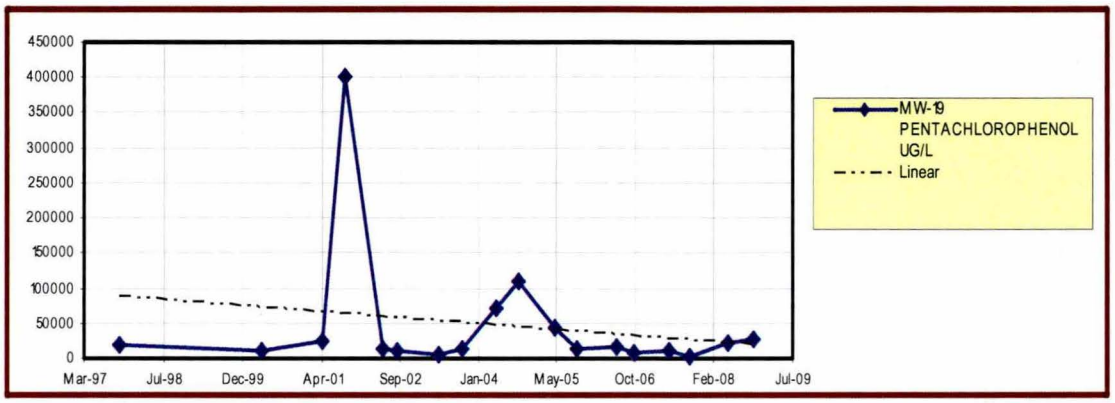
FIGURE 7
MW-05 PCP Concentration

MW-19

LNAPL has been present in MW-19 since monitoring began, and any entrainment of LNAPL droplets in the sample will have notable effects on PCP concentrations, impacting the evaluation of PCP trends. The LNAPL has resulted in large variations in PCP concentrations (see Figure 8) that are not believed to be indicative of the dissolved phase groundwater concentrations. LNAPL continues to be observed in MW-19 (0.90 feet in May 2008 and product detected, but thickness not measured due to an obstruction in the well in October 2008). The PCP concentrations were measured at 23,000 µg/L in May 2008 and 27,900 µg/L in October 2008, which is slightly higher than the PCP concentration reported in 2006 and 2007. Although variability of PCP concentrations in samples collected from

wells with LNAPL is expected, the variability of PCP concentrations in this well appears reduced since the installation of dedicated sampling equipment in the well in 2005.

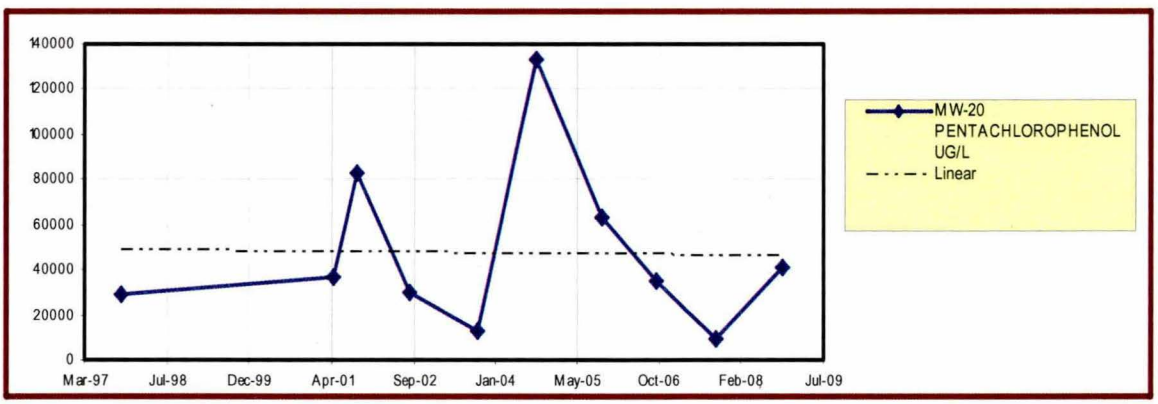
FIGURE 8
MW-19 PCP Concentration



MW-20

LNAPL has also been present in MW-20 since monitoring began, with the exception of May 2006, when the well was dry. As with MW-19, the LNAPL has resulted in large variations in PCP (see Figure 9) that are not believed to be indicative of dissolved phase groundwater concentrations. After eliminating bailer sampling methods with the use of dedicated Grundfos Redi-Flo 2 MP1 pumps starting in 2005, the entrapment of LNAPL in groundwater samples from this well should be minimized. LNAPL was detected in MW-20 in May 2008 at a thickness of 1.71 feet. The LNAPL thickness was not calculated in October 2008 due to an obstruction in the well. PCP concentrations have declined since the installation and use of the dedicated sampling pumps, and in October 2008, PCP at MW-20 was detected at 41,000 µg/L.

FIGURE 9
MW-20 PCP Concentration



2.2.4 Naphthalene

Naphthalene was detected in four monitoring wells at levels above the reporting limits in 2008: MW-10, MW-10S, MW-19, and MW-20, with concentrations ranging from 0.82 µg/L in MW-10 to 1,150 µg/L in MW-20. All wells where naphthalene was detected are within the area of concentrated PCP (greater than 1,000 µg/L). The concentration in MW-10 has decreased from 5,410 µg/L to 0.82 µg/L since 2000. Naphthalene has decreased from 512 µg/L to 3.4 µg/L since 2000 in MW-10S. The concentration has decreased from 5,260 µg/L to 120 µg/L in MW-19 since 2000. The concentration increased in MW-20 from 71 µg/L to 1,150 µg/L from 2007 to 2008. The increase in naphthalene detected in MW-20 is believed to be the result of entrapment of LNAPL as discussed above for PCP.

2.2.5 BTEX

BTEX compounds were detected above the reporting limits at two monitoring wells in 2008. The two monitoring wells (MW-19 and MW-20) where these compounds were detected are located within the area of concentrated PCP (greater than 1,000 µg/L). Benzene was not detected in any well. The BTEX concentrations in MW-19 have remained relatively constant over time. Since 2002, the ethylbenzene concentration has ranged from 2 µg/L to 5.11 µg/L, toluene concentration has ranged from 1 µg/L to 5.08 µg/L, and xylene concentration has ranged from 29 µg/L to 54 µg/L.

Since 2002, a decrease in BTEX concentrations in MW-20 has been observed. The concentration of ethylbenzene has decreased from 12 µg/L to 3.0 µg/L, toluene has decreased from 9 µg/L to 5.1 µg/L, and xylene has decreased from 120 µg/L to 38.7 µg/L.

2.2.6 Dissolved Metals

In previous years, both total and dissolved metals analyses were performed on samples collected from monitoring wells. Suspended solids often have a significant impact on total metals concentrations, therefore total metal concentrations may not be indicative of actual groundwater conditions. Beginning in 2006, total metals analyses have been removed from the sampling plan, as they are often biased high as a result of the frequent presence of suspended solids. Dissolved arsenic, copper, iron, manganese, and zinc were sampled in May and October 2008.

Arsenic

Dissolved arsenic was detected in four monitoring wells in May 2008: MW-12, MW-15, MW-22, and MW-26, with concentrations ranging from 0.34 µg/L to 2.6 µg/L, all below the WDNR PAL of 5 µg/L. Arsenic was not detected in any of the wells in October 2008.

Copper

In May and October 2008, dissolved copper was detected in nine monitoring wells: MW-6S, MW-07, MW-09, MW-12, MW-15, MW-19, MW-20, MW-22, and MW-26, with concentrations ranging from 0.0062 µg/L to 17.3 µg/L. Dissolved copper at all monitoring wells was below the WDNR PAL of 130 µg/L. Samples collected from the onsite potable water well (DW-01) reported a concentration of 205 µg/L in October 2008. This well is not used to monitor site cleanup performance parameters, and copper is expected to be found at

a higher level than that in typical groundwater because copper piping was used to provide water service throughout the building, where the samples were collected.

Iron

In May and October 2008, dissolved iron was detected above the WDNR Enforcement Standard (ES) of 0.3 milligrams per liter (mg/L) in the following wells: MW-01, MW-02, MW-03, MW-05, MW-6S, MW-07, MW-08, MW-10, MW-11, MW-12, MW-15, MW-16, MW-17, MW-19, MW-20, and MW-26, with concentrations ranging from 0.32 mg/L (MW-16) to 10.5 mg/L (MW-05). In addition, dissolved iron was detected in MW-09 at 0.17 mg/L, MW-13 at 0.21 mg/L, and MW-21 and MW-22 at 0.30 mg/L, below the WDNR ES of 0.3 mg/L. The onsite potable water well (DW-01) was detected at a concentration of 0.64 mg/L in October 2008. Elevated iron concentrations are an indicator of natural attenuation. An increase in iron concentrations was observed both at the plume interior wells and at the perimeter wells in 2008.

Manganese

In May and October 2008, dissolved manganese exceeded the WDNR ES of 0.05 mg/L at six wells (MW-05, MW-06S, MW-10, MW-12, MW-19, and MW-20) ranging from 0.07 mg/L (MW-06S) to 9.7 mg/L (MW-05). An additional seven monitoring wells (MW-02, MW-03, MW-07, MW-08, MW-15, MW-16, and MW-22) had dissolved manganese detected at concentrations ranging from 0.0005 mg/L to 0.04 mg/L below the WDNR ES of 0.05 mg/L. The onsite potable water well (DW-01) was detected at a concentration of 0.005 mg/L in October 2008. Elevated manganese concentrations are an indicator of natural attenuation. Both plume interior wells and perimeter wells reported slightly higher manganese concentrations in 2008 than 2007. The increase in manganese concentrations in wells throughout the site suggests that natural attenuation is occurring.

Zinc

In May 2008 and October 2008, dissolved zinc was detected in four monitoring wells (MW-01, MW-12, MW-19, and MW-22) ranging from 2.3 µg/L to 11.0 µg/L. There was no WDNR PAL (2.5 mg/L) or ES (5.0 mg/L) exceedance of dissolved zinc in any monitoring well. The samples from the onsite potable water well (DW-01) reported concentrations of 0.08 mg/L in October 2008. This well is not used to monitor site cleanup performance parameters and may not be representative of groundwater because it must pass through metal piping to provide water service to the building, where the sample was collected.

2.2.7 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 in 1997, and 2000 through 2008.

Limitations in Field Measurements of Natural Attenuation Parameters

The natural attenuation parameters measured in the field may not be truly representative of groundwater because of the limitations that exist in measurement methods. Installation of the new dedicated Grundfos Redi-Flo 2 MP1 pumps in 2005 has greatly reduced the potential for measurement-induced errors in natural attenuation parameters. Use of these dedicated pumps minimizes suspended solids in samples and decreases aeration during sample collection. Dissolved metals will be representative of groundwater because of new pump installation. Dedicated downhole Grundfos Redi-Flo 2 pumps are installed in MW-03, MW-05, MW-07, MW-08, MW-09, MW-10, MW-10S, MW-11, MW-12, MW-15, MW-17, MW-19, and MW-26.

Oxidation/Reduction

Evaluation of the data generated during 2008 suggested that areas at the perimeter or outside the PCP plume are under slight to strong oxidizing conditions. Oxidation-reduction potential at wells in the most concentrated area of the PCP plume (greater than 1,000 µg/L) has not been measured, due to 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. This is supported by reducing conditions measured in MW-5, located near the fringe of the PCP plume.

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 2008, the semi-confined wells had chloride levels ranging from 7.78 mg/L to 60.5 mg/L. The unconfined wells ranged from 1.9 mg/L to 68.8 mg/L with the highest levels reported in MW-21 (near Daniels 70), MW-26 (near the infiltration basin), and MW-06S (in the CAMU). Historically, MW-03 and MW-21 have reported the highest chloride levels, possibly because of their proximity to the highway where influence from seasonal road salting may be causing 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.

Nitrate

In 2008, nitrate levels remained relatively low, ranging from non-detectable (less than 0.05 mg/L) to 7.11 mg/L, and remaining comparable to concentrations observed in 2007.

Methane

Methane, a product of anaerobic degradation, was detected in eight wells in October 2008 (MW-03, MW-05, MW-07, MW-08, MW-10, and MW-19) at low concentrations ranging from 0.0008 to 0.11 mg/L. The absence of methane at or above the detection limit in most wells suggests that degradation is occurring primarily under nonmethanogenic, anaerobic iron, or sulfate-reducing conditions, or potentially under aerobic degradation.

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 2008 are similar to previous years.

2.2.8 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 115 million gallons (MG) of groundwater have been reinfiltrated from 2000 through 2008. The water would be expected to displace groundwater over a considerable area. Assuming that a 20-foot thickness of the aquifer is affected, the area occupied by 115 MG equals roughly 51 acres. The reinfiltration of the treated groundwater helps to maintain a water balance to offset the extracted volume of water.

Unconfined Aquifer

MW-26 is used to determine the effects that the infiltration basin has on the unconfined aquifer in the area. PCP, methane, manganese, and iron concentrations in MW-26 have remained similar to background levels. Nitrate concentrations have dropped as expected because the source area groundwater has minimal nitrate. However, there was a slight increase in nitrate in October 2008. Sulfate concentrations have increased from a background value of less than 10 mg/L to a high of 235 mg/L in October 2008.

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 this well prior to 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 and being expanded. Chloride concentrations increased after the treatment system was restarted in 2004 and have ranged from 17 to 29 mg/L with the most recent concentration of 21.7 mg/L in October 2008.

Semiconfined Aquifer

MW-08 is used to determine the effects of the infiltration basin on the semiconfined aquifer. MW-08 is sampled annually for PCP and natural attenuation parameters. PCP, nitrate, methane, manganese, and iron in MW-08 has remained similar to background levels. Sulfate concentrations have increased from a background value of less than 10 mg/L to a high of 76 mg/L in September 2007. Sulfate was reported as 73.1 mg/L in October 2008. 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 4.2 mg/L measured in 1997 has increased to 24.3 mg/L in 2008 with a steady increase since 2002.

Another benefit of reinfiltrating groundwater is that treatment results in aeration and reoxygenation of the groundwater. Dissolved oxygen has generally increased in MW-08. 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

Continued groundwater treatment system optimization has led to more continuous operation and an increased capture zone. An increased capture zone was observed with potentiometric surface maps in May 2008 and greater horizontal gradients in May 2008 in both the unconfined and semiconfined aquifers. The unconfined aquifer capture zone in October 2008 demonstrates that capture was achieved within 2 weeks of the treatment system returning to operation. The semi-confined aquifer in October 2008 indicates the effects of groundwater extraction were not achieved within 2 weeks of restarting the treatment system after 2 months of non-operation resulting from the power surge.

In addition, LNAPL thicknesses appear to be increasing in the central area of the CAMU where the depression induced by the groundwater extraction wells is the greatest. Evaluation of the concentration trend data in conjunction with the water level and LNAPL measurements indicate that the groundwater treatment system is maintaining capture and the plume boundary is gradually decreasing.

Results from the residential wells that were sampled in May 2008 indicate the presence of PCP at very low concentrations in one residential well (less than the NR 140 PAL of 0.1 µg/L). Results of the annual sampling of residential wells in December 2008 showed that PCP, BTEX, and naphthalene were not detected in the residential wells or in the onsite potable well.

The PCP plume exceeding 1,000 µg/L has continued to shrink slightly since 1997 and has remained stable since 2007 as a result of continued groundwater extraction and natural attenuation. In addition, the use of dedicated Grundfos pumps since 2005 has resulted in more representative groundwater concentrations, particularly within the extents of the LNAPL. The most significant changes in the high concentrations have been in the areas of high PCP concentration. The extent of the plume, as defined by the 1 µg/L contour, has also continued to shrink since 1997 and remained relatively stable since 2007. The plume size did increase from 2007 to 2008 around MW-06 due to a low-level detection in October 2008. Monitoring of this point will continue. The PCP plume is greatly affected by the presence of LNAPL and, therefore, further reductions in PCP concentrations will most likely be minimal until more LNAPL is captured from this area. There has been a significant reduction in PCP concentrations that can be observed through the steady decline of influent concentrations of the treatment system. There have also been large PCP and LNAPL mass removals as a result of treatment system operation. These topics are discussed in detail in Sections 3 and 4.

More rapid plume remediation is limited by the continued dissolution of PCP from the LNAPL. Naphthalene and BTEX were present in several wells in the area of concentrated PCP. They are not present in any of the monitoring wells along or outside the plume perimeter. Evaluation of the natural attenuation parameters revealed similar conditions to those in 2007.

2.4 Recommendations

It is advised that the recommendations provided in 2005 to minimize the impact of laboratory analytical contaminant carryover during PCP analysis should be continued. It is important that lower concentrations of PCP be accurately determined in groundwater beneath the site. Samples should continue to be submitted in three groups representing PCP concentrations from low to high and will be analyzed in that order.

The sample groupings are as follows:

1. Wells with PCP levels less than 100 µg/L
2. Wells with PCP levels greater than 100 µg/L and no LNAPL in the well
3. Wells with LNAPL

A proposed monitoring well reduction to the sampling program was proposed on August 24, 2007. Where multiple wells are located in the same area and screened in the same aquifer, the sampling program will be streamlined to eliminate redundant wells that are not providing additional benefit to the monitoring program. The modified sampling program with reduced number of monitoring wells will be continued in 2009.

In addition, the bioventing system will continue to operate in 2009 in conjunction with the LNAPL recovery to maximize the biodegradation of LNAPL in the unsaturated zone. The bioventing system operation for 2008 is discussed in the following sections.

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 exposing more of the 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. The depressed groundwater table also causes the LNAPL to pool near the LNAPL extraction wells.

Reductions to the groundwater treatment system discharge monitoring performed in accordance with the Wisconsin Pollutant Discharge Elimination System (WPDES) permit were initiated in January 2008.

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

3.1 Groundwater Extraction System

The groundwater extraction system was operated between September 27, 2000, and September 27, 2001. After 1 year of operation, the system was shut down and the groundwater treatment system was redesigned to include additional pretreatment. The groundwater treatment system was restarted on February 27, 2004, after construction activities were completed. The groundwater treatment system operated intermittently from February to mid-July 2004, and began consistent operation starting in late July 2004. From 2004 through 2008, the extraction system has operated consistently with the exception of shutdowns for routine maintenance and service or as a result of system alarms.

In August 2008, a power surge resulted in a 2-month shutdown of the treatment system until necessary repairs were completed and additional protective equipment could be ordered and installed. 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 System Performance

The groundwater extraction system was operated between September 27, 2000, and September 27, 2001, for a total of 280 days, with flow rates ranging from 35 gallons per minute (gpm) to 120 gpm during operation. A total volume of 30 MG of groundwater, or roughly 2 pore volumes of the extraction zone, was removed. PCP influent concentrations were typically in the 5,000 to 14,000 µg/L range. Based on this information, the estimated PCP mass removed was about 2,500 pounds (lbs) (see Table 3).

TABLE 3
PCP Mass Removed with the Groundwater Extraction System:
September 27, 2000–September 27, 2001 and February 27, 2004–December 31, 2008
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]
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
	Total PCP Mass Removed 2000 to 2008		**7,028**

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

Since the system was restarted in 2004, the system has extracted over 89 MG of groundwater, or approximately 6 pore volumes. In 2008, the system extracted over 18 MG (over 1 pore volume) and groundwater extraction rates generally ranged from 15 to 76 gpm with an average of 56 gpm while the system was operating. The effective extraction rate over 2008, which includes time for when the extraction wells were not operating, was 36 gpm. With consistent operation, the groundwater extraction system maintained capture of the PCP plume as discussed in the previous section.

PCP influent concentrations in 2008 ranged from 2,200 to 4,400 µg/L, with an average concentration of 3,255 µg/L. 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 2000.

The estimated PCP mass removed was approximately 492 lbs in 2008 and 7,028 lbs since the groundwater extraction began in 2000 (see Table 3). This represents removal of about 90 percent of the dissolved phase PCP mass that was present in 2000 prior to the operation of the extraction system. However, as shown in Table 4, it is estimated that there is considerably more PCP mass adsorbed on the aquifer matrix (9,600 lbs) than in the groundwater (3,600 lbs). The remaining PCP mass is present in the LNAPL residual zone (9,100 lbs). It should be noted that the contaminant mass estimates are based on many simplifying assumptions and 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. The dedicated sampling pumps have generally resulted in a decrease in measured PCP concentrations and it may be possible to redefine the areas in Table 4 in the future for better estimates of saturated zone contaminant mass.

Table 5 summarizes the PCP mass estimate for 2008 at the Penta Wood Products Site. The volume of liquid waste that was obtained from the separator can be used to make a rough estimate of the volume of LNAPL that was removed by LNAPL extraction. While the plant was operating in 2008, approximately 5,630 gallons of liquid waste were captured in the separator; if the assumption is made that one-half of this waste was water, then roughly 2,815 gallons of LNAPL were removed. Assuming an LNAPL density of 0.84 grams per cubic centimeter (g/cm^3) and a PCP concentration of 5 percent, this volume equates to about 986 lbs of PCP present in LNAPL removed in 2008. An estimated 5,854 lbs of PCP have been removed by LNAPL recovery since 2004.

3.1.2 Groundwater Treatment System Operation and Maintenance

Continued groundwater treatment system optimization in 2008 has led to a reduction in carbon changeout frequency, eliminated the need for partial carbon change outs, and decreased disposal costs. Optimization of the dosage and monitoring of the pretreatment chemical addition has resulted in reduced solids loading to the carbon vessels and extended the operating time between carbon change outs. The treatment system can operate up to 16 weeks and treat 8.0 MG of water before requiring change out of the lead carbon vessel. In 2007, carbon change outs on the lead 10,000-lb carbon vessels were required every 4 to 5 weeks and typically only treated 2.5 MG of water because of excessive pressure loss in the carbon vessels. The pressure loss was due to solids accumulating in the upper portion of the vessel and resultant clogging of the carbon pore spaces.

In August 2008, a power surge occurred at the site which resulted in a two month shutdown of the treatment system. A variety of equipment was damaged at the site, which took several weeks to assess and repair. Additional surge suppression equipment was installed in order to provide increased protection for the treatment system from future power line surge events. Once the system was restarted in October, additional damaged equipment was discovered and replaced. During this same timeframe, the breakthrough of pentachlorophenol was reported at a low concentration in the fourth week after restarting the system, which was most likely a result of the downtime associated with the two month system shutdown. A total of three carbon changeouts were completed in 2008.

3.1.3 Groundwater and LNAPL Extraction Wells

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 or shallow and pump only water or not pump at all. Therefore, the LNAPL pumps were raised or lowered on a monthly basis in 2008, to ensure the pump was at the appropriate depth. In order to allow this activity to be performed by the site operator easily and safely, a winch was installed and connected to the LNAPL pumps.

TABLE 4
Estimate of 2008 Saturated Zone Contaminant Mass
Penta Wood Products Site

Contaminant	Parameter	Unconfined MW-10S, 19, 20 (Area 1)[ab]	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)[b]	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 2008 (4^{th} Year Following Groundwater Extraction System restarted in February 2004) Based on Groundwater Sampling in October 2008										
PCP	Conc. (µg/L)	34,450	2.7	0.1	0.1	918		0.1	1,670	
K_d[c] = 0.60	Mass in soil (lb)	8,127	0	0	0	361	0	0	1,135	9,624
	Mass in GW (lb)	3,037.1	0.2	0.0	0.0	134.9	0.0	0.0	424.2	3,596
	Total Mass (lb)	**11,164**	**1**	**0.0**	**0.0**	**496**	**0**	**0.0**	**1559**	**13,320**

Notes:

[a]LNAPL product present in all three wells in this subarea.
[b]MW-10S could not be sampled during the October 2008 sampling event.
[c]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 g/cm^3; ft^3 = cubic feet; GW = groundwater

TABLE 5
Summary of 2008 PCP Mass Estimates
Penta Wood Products Site

Penta Wood Products Site	October 2008 PCP Mass (lb)	Notes
LNAPL Residual Zone	9,100	Based on original mass less the mass estimated from recovered LNAPL.
Saturated Zone—Adsorbed	9,600	Based on groundwater concentration and a PCP K_d of 0.6.
Saturated Zone—Dissolved	3,600	Based on weighted average groundwater concentrations.
Total PCP Mass in the LNAPL residual zone and the saturated zone.	22,400	
Removed by LNAPL Recovery System through 2008	5,900	Assuming 50% of recovered liquid is LNAPL and LNAPL is 5% PCP.
Removed by GW Extraction System through 2008	7,000	Estimate was revised based on actual GW extraction volumes from 2004 through 2008.

Note: 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.

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 exposing more of the LNAPL smear zone at the current water table to the air supplied by the bioventing system.

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 biovent system was shut down during the winter months. The system was restarted after the spring ground thaw on May 21, 2008 after the semiannual sampling event and operated until August 14 when the power surge shut the system down. Operation was restored on October 10 after the surge suppression equipment was installed and operated until December 16 when it was shut down for the winter due to the frozen ground surface. Bioventing monitoring graphs are provided in Appendix E.

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 levels at SG-07S and SG-22 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 6 provides a summary of the baseline measurements prior to startup, measurements right after the biovent system was turned on after the winter, and measurements one month prior to winter shutdown.

The bioventing system did not operate from August 14 through October 10 due to the power surge. After the repairs were completed, soil gas measurements were collected on October 10 to evaluate the current methane concentrations and the oxygen consumption. Soil gas measurements from the wells on October 10 showed an increase in oxygen levels from the soil gas measurements collected on August 3 prior to the shutdown of the bioventing system. However, one shallow well located in the wood chip area (SG-22) showed an increase in methane (1.7 to 8.3 percent).

Operation of the bioventing system with methane still present in the subsurface during the winter months is a safety concern because the frozen ground surface would result in greater lateral methane migration, possibly to the thawed ground below the treatment building. Because the most important objective of the bioventing system (to maintain oxygen concentrations above 5 percent at the deepest portions of the unsaturated zone where a smear zone of LNAPL is present) was being met with the system off and because of the potential safety hazard, the bioventing system was turned off on December 16 for the winter.

TABLE 6
Bioventing System Soil Gas Measurement Summary
Penta Wood Products Site

Well ID	O_2 (%)			CO_2 (%)			CH_4 (%)		
	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)
Shallow									
SG-04S	21.2	18.6	21.4	0.1	0.4	0.1	0.1	0.2	0.0
SG-05S	17.8	17.2	21.5	1.7	0.8	0.1	0.0	0.2	0.0
SG-06S	17	18.9	21.0	2.3	0.4	0.1	0.0	0.2	0.0
SG-07S	4.3	0.0	1.0	28.5	20.0	18.7	14.1	14.3	0.0
SG-22	0.9[a]	2.4	7.6	27.3[a]	11.2	14.0	18.3[a]	2.2	1.4
Intermediate									
SG-04I	1.4	10.7	21.3	14.9	2.4	0.1	0.0	0.2	0.0
SG-05I	9.2	16.8	21.4	8.1	0.7	0.1	0.0	0.2	0.0
SG-06I	12.8	18.6	21.6	5.5	0.5	0.0	0.0	0.2	0.0
SG-07I	12.5	14.6	21.6	7.9	2.8	0.0	0.0	0.2	0.0
Deep									
SG-04D	1.7	6.7	21.3	14.6	5.7	0.1	0.0	0.2	0.0
SG-05D	1.6	17.1	21.5	14.7	0.9	0.0	0.0	0.3	0.0
SG-06D	6.1	17.6	21.7	11.7	1.0	0.0	0.0	0.2	0.0
SG-07D	2.0	15.4	21.7	16.5	2.1	0.0	0.0	0.2	0.0

TABLE 6
Bioventing System Soil Gas Measurement Summary
Penta Wood Products Site

Well ID	O_2 (%)			CO_2 (%)			CH_4 (%)		
	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)	Baseline (09/21/07)	Startup from Winter Shutdown (05/21/08)	1 Month Prior to Winter Shutdown (11/27/08)
Perimeter									
SG-23 (3 feet)	18.3	19.2	21.0	1.7	0.3	0.0	0.0	0.3	0.0
SG-24 (5 feet)	19.1	19.3	21.2	0.7	0.4	0.0	0.0	0.0	0.0
SG-25 (5 feet)	17.9	19.0	21.0	2.3	0.4	0.0	0.0	0.1	0.0
SG-26 (5 feet)	21.3	19.0	21.0	0.0	0.4	0.0	0.0	0.1	0.0

Note:
[a]Reading after well was repaired.

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 biovent operation. Measured pressures in each well stabilize at approximately 1 pound per square inch (psi). Air flow rates for the deep bioventing wells (EW-02, EW-03, EW-04, EW-05, EW-06, and EW-07) 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. BV-08 was turned off May 21 during an inspection, when a valve was found to be broken. The well was repaired on September 18. Deep wells were designed for a maximum flow of 500 scfm and shallow wells for a maximum of 200 scfm.

The biovent system was restarted on May 21 after the spring ground thaw. The power surge caused the biovent system to shut down on August 14. The system remained powered off until the replacement surge suppression equipment was installed. On October 10, the system resumed operation. The system was shut down for the winter on December 16. Other minor shutdowns occurred for periodic maintenance or repair activities.

3.3 Summary

The groundwater extraction system was operated from January 2008 through December 2008 with a 2-month shutdown after a power surge in August. More than 18 MG of groundwater, or over 1 pore volume, were removed from the extraction zone. An estimated 986 lbs of PCP were removed through the LNAPL extraction and dissolved phase PCP in the extracted groundwater.

Continued system optimizations have led to increased operation of the groundwater extraction system and enhancement of the groundwater capture. Improved capture zone was observed during 2008 and LNAPL appears to be pooling in the area of the groundwater extraction wells due to the localized depression from the extraction wells.

The bioventing system operated for approximately 5 months in 2008. During that time, shallow wells within the wood chip area indicated decreases in methane and carbon dioxide concentrations, but oxygen concentrations increased only slightly in these wells. Longer operation of the bioventing system is expected to oxygenate this lower permeability shallow area. The intermediate and deep wells, and shallow wells located outside of the wood chip area exhibited similar changes in gas composition with each other and followed the pattern of increasing oxygen levels and decreasing carbon dioxide levels throughout the months of bioventing activity. Oxygen generally stabilized for each well at approximately 20 percent. Methane was not detected or was found at low concentrations in all of these wells.

The bioventing system was shut down for the winter due to concerns about methane migration with the frozen ground surface. However, based on the relatively low oxygen utilization rate, 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

Deterioration of the interior of the two 10,000-lb granulated activated carbon (GAC) vessels has been observed during carbon change outs. It has been recommended that these vessels be repaired and relined to help prevent further deterioration of these vessels. The pitting observed within the vessels will be spot welded and the epoxy liner reapplied.

Soil gas monitoring will be performed and the bioventing system will be restarted in the spring after snow melts and the ground thaws. Soil gas measurements will be monitored during startup of the bioventing system in the spring and will then follow a routine schedule. Soil gas measurements in the spring will be collected and evaluated to determine a proposed bioventing system schedule for 2009.

Opportunities for continued optimization of the groundwater extraction and treatment system and LNAPL recovery operations will be evaluated throughout the year.

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, 2005).

Table 7 summarizes the amount of waste generated and disposed of offsite.

TABLE 7
Hazardous Waste Generation Summary
Penta Wood Products Site

Manifest #	Date	Filter Cake (lbs)	Misc. Debris (lbs)	Carbon (lbs)	LNAPL (lbs)	Water (gal)	Yearly Total (lbs)
IL9408187	12/19/00				5,009		
IL9408188	12/19/00		200	6,000			
	2000 Total (lb):	**0**	**200**	**6,000**	**5,009**		**11,209**
WIK168068	08/28/01		400	3,600	4,239		
WIK169159	04/03/01			44,000			
WIK169160	04/03/01			8,500	1,927		
	2001 Total (lb):	**0**	**400**	**56,100**	**6,166**		**62,666**
WIK179411	01/08/02			40,000			
WIK179412	01/08/02		200	8,000			
WIK179225	04/04/02		200		3,083		
WIK298473	06/09/02		1,000		7,707		
IL10328513	06/25/02					3,328	
	2002 Total (lb):	**0**	**1,400**	**48,000**	**10,790**	**27,756**	**87,946**
WIK296620	10/30/03		600		3,083		
IL10329166	10/30/03					165	
	2003 Total (lb):	**0**	**600**	**0**	**3,083**	**1,376**	**5,059**
WIK359186	02/11/04		200	8,000			
WIK359185	02/12/04			38,000			
WIK359334	05/04/04			6,000			
2159985	05/19/04		1,200				
WIK359343	05/19/04	10,700					
WIK278209	05/19/04			10,000			

TABLE 7
Hazardous Waste Generation Summary
Penta Wood Products Site

Manifest #	Date	Filter Cake (lbs)	Misc. Debris (lbs)	Carbon (lbs)	LNAPL (lbs)	Water (gal)	Yearly Total (lbs)
WIK376767	06/07/04	24,000					
WIK376681	07/12/04	18,860					
WIK363235	08/05/04	19,140					
CWM0027842	08/10/04				25,500		
WIK363114	09/14/04	18,700					
WIK363151	10/20/04	15,660					
WIK361532	11/22/04		1,800	40,000			
WIK448461	11/22/04	24,900					
WIK361540	12/04/04				28,022		
WIK446853	12/29/04	24,000					
	2004 Total (lb):	**155,960**	**3,200**	**102,000**	**53,522**		**314,682**
WIK361592	01/19/05	26,520					
WIK361599	02/02/05	800	140	19,465			
WIK302737	03/09/05	28,100					
WIK390017	03/20/05			24,498			
WIK390019	03/21/05				24,415		
WIK390053	05/04/05		76	18,492			
WIK417972	05/05/05	28,540					
WIK390072	06/20/05	32,960					
WIK390144	07/14/05	5,320	787	19,138			
WIK390188	10/04/05	27,160					
WIK390189	10/04/05		287	23,394			
WIK511343	11/29/05	29,400					
	2005 Total (lb):	**178,800**	**1,290**	**104,987**	**24,415**		**309,492**
WIK511358	01/03/06				24,085		
WIK511369	01/24/06	28,500					
WIK511500	02/17/06		200	44,380			
WIK490587	04/05/06	30,760					
WIK490632	05/12/06		800	18,780			
WIK361872	06/20/06	27,080					

TABLE 7
Hazardous Waste Generation Summary
Penta Wood Products Site

Manifest #	Date	Filter Cake (lbs)	Misc. Debris (lbs)	Carbon (lbs)	LNAPL (lbs)	Water (gal)	Yearly Total (lbs)
WIK361873	06/20/06				28,807		
WIK490607	06/20/06		200	18,800			
WIK361868	08/14/06	26,300					
000598697JJK	10/19/06			54,560			
	2006 Total (lb):	**112,640**	**1,200**	**136,520**	**52,892**		**303,252**
000600742JJK	01/17/07	29,020					
000600929JJK	01/17/07			40,109			
000603373JJK	02/23/07		600	28,000			
000602277JJK	04/16/07	32,040					
000602276JJK	04/24/07			40,582			
000602279JJK	04/16/07				38,580		
000602527JJK	07/11/07	27,280					
002022149JJK	07/11/07		400	36,484			
001863373JJK	09/13/07	31,700					
002020673JJK	10/16/07			28,581			
003312957JJK	10/16/07		800	23,522			
001863387JJK	10/24/07	32,860					
001863395JJK	12/11/07	21,120					
001863397JJK	12/11/07				39,035		
003358750JJK	12/11/07		400	27,469			
003320508JJK	12/20/07			38,805			
	2007 Total (lb):	**174,020**	**2,200**	**263,552**	**77,615**		**517,387**
003358913JJK	01/21/08	21,200					
003320406JJK	03/11/08		1,122	2,000			
003320410JJK	04/03/08			18,922			
003320411JJK	04/08/08	33,680					
003320420JJK	05/13/08	35,380					
003320423JJK	06/16/08	26,280					
003320425JJK	06/16/08				28,036		
004042563JJK	07/16/08	34,260					

TABLE 7
Hazardous Waste Generation Summary
Penta Wood Products Site

Manifest #	Date	Filter Cake (lbs)	Misc. Debris (lbs)	Carbon (lbs)	LNAPL (lbs)	Water (gal)	Yearly Total (lbs)
004197187JJK	08/01/08		1,294	25,045			
004042592JJK	10/27/08	32,520					
004828691JJK	12/09/08	28,080					
004828690JJK	12/09/08		760	24,040			
	2008 Total (lb):	**211,400**	**3,176**	**70,007**	**28,036**		**312,619**

Notes:

Misc. debris, assumes 200 lb/drum
Weight of Fuel Oil (LNAPL) = 8.34 lb/gal water x 0.84 density
Weight of Water = 8.34 lb/gal
Weight of Carbon based on 2,000 lb/filter bag
gal = gallon

The optimization of the extraction and treatment system and LNAPL recovery system has impacted the hazardous waste generated at the site per year. The amount of carbon disposed of in 2008 decreased substantially from the previous years due to the decrease in carbon change out frequency. The amount of filter cake generated is directly related to the amount of water treated and has increased due to the increased volume of water being treated by the system. The LNAPL disposal appears to have slightly decreased in volume in 2008 from 2007; however, the LNAPL capture in 2008 is approximately the same as 2007. The volume of fluid collected from the oil/water separator and disposed of through 2007, was approximately 50 percent water and 50 percent LNAPL. The fluid collected in 2008 was nearly 100 percent LNAPL, which was confirmed by a sludge judge.

SECTION 5

Site Inspection and Maintenance

5.1 Community Relations

No community relations issues were encountered in 2008.

5.2 Site Condition

In July 2008, seed was planted in isolated areas on the CAMU that had limited vegetation for erosion control. The seeds were sowed, fertilized, and straw was placed over the seeded area. The grass around the monitoring well, bioventing wells, and extraction wells was also mowed to maintain accessibility in more frequently travelled areas and to minimize biological hazards in these areas.

5.3 Health and Safety

Protective measures continued to be taken following the health and safety audit that was performed in 2007. The following health and safety activities were performed:

- Health and safety plan revisions were completed and distributed in February 2008 to update site-specific information and incorporate new corporate safety programs.
- Exterior lighting was upgraded in May 2008.
- Self-closing chains for the ladders at the top of coagulation, flocculation, filtrate, and neutralization tanks were installed in January 2008.
- Lockout/tagout locations for each operating system were identified and placards detailing each point were placed on the respective system in March 2008.
- Confined space signage was placed on the coalescing oil water (COW) separator tank and the GAC vessel in the old building in March 2008.
- The spill kits utilized onsite were labeled in January 2008.
- "Bug-Out" suits were sent to the site in May 2008 to be available to staff working in highly vegetated areas.
- A tabbed binder with all pertinent Material Safety Data Sheets (MSDS) was compiled in January 2008 so as to be a readily available reference at the site.

There were no health and safety issues found during 2008.

5.4 Recommendations

Some erosion preventative maintenance will be required during 2009 that include the following:

- Construct riprap for any natural drainage areas identified by spring runoff to minimize erosion, as needed.
- Plant red and white pine bare root seedlings in the area east of the CAMU that is currently open grassland (estimated to be 3 acres). The area will be planted with half of each tree species in a random pattern at a 700 per acre planting rate that is evenly spaced.

SECTION 6

References

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

CH2M HILL. 2005. Waste Handling Plan.

Appendix A
Analytical Results

Penta Wood
Dissolved Metal Results
May 2008 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:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-13	08CP14-14	08CP14-15	08CP14-16	08CP14-17	08CP14-18
Laboratory Sample Identification:		500-11522-10	500-11522-11	500-11522-12	500-11522-13	500-11522-14	500-11522-15
Dissolved Metals (Filtered)	**Units**						
ARSENIC	ug/l	0.59 J	0.61 J	0.40 J	1.0 U	1.0 U	0.34 J
COPPER	ug/l	3.7	3.8	1.0 J	3.4	0.98 J	0.47 J
IRON	ug/l	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
MANGANESE	ug/l	1,000	1,000	0.52 J	2,900	3.6	2.5 U
ZINC	ug/l	4.6 J	4.2 J	20 U	2.3 J	5.4 J	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 Gas Results
May 2008 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:	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
	Field Sample Identification:	08CP14-13	08CP14-14	08CP14-15	08CP14-16	08CP14-17	08CP14-18
	Laboratory Sample Identification:	753281	753282	753283	753284	753285	753286
Dissolved Gasses	**Units**						
METHANE	ug/l	2.0 UJ	2.0 UJ	2.0 UJ	2.0 U	2.0 UJ	2.0 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
May 2008 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:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-13	08CP14-14	08CP14-15	08CP14-16	08CP14-17	08CP14-18
Laboratory Sample Identification:		500-11522-10	500-11522-11	500-11522-12	500-11522-13	500-11522-14	500-11522-15
Semivolatile Organic Compounds	**Units**						
NAPHTHALENE	ug/l	0.96 U	0.95 U	0.93 U	140	0.95 U	0.96 U
PENTACHLOROPHENOL	ug/l	2,100 J	2,200 J	0.18 J	23,000 J	0.77 J	0.096 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 2008 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:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-13	08CP14-14	08CP14-15	08CP14-16	08CP14-17	08CP14-18
Laboratory Sample Identification:		500-11522-10	500-11522-11	500-11522-12	500-11522-13	500-11522-14	500-11522-15
Volatile Organic Compounds	**Units**						
BENZENE	ug/l	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
ETHYLBENZENE	ug/l	1.0 U	1.0 U	1.0 U	5.0	1.0 U	1.0 U
TOLUENE	ug/l	1.0 U	1.0 U	1.0 U	4.8	1.0 U	1.0 U
XLENES, TOTAL	ug/l	1.5 J	1.6 J	2.0 UJ	54 J	2.0 UJ	2.0 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
Wet Chemisty Results
May 2008 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:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-13	08CP14-14	08CP14-15	08CP14-16	08CP14-17	08CP14-18
Laboratory Sample Identification:		500-11522-10	500-11522-11	500-11522-12	500-11522-13	500-11522-14	500-11522-15
Wet Chemistry	**Units**						
ALKALINITY, TOTAL (AS CACO3)	mg/l	360 =	360 =	260 =	220 =	110 =	240 =
CHLORIDE (AS CL)	mg/l	12	12	14	16	8.4	22
HARDNESS (AS CACO3)	mg/l	350	380	290	260	200	430
NITROGEN, NITRATE (AS N)	mg/l	2.0	2.1	4.7	0.44	2.3	1.8
NITROGEN, NITRATE-NITRITE	mg/l	2.6	2.7	4.7	0.70	2.3	1.8
NITROGEN, NITRITE	mg/l	0.60 J	0.61 J	0.020 UJ	0.26	0.0059 J	0.020 UJ
SULFATE (AS SO4)	mg/l	25	25	6.6	42	12	230
SULFIDE	mg/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL CARBON	mg/l	4.7 J	4.5 J	0.85 J	18 J	3.0 J	0.65 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
Hardness Results
October 2008 Groundwater Samples-Monitoring Wells

	Field Site Identifier:	01	01	01	01	01	01	01
	Field Sample Location:	MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
	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:	10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
	Field Sample Identification:	09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
	Laboratory Sample Identification:	08100634-08	08100634-02	08100634-04	08100729-06	08100729-12	08100729-03	08100729-07
Wet Chemistry	**Units**							
HARDNESS (AS CACO3)	mg/l	223 J	276 J	836	357 J	90 J	535 J	496 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
Hardness Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-09	MW-10	MW-10	MW-11	MW-12	MW-12	MW-13
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water	Water, Dup	Water
Sample Collection Date:		10/22/2008	10/23/2008	10/23/2008	10/22/2008	10/21/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-21	09CP02-22	09CP02-43	09CP02-42	09CP02-24	09CP02-25	09CP02-39
Laboratory Sample Identification:		08100729-05	08100729-09	08100729-10	08100729-08	08100634-13	08100634-14	08100634-05
Wet Chemistry	**Units**							
HARDNESS (AS CACO3)	mg/l	113 J	432 J	500 J	433 J	519 J	465 J	110 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
Hardness Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-15	MW-16	MW-17	MW-19	MW-20	MW-21	MW-22
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:		10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40	09CP02-30
Laboratory Sample Identification:		08100634-06	08100729-02	08100729-04	08100729-14	08100729-13	08100634-11	08100634-01
Wet Chemistry	**Units**							
HARDNESS (AS CACO3)	mg/l	567 J	175 J	295 J	373 J	332 J	149 J	111 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
Hardness Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:	01
Field Sample Location:	MW-26
Sample Interval:	N/A
Matrix:	Water
Sample Collection Date:	10/22/2008
Field Sample Identification:	09CP02-31
Laboratory Sample Identification:	08100729-01

Wet Chemistry	**Units**	
HARDNESS (AS CACO3)	mg/l	432 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
Dissolved Metal Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
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:		10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
Field Sample Identification:		09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
Laboratory Sample Identification:		08100634-08	08100634-02	08100634-04	08100729-06	08100729-12	08100729-03	08100729-07
Dissolved Metals (Filtered)	**Units**							
ARSENIC	ug/l	2 U	2 U	2.00 U	2 UJ	2 UJ	2 UJ	2 UJ
COPPER	ug/l	10.00 UJ	10 UJ	10 UJ	10 UJ	4.4 J	4 J	10 UJ
IRON	ug/l	388	424 J	2,140	10,500 J	438 J	926 J	707 J
MANGANESE	ug/l	10 U	5.20 J	15.20 J	9,700 J	65.3 J	41.6 J	13.1 J
ZINC	ug/l	8.60 J	20 U	20 U	20 UJ	20 UJ	20 UJ	20 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
Dissolved Metal Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-09	MW-10	MW-10	MW-11	MW-12	MW-12	MW-13
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water, Dup	Water	Water	Water, Dup	Water
Sample Collection Date:		10/22/2008	10/23/2008	10/23/2008	10/22/2008	10/21/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-21	09CP02-22	09CP02-43	09CP02-42	09CP02-24	09CP02-25	09CP02-39
Laboratory Sample Identification:		08100729-05	08100729-09	08100729-10	08100729-08	08100634-13	08100634-14	08100634-05
Dissolved Metals (Filtered)	**Units**							
ARSENIC	ug/l	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2.00 U	2 U
COPPER	ug/l	6 J	10 UJ	10 UJ	10 UJ	4 J	3.70 J	10 UJ
IRON	ug/l	166 J	1,110 J	1,080	533	927	936	207
MANGANESE	ug/l	10 UJ	2,210 J	2,190 J	10 UJ	1,140	1,120	10 U
ZINC	ug/l	20 UJ	20 UJ	20 UJ	20 UJ	11 J	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 Metal Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-15	MW-16	MW-17	MW-19	MW-20	MW-21	MW-22
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:		10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40	09CP02-30
Laboratory Sample Identification:		08100634-06	08100729-02	08100729-04	08100729-14	08100729-13	08100634-11	08100634-01
Dissolved Metals (Filtered)	**Units**							
ARSENIC	ug/l	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2.60 J
COPPER	ug/l	10 UJ	10 UJ	10 UJ	5 J	17.3 J	10 UJ	10 UJ
IRON	ug/l	854	318 J	374 J	510 J	462	294 J	303 J
MANGANESE	ug/l	10 U	20 J	10 UJ	4,850 J	3,400 J	10 U	0.01 U
ZINC	ug/l	20 U	20 UJ	20 UJ	20 UJ	20 UJ	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 Metal Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:	01
Field Sample Location:	MW-26
Sample Interval:	N/A
Matrix:	Water
Sample Collection Date:	10/22/2008
Field Sample Identification:	09CP02-31
Laboratory Sample Identification:	08100729-01

Dissolved Metals (Filtered)	Units	
ARSENIC	ug/l	2 UJ
COPPER	ug/l	6.2 J
IRON	ug/l	777 J
MANGANESE	ug/l	10 UJ
ZINC	ug/l	20 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
Dissolved Gas Results
October 2008 Groundwater Samples-Monitoring Wells

	Field Site Identifier:	01	01	01	01	01	01	01
	Field Sample Location:	MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
	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:	10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
	Field Sample Identification:	09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
	Laboratory Sample Identification:	08100634-08G	08100634-02G	08100634-04G	08100729-06H	08100729-12H	08100729-03H	08100729-07H
Dissolved Gasses	**Units**							
METHANE	ug/l	2.0 UJ	2.0 UJ	4.90 J	11 J	2.0 UJ	110 J	0.78 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
Dissolved Gas Results
October 2008 Groundwater Samples-Monitoring Wells

	Field Site Identifier:	01	01	01	01	01	01	01
	Field Sample Location:	MW-09	MW-10	MW-10	MW-10S	MW-11	MW-12	MW-12
	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, Dup
	Sample Collection Date:	10/22/2008	10/23/2008	10/23/2008	10/24/2008	10/22/2008	10/21/2008	10/21/2008
	Field Sample Identification:	09CP02-21	09CP02-22	09CP02-43	09CP02-23	09CP02-42	09CP02-24	09CP02-25
	Laboratory Sample Identification:	08100729-05H	08100729-09H	08100729-10H	08100729-15C	08100729-08H	08100634-13G	08100634-14G
Dissolved Gasses	**Units**							
METHANE	ug/l	2.0 UJ	6 J	7 J	2.0 UJ	2.0 UJ	2.0 UJ	2.0 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
Dissolved Gas Results
October 2008 Groundwater Samples-Monitoring Wells

	Field Site Identifier:	01	01	01	01	01	01	01
	Field Sample Location:	MW-13	MW-15	MW-16	MW-17	MW-19	MW-20	MW-21
	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:	10/21/2008	10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008
	Field Sample Identification:	09CP02-39	09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40
	Laboratory Sample Identification:	08100634-05G	08100634-06G	08100729-02H	08100729-04H	08100729-14H	08100729-13H	08100634-11G
Dissolved Gasses	**Units**							
METHANE	ug/l	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.1 J	2.0 UJ	2.0 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
Dissolved Gas Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01
Field Sample Location:		MW-22	MW-26
Sample Interval:		N/A	N/A
Matrix:		Water	Water
Sample Collection Date:		10/21/2008	10/22/2008
Field Sample Identification:		09CP02-30	09CP02-31
Laboratory Sample Identification:		08100634-01G	08100729-01H
Dissolved Gasses	**Units**		
METHANE	ug/l	2.0 UJ	2.0 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
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:		10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
Field Sample Identification:		09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
Laboratory Sample Identification:		08100634-08	08100634-02	08100634-04	08100729-06	08100729-12	08100729-03	08100729-07
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	g/l	1.00 U	1.00 U	3.13 U	1 U	1 U	1 U	1 U
PENTACHLOROPHENOL	g/l	0.42 UJ	1.60 J	0.10 UJ	206	2.65	0.1 U	0.1 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-09	MW-10	MW-10	MW-10S	MW-11	MW-12	MW-12
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, Dup
Sample Collection Date:		10/22/2008	10/23/2008	10/23/2008	10/24/2008	10/22/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-21	09CP02-22	09CP02-43	09CP02-23	09CP02-42	09CP02-24	09CP02-25
Laboratory Sample Identification:		08100729-05	08100729-09	08100729-10	08100729-15	08100729-08	08100634-13	08100634-14
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	1 U	0.92 J	0.82 J	3.36	1 U	1.00 U	1.00 U
PENTACHLOROPHENOL	ug/l	0.1 U	1,630	1,720	NR	0.27	1,670 J	1,300 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
Semivolatile Results
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-13	MW-15	MW-16	MW-17	MW-19	MW-20	MW-21
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:		10/21/2008	10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008
Field Sample Identification:		09CP02-39	09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40
Laboratory Sample Identification:		08100634-05	08100634-06	08100729-02	08100729-04	08100729-14	08100729-13	08100634-11
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	g/l	1.00 U	1.00 U	1 U	1 U	120	1,150	1.00 U
PENTACHLOROPHENOL	g/l	0.31 UJ	0.10 UJ	0.08 J	0.1	27,900	41,000	0.10 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01
Field Sample Location:		MW-22	MW-26
Sample Interval:		N/A	N/A
Matrix:		Water	Water
Sample Collection Date:		10/21/2008	10/22/2008
Field Sample Identification:		09CP02-30	09CP02-31
Laboratory Sample Identification:		08100634-01	08100729-01
Semivolatile Organic Compounds	**Units**		
NAPHTHALENE	ug/l	1.00 U	1 U
PENTACHLOROPHENOL	ug/l	0.09 UJ	0.1 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
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:		10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
Field Sample Identification:		09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
Laboratory Sample Identification:		08100634-08H	08100634-02H	08100634-04H	08100729-06G	08100729-12G	08100729-03G	08100729-07G
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.50 U	0.5 U	0.50 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
TOLUENE	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
XLENES	ug/l	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U	5 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-09	MW-10	MW-10	MW-10S	MW-11	MW-12	MW-12
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, Dup
Sample Collection Date:		10/22/2008	10/23/2008	10/23/2008	10/24/2008	10/22/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-21	09CP02-22	09CP02-43	09CP02-23	09CP02-42	09CP02-24	09CP02-25
Laboratory Sample Identification:		08100729-05G	08100729-09G	08100729-10G	08100729-15B	08100729-08G	08100634-13H	08100634-14H
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
TOLUENE	ug/l	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
XLENES	ug/l	5 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-13	MW-15	MW-16	MW-17	MW-19	MW-20	MW-21
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:		10/21/2008	10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008
Field Sample Identification:		09CP02-39	09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40
Laboratory Sample Identification:		08100634-05H	08100634-06H	08100729-02G	08100729-04G	08100729-14G	08100729-13G	08100634-11H
Volatile Organic Compounds	**Units**							
BENZENE	g/l	0.50 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.50 U
ETHYLBENZENE	g/l	2.0 U	2.0 U	2.0 U	2.0 U	5.11	2.99 =	2.00 U
TOLUENE	g/l	2.0 U	2.0 U	2.0 U	2.0 U	5.08 =	2.94 =	2.0 U
XLENES	g/l	5.0 U	5.00 U	5 U	5 U	50.3	38.7	5.00 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01
Field Sample Location:		MW-22	MW-26
Sample Interval:		N/A	N/A
Matrix:		Water	Water
Sample Collection Date:		10/21/2008	10/22/2008
Field Sample Identification:		09CP02-30	09CP02-31
Laboratory Sample Identification:		08100634-01H	08100729-01G
Volatile Organic Compounds	**Units**		
BENZENE	ug/l	0.5 U	0.5 U
ETHYLBENZENE	ug/l	2.0 U	2.0 U
TOLUENE	ug/l	2.0 U	2.0 U
XLENES	ug/l	5.0 U	5.0 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
October 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-01	MW-02	MW-03	MW-05	MW-06S	MW-07	MW-08
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:		10/21/2008	10/21/2008	10/21/2008	10/22/2008	10/23/2008	10/22/2008	10/22/2008
Field Sample Identification:		09CP02-38	09CP02-15	09CP02-16	09CP02-17	09CP02-18	09CP02-20	09CP02-41
Laboratory Sample Identification:		08100634-08	08100634-02	08100634-04	08100729-06	08100729-12	08100729-03	08100729-07
Wet Chemistry	**Units**							
ALKALINITY, TOTAL (AS CACO3)	mg/l	109	138	513	267 J	4.98 J	277 J	178 J
CHLORIDE (AS CL)	mg/l	3.91	3.17	60.50	8.68	28.3	14.1	24.3
HARDNESS (AS CACO3)	mg/l	223 J	276 J	836	357 J	90 J	535 J	496 J
NITROGEN, NITRATE (AS N)	mg/l	1.62 J	1.10 J	2.73 J	0.05 U	7.11 J	1.54 J	1.92 J
SULFATE (AS SO4)	mg/l	6.19	12.90	15.20	24.8	11	98.9	73.1
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 CARBON	mg/l	3.38 J	2.59 J	18 J	30.5	8.3	4.16	16.1

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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-09	MW-10	MW-10	MW-10S	MW-11	MW-12	MW-12
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, Dup
Sample Collection Date:		10/22/2008	10/23/2008	10/23/2008	10/24/2008	10/22/2008	10/21/2008	10/21/2008
Field Sample Identification:		09CP02-21	09CP02-22	09CP02-43	09CP02-23	09CP02-42	09CP02-24	09CP02-25
Laboratory Sample Identification:		08100729-05	08100729-09	08100729-10	08100729-15	08100729-08	08100634-13	08100634-14
Wet Chemistry	**Units**							
ALKALINITY, TOTAL (AS CACO3)	mg/l	55 J	305 J	310 J	NR	234 J	323	322
CHLORIDE (AS CL)	mg/l	3.44	12.4	12.4	NR	19.9	13.10	14.50
HARDNESS (AS CACO3)	mg/l	113 J	432 J	500 J	NR	433 J	519 J	465 J
NITROGEN, NITRATE (AS N)	mg/l	2.48 J	0.05 U	0.05 J	NR	2.26 J	2.96 J	2.95 J
SULFATE (AS SO4)	mg/l	14.9	28.1	29.5	NR	17.8	31.80	31.70
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 CARBON	mg/l	11.2	39.2	13.1	NR	20.2	11.70 J	11.80 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		MW-13	MW-15	MW-16	MW-17	MW-19	MW-20	MW-21
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:		10/21/2008	10/21/2008	10/22/2008	10/22/2008	10/24/2008	10/23/2008	10/21/2008
Field Sample Identification:		09CP02-39	09CP02-26	09CP02-27	09CP02-28	09CP02-29	09CP02-44	09CP02-40
Laboratory Sample Identification:		08100634-05	08100634-06	08100729-02	08100729-04	08100729-14	08100729-13	08100634-11
Wet Chemistry	**Units**							
ALKALINITY, TOTAL (AS CACO3)	mg/l	55	265	51 J	155 J	221 J	127 J	66
CHLORIDE (AS CL)	mg/l	1.90	14.60	7.51	7.78	15.9	15.7	68.80
HARDNESS (AS CACO3)	mg/l	110 J	567 J	175 J	295 J	373 J	332 J	149 J
NITROGEN, NITRATE (AS N)	mg/l	0.45 J	6.05 J	0.99 J	5.75 J	0.04 J	0.13 J	2.69 J
SULFATE (AS SO4)	mg/l	10.10	6.99	43.2	7.75	46.2	28.9	7.27 U
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 CARBON	mg/l	3.44 J	13.60 J	92.3	20.2	29.8	121	2.38 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 2008 Groundwater Samples-Monitoring Wells

Field Site Identifier:	01	01
Field Sample Location:	MW-22	MW-26
Sample Interval:	N/A	N/A
Matrix:	Water	Water
Sample Collection Date:	10/21/2008	10/22/2008
Field Sample Identification:	09CP02-30	09CP02-31
Laboratory Sample Identification:	08100634-01	08100729-01

Wet Chemistry	**Units**		
ALKALINITY, TOTAL (AS CACO3)	mg/l	90	256 J
CHLORIDE (AS CL)	mg/l	4.69	21.7
HARDNESS (AS CACO3)	mg/l	111 J	432 J
NITROGEN, NITRATE (AS N)	mg/l	1.48 J	2.36 J
SULFATE (AS SO4)	mg/l	6.95	235
SULFIDE	mg/l	1.0 U	1.0 U
TOTAL CARBON	mg/l	21.10 J	18.6

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 2008 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:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-01	08CP14-19	08CP14-20	08CP14-21	08CP14-22	08CP14-23	08CP14-24
Laboratory Sample Identification:		500-11522-1	500-11522-16	500-11522-17	500-11522-18	500-11522-19	500-11522-20	500-11522-21
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.94 U	0.95 U	0.95 U	0.95 U	0.96 U	0.96 U	0.95 U
PENTACHLOROPHENOL	ug/l	0.094 UJ	0.060 J	0.066 J	0.095 UJ	0.097 UJ	0.093 UJ	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 2008 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, Dp	Water	Water	Water	Water
Sample Collection Date:		5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
Field Sample Identification:		08CP14-01	08CP14-19	08CP14-20	08CP14-21	08CP14-22	08CP14-23	08CP14-24
Laboratory Sample Identification:		500-11522-1	500-11522-16	500-11522-17	500-11522-18	500-11522-19	500-11522-20	500-11522-21
Volatile Organic Compounds	**Units**							
BENZENE	g/l	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
ETHYLBENZENE	g/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	g/l	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XLENES, TOTAL	g/l	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 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
Dissolved Metal Results
October 2008 Groundwater Samples-Residential Wells

Field Site Identifier:	01
Field Sample Location:	DW-01
Sample Interval:	N/A
Matrix:	Water
Sample Collection Date:	10/23/2008
Field Sample Identification:	09CP02-01
Laboratory Sample Identification:	08100729-11

Dissolved Metals (Filtered)	Units	
ARSENIC	g/l	2 UJ
COPPER	g/l	205 J
IRON	g/l	642 J
MANGANESE	g/l	4.6 J
ZINC	g/l	81.2 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
Dissolved Gas Results
October 2008 Groundwater Samples-Residential Wells

Field Site Identifier:	01
Field Sample Location:	DW-01
Sample Interval:	N/A
Matrix:	Water
Sample Collection Date:	10/23/2008
Field Sample Identification:	09CP02-01
Laboratory Sample Identification:	08100729-11H

Dissolved Gasses	**Units**	
METHANE	g/l	2.0 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 2008 Groundwater Samples-Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DW-01	DW-01	RW-01	RW-01	RW-01	RW-01	RW-02
Sample Interval:		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Matrix:		Water	Water	Water	Water, Dup	Water	Water, Dup	Water
Sample Collection Date:		10/23/2008	10/23/2008	10/23/2008	10/23/2008	12/11/2008	12/11/2008	10/23/2008
Field Sample Identification:		09CP02-01	09CP02-01	09CP02-32	09CP02-33	09CP02-50	09CP02-51	09CP02-34
Laboratory Sample Identification:		08100729-11E	08100729-11F	08100729-16A	08100729-17A	08120308-01B	08120308-02B	08100729-18A
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	1 U	1 U	1 U	1 U	NR	NR	1.33 U
PENTACHLOROPHENOL	ug/l	0.1 U	0.1 U	NR	NR	0.1 UJ	0.1 U	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
October 2008 Groundwater Samples-Residential Wells

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		RW-02	RW-03	RW-03	RW-04	RW-04	RW-05	RW-05
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:		12/10/2008	10/23/2008	12/10/2008	10/23/2008	12/10/2008	10/23/2008	12/10/2008
Field Sample Identification:		09CP02-52	09CP02-35	09CP02-53	09CP02-36	09CP02-54	09CP02-37	09CP02-55
Laboratory Sample Identification:		08120308-03B	08100729-19A	08120308-04B	08100729-20A	08120308-05B	08100729-21A	08120308-06B
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	NR	1 U	NR	1 U	NR	1 U	NR
PENTACHLOROPHENOL	ug/l	0.1 U	NR	0.1 U	NR	0.1 U	NR	0.1 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 2008 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:		10/23/2008	12/11/2008	12/11/2008	12/10/2008	12/10/2008	12/10/2008	12/10/2008
Field Sample Identification:		09CP02-01	09CP02-50	09CP02-51	09CP02-52	09CP02-53	09CP02-54	09CP02-55
Laboratory Sample Identification:		08100729-11G	08120308-01A	08120308-02A	08120308-03A	08120308-04A	08120308-05A	08120308-06A
Volatile Organic Compounds	**Units**							
BENZENE	ug/l	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ETHYLBENZENE	ug/l	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
TOLUENE	ug/l	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
XYLENES	ug/l	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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
October 2008 Groundwater Samples-Residential Wells

Field Site Identifier:	01
Field Sample Location:	DW-01
Sample Interval:	N/A
Matrix:	Water
Sample Collection Date:	10/23/2008
Field Sample Identification:	09CP02-01
Laboratory Sample Identification:	08100729-11

Wet Chemistry	**Units**	
ALKALINITY, TOTAL (AS CACO3)	mg/l	297 J
CHLORIDE (AS CL)	mg/l	29.6
HARDNESS (AS CACO3)	mg/l	423 J
NITROGEN, NITRATE (AS N)	mg/l	1.79 J
SULFATE (AS SO4)	mg/l	9.07
SULFIDE	mg/l	1.0 U
TOTAL CARBON	mg/l	44.4

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
Chloride Results
2008 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:	3/10/2008	7/3/2008	12/9/2008
	Field Sample Identification:	08CP09-68	08CP13-14	09CP01-09
	Laboratory Sample Identification:	500-9951-1	500-12211-3	08120248-02C
Wet Chemistry	**Units**			
CHLORIDE (AS CL)	mg/l	20	21	21

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
2,3,7,8-Tetrachlorodibenzo-p-dioxin Results
2008 Treatment Plant Samples

Field Site Identifier:	01
Field Sample Location:	EFFLUENT
Sample Interval:	N/A
Matrix:	Waste Water
Sample Collection Date:	3/10/2008
Field Sample Identification:	08CP09-68
Laboratory Sample Identification:	G8C120232001

Dioxins and Furans	**Units**	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	pg/l	1.4 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
Diesel Range Organic Results
2008 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:		1/9/2008	2/11/2008	3/10/2008	4/22/2008	5/31/2008	7/3/2008	7/24/2008
Field Sample Identification:		08CP01-67	08CP09-31	08CP09-68	08CP09-82	08CP13-05	08CP13-14	08CP13-21
Laboratory Sample Identification:		500-8785-6	500-9491-2	500-9951-1	500-10804-1	500-11755-1	500-12211-3	500-12832-1
Diesel Range Organics	**Units**							
DIESEL COMPONENTS	mg/l	0.047 J	0.093 U	0.094 U	0.039 J	0.10 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
Diesel Range Organic Results
2008 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:		10/14/2008	11/12/2008	12/9/2008
Field Sample Identification:		08CP13-25	09CP01-04	09CP01-09
Laboratory Sample Identification:		08100411-01A	08110284-01A	08120248-02D
Diesel Range Organics	**Units**			
DIESEL COMPONENTS	mg/l	0.1 U	0.1 UJ	0.1 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
2008 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:		3/10/2008	7/3/2008	12/9/2008
Field Sample Identification:		08CP09-68	08CP13-14	09CP01-09
Laboratory Sample Identification:		500-9951-1	500-12211-3	08120248-02B
Metals	**Units**			
ARSENIC	ug/l	0.43 J	1.0 U	8.95
COPPER	ug/l	1.7 J	11	18.9
IRON	ug/l	200 U	100 UJ	450
MANGANESE	ug/l	1,800	1,600 =	1,640
ZINC	ug/l	33 J	33 =	31.2

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
2008 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-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:		1/9/2008	1/9/2008	1/15/2008	1/21/2008	1/21/2008	1/28/2008	2/4/2008
Field Sample Identification:		08CP01-62	08CP01-65	08CP01-72	08CP09-05	08CP09-17	08CP01-79	08CP09-26
Laboratory Sample Identification:		500-8785-1	500-8785-4	500-8943-1	500-9072-4	500-9072-8	500-9192-1	500-9320-1
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	2,700 J	2,500 J	2,200	3,900	3,900	3,300	2,700

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
2008 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01	01	01
Field Sample Location:		DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-EFFLUENT	DAF-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:		2/11/2008	2/21/2008	2/26/2008	3/3/2008	3/10/2008	6/24/2008	12/9/2008
Field Sample Identification:		08CP09-30	08CP09-42	08CP09-57	08CP09-61	08CP09-71	08CP13-12	09CP01-08
Laboratory Sample Identification:		500-9491-1	500-9644-1	500-9706-4	500-9894-2	500-9951-4	500-12211-1	08120248-01A
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	3,400	2,900	3,300	4,200	4,400	3,500	2,680 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
Pentachlorophenol Results
2008 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:		1/9/2008	1/9/2008	1/15/2008	1/21/2008	1/21/2008	1/28/2008	2/4/2008
Field Sample Identification:		08CP01-64	08CP01-67	08CP01-74	08CP09-02	08CP09-14	08CP01-82	08CP09-27
Laboratory Sample Identification:		500-8785-3	500-8785-6	500-8943-3	500-9072-1	500-9072-5	500-9192-4	500-9320-2
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.093 UJ	0.093 UJ	0.092 U	0.093 U	0.093 U	0.093 U	0.045 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
Pentachlorophenol Results
2008 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:		2/11/2008	2/21/2008	2/26/2008	3/7/2008	3/10/2008	4/1/2008	4/8/2008
Field Sample Identification:		08CP09-31	08CP09-43	08CP09-54	08CP09-80	08CP09-68	08CP09-78	08CP09-79
Laboratory Sample Identification:		500-9491-2	500-9644-2	500-9706-1	500-9983-3	500-9951-1	500-10381-1	500-10512-1
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.093 U	0.093 U	0.093 U	0.093 U	0.094 U	0.074 J	0.093 R

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
2008 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:		4/15/2008	4/22/2008	4/29/2008	5/13/2008	5/21/2008	5/31/2008	6/2/2008
Field Sample Identification:		08CP09-83	08CP09-82	08CP09-84	08CP13-02	08CP13-04	08CP13-05	08CP13-06
Laboratory Sample Identification:		500-10658-1	500-10804-1	500-10939-1	500-11406-1	500-11521-2	500-11755-1	500-11755-2
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.093 U	0.095 U	0.095 U	0.11 U	0.095 U	0.10 U	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
Pentachlorophenol Results
2008 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:		6/13/2008	7/3/2008	7/3/2008	7/8/2008	7/15/2008	7/24/2008	8/5/2008
Field Sample Identification:		08CP13-08	08CP13-14	08CP13-15	08CP13-17	08CP13-19	08CP13-21	08CP13-23
Laboratory Sample Identification:		500-12012-1	500-12211-3	500-12420-1	500-12420-2	500-12604-1	500-12832-1	500-13049-1
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.095 U	0.096 U	0.095 U	0.093 UJ	0.093 U	0.093 U	0.093 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
2008 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:		8/12/2008	10/14/2008	10/23/2008	10/28/2008	11/4/2008	11/12/2008	11/25/2008
Field Sample Identification:		08CP13-24	08CP13-25	09CP01-01	08CP13-27	09CP01-03	09CP01-04	09CP01-06
Laboratory Sample Identification:		500-13227-1	08100411-01C	08100730-01A	08100816-01A	08110057-01A	08110284-01B	08120002-01A
Semivolatile Organic Compounds	**Units**							
PENTACHLOROPHENOL	ug/l	0.094 U	0.1 U	0.48	0.77 J	0.1 U	0.14 J	0.1 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
2008 Treatment Plant Samples

Field Site Identifier:		01	01	01	01	01
Field Sample Location:		EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
Sample Interval:		N/A	N/A	N/A	N/A	N/A
Matrix:		Waste Water	Waste Water	Waste Water	Waste Water	Waste Water
Sample Collection Date:		12/2/2008	12/9/2008	12/16/2008	12/26/2008	12/30/2008
Field Sample Identification:		09CP01-07	09CP01-09	09CP01-10	09CP01-11	09CP01-12
Laboratory Sample Identification:		08120067-01A	08120248-02A	08120424-01A	08120627-01A	08120659-01A
Semivolatile Organic Compounds	**Units**					
PENTACHLOROPHENOL	ug/l	0.1 U	0.1 U	0.1 U	0.10 U	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
2008 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:		1/9/2008	2/11/2008	3/10/2008	4/22/2008	5/31/2008	7/3/2008	7/24/2008
Field Sample Identification:		08CP01-67	08CP09-31	08CP09-68	08CP09-82	08CP13-05	08CP13-14	08CP13-21
Laboratory Sample Identification:		500-8785-6	500-9491-2	500-9951-1	500-10804-1	500-11755-1	500-12211-3	500-12832-1
Semivolatile Organic Compounds	**Units**							
NAPHTHALENE	ug/l	0.93 U	0.93 U	0.93 U	0.93 UJ	1.0 U	0.94 U	0.94 R
PHENOL	ug/l	4.7 U	NR	4.7 U	NR	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
2008 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:	10/14/2008	11/12/2008	12/9/2008
Field Sample Identification:	08CP13-25	09CP01-04	09CP01-09
Laboratory Sample Identification:	08100411-01B	08110284-01C	08120248-02A
Semivolatile Organic Compounds	**Units**		
NAPHTHALENE	ug/l	1 U	0.997 UJ	0.997 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
2008 Treatment Plant Samples

Field Site Identifier:	01
Field Sample Location:	EFFLUENT
Sample Interval:	N/A
Matrix:	Waste Water
Sample Collection Date:	3/10/2008
Field Sample Identification:	08CP09-68
Laboratory Sample Identification:	500-9951-1

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

Appendix B
Natural Attenuation Data

Pentawood Products Site
Natural Attenuation Trend Data
Anuual Groundwater Sampling

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	09/24/03								1.48	<0.005	<0.05	<2	<0.5	<0.05	66.9
DW-01	05/31/05								1.5 J	<0.004 J	<0.05 J	6.5	<0.002	0.039 J	29 J
DW-01	05/10/07								1.8	<0.01	<0.100	17 J	<0.002	0.074 J	29
DW-01	09/19/07								1.5 J	0.0024 J	<0.100	14 J	<0.002	<0.093	27
DW-01	05/20/08								NT	NT	NT	NT	NT	0.094 UJ	NT
DW-01	10/23/08								1.79 J	0.0046 J	0.642 J	9.07	0.002 UJ	0.1 UJ	29.6
MW-01	10/09/97	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	04/05/00	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	04/24/01	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	09/11/01	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	05/14/02	8.89	541	9.68	83.6	7.17	113.7		2.7	0.005	<0.011	7.8		0.1	9
MW-01	08/06/02	8.82	439	NR	89.2	7.33	241.1		<0.15	0.00095 B	<0.011	7.9	<0.01	0.1	7
MW-01	04/29/03	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	09/24/03	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	05/04/04	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	09/21/04	10.05	279	10.89	97.1	7.07	91.1	160	1.8 J	2.60 J	838.0	5.2 J		0.3	2.7
MW-01	05/10/05	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	09/29/05	8.96	282	12.12	105.1	7.15	154.6	217	1.9	0.0038 J	<0.05	16.0	<0.002	0.1	6.2
MW-01	05/31/06	10.76	252	9.33	94.0	7.62	156.3	85	1.6 J	<0.01	<0.05	17.0	<0.002	0.049 J	2.3 J
MW-01	09/25/06	Well Dry							Well Dry						
MW-01	05/08/07	8.95	274	9.47	82.5	6.99	87.8	109	1.9	0.0063 J	<0.100	15 J	<0.002	0.11 J	2.2 J
MW-01	09/18/07	9.81	274	11.33	100.6	6.74	180.5	67	3 J	<0.01	<0.100	12 J	<0.002	<0.093	9.4
MW-01	10/21/08	8.70	276	9.78	84.0	7.17	226.0	58	1.62 J	0.01 UJ	0.388	6.19	0.002 UJ	0.42 UJ	3.91
MW-02	10/09/97	9.49	143	8.82	77.2	6.42	274.1		1.1	NT	<0.02	17.0	<0.01	<1.0	4
MW-02	04/05/00	9.47	111	9.59	81.4	6.85	305.8		<0.1	0.003	<0.05	58.3	0.0003	<0.5	1
MW-02	09/12/01	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	08/06/02	9.96	128	6.31	NR	5.41	380.5		<0.15	0.018	0.0	10.0	<0.01	0.1	3
MW-02	09/24/03	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	09/21/04	10.29	319	1.17	10.7	6.01	182.6	Off Scale	1.4 J	0.0222 J	25800.00	4.0 R		1.26	12 J
MW-02	09/28/05	10.27	358	8.95	88.0	6.26	156.2	Off Scale	<0.1	0.0093 J	0.07	27.0	<0.002	2.2 J	6
MW-02	09/26/06	11.03	345	2.44	22.5	6.28	205.0	Off Scale	0.12	<0.0026	<0.05	20.0	<0.002	2.3	1.6 J
MW-02	09/19/07	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	10/21/08	10.23	299	9.55	92.3	6.37	184.3	395.00	1.1 J	0.0052 J	0.424 J	12.9	0.002 UJ	1.6 J	3.17
MW-03	10/08/97	10.34	696	3.52	31.5	6.91	38.4		4.4	0.011	0.3	16.0	<0.01	<1.0	42
MW-03	04/04/00	Parameters not measured							2.8	0.010	0.5	12.5	0.0016	<0.6	64
MW-03	04/25/01	10.27	1039	3.77	33.8	6.83	169.1		4.42	0.008	0.1	11.0	NT	<0.11	47
MW-03	09/13/01	11.53	1118	16.44	NR	6.93	99.0		4	0.031	0.9	14.0	<0.01	0.093	58

Pentawood Products Site
Natural Attenuation Trend Data
Anuual Groundwater Sampling

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm²)	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-03	08/07/02	10.36	1007	4.50	NR	6.74	165.1		<0.15	0.011	0.2	16.0	<0.01	0.1	69
MW-03	09/23/03	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	09/21/04	10.70	1071	0.38	3.4	6.80	87.2	10.6	3.5 J	4.99 J	278.0	8.9 R		0.37	62 J
MW-03	09/28/05	10.58	948	24.95	(*)	6.82	242.6	25.9	3.3	0.0067 J	0.1	24.0	<0.002	0.2 J	62.0
MW-03	09/25/06	Well Dry							Well Dry						
MW-03	09/20/07	Well Dry							Well Dry						
MW-03	10/21/08	11.98	1129	1.26	11.8	6.80	63.4	72.8	2.73 J	0.0152 J	2.14	15.2	0.0049 J	0.1 UJ	60.5
MW-04	10/09/97	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	04/04/00	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	10/10/97	10.68	887	0.38	3.4	6.24	28.8		<0.1	NT	4.9	15.0	<0.01	28000	50
MW-05	04/07/00	8.76	737	4.81	39.3	6.03	119.4		<0.1	3.350	3.4	34.3	0.0009	20600	49
MW-05	04/26/01	12.29	1018	3.71	36.0	6.40	-39.7		<0.13	11.300	7.6	28.0	NT	20600	42
MW-05	09/13/01	11.45	698	10.19	97.0	6.80	-68.6		0.17	8.500	4.1	22.0	<0.01	6300	29
MW-05	08/07/02	11.80	589	5.02	NR	6.15	35.2		<0.15	7.840	7.9	21.0		510	26
MW-05	09/25/03	10.60	559	2.99	27.0	6.54	-21.3		<0.05	8.320	13.4	20.0	0.00047 J	1100	22.1
MW-05	09/22/04	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	09/28/05	11.13	627	3.27	30.3	6.47	-60.4	0.98	<0.1	7.6	19.0	35.0	0.0230	1100 J	18.0
MW-05	09/26/06	11.49	736	4.79	46.5	6.64	221.0	0.72	<0.1	8.0	23.0	27.0	0.0087 J	460	16.0
MW-05	09/20/07	11.60	583	2.95	28.8	6.53	-68.9	0.80	<0.1	7.6	25.0	39 J	0.0098	31	13.0
MW-05	10/22/08	10.47	552	2.79	26.8	6.74	-73.0	1.08	<0.05	9.7 J	10.5 J	24.8	0.011 J	206	8.68
MW-06S	10/09/97	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	04/07/00	Not measured. Sampled for VOCs only													
MW-06S	04/26/01	12.03	453	2.78	26.7	5.92	142.2		0.87	0.347	<0.025	12	NT	3	14
MW-06S	09/12/01	Not measured due to product in the well.							1.1	0.8	<0.035	16	<0.01	1.1	12
MW-06S	08/07/02	12.75	583	NR	41.4	6.08	77.8		<0.15	1.790	3.33	18	0.2700	88 B	17
MW-06S	09/25/03	Not measured due to product in the well.							1.01	0.961	1.10	17	0.1300	0.33	23.9
MW-06S	09/27/06	CAMU wells not measured							3.9	0.590	<0.05	18	0.0035 J	0.21	18.0
MW-06S	09/20/07	10.81	569	6.24	57.0	5.86	86.9	NR	4.7	0.2	0.51	34 J	0.003	0.099	30
MW-06S	10/23/08	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-07	10/14/97	10.13	709	8.23	73.0	6.86	6.0		4.9	NT	0.62	6.0	<0.01	<1.0	7.6
MW-07	04/04/00	9.87	693	5.82	51.5	7.01	156.1		2.7	0.026	0.36	6.1	0.004	<0.5	4.8
MW-07	04/25/01	12.60	721	7.54	71.2	6.89	127.5		3.6	0.007	0.15	6.5	0.0047	<0.1	8.4
MW-07	09/11/01	11.04	824	8.36	74.5	6.27	208.0		3	0.0044	0.23	10	0.012	0.083	23
MW-07	08/07/02	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	09/24/03	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	09/22/04	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

Pentawood Products Site
Natural Attenuation Trend Data
Anuual Groundwater Sampling

Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm²)	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	09/27/05	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	09/27/06	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	09/20/07	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	10/22/08	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-08	10/14/97	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	04/05/00	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	04/26/01	11.08	358	5.50	52.3	7.94	151.3		1.52	0.027	<0.025	7.47	0.0116	0.2	3.25
MW-08	09/11/01	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	08/08/02	11.80	375	NR	75.2	7.56	160.9		<0.15	0.0053 B	0.011 B	6	<0.01	<0.04	4.2
MW-08	09/25/03	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	09/23/04	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	09/28/05	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	09/25/06	Well Dry							Well Dry						
MW-08	09/20/07	11.86	543	4.67	43.9	7.34	-50.4	28.0	1.5	0.013	0.21	76 J	<0.002	<0.093	21
MW-08	10/22/08	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	10/08/97	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	04/05/00	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	04/23/01	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	09/12/01	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	08/06/02	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	09/25/03	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	09/22/04	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	09/27/05	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	09/25/06	Well Dry							Well Dry						
MW-09	09/21/07	9.85	199	7.20	65.2	5.24	239.5	1.50	3.8	0.0041 J	<0.100	15 J	<0.002	0.37	2.6
MW-09	10/22/08	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-10	10/15/97	10.88	803	0.38	3.4	6.83	-33.2		4.9	NT	0.00219	13	0.0135	3400	35
MW-10	04/06/00	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	04/26/01	12.31	1029	4.52	42.8	6.89	-103.5		0.18	2.38	5.65	22	NT	22800	48
MW-10	09/12/01	11.18	1188	6.55	63.1	6.89	-71.1		0.13	3.2	2.4	23	<0.01	21000	61
MW-10	08/07/02	14.24	1010	NR	60.9	6.30	-147.8		<0.15	2.54	10.7	20	0.011	22000	56
MW-10	10/01/03								<0.05	1.85	2.59	3	0.00062	9000	22
MW-10	09/23/04	Not measured due to product in the well							0.0018 J	1.81	0.0241	18	<10.0	38000	38
MW-10	09/29/05	Well Dry							Well Dry						
MW-10	09/27/06	CAMU wells not measured							<0.1	2.6	0.12	24	<0.002	23000 J	14
MW-10	09/20/07	CAMU wells not measured							0.68	2.7	0.55	25 J	0.0024	1700	20
MW-10	10/23/08	CAMU wells not measured							<0.05	2.21 J	1.11 J	28.1	0.006 J	1630	12.4

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Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm²)	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-10S	10/15/97	13.18	339	10.49	100.0	7.55	135.6		<0.1	NT	0.0000454	23	<0.01	12000	38
MW-10S	04/07/00	9.41	599	5.02	41.5	6.37	331.6		<100	10.1	<0.05	138	0.001567	56100	53
MW-10S	04/25/01	Not measured due to product in the well							1.5	6.03	11.30	8.6	0.0006	49000	11
MW-10S	09/12/01	Not measured due to product in the well							4.7	7.60	0.048	13	<0.01	82000	10
MW-10S	08/07/02	13.62	431	NR	66.1	6.31	303.8		0.11	7.07	0.0673	14	<0.01	390	10
MW-10S	09/25/03	Not measured due to product in the well							3.41	5.9	<0.05	2	<0.0005	2200	6.7
MW-10S	09/22/04	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	09/29/05	Not measured due to product in the well							2.0 J	3.9	<0.05	120 J	<0.002	<0.11	16
MW-10S	09/27/06	Not measured due to product in the well							1.2	2.5	<0.05	79	<0.002	2700 J	8.6
MW-10S	09/20/07	Not measured due to product in the well							1.3	1.3	<0.100	69 J	<0.002	24	8.7
MW-10S	10/23/08	Not measured due to product in the well							Well Dry				0.002 UJ	Well Dry	
MW-11	10/15/97	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	04/04/00	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	04/04/01	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	09/10/01	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	08/06/02	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	09/23/03	12.66	396	6.29	60.7	7.81	245.9	11.3	2.94	<0.005	<0.05	<2	<0.0005	<0.11	6.7
MW-11	09/21/04	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	09/29/05	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	09/27/06	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	09/20/07	11.83	520	5.05	47.5	7.54	75.7	0.28	2.4	<0.01	<0.100	19 J	<0.002	<0.093	20
MW-11	10/22/08	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	10/15/97	10.16	1044	2.86	25.0	6.93	41.2		<0.1	NT	0.000267	15	<0.01	5000	48
MW-12	04/06/00	10.10	1097	0.63	5.6	6.89	169.9		0.483	1.59	0.1128	11.9	0.001553	10300	54.5
MW-12	04/06/01	Parameters not measured							0.43	1.57	0.131	16	0.048	1500	48
MW-12	09/13/01	11.02	1142	3.95	36.7	6.84	22.2		<0.53	1.4	0.74	16	<0.01	18000	47
MW-12	05/14/02	10.28	933	0.75	7.0	6.72	110.0		0.67	1.68	<0.011	17		4300	40
MW-12	08/07/02	12.21	920	NR	45.9	6.69	150.0		0.46	1.6	0.105	15	<0.01	6400	37
MW-12	04/29/03	10.95	982	5.24	47.2	6.80	126.1		0.8	1.56	<0.025	20	<0.05	3000	31
MW-12	09/23/03	10.89	864	3.07	27.8	6.62	306.1	0.54	1.17	1.53	<0.05	<2	0.00049 J	10000	30.8
MW-12	05/04/04	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	09/22/04	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	05/12/05	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	09/27/05	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	06/07/06	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	09/26/06	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	05/09/07	12.15	771	NR	NR	6.60	155.5	0.58	2.4	1.1	<0.100	37 J	<0.002	3000 J	13

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Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm²)	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	09/19/07	11.85	737	3.19	30.6	6.79	144.8	1.27	2.8	0.82	<0.100	29 J	<0.002	1100	14
MW-12	05/20/08	11.61	705	1.86	18.2	6.95	168.4	0.00	2	1.0	0.1 UJ	25	0.002 UJ	2100 J	12
MW-12	10/21/08	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-13	10/08/97	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	04/05/00	9.67	189	8.29	51.5	5.49	296.7		<100	0.112	<0.05	431	0.0003	0.8	4.4
MW-13	04/23/01	9.08	140	3.44	26.8	5.59	207.9		1.8	0.110	<0.025	35	<0.00012	0.2	3.5
MW-13	09/10/01	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	08/05/02	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	09/23/03	11.16	195	3.50	32.3	5.80	317.0	432	1.86	0.182	0.96	7	<0.0005	2.9	5.1
MW-13	09/21/04	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	09/27/05	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	09/25/06	Well Dry							Well Dry						
MW-13	09/18/07	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	10/21/08	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-14	10/09/97	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	04/06/00	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	10/16/97	9.29	409	4.49	39.1	8.22	149.8		4.1	NT	0.00001	6.3	<0.01	<1	6.5
MW-15	04/04/00	8.08	483	10.72	85.1	7.69	284.1		3.5	<0.002	<0.05	10	0.0003	<0.5	12.3
MW-15	04/25/01	11.79	675	8.73	81.3	7.73	179.4		4.0	<0.015	<0.025	3	<0.0001	<0.11	15.0
MW-15	09/12/01	9.74	548	9.80	NR	8.00	153.3		3.7	0.000	<0.035	<4.5	<0.01	0.077	17.0
MW-15	08/06/02	10.24	508	NR	101.4	7.72	285.7		<0.15	<0.00042	<0.011	5	<0.01	<0.04	16.0
MW-15	09/23/03	9.74	483	9.14	81.7	7.90	213.6	26.1	3.8	<0.005	<0.05	<2	<0.0005	<0.1	17.4
MW-15	09/21/04	9.85	514	8.49	77.4	7.55	73.5	4.11	3.2 J	0.976 J	36.70	3.9 J	<10.0	0.3	16.0
MW-15	09/29/05	11.44	580	10.25	89.3	7.58	163.8	1.50	4.2 J	0.0016 J	<0.05	6	<0.002	<0.11	17.0
MW-15	09/27/06	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	09/19/07	12.75	574	11.08	106.6	7.01	197.0	1.50	5.7	<0.01	<0.100	13 J	<0.002	<0.1	15
MW-15	05/20/08	12.21	551	8.40	80.5	7.66	136.3	0.80	4.7	0.00052 J	0.100 UJ	6.6	0.002 UJ	0.18 J	14
MW-15	10/21/08	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-16	10/14/97	9.86	409	8.57	74.8	6.82	99.4		3.2	NT	0.00002	8.10	<0.01	<1	6.1
MW-16	04/06/00	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	04/26/01	10.46	1102	4.72	43.2	6.81	75.6		8.7	0.009	0.03	29.0	<0.00012	<0.11	3.6
MW-16	09/10/01	Parameters not measured							5.8	0.00082	<0.035	11.0	<0.01	0.17	1.8
MW-16	08/06/02	11.70	247	10.86	NR	6.11	331.3		<0.15	0.0091 B	0.08	13.0	<0.01	0.0	2.0
MW-16	09/23/03	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	09/21/04	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	0.1	3.7
MW-16	09/29/05	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	11.0

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MW-16	09/26/06	10.69	278	9.33	87.7	6.45	232.3	51.80	1.2 J	<0.00059 B	<0.05 J	32 J	<0.002 J	0.046 J	4.1 J
MW-16	09/18/07	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	10/22/08	9.15	248	17.98	156.2	6.52	224.5	267.00	0.99 J	0.02 J	0.318 J	43.2	0.002 UJ	0.08 J	7.51
MW-17	10/15/97	9.26	399	4.53	39.0	7.89	147.2		4.1	NT	<0.0001	10	<0.01	<1	4.8
MW-17	04/06/00	9.15	438	4.81	41.8	7.73	254.9		4.2	<0.002	<0.05	<3	0.0001	<0.5	4.9
MW-17	04/26/01	10.38	412	9.64	85.7	7.77	58.6		5.0	<0.015	<0.025	6.8	NT	0.7	4.1
MW-17	09/11/01	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	08/08/02	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	09/25/03	9.80	405	6.45	57.3	7.80	206.0	358	5.1	<0.005	<0.05	<2	<0.0005	0.46	4.4
MW-17	09/22/04	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	09/27/05	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	09/26/06	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	09/19/07	10.42	385	10.15	92.6	7.60	113.7	0.30	5.6	<0.01	<0.100	14 J	<0.002	<0.099	4.7
MW-17	10/22/08	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-18	10/10/97	11.51	777	1.03	9.2	6.13	-12.1		<0.1	NT	0.03	11.0	<0.01	8800	49
MW-19	10/16/97	8.43	662	12.11	103.4	8.23	133.6		3.8	NT	<0.0001	19	<0.01	8900	47
MW-19	04/07/00	7.80	650	5.02	40.3	6.75	323.2		7.0	<0.002	<0.05	90	0.0003	11000	37.4
MW-19	04/07/01	Not measured due to product in the well							3.37	1.79	<0.025	47	NT	25600	39
MW-19	09/12/01	Not measured due to product in the well							1.3	1.8	0.071	<9.7	0.0160	400000	19
MW-19	05/13/02	Not measured due to product in the well							2	2.07	<0.011	16		14000	33
MW-19	08/08/02	Not measured due to product in the well							0.16	3.11	0.218	16	<0.01	11000	22
MW-19	04/29/03	Not measured due to product in the well							3	3.59	<0.025	27	0.0024	4900	20
MW-19	09/25/03	Not measured due to product in the well							2	4.47	0.05 J	90	0.0057	15000	17.5
MW-19	05/04/04	Not measured due to product in the well							0.71 J	3.36	0.031	16 R	1.13 J	70000 J	25.0
MW-19	09/22/04	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	05/10/05	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	09/29/05	Not measured due to product in the well							0.75	2.7	<0.05	40 J	<0.002	13000 J	19.0
MW-19	06/07/06	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	09/27/06	Not measured due to product in the well							0.66 J	3.1	<0.05	30	<0.002 J	8200 J	14.0
MW-19	05/09/07	Not measured due to product in the well							0.29	2.6	<0.100	59 J	<0.002	11000 J	15
MW-19	09/20/07	Not measured due to product in the well							0.28	3.1	<0.100	42 J	<0.002	3500	17
MW-19	05/20/08	Not measured due to product in the well							0.44	2.9	0.100 UJ	42	<0.002	23000 J	16
MW-19	10/24/08	Not measured due to product in the well							0.04 J	4.85 J	0.51 J	46.2	0.0021 J	27900	15.9
MW-20	10/15/97	Well Dry							NT	NT	NT	NT	<0.01	11000	NT
MW-20	04/26/01	Not measured due to product in the well							<0.13	2.25	0.84	67	NT	36600	24
MW-20	09/12/01	Not measured due to product in the well							0.15	2.8	<0.035	24	<0.01	83000	16

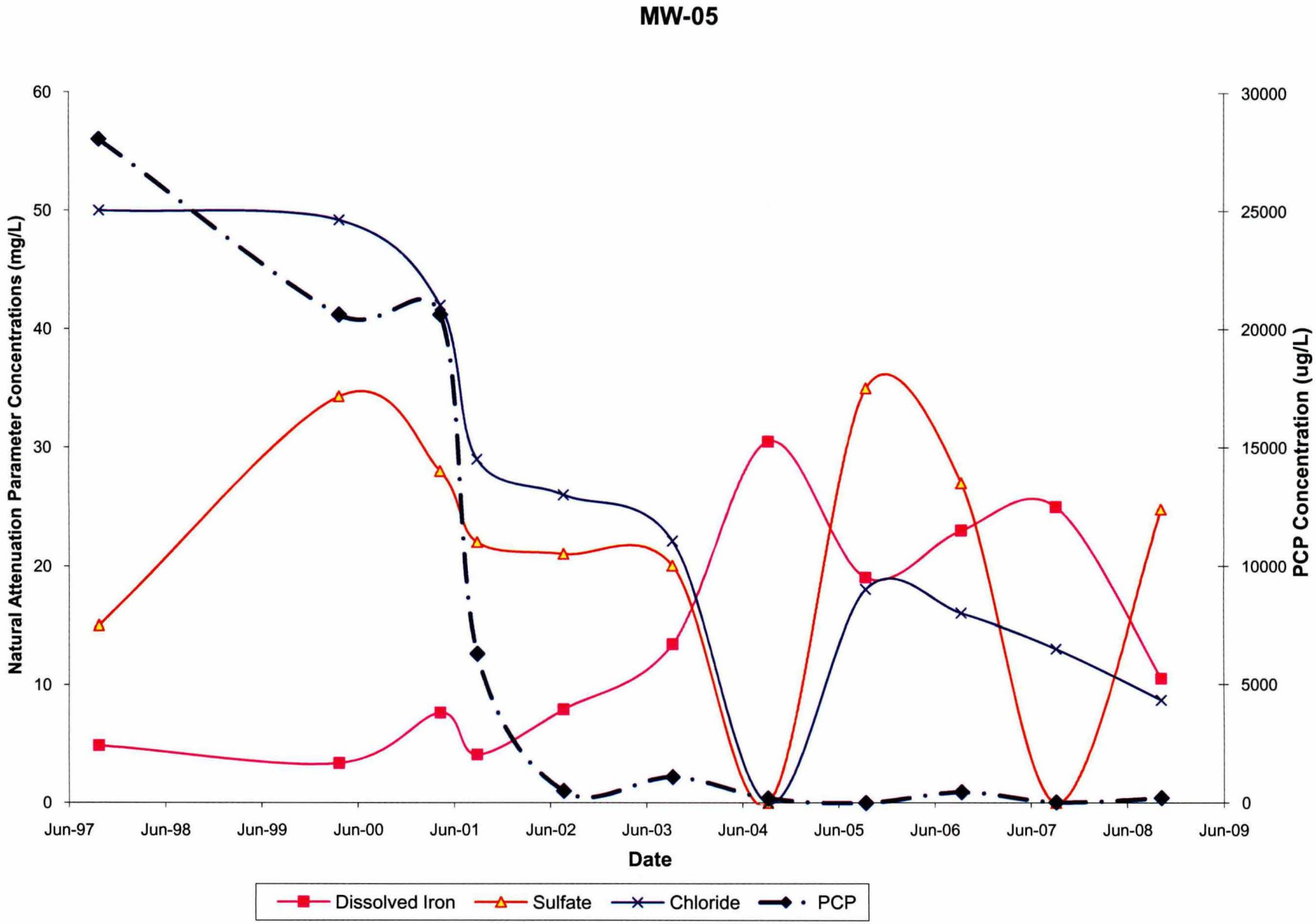
Pentawood Products Site
Natural Attenuation Trend Data
Anuual Groundwater Sampling

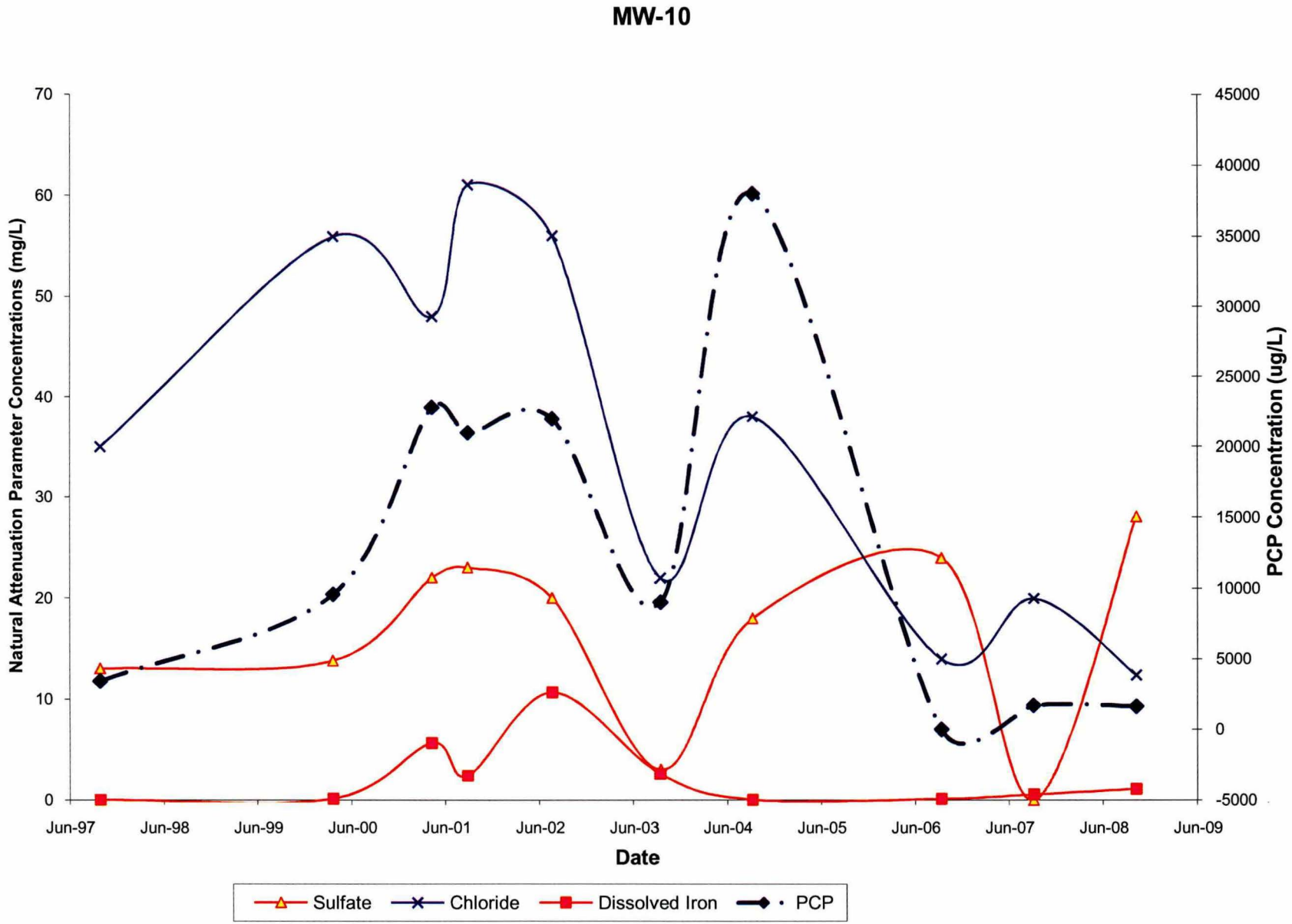
Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm²)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-20	08/07/02	Not measured due to product in the well							<0.15	3.28	0.206	25	<0.01	30000 B	22
MW-20	09/25/03	Not measured due to product in the well							<1.25	3.25	0.35	80 J	0.0054	13000	19.4 J
MW-20	09/22/04	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	10/25/05	Not measured due to product in the well							2.1 J	2.4	0.14	39 J	<0.002	63000 J	13
MW-20	09/27/06	Not measured due to product in the well							0.22	4.2	0.094 J	71	<0.002 J	4400Q J	16
MW-20	09/20/07	Not measured due to product in the well							<0.1	4.8	<0.100	98 J	<0.002	9500	18
MW-20	10/23/08	Not measured due to product in the well							0.13 J	3.4 J	0.462	28.9	0.002 UJ	41000	15.7
MW-21	02/09/98	8.50	559	8.35	NT	7.05	177.5		NT	NT	<0.1	9.1	0.011	<1.0	71
MW-21	05/14/02	9.29	457	10.66	93.5	5.86	152.0		2.0		0.130	7.3		0.1	69
MW-21	08/06/02	10.72	444	NR	99.0	6.79	297.6		<0.15	0.00063 B	<0.011	9.6		0.0	49
MW-21	04/29/03	9.91	473	3.72	NR	6.65	144.9		2.5	<0.005	<0.025	12.0	<0.0005	0.2	41
MW-21	09/24/03	9.30	491	11.13	97.7	6.74	326.0	400	2.6	<0.005	<0.05	<2	<0.0005	0.063 J	48
MW-21	05/04/04	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	09/21/04	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	0.5	63 J
MW-21	05/10/05	10.47	544	10.89	94.1	6.63	159.6	103	2.8 J	0.00047 J	<0.05	12 R	<0.002	0.3	49 J
MW-21	09/27/05	10.45	444	13.46	(*)	6.32	129.8	969	2.4 J	0.0098 J	0.036 J	17.0	<0.002 J	0.046 J	47
MW-21	06/01/06	9.76	496	8.23	62.7	6.77	200.8	684	2.7 J	0.017 J	0.047 J	20.0	<0.002	0.023 J	65 J
MW-21	09/25/06	Well Dry							Well Dry						
MW-21	05/08/07	10.64	429	9.20	82.9	6.04	200.1	312	4.2	<0.01	<0.100	9.3 J	<0.002	<0.098	33 J
MW-21	09/18/07	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	10/21/08	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	68.8
MW-22	02/09/98	8.70	558	7.50	NT	6.86	119.5		NT	NT	<0.1	18	0.013	<1.0	56
MW-22	05/14/02	9.91	423	10.25	91.3	6.77	85.5		3.7 J	0.0035	0.023	14		0.1	18
MW-22	08/06/02	11.37	343	NR	101.6	6.86	323.7		<0.15	<0.00042	0.025 B	12	<0.01	0.1	7
MW-22	09/24/03	9.70	303	10.92	96.4	6.89	345.4	1038	2.2	0.542	2.77	3 J	<0.0005	0.3	5
MW-22	09/21/04	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	0.2	11 J
MW-22	09/28/05	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	09/25/06	Well Dry							Well Dry						
MW-22	09/18/07	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	05/20/08	10.05	268	NR	86.6	6.43	273.7	1045.9	2.3	0.0036	0.100 UJ	12	0.002 UJ	0.77 J	8.4
MW-22	10/21/08	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	4.69
MW-23	02/27/98	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	09/11/01	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	02/08/98	13.80	524	5.35	NR	6.62	80.0		NT	NT	<0.1	5.2	<0.01	<1	19
MW-24	04/24/01	15.30	634	3.67	34.9	6.28	209.2		3.6	0.0024	<0.025	12	<0.0001	0.1	36

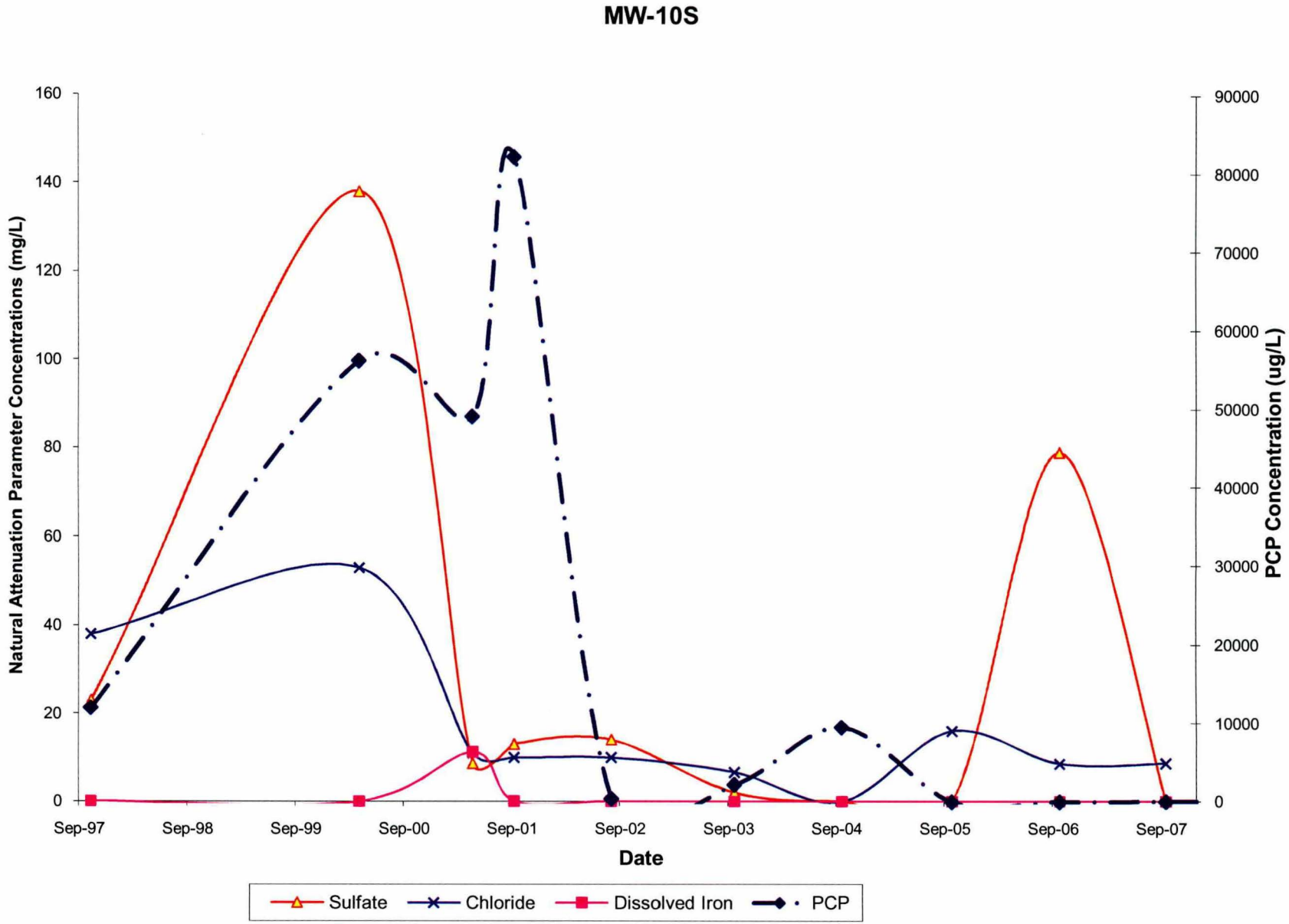
Pentawood Products Site
Natural Attenuation Trend Data
Anuual Groundwater Sampling

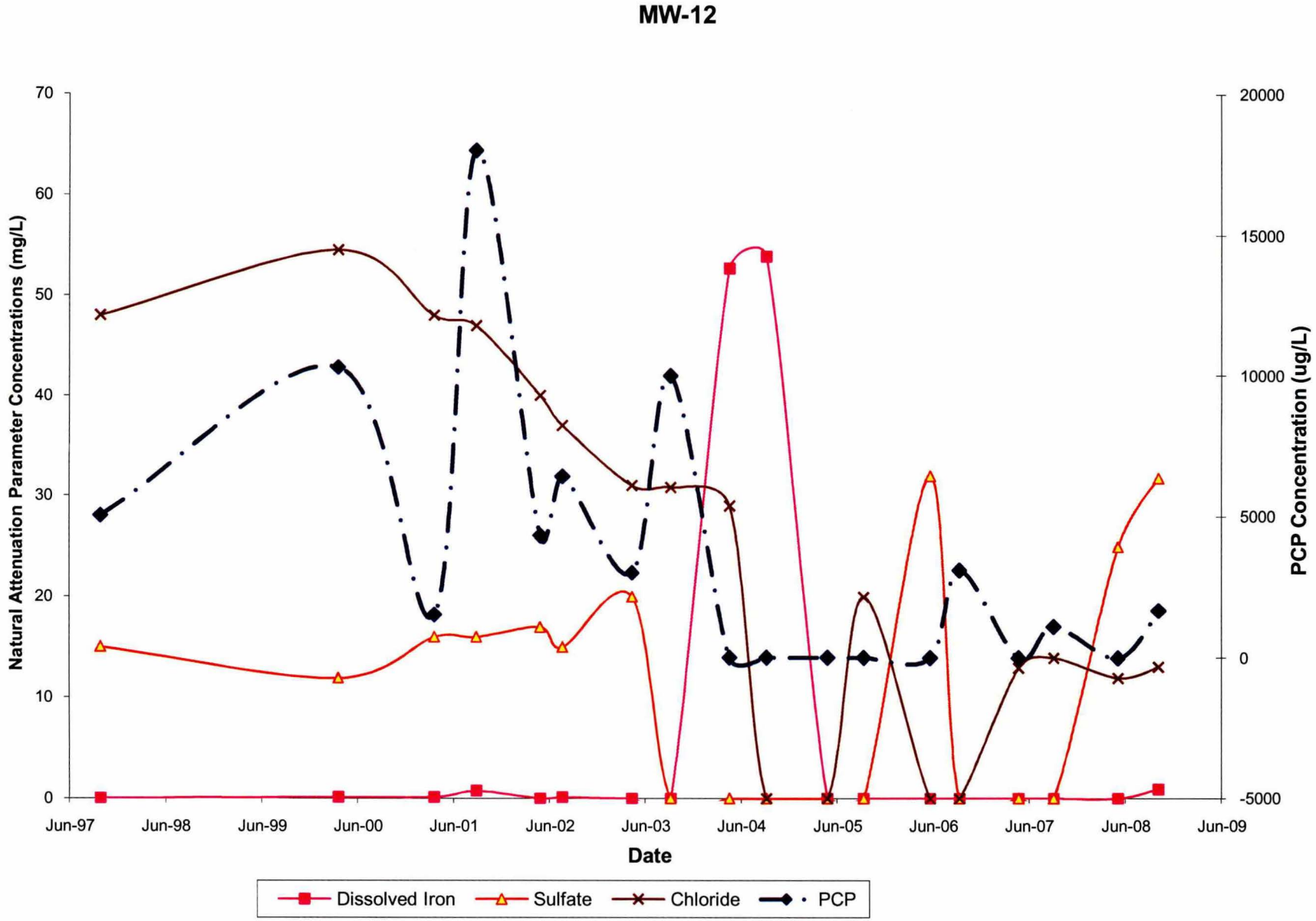
Well	Sample Date	Temp. (C)	Specific Cond. (umhos/cm^2)	DO (mg/L)	DO (%)	pH	ORP (mV)	Turbidity (ntu)	Nitrate (mg/L)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)	PCP (ug/L)	Chloride (mg/L)
MW-25	02/09/98	8.69	808	8.16	NR	6.95	55.0		NT	NT	<0.1	9.9	0.017	<1.0	16
MW-26	04/24/01	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	09/10/01	Parameters not measured							3.2	<0.004	0.1	12	<0.01	0.16	30
MW-26	05/14/02	12.28	588	7.55	72.8	7.11	17.8		3 J	0.00073	<0.011	15		0.1	27
MW-26	08/05/02	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	04/29/03	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	09/23/03	10.84	513	7.41	67.7	6.70	279.8	23.7	3.74	<0.005	<0.05	<2	<0.0005	<0.11	11
MW-26	05/04/04	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	09/23/04	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	05/10/05	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	09/27/05	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	06/07/06	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	09/27/06	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	05/08/07	11.36	852	7.60	70.4	7.51	60.9	3.07	1.5	<0.01	<0.100	210 J	<0.002	<0.093	21 J
MW-26	09/19/07	11.65	892	6.03	56.2	7.04	129.7	3.40	1.3	<0.01	<0.100	220 J	<0.002	<0.095	25
MW-26	05/20/08	11.80	921	7.06	66.5	7.06	181.1	0.00	1.8	<0.0025	0.100 UJ	230	0.002 UJ	0.096 UJ	22
MW-26	10/22/08	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
PW-01	10/23/97	11.10	550	5.00	NR	8.92	185.0		7.7	NT	0.0012	10	0.0195	5	48
PZ-03	02/09/98	7.50	212	11.02	NR	6.91	164.0		NT	NT	NT	NT	NT	<1	NT

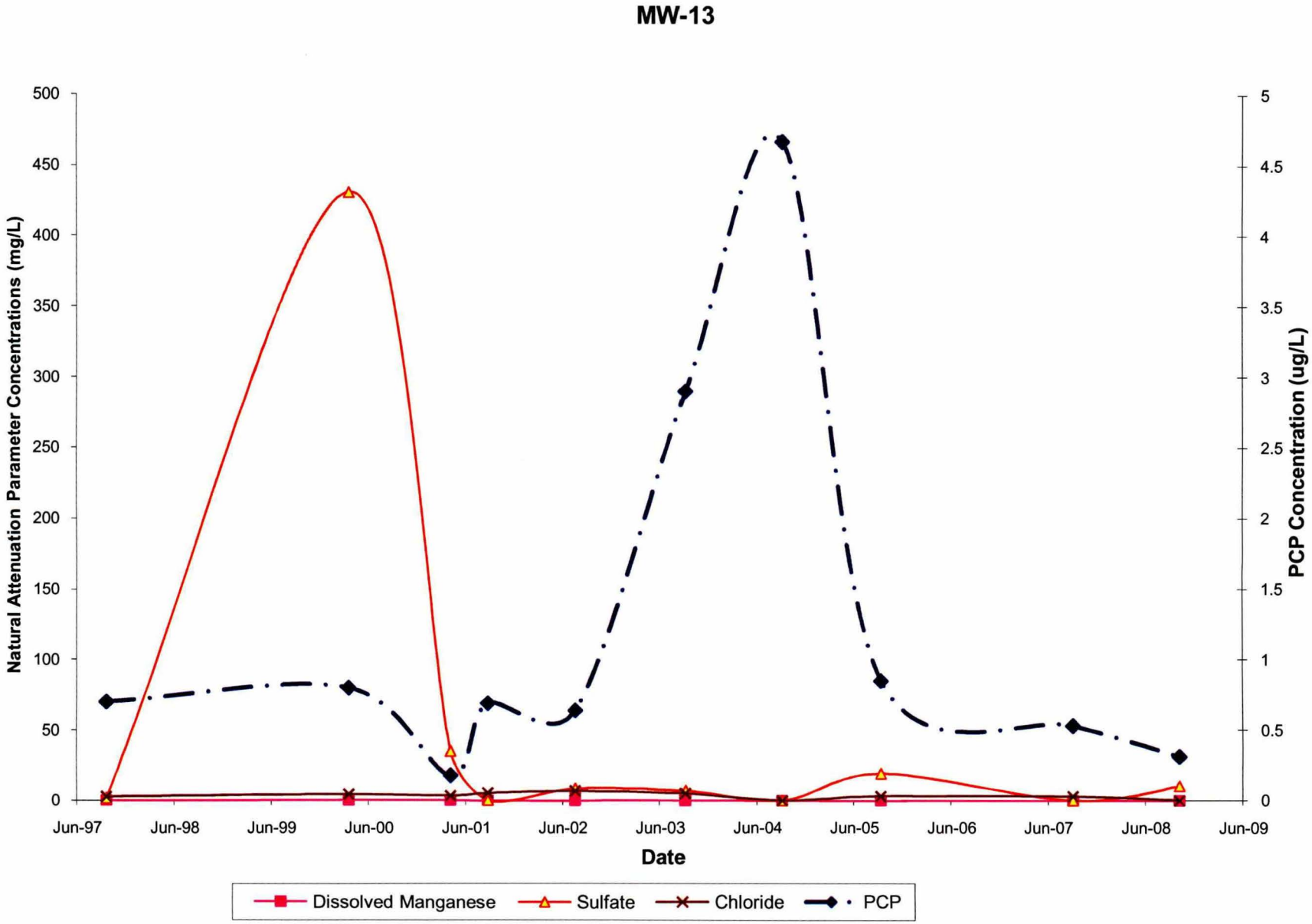
(*) Readings outside normal range, instrument response in question.
NR - Parameter not Recorded.
NT - Parameter not tested.

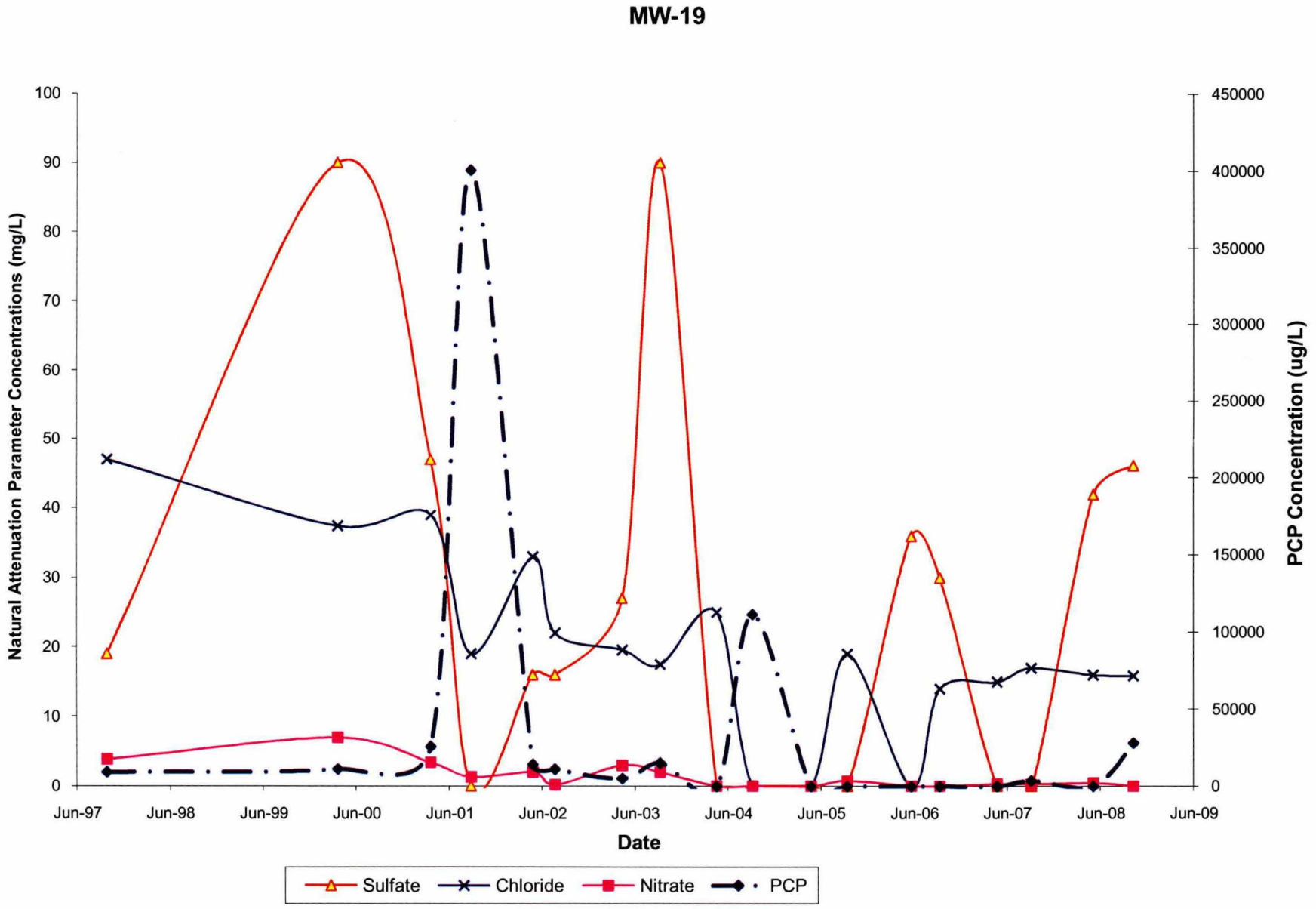

MW-05
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
60
50
40
30
20
10
0
30000
25000
20000
15000
10000
5000
0
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Date
Dissolved Iron
Sulfate
Chloride
PCP


MW-10
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
70
60
50
40
30
20
10
0
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
-5000
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Date
Sulfate
Chloride
Dissolved Iron
PCP


MW-10S
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
160
140
120
100
80
60
40
20
0
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Sep-97
Sep-98
Sep-99
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Date
Sulfate
Chloride
Dissolved Iron
PCP


MW-12
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
70
60
50
40
30
20
10
0
20000
15000
10000
5000
0
-5000
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Date
Dissolved Iron
Sulfate
Chloride
PCP


MW-13
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
500
450
400
350
300
250
200
150
100
50
0
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Date
Dissolved Manganese
Sulfate
Chloride
PCP


MW-19
Natural Attenuation Parameter Concentrations (mg/L)
PCP Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Jun-97
Jun-98
Jun-99
Jun-00
Jun-01
Jun-02
Jun-03
Jun-04
Jun-05
Jun-06
Jun-07
Jun-08
Jun-09
Date
Sulfate
Chloride
Nitrate
PCP

Appendix C

Groundwater Contour Maps, Groundwater Elevations and Observations, and LNAPL Measurements

I:\EPA\151745-Penta Wood\CAD\DRAWINGS\Const Docs\2009\ pw_2009-pcp_1000 in gw fig01.dgn 2-NOV-2009

N

0 100' 200'

N 2200
N 2000
N 1800
N 1600
N 1400
N 1200
N 1000
N 800
N 600

E 400
E 600
E 800
E 1000
E 1200
E 1400
E 1600
E 1800
E 2000
E 2200
E 2400
E 2600

INFILTRATION BASIN
PROPERTY BOUNDARY
CAMU OUTLINE
EXISTING TREATMENT BUILDING
PROPOSED LOCATION OF NEW TREATMENT BUILDING
NEW ROAD
DANIELS 70

MW 11 0.27
MW-08 0.1 U
MW26 0.1 U
MW 17 0.095 J
MW 13 0.31 UB
MW23 NT
MW 9 0.1 U
EW11
MW24 NT
MW 16 0.08 J
MW 12 1,670
MW-25
MW 10 1,630
EW02
MW 2 1.6
MW 5 206
SG04
MW 18 NT
MW 10S NT
EW03
EW05
MW 7 0.1 U
EW10
SG05
MW 20 41,000
EW06
MW 14 NT
EW04
MW 19 27,900
MW 6S 2.65
MW6
SG07
SG06
MW 1 0.42 UB
BV08
SG22
EW07
MW 4 NT
MW22 0.09 UB
BV09
PW 01 NT
MW21 0.1 U
MW 3 0.1 U
MW 15 0.1 U

LEGEND

EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL NEST
SG05	SOIL GAS WELL NEST
	UNCONFINED MONITORING WELL LOCATION
	SEMICONFINED MONITORING WELL LOCATION
MW 7	WELL ID
2.65	PCP CONCENTRATIONS IN GROUNDWATER (2008)
NT	NOT TESTED FOR OR NOT DETECTED
J	PCP IS PRESENT BUT THE REPORTED VALUE IS ESTIMATED
U	PCP WAS NOT DETECTED AT THE SPECIFIED DETECTION LIMIT
UB	PCP WAS UNDETECTED DUE TO BLANK CONTAMINATION
	APPROXIMATE EXTENT OF 1000 ug/L PCP CONCENTRATIONS, 1997
	APPROXIMATE EXTENT OF 1000 ug/L PCP CONCENTRATIONS, 2007
	APPROXIMATE EXTENT OF 1000 ug/L PCP CONCENTRATIONS, 2008 (DASHED WHERE INFERRED)

FIGURE C-1
PENTACHLOROPHENOL 1,000 ug/L
CONCENTRATION CONTOURS
2008, 2007, AND 1997

CH2MHILL

I:\EPA\151745-Penta Wood\CAD\DRAWINGS±9\2009 Annual GW Report\ pw_2008-pcp_1 in gw fig02.dgn 2-NOV-2009

N

0 100' 200'

N 2200
N 2000
N 1800
N 1600
N 1400
N 1200
N 1000
N 800
N 600

E 400
E 600
E 800
E 1000
E 1200
E 1400
E 1600
E 1800
E 2000
E 2200
E 2400
E 2600

INFILTRATION BASIN
PROPERTY BOUNDARY
CAMU OUTLINE
PROPOSED LOCATION OF NEW TREATMENT BUILDING
NEW ROAD
EXISTING TREATMENT BUILDING
DANIELS 70

MW 11 0.27
MW-08 0.1 U
MW26 0.1 U
MW 17 0.095 J
MW 13 0.31 UB
MW23 NT
MW 9 0.1 U
EW11
MW 2 1.6
MW24 NT
MW 16 0.08 J
MW 12 1,670
MW-25
EW02
MW 5 206
SG04
MW 18 NT
MW 10 1,630
MW 10S 2,700
EW03
EW05
MW 7 0.1 U
MW 20 41,000
EW10
SG05
MW 14 NT
EW06
EW04
SG07
MW 19 27,900
MW 6
MW 1 0.42 UB
SG06
MW 6S 2.65
BV08
MW 4 NT
EW07
SG22
MW22 0.09 UB
BV09
PW 01 NT
MW21 0.1 U
MW 3 0.1 U
MW 15 0.11 U

LEGEND

EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL NEST
SG05	SOIL GAS WELL NEST
	UNCONFINED MONITORING WELL LOCATION
	SEMICONFINED MONITORING WELL LOCATION
MW 7	WELL ID
206	PCP CONCENTRATIONS IN GROUNDWATER (2008)
NT	NOT TESTED FOR OR NOT DETECTED
J	PCP IS PRESENT BUT THE REPORTED VALUE IS ESTIMATED
U	PCP WAS NOT DETECTED AT THE SPECIFIED DETECTION LIMIT
UB	PCP WAS UNDETECTED DUE TO BLANK CONTAMINATION
	APPROXIMATE EXTENT OF 1.0 ug/L PCP CONCENTRATIONS, 1997
	APPROXIMATE EXTENT OF 1.0 ug/L PCP CONCENTRATIONS, 2007
	APPROXIMATE EXTENT OF 1.0 ug/L PCP CONCENTRATIONS, 2008 (DASHED WHERE INFERRED)

FIGURE C-2
PENTACHLOROPHENOL 1.0 ug/L
CONCENTRATION CONTOURS
2008, 2007, AND 1997

CH2MHILL

Appendix D
Residential Well Memoranda

CH2M HILL
135 South 84th Street
Suite 325
Milwaukee, WI 53214-1456

CH2MHILL

June 19, 2008

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

Subject: Subcontract No. 521
September 2007 Sampling Results
Penta Wood Products, Siren, Wisconsin
WA No. 004-LRLR-05WE, Contract No. EP-S5-06-01

Dear Tom:

Attached are the results of the residential and potable well semi-annual groundwater sampling event that took place on May 20, 2008 and May 21, 2008. This sampling event included the analysis of pentachlorophenol (PCP), benzene, ethylbenzene, toluene, xylene (BTEX), and naphthalene. The following table provides information for the residential wells where samples were collected.

LTRA Residential Well Information
Penta Wood Products – Siren, Wisconsin

Location ID	Resident Name	Resident Address	Resident Phone Number	WI Well #
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 Chicago, Illinois. Analytical results were received by CH2M HILL on June 13, 2008, and were submitted on June 19, 2008, to the United States Environmental Protection Agency (USEPA) for validation. The following summary is based on a review of the data prior to receiving final validation results from USEPA.

The results of the May 2008 sampling event showed no detections of BTEX and naphthalene. PCP was not detected in DW-01 (portable well), RW-02, RW-03, RW-04, and RW-05 above the detection limit of 0.021 µg/L. The PCP concentration in RW-01 (Ellis residence) was estimated at 0.060 µg/L. This value is considered estimated because the result is above the detection limit of 0.021 µg/L, but less than the reporting limit of 0.093 µg/L.

If you have any questions or comments, please contact me at 414.272.1052, ext. 40227, or Keli McKenna at ext. 40561.

Sincerely,

CH2M HILL

Shannon M. Greene

Shannon Greene
Project Chemist

c: Pat Vogtman, PO/U.S. EPA, Region 5 (w/o enclosure)
Parveen Vij, CO/U.S. EPA, Region 5 (w/o enclosure)
Bill Schultz/WDNR
Keli McKenna, SM/CH2M HILL, Milwaukee
Beth Rohde, ASM/CH2M HILL, Milwaukee
Ike Johnson, PM/CH2M HILL, Milwaukee
Dan Plomb, DPM/CH2M HILL, Milwaukee
Gina Bayer, RTL/CH2M HILL, Milwaukee
Dave Shekoski/CH2M HILL, Milwaukee
Cherie Wilson, AA/CH2M HILL, Milwaukee

Ms. Shannon Greene
CH2M Hill, Inc.
135 South 84th Street
Suite 325
Milwaukee, WI 53214

Job Number: 500-11522-1

DW-01
Client Sample ID: 08CP14-01
Lab Sample ID: 500-11522-1

Date Sampled: 05/20/2008 1330
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0004	
Prep Method: 5030B			Date Prepared:		05/28/2008 0004	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	92		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	103		%		70 - 125	
Toluene-d8 (Surr)	108		%		75 - 120	
Dibromofluoromethane	103		%		75 - 120	
Method: 8270C			Date Analyzed:		06/06/2008 1327	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.94	U	ug/L	0.094	0.94	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	84		%		36 - 120	
2-Fluorobiphenyl	97		%		37 - 120	
Terphenyl-d14	72		%		24 - 134	
Method: 8151A			Date Analyzed:		05/28/2008 0501	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.094	U	ug/L	0.022	0.094	1.0
Surrogate					Acceptance Limits	
DCAA	98		%		31 - 135	

Ms. Shannon Greene
CH2M Hill, Inc.
135 South 84th Street
Suite 325
Milwaukee, WI 53214

Job Number: 500-11522-1

RW-01

Client Sample ID: 08CP14-19
Lab Sample ID: 500-11522-16

Date Sampled: 05/20/2008 1710
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0639	
Prep Method: 5030B			Date Prepared:		05/28/2008 0639	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	97		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	96		%		70 - 125	
Toluene-d8 (Surr)	106		%		75 - 120	
Dibromofluoromethane	103		%		75 - 120	
Method: 8270C			Date Analyzed:		06/05/2008 1917	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.95	U	ug/L	0.095	0.95	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	78		%		36 - 120	
2-Fluorobiphenyl	90		%		37 - 120	
Terphenyl-d14	80		%		24 - 134	
Method: 8151A			Date Analyzed:		05/30/2008 0644	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.060	J	ug/L	0.021	0.093	1.0
Surrogate					Acceptance Limits	
DCAA	109		%		31 - 135	

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Job Number: 500-11522-1

RW-02

Client Sample ID: **08CP14-21**
Lab Sample ID: **500-11522-18**

Date Sampled: 05/20/2008 1625
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0726	
Prep Method: 5030B			Date Prepared:		05/28/2008 0726	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	95		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	99		%		70 - 125	
Toluene-d8 (Surr)	105		%		75 - 120	
Dibromofluoromethane	104		%		75 - 120	
Method: 8270C			Date Analyzed:		06/05/2008 1959	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.95	U	ug/L	0.095	0.95	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	79		%		36 - 120	
2-Fluorobiphenyl	91		%		37 - 120	
Terphenyl-d14	80		%		24 - 134	
Method: 8151A			Date Analyzed:		05/28/2008 1910	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.095	U	ug/L	0.022	0.095	1.0
Surrogate					Acceptance Limits	
DCAA	85		%		31 - 135	

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Job Number: 500-11522-1

RW-03

Client Sample ID: 08CP14-22
Lab Sample ID: 500-11522-19

Date Sampled: 05/20/2008 1655
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0749	
Prep Method: 5030B			Date Prepared:		05/28/2008 0749	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	97		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	100		%		70 - 125	
Toluene-d8 (Surr)	107		%		75 - 120	
Dibromofluoromethane	104		%		75 - 120	
Method: 8270C			Date Analyzed:		06/05/2008 2020	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.96	U	ug/L	0.096	0.96	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	83		%		36 - 120	
2-Fluorobiphenyl	97		%		37 - 120	
Terphenyl-d14	81		%		24 - 134	
Method: 8151A			Date Analyzed:		05/28/2008 1956	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.097	U	ug/L	0.022	0.097	1.0
Surrogate					Acceptance Limits	
DCAA	92		%		31 - 135	

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Job Number: 500-11522-1

RW-04
Client Sample ID: 08CP14-23
Lab Sample ID: 500-11522-20

Date Sampled: 05/20/2008 1645
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0812	
Prep Method: 5030B			Date Prepared:		05/28/2008 0812	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	96		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	102		%		70 - 125	
Toluene-d8 (Surr)	106		%		75 - 120	
Dibromofluoromethane	101		%		75 - 120	
Method: 8270C			Date Analyzed:		06/05/2008 2042	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.96	U	ug/L	0.096	0.96	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	80		%		36 - 120	
2-Fluorobiphenyl	100		%		37 - 120	
Terphenyl-d14	70		%		24 - 134	
Method: 8151A			Date Analyzed:		05/28/2008 2026	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.093	U	ug/L	0.021	0.093	1.0
Surrogate					Acceptance Limits	
DCAA	95		%		31 - 135	

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Job Number: 500-11522-1

RW-05

Client Sample ID: 08CP14-24
Lab Sample ID: 500-11522-21

Date Sampled: 05/20/2008 1725
Date Received: 05/22/2008 1020
Client Matrix: Water

Analyte	Result/Qualifier		Unit	MDL	RL	Dilution
Method: 8260B			Date Analyzed:		05/28/2008 0835	
Prep Method: 5030B			Date Prepared:		05/28/2008 0835	
Benzene	1.0	U	ug/L	0.16	1.0	1.0
Toluene	1.0	U	ug/L	0.16	1.0	1.0
Ethylbenzene	1.0	U	ug/L	0.17	1.0	1.0
Xylenes, Total	2.0	U	ug/L	0.33	2.0	1.0
Surrogate					Acceptance Limits	
4-Bromofluorobenzene (Surr)	94		%		75 - 120	
1,2-Dichloroethane-d4 (Surr)	99		%		70 - 125	
Toluene-d8 (Surr)	107		%		75 - 120	
Dibromofluoromethane	106		%		75 - 120	
Method: 8270C			Date Analyzed:		06/05/2008 2103	
Prep Method: 3510C			Date Prepared:		05/27/2008 1140	
Naphthalene	0.95	U	ug/L	0.095	0.95	1.0
Surrogate					Acceptance Limits	
Nitrobenzene-d5	78		%		36 - 120	
2-Fluorobiphenyl	94		%		37 - 120	
Terphenyl-d14	79		%		24 - 134	
Method: 8151A			Date Analyzed:		05/28/2008 2056	
Prep Method: 8151A			Date Prepared:		05/27/2008 0548	
Pentachlorophenol	0.095	U	ug/L	0.022	0.095	1.0
Surrogate					Acceptance Limits	
DCAA	98		%		31 - 135	

CH2M HILL
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Tel 414-272-2426
Fax 414-272-4408

CH2MHILL

January 8, 2009

Mr. Thomas G. Williams
Remedial Project Manager (SR-6J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507

Dear Tom:

Subject: Subcontract No. 599, September 2007 Sampling Results
Penta Wood Products Site, Town of Daniels, Wisconsin
Long-Term Response Action (LTRA)
WA No. 004-LRLR-05WE, Contract No. EP-S5-06-01

Please find enclosed the results of the residential and potable well annual groundwater sampling event that took place between October 21, 2008 and October 23, 2008. 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 #
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 Environmental Monitoring & Technologies, Inc. (EMT) of Morton Grove, Illinois. Analytical results were received by CH2M HILL on November 13, 2008. During a review of the laboratory data packages, CH2M HILL rejected results from residential wells where blank contamination was identified, carryover was suspected, and laboratory blanks were not run between samples as required. The residential wells were resampled for PCP and BTEX on December 10 and 11, 2008. All of the annual groundwater results, including the results from the resampled residential wells, were submitted under the same cover letter on January 8, 2009 to the U. S. Environmental Protection Agency (USEPA) for validation. The following summary is based on a review of the data prior to receiving final validation results from USEPA.

The results of the October/December 2008 sampling event showed no detections of naphthalene, PCP, or BTEX.

If you have any questions or comments, please contact me at 414.272.1052, ext. 40227, or Keli McKenna at ext. 40561.

Sincerely,

CH2M HILL

Shannon M. Greene

Shannon Greene
Project Chemist

Enclosure

cc: Pat Vogtman, PO/USEPA Region 5 (w/o enclosure)
Parveen Vij, CO/USEPA Region 5 (w/o enclosure)
Bill Schultz/WDNR
Keli McKenna, SM/CH2M HILL, Milwaukee
Beth Rohde, ASM/CH2M HILL, Milwaukee
Phil Smith, RTL/CH2M HILL, Milwaukee
Ike Johnson, PM/CH2M HILL, Milwaukee
Dan Plomb, DPM/CH2M HILL, Milwaukee
Gina Bayer, QAM/CH2M HILL, Milwaukee
Dave Shekoski, Sample Coordinator/CH2M HILL, Milwaukee
Cherie Wilson, AA/CH2M HILL, Milwaukee

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08100729
Project: 344511/Penta Wood Products Site
Lab ID: 08100729-11

Client Sample ID: PWP-DW01
Report Date: 11/12/2008
Collection Date: 10/23/2008 4:00:00 PM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Alkalinity as CaCO3		**Method:**	**SM 2320B**				
Alkalinity, Total (As CaCO3)	297.	5.	H	mg/L CaCO3	11/12/08 14:45	R120646	AT2
Anions by Ion Chromatography		**Method:**	**SW 9056**				
Chloride	29.6	2.		mg/L	10/27/08	R119974	MF
Nitrogen, Nitrate (As N)	1.79	0.05		mg/L	10/27/08	R119974	MF
Sulfate	9.07	0.5		mg/L	10/27/08	R119974	MF
Organic Carbon, Total		**Method:**	**SW9060**				
Organic Carbon, Total	44.4	1.		mg/L	10/29/08	R120199	JL
Sulfide		**Method:**	**SM 4500-S D**				
Sulfide	< 1.	1.		mg/L	10/28/08	R120014	TTT
ICP MS Metals for Waters, Dissolved.		**Method:**	**SW6020A / SW3005A**				
Arsenic	< 0.002	0.002		mg/L	10/28/08 18:44	46719	AG
Copper	0.205	0.01		mg/L	10/28/08 18:44	46719	AG
Iron	0.642	0.05		mg/L	10/28/08 18:44	46719	AG
Manganese	0.0046	0.01	J	mg/L	10/28/08 18:44	46719	AG
Zinc	0.0812	0.02		mg/L	10/28/08 18:44	46719	AG
Semivolatile Organic Compounds GC/MS		**Method:**	**SW 8270 / SW3510C**				
Naphthalene	< 1.	1.		µg/L	10/31/08 12:41	46704	MNN
Surrogates:							
2-Fluorobiphenyl	108	20-140		%REC	10/31/08 12:41	46704	MNN
4-Terphenyl-d14	109	20-140		%REC	10/31/08 12:41	46704	MNN
Nitrobenzene-d5	104	20-140		%REC	10/31/08 12:41	46704	MNN
Solvent Extractable Compounds by HPLC		**Method:**	**SW 8321 / SW3510C**				
Pentachlorophenol	< 0.1	0.1	C	µg/L	10/28/08	46705	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	52.1	40-140	C	%REC	10/28/08	46705	LBI
Volatile Organic Compounds by GC/MS		**Method:**	**SW 8260B / SW5030A**				
Benzene	0.26	0.5	JB	µg/L	10/29/08 03:15	46773	TB
Ethylbenzene	0.3	2.	JB	µg/L	10/29/08 03:15	46773	TB

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this paramcter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08100729
Project: 344511/Penta Wood Products Site
Lab ID: 08100729-11

Client Sample ID: PWP-DW01
Report Date: 11/12/2008
Collection Date: 10/23/2008 4:00:00 PM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Toluene	0.67	2.	JB	µg/L	10/29/08 03:15	46773	TB
Xylenes, Total	0.76	5.	JB	µg/L	10/29/08 03:15	46773	TB
Surrogates:							
4-Bromofluorobenzene	99.4	75-135		%REC	10/29/08 03:15	46773	TB
Fluorobenzene	99.5	75-135		%REC	10/29/08 03:15	46773	TB
Toluene-d8	97.8	75-135		%REC	10/29/08 03:15	46773	TB
Methane		**Method:**		**MODIFIED RSK 175**			
Methane	< 0.8	0.8		µg/L	11/1/08	R120403	OUT

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-01

Client Sample ID: PWP-RW01
Report Date: 12/19/2008
Collection Date: 12/11/2008 7:11:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0693	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	39.3	40-140	SC	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	106	75-135		%REC		12/18/2008	TB
Fluorobenzene	94.1	75-135		%REC		12/18/2008	TB
Toluene-d8	96.9	75-135		%REC		12/18/2008	TB

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT:	CH2M HILL	**Client Sample ID:**	PWP-RW01
Lab Order:	08100729	**Report Date:**	12/15/2008
Project:	344511/Penta Wood Products Site	**Collection Date:**	10/23/2008 6:00:00 PM
Lab ID:	08100729-16	**Matrix:**	Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.	1.		µg/L	10/31/08 16:15	46704	MNN
Surrogates:							
2-Fluorobiphenyl	116	20-140		%REC	10/31/08 16:15	46704	MNN
4-Terphenyl-d14	130	20-140		%REC	10/31/08 16:15	46704	MNN
Nitrobenzene-d5	109	20-140		%REC	10/31/08 16:15	46704	MNN

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-02

Client Sample ID: PWP-RW01FR
Report Date: 12/19/2008
Collection Date: 12/11/2008 7:11:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0698	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	67.2	40-140	C	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	99.4	75-135		%REC		12/18/2008	TB
Fluorobenzene	93.6	75-135		%REC		12/18/2008	TB
Toluene-d8	96.4	75-135		%REC		12/18/2008	TB

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08100729
Project: 344511/Penta Wood Products Site
Lab ID: 08100729-17

Client Sample ID: PWP-RW01FR
Report Date: 12/15/2008
Collection Date: 10/23/2008 6:00:00 PM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.	1.		µg/L	10/31/08 16:58	46704	MNN
Surrogates:							
2-Fluorobiphenyl	97.3	20-140		%REC	10/31/08 16:58	46704	MNN
4-Terphenyl-d14	138	20-140		%REC	10/31/08 16:58	46704	MNN
Nitrobenzene-d5	80.7	20-140		%REC	10/31/08 16:58	46704	MNN

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-03

Client Sample ID: PWP-RW02
Report Date: 12/19/2008
Collection Date: 12/10/2008 11:05:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0703	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	53.9	40-140	C	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	104	75-135		%REC		12/18/2008	TB
Fluorobenzene	91.0	75-135		%REC		12/18/2008	TB
Toluene-d8	96.3	75-135		%REC		12/18/2008	TB

Qualifiers:

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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08100729
Project: 344511/Penta Wood Products Site
Lab ID: 08100729-18

Client Sample ID: PWP-RW02
Report Date: 12/15/2008
Collection Date: 10/23/2008 11:46:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.33	1.33		µg/L	10/31/08 17:40	46704	MNN
Surrogates:							
2-Fluorobiphenyl	109	20-140		%REC	10/31/08 17:40	46704	MNN
4-Terphenyl-d14	142	20-140	S	%REC	10/31/08 17:40	46704	MNN
Nitrobenzene-d5	103	20-140		%REC	10/31/08 17:40	46704	MNN

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-04

Client Sample ID: PWP-RW03
Report Date: 12/19/2008
Collection Date: 12/10/2008 11:38:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0698	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	50.3	40-140	C	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	110	75-135		%REC		12/18/2008	TB
Fluorobenzene	91.6	75-135		%REC		12/18/2008	TB
Toluene-d8	97.9	75-135		%REC		12/18/2008	TB

Qualifiers:

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C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT:	CH2M HILL	**Client Sample ID:**	PWP-RW03
Lab Order:	08100729	**Report Date:**	12/15/2008
Project:	344511/Penta Wood Products Site	**Collection Date:**	10/23/2008 12:45:00 PM
Lab ID:	08100729-19	**Matrix:**	Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.	1.		µg/L	10/31/08 18:23	46704	MNN
Surrogates:							
2-Fluorobiphenyl	109	20-140		%REC	10/31/08 18:23	46704	MNN
4-Terphenyl-d14	134	20-140		%REC	10/31/08 18:23	46704	MNN
Nitrobenzene-d5	95.6	20-140		%REC	10/31/08 18:23	46704	MNN

Qualifiers:

- B - Analyte detected in the associated Method Blank
- E - Estimated
- H - Holding Time Exceeded
- C - Laboratory not accredited for this parameter
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-05

Client Sample ID: PWP-RW04
Report Date: 12/19/2008
Collection Date: 12/10/2008 11:10:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0699	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	73.6	40-140	C	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	106	75-135		%REC		12/18/2008	TB
Fluorobenzene	89.5	75-135		%REC		12/18/2008	TB
Toluene-d8	99.4	75-135		%REC		12/18/2008	TB

Qualifiers:
B - Analyte detected in the associated Method Blank
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C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08100729
Project: 344511/Penta Wood Products Site
Lab ID: 08100729-20

Client Sample ID: PWP-RW04
Report Date: 12/15/2008
Collection Date: 10/23/2008 12:08:00 PM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.	1.		µg/L	10/31/08 19:05	46704	MNN
Surrogates:							
2-Fluorobiphenyl	117	20-140		%REC	10/31/08 19:05	46704	MNN
4-Terphenyl-d14	130	20-140		%REC	10/31/08 19:05	46704	MNN
Nitrobenzene-d5	106	20-140		%REC	10/31/08 19:05	46704	MNN

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

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Report of Laboratory Analysis

CLIENT: CH2M HILL
Lab Order: 08120308
Project: 344511/Penta Wood Products Site
Lab ID: 08120308-06

Client Sample ID: PWP-RW05
Report Date: 12/19/2008
Collection Date: 12/10/2008 11:42:00 AM
Matrix: Groundwater

Analyses	Result	EMT Reporting Limit	Qual	Units	MDL	Date Analyzed	Analyst
Solvent Extractable Compounds by HPLC		**Method: SW8321A**					
Pentachlorophenol	< 0.1	0.1		µg/L	0.0699	12/15/2008	LBI
Surrogates:							
3,5-Dichlorobenzoic Acid	57.4	40-140	C	%REC		12/15/2008	LBI
Volatile Organic Compounds by GC/MS		**Method: SW8260B**					
Benzene	< 0.5	0.5		µg/L	0.04	12/18/2008	TB
Ethylbenzene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Toluene	< 5.	5.		µg/L	0.03	12/18/2008	TB
Xylenes, Total	< 5.	5.		µg/L	0.12	12/18/2008	TB
Surrogates:							
4-Bromofluorobenzene	105	75-135		%REC		12/18/2008	TB
Fluorobenzene	92.1	75-135		%REC		12/18/2008	TB
Toluene-d8	98.2	75-135		%REC		12/18/2008	TB

Qualifiers:

B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quantitation limits

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Report of Laboratory Analysis

CLIENT:	CH2M HILL	**Client Sample ID:**	PWP-RW05
Lab Order:	08100729	**Report Date:**	12/15/2008
Project:	344511/Penta Wood Products Site	**Collection Date:**	10/23/2008 12:24:00 PM
Lab ID:	08100729-21	**Matrix:**	Groundwater

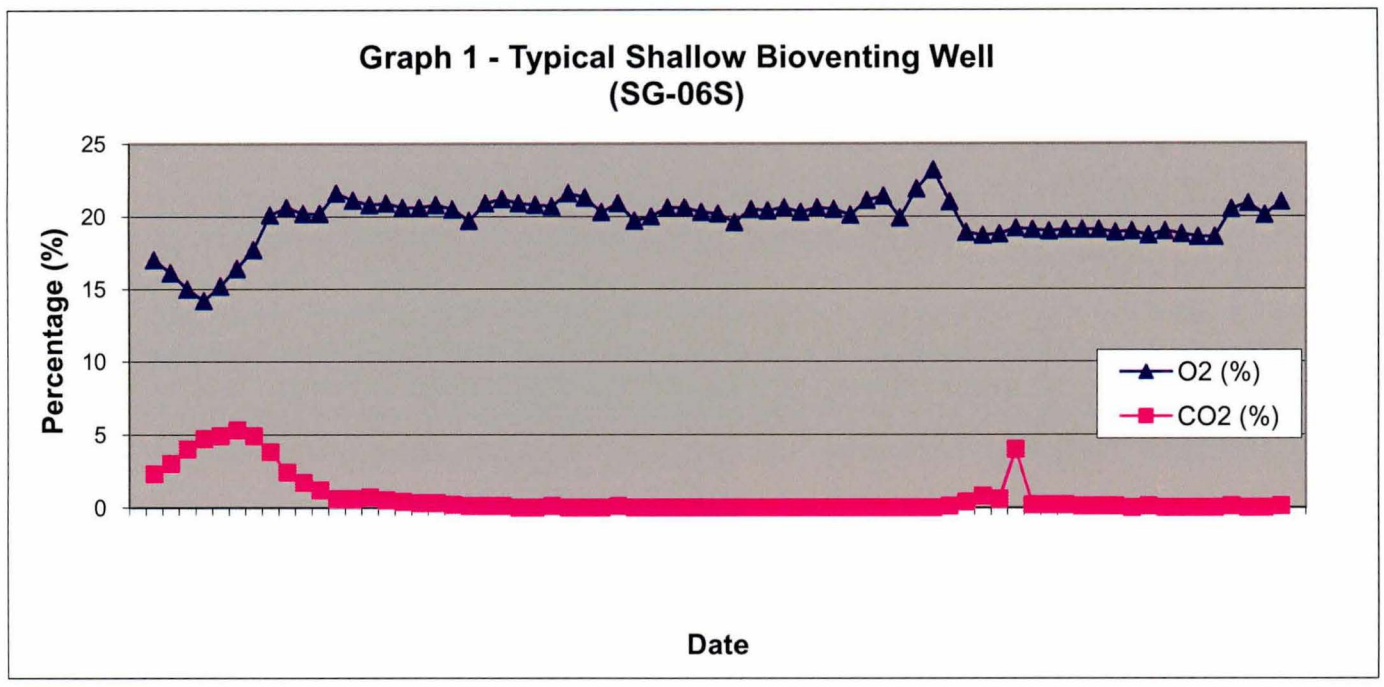
Analyses	Result	EMT Reporting Limit	Qual	Units	Date Analyzed	Batch	Analyst
Semivolatile Organic Compounds GC/MS		**Method:**		**SW 8270 / SW3510C**			
Naphthalene	< 1.	1.		µg/L	10/31/08 19:48	46704	MNN
Surrogates:							
2-Fluorobiphenyl	109	20-140		%REC	10/31/08 19:48	46704	MNN
4-Terphenyl-d14	134	20-140		%REC	10/31/08 19:48	46704	MNN
Nitrobenzene-d5	99.5	20-140		%REC	10/31/08 19:48	46704	MNN

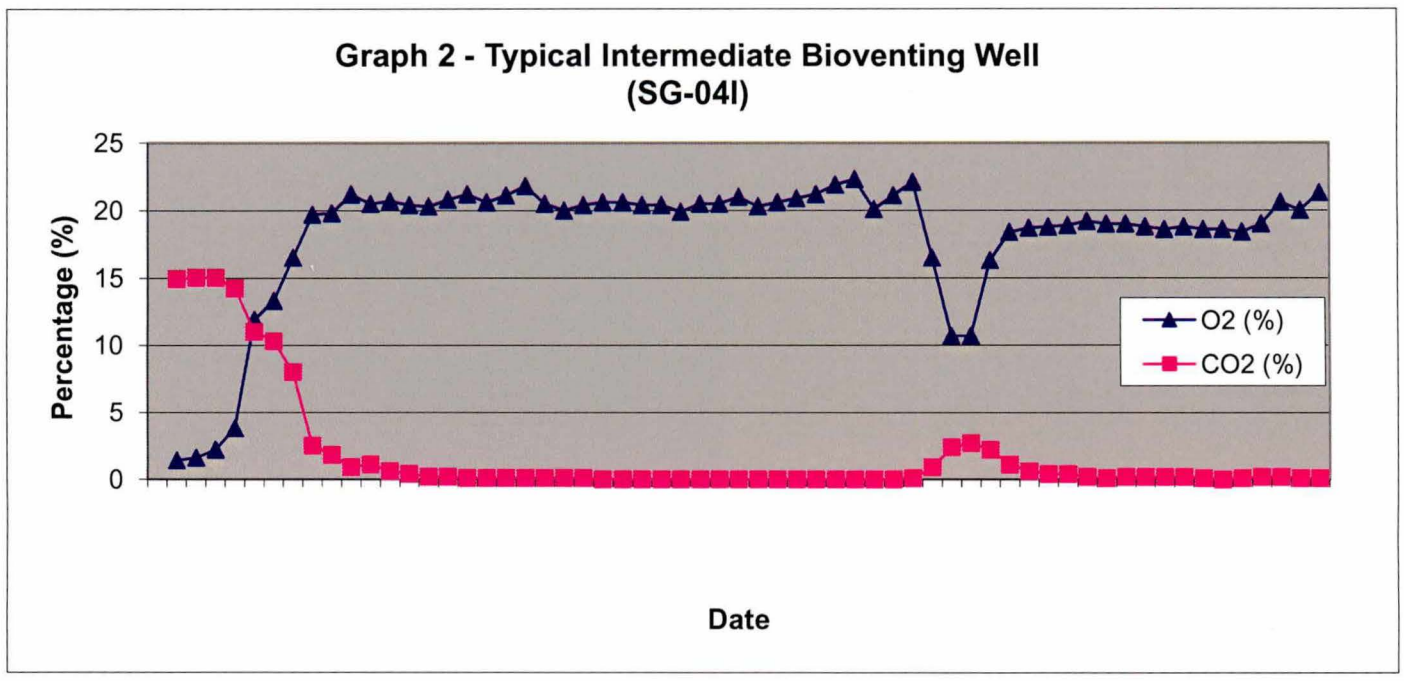
Qualifiers:

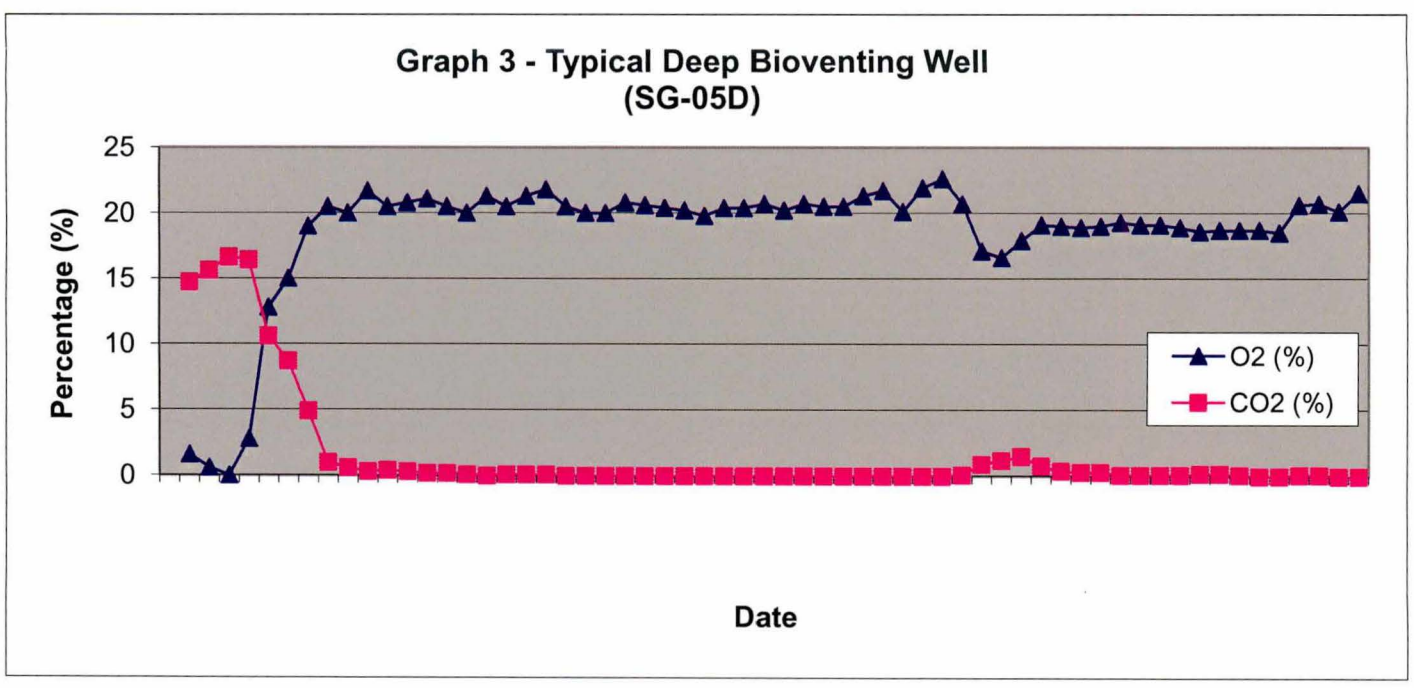
B - Analyte detected in the associated Method Blank
E - Estimated
H - Holding Time Exceeded
C - Laboratory not accredited for this parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
J - Analyte detected below quanititation limits

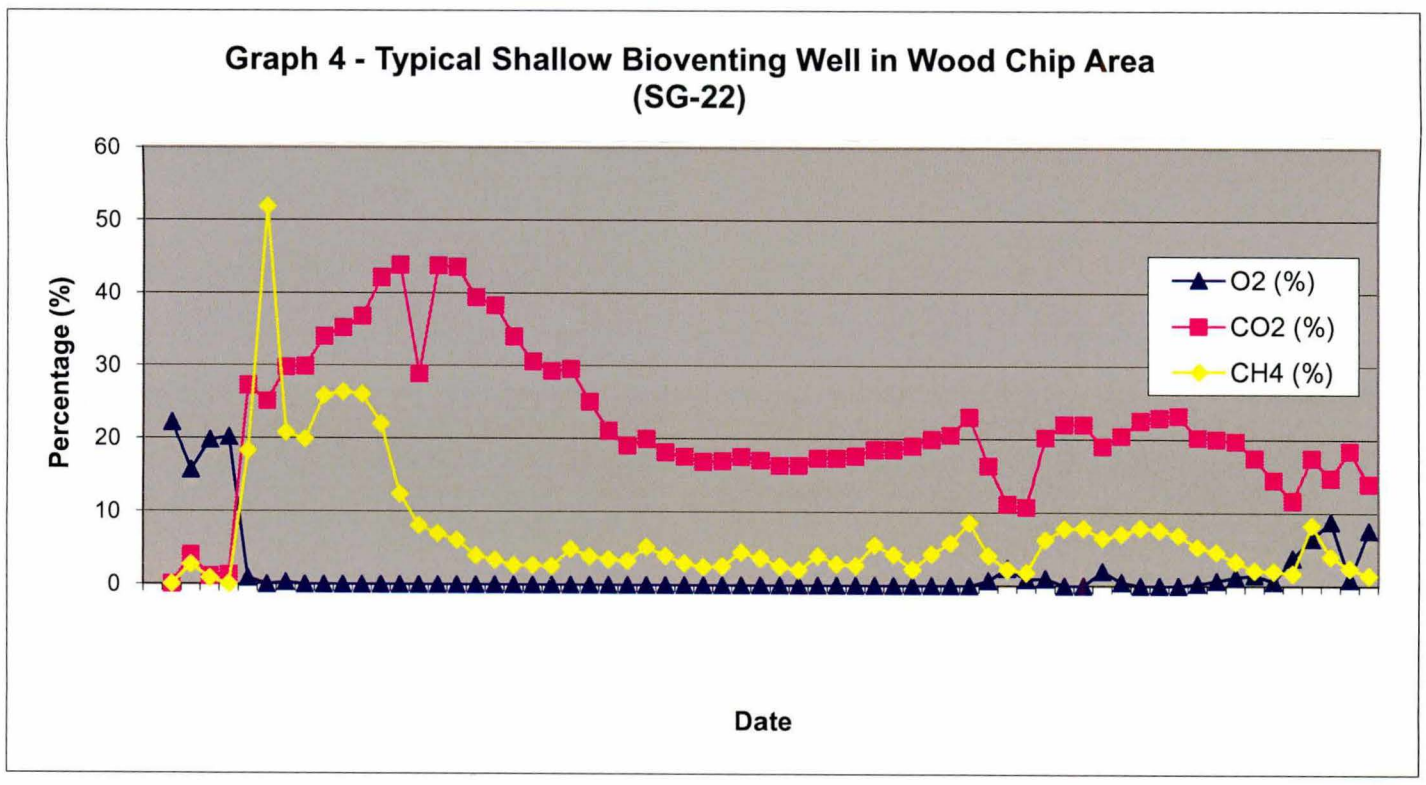
Appendix E

Bioventing Monitoring Graphs


Graph 1 - Typical Shallow Bioventing Well
(SG-06S)
Percentage (%)
25
20
15
10
5
0
O2 (%)
CO2 (%)
Date


Graph 2 - Typical Intermediate Bioventing Well
(SG-04I)
Percentage (%)
25
20
15
10
5
0
O2 (%)
CO2 (%)
Date


Graph 3 - Typical Deep Bioventing Well
(SG-05D)
Percentage (%)
25
20
15
10
5
0
O2 (%)
CO2 (%)
Date


Graph 4 - Typical Shallow Bioventing Well in Wood Chip Area
(SG-22)
Percentage (%)
60
50
40
30
20
10
0
O2 (%)
CO2 (%)
CH4 (%)
Date