RAC2 TECHNICAL STATUS REPORT
December 27, 2008 to January 30, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	January 30, 2009

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	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- Extended the purchase order (P.O.) for U.S. Water Services, the polymer provider, through March 14, 2011.
- A P.O. for $9,000 was set up for Maurer Power, the electrical subcontractor, for any future service requests. Before work is performed, a quote will be submitted when possible.
- Prepared and submitted a bid package for the carbon changeout services from March 15, 2009, to March 14, 2010. The bid documents are due on February 11.

Task B (PJ)

- An estimated 2.60 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 92.01 MG of water have been treated. An estimated 434 gallons of liquid waste were recovered during this reporting period. The total volume of liquid recovery from March 2004 through the end of this reporting period is approximately 32,900 gallons. Historically, the liquid waste in the storage tank has been 50 percent water and 50 percent light nonaqueous phase liquid (LNAPL). Improved operation of the coalescing oil water separator and periodic adjustments to the inlet of LNAPL recovery pumps over the last 12 months has increased the percentage of liquid waste transferred to the storage tank to nearly 100 percent LNAPL. This has been confirmed previously by placing a sampling device in the storage tank. Due to the cold temperatures, the ratio of water to LNAPL has not been confirmed yet, but will be checked prior to disposal.

- On December 30, Maurer Power was onsite to troubleshoot the solenoid valves on the filter aid tank.
- On January 6, North Shore Environmental picked up approximately 12 tons of filter cake for disposal.
- On January 7, Glacier Pure delivered approximately 3,300 gallons of ferric sulfate.
- On January 14, Northland Fire and Safety was onsite to perform an annual inspection of the fire extinguishers.
- On January 15, DR Tech was onsite to install new piping and an isolation valve on the inlet side of the rotary drum vacuum filter (RDVF) feed pump.
- On January 22, Maurer Power performed troubleshooting and repairs on the furnace. The propane valve was cleared and reset. The furnace is currently operating normally.
- On January 28, Maurer Power was onsite to align the granular activated carbon (GAC) pump shaft and install an insert coupler in the pump. During installation, it was observed that the GAC shaft was not the correct model for the pump. The correct shaft was ordered.
- On January 26, U.S. Water Services delivered two 5-gallon carboys of polymer.
- Maurer Power was onsite on December 30 to complete the installation of the adjustable under-voltage protective relay and associated equipment. The programming of this protective relay was completed on January 28.
- The results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Continued to perform operational monitoring under this task.
- Submitted the annual groundwater sampling hard copy results to USEPA for validation on January 8.

Task D (PC)

- Continued preparation of the *2008 Interim Long-Term Remedial Action Annual Report.*

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		58	0
B (PJ)	07/29/06	07/29/06	03/14/11		56	0
C (CV)	07/29/06	07/29/06	03/14/11		42	0
D (PC)	07/29/06	07/29/06	03/14/11		36	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

DR Tech was onsite on January 15 to install an additional isolation and clean-out valve on the inlet side of the RDVF feed pump to assist in clearing the line of solids that have settled in the pipe during the time between RDVF runs. No obstructions have occurred since the installation was completed.

3. Problem Areas and Recommended Solutions

The interior of the carbon vessels are inspected during each carbon changeout. During recent carbon changeouts, it was observed that the internal epoxy liner is worn and will need to be repaired. A bid package will be prepared and pricing requested. The relining of the vessels will require removal of the carbon, application and curing of the epoxy, and replacement of the carbon. It is anticipated that the relining of each vessel will take approximately 3 weeks to complete, which is more than the 5 days allowable for routine maintenance. A request for an extension of the performance standard was submitted on January 30 for approval.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP)

- Perform monthly project management.
- Prepare a bid package for the planting of additional trees east of the corrective action management unit (CAMU).
- Prepare a bid package to acquire bids for relining the carbon vessels. Relining the vessels will require removal of the carbon, application and curing of the epoxy, and replacement of the carbon. It is anticipated that the relining of each vessel will take approximately 3 weeks to complete, which is more than the 5 days allowable for routine maintenance. A request for an extension of the performance standard was submitted on January 30 for approval.

Task B (PJ)

- Continue to operate the groundwater treatment system.

Task C (CV)

- Perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.
- Prepare and submit a Quality Assurance Project Plan (QAPP) Addendum to USEPA reflecting changes with the new analytical laboratory.

Task D (PC)

- CH2M HILL will continue preparing the *2008 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services	Environmental Monitoring and Technologies, Inc.
Carbon Changeout Services:	Siemens Water Technologies, Inc.

8. **Travel**

Travel charges for Lisa Mauser from January 20 are for auto mileage to pick up site supplies.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc. of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008–2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

<u>Task A – LTRA Monthly Progress Report</u>

- The December 2008 Technical Status Report was submitted, meeting the performance standard.

<u>Task B – Groundwater Containment and Bioventing</u>

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing upward release of methane and resulting in migration of methane. With the health and safety concern of methane migration, it was recommended that the bioventing system

be shut down for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will provide cost savings on energy consumption. Therefore, the bioventing system was shut down on December 16 after evaluation of the soil gas monitoring data. The bioventing system will be restarted in the spring.

Task C—Groundwater Treatment

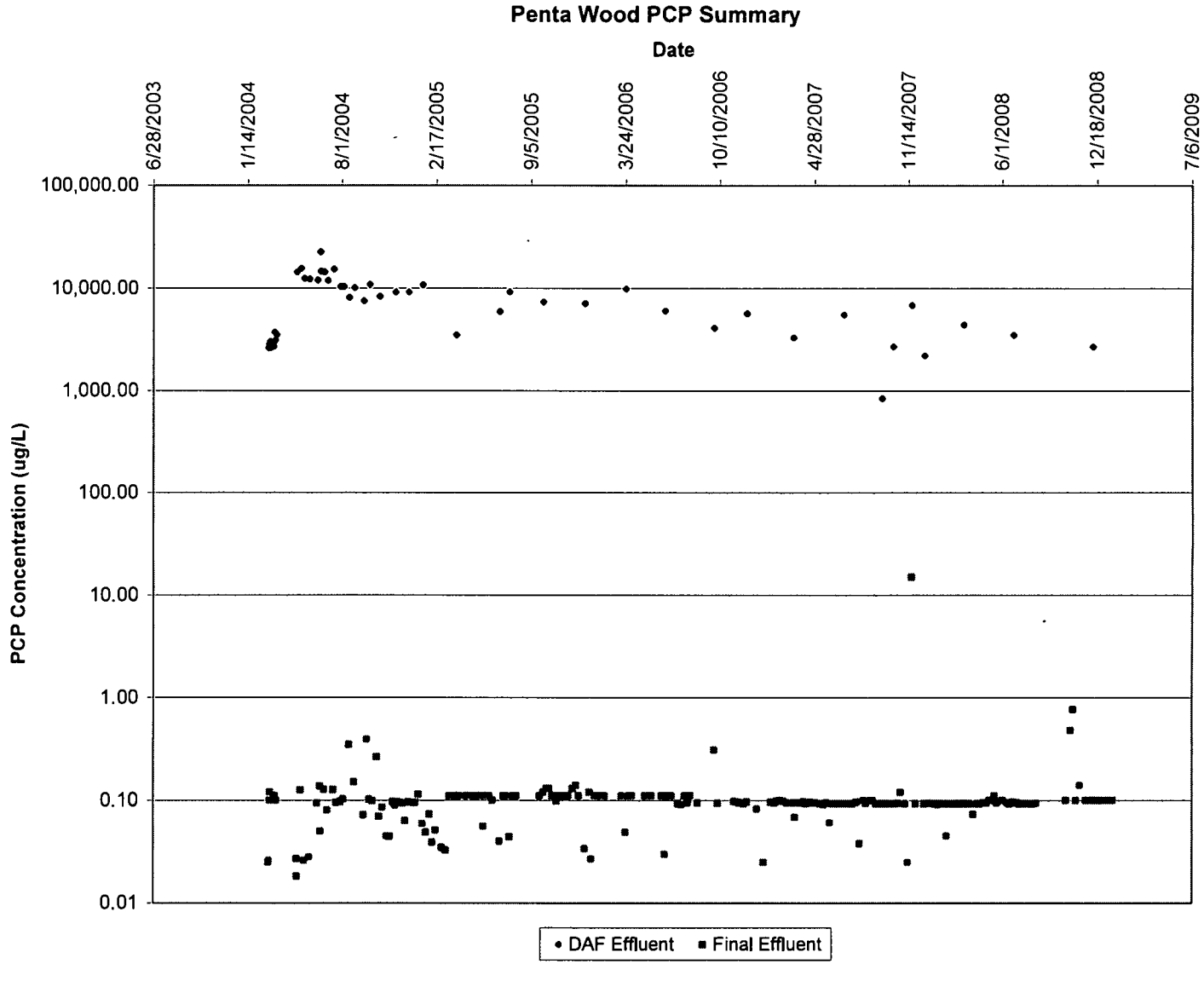
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0; therefore, the performance standard was met.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in MW-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for this *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (e.g., longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (e.g., increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operation and maintenance costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (i.e., break-through analysis) needs to be determined to calculate if the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to evaluate the contaminant plume fully. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the long-term remedial action (LTRA). Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/5/2005
3/24/2006
10/10/2006
4/28/2007
11/14/2007
6/1/2008
12/18/2008
7/6/2009
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and next quarterly samples would be collected in December 2008.

[ ] = Analyte not required under WPDES permit No. WI-0061531-01-0 effective January 1, 2008

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank
J = Estimated value
R = Result is rejected due to quality control issues
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

Smith, Karen L - DNR

From: Cleland, Cathy W - DNR
Sent: Friday, February 20, 2009 9:12 AM
To: Smith, Karen L - DNR
Subject: RE: Permit

He would probably have to check with the County Forestry Depts. To see if they have any areas on County land they would issue a permit for . For Oneida County the number is 369-6140, for Vilas County the number is 479-5160. North and west of Sugar Camp you can purchase a permit to cut downed wood in the Northern Highland - American Legion State Forest from the Woodruff Service Center, 356-5211 or at Trout Lake, 85-2727. I believe the state forest permits use to be $15 for the first 5 face cords and $5 for each additional cord, but those prices may have gone up. Since we don't handle those permits here I really don't know if there has been a price change, you'll have to check with the Woodruff office. We are recommending that people not haul their firewood more than 50 miles from the source because of the pests and diseases, ie. Oak Wilt, Gypsy Moths, Emerald Ash Borer, etc.

Cathy Cleland
Customer Service Representative
Division of Customer Assistance and Employee Services
Bureau of Customer Service and Licensing
Wisconsin Department of Natural Resources
107 Sutliff Ave.
Rhinelander, WI 54501
(☎) phone: (715) 365-8900
(☎) fax: (715) 365-8932
(✉) e-mail: Cathy.Cleland@Wisconsin.gov

From: Smith, Karen L - DNR
Sent: Thursday, February 19, 2009 6:59 PM
To: Cleland, Cathy W - DNR
Subject: Permit

Hi Cathy:

My brother-in-law is looking for somewhere (state or county land) he can cut firewood this coming summer. Are there any places in Oneida County/Vilas County that would allow a person to go on to land (with a permit) to cut firewood? He is hoping there might be something around the Sugar Camp/Three Lakes area.

Would you please let me know if there is, and what the permit cost might be?

Thanks for your help.

Karen Smith
LTE - Northern Region Air & Waste
Rhinelander Service Center
715-365-8981

RAC2 TECHNICAL STATUS REPORT
January 31, 2009 to February 27, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	February 27, 2009

COPIES:

RPM:	Tom Williams, USEPA Region 5
PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
WDNR:	Bill Schultz, WDNR, Rhinelander, WI
WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- Prepared and submitted a bid package for the planting of additional trees east of the corrective action management unit (CAMU).
- Prepared and submitted a bid package for relining the carbon vessels. Relining the vessels will require removal of the carbon, application and curing of the epoxy, and replacement of the carbon.
- Responded to questions on the carbon changeout bid package and submitted Addendum #1 on February 6.
- Received three carbon changeout proposals on February 11 and began technical, contract, and health and safety reviews. Following the completion of the reviews, fact-finding questions were sent on February 24 to companies with proposals that were deemed technically acceptable. The response to the fact-finding questions will be reviewed and the contract awarded during the next reporting period.

Task B (PJ)

- An estimated 2.09 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 94.01 MG of water have been treated. An estimated 125 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 33,025 gallons.
- North Shore Environmental picked up approximately 12 tons of filter cake for disposal on February 3.

- Maurer Power was onsite on February 4 to align the granular activated carbon (GAC) pump shaft and install an insert coupler in the pump.
- Maurer Power was onsite on February 10 to install the replacement electrode in the neutralization pH probe. Maurer Power also performed troubleshooting and determined that the thermal overload on the rotary drum vacuum filter (RDVF) vacuum pump needed to be reset.
- Glacier Pure delivered approximately 3,300 gallons of caustic and 2 pallets of diatomaceous earth on February 17.
- Maurer Power performed troubleshooting and repairs on the odorous air fans on February 25. The fan belts were changed, the alarm was cleared, and the system was restarted. Maurer Power also performed additional troubleshooting on the RDVF knife, which has had intermittent difficulties automatically advancing since February 18.
- The light nonaqueous phase liquid (LNAPL) recovery system continues to remove measurable amounts of LNAPL each month. Adjustments to the system, including regular adjustment of the pump inlets to ensure proper placement in the extraction well and changes to the oil/water separator operation, have resulted in increased volume and efficiency of LNAPL removal; however, the initial review of the annual groundwater sampling results indicate that the area of high concentration pentachlorophenol (PCP) (that is, area within the 1,000 parts per million (ppm) PCP contour interval) has shown little change since last year. The project manager and review team leader discussed various technologies that may assist in providing a reduction in this higher concentration PCP area and/or LNAPL volume at the site. The technologies and options that were considered included in situ chemical oxidation, enhanced in situ bioremediation, additional LNAPL extraction wells, and air sparging. Although each option would likely provide some benefit, it was determined that air sparging could provide benefit with potential for low capital investment by using existing equipment. The necessary equipment will be evaluated during the next reporting period to determine the modifications that could be made to the existing system to test air sparging.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

<u>Task C (CV)</u>

- Continued to perform operational monitoring under this task.
- Submitted supplemental information from the laboratory for the annual groundwater sampling to USEPA on February 18 and 26.
- Submitted a Quality Assurance Project Plan (QAPP) Addendum to USEPA reflecting changes with the new analytical laboratory.

Task D (PC)

- Continued preparation of the *2008 Interim Long-Term Remedial Action Annual Report.*
- Continued preparation of the *2008 Tier II Annual Report.*
- Submitted the draft *2008 Hazardous Waste Annual Report.*

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		63	0
B (PJ)	07/29/06	07/29/06	03/14/11		64	0
C (CV)	07/29/06	07/29/06	03/14/11		43	0
D (PC)	07/29/06	07/29/06	03/14/11		41	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

The neutralization pH probe would not calibrate on February 4. The probe was thoroughly cleaned with 50/50 muriatic acid and deionized (DI) water. Calibration was still unsuccessful. Discussions with the vendor indicated that it may be due to a bad electrode inside the probe. A replacement electrode kit was ordered and installed by Maurer Power on February 10. The probe has been operating normally since the installation of the replacement electrode.

On February 10, the RDVF vacuum pump would not operate in automatic or manual mode. Maurer Power reset the thermal overload on the vacuum pump and loosened the check valve on the receiver pump. No failures have occurred since.

The treatment system shut down on February 25 due to an odorous air fan failure. Maurer Power came to the site with a bucket truck and changed the fan belts, cleared the alarm, and restarted the system. The odorous air fans are now fully operational.

3. Problem Areas and Recommended Solutions

Based on project to date cost and forecasted monthly expenditures, it is anticipated that the total project cost to date in March will be at 75 percent of the expenditure limit.

The RDVF recirculation tank overflowed on both February 2 and February 9. The vendor, Alar Engineering Corp., was contacted to assist in the troubleshooting. They suggested manually starting the receiver pump and determining whether the check valve is seating properly. If the pump is losing prime, then the water will flow into the recirculation tank and cause the overflow. The check valve on the receiver was removed and cleaned. This phenomenon is not significantly affecting the operation of the system; however, troubleshooting will continue during the next reporting period.

The knife advance on the RDVF appeared to be operating intermittently on February 18. The knife was manually advanced by the site operator. The screws in the knife were inspected, all the fittings were regreased and debris was removed. Wires and relays inside the knife advance were also tested. Further troubleshooting revealed that solids may be recirculating back to the float tank, which can block the knife from advancing. This issue will continue to be monitored during the next reporting period.

4. **Deliverables Submitted**

The QAPP Addendum was submitted to USEPA on February 25.

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Perform monthly project management.
- Continue review of fact-finding questions on the proposals for carbon changeout services and award contract during the next reporting period.

Task B (PJ)

- Continue to operate the groundwater treatment system.
- Evaluate equipment needed to test the effects of air sparging on the LNAPL volume or high concentration PCP area during the next reporting period.

Task C (CV)

- Perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

- CH2M HILL will continue preparing the *2008 Interim Long-Term Remedial Action Annual Report.*
- CH2M HILL will continue preparing the *2008 Tier II Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services	Environmental Monitoring and Technologies, Inc.
Carbon Changeout Services:	Siemens Water Technologies, Inc.

8. Travel

None.

9. Laboratories

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc. of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008–2011 analytical services.

10. Project Performance

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The January 2009 Technical Status Report was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing upward release of methane and resulting in migration of methane. With the health and safety concern of methane migration, it was recommended that the bioventing system be shut down for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of PCP in the subsurface and will provide cost savings on energy consumption. Therefore, the bioventing system was shut down on December 16 after evaluation of the soil gas monitoring data. The bioventing system will be restarted in the spring.

Task C – Groundwater Treatment

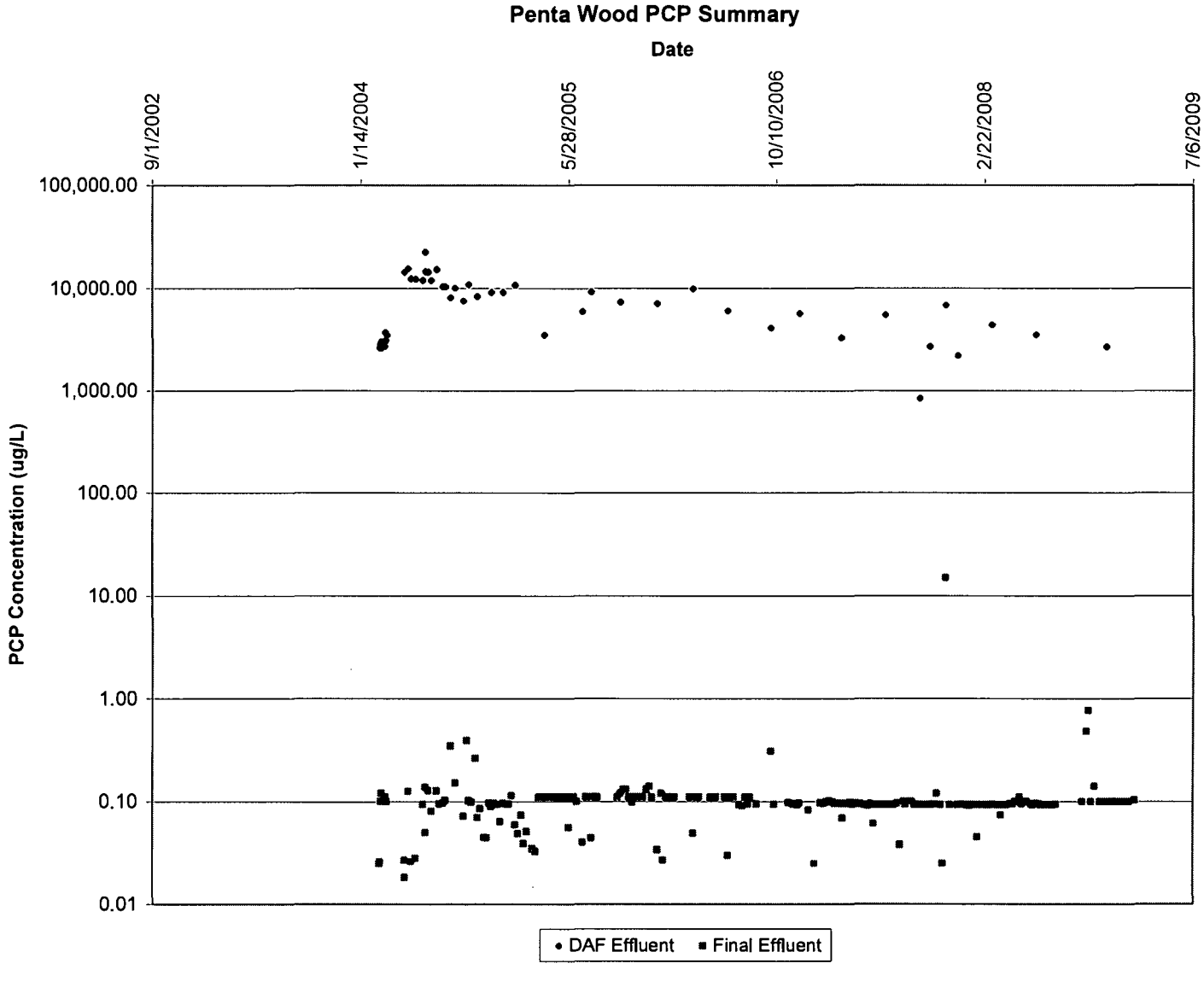
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0; therefore, the performance standard was met.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for this *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operation and maintenance costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, break-through analysis) needs to be determined to calculate if the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to evaluate the contaminant plume fully. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The Wisconsin Department of Natural Resources (WDNR) accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the long-term remedial action (LTRA). Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and next quarterly samples would be collected in December 2008.

[ ] = Analyte not required under WPDES permit No. WI-0061531-01-0 effective January 1, 2008

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank
J = Estimated value
R = Result is rejected due to quality control issues
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
February 28, 2009 to March 27, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	March 27, 2009

COPIES:

RPM:	Tom Williams, USEPA Region 5
PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
WDNR:	Bill Schultz, WDNR, Rhinelander, WI
WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- A purchase order (PO) was set up for Alar Engineering Corp. (Alar) to provide the diatomaceous earth (DE) through March 14, 2011. A price evaluation was performed and Glacier Pure, Inc. (Glacier Pure), the current DE supplier, was unable to meet the unit price that Alar was able to provide. Glacier Pure will continue to provide the ferric sulfate and sodium hydroxide for the site.
- Siemens Water Technologies, Inc. was selected as the subcontractor to perform the carbon changeouts from March 15, 2009 through March 14, 2011.

Task B (PJ)

- An estimated 2.10 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 96.11 MG of water have been treated. An estimated 72 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 33,097 gallons.
- North Shore Environmental picked up approximately 12 tons of filter cake for disposal on March 4.
- Maurer Power was onsite on March 18 to replace a leaking pipe on the granular activated carbon (GAC) pump.
- The free product pumps were adjusted on March 18 to ensure proper placement of the pump inlets to optimize light nonaqueous phase liquid (LNAPL) recovery.

- Glacier Pure delivered approximately 41,000 pounds of ferric sulfate on March 19.
- Welders, subcontracted by North Shore, were onsite on March 21 to repair latches on the dumpsters that contain DE filter cake.
- The existing system was evaluated including the air compressor, extraction well construction, and distance to adjacent monitoring wells to determine whether the existing system could be modified to pilot test air sparging as a method to enhance remediation at the site.
- Further research is necessary to determine whether a bio sparging system will provide substantial benefit to LNAPL capture and how it could be implemented with existing equipment at the site. An in-depth discussion will occur with the project manager, the review team leader, and an air sparging expert during the next reporting period.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. The concentration of arsenic exceeded the monthly permit average of 5 micrograms per liter (µg/L) at 11.1 µg/L. Similar concentrations have been observed in the past; however, there is no corrective action since the treatment system is not designed to treat metals. Although the permit limit is based on a monthly average, only a single arsenic sample is collected every quarter per the permit sample frequency. Considering the arsenic results for the last 12 months, the average arsenic concentration is 10.0 µg/L.

Task C (CV)

- Operational monitoring was continued under this task.

Task D (PC)

- Preparation of the *2008 Interim Long-Term Remedial Action Annual Report* was continued.
- The *2008 Tier II Annual Report* was submitted.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		63	0
B (PJ)	07/29/06	07/29/06	03/14/11		64	0
C (CV)	07/29/06	07/29/06	03/14/11		43	0
D (PC)	07/29/06	07/29/06	03/14/11		41	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

The operator noticed a small leak in the piping to the GAC feed pump on March 9. Piping for the repair was ordered on March 13 and was installed on March 18 by Maurer Power. No leaks have been observed since the piping was replaced.

The project manager received a call from Larry's LP, Inc. on March 25 indicating that the propane tank was leaking. The isolation valves from the tank to the vaporizer were closed, the leaking valve was tightened, and the valves tested for leaks. The propane tank will continue to be monitored twice daily for leaks until replacement valves and piping can be ordered and installed.

3. **Problem Areas and Recommended Solutions**

The coagulation pH probe would not calibrate on March 23. The probe was thoroughly cleaned with 50/50 muriatic acid and deionized (DI) water. Calibration was still unsuccessful. Discussions with the vendor indicated that it may be due to a bad electrode inside the probe. A replacement kit was ordered on March 26 and will be installed during the next reporting period.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

<u>Task A (PP)</u>

- Monthly project management will be performed.

<u>Task B (PJ)</u>

- Operation of the groundwater treatment system will be continued.
- Evaluations of equipment needed to pilot test air sparging at the site will be continued.
- The planting of additional trees east of the corrective action management unit (CAMU) are planned for mid-April.
- The carbon changout of the 10,000-pound (lb) and 2,500-lb vessels is scheduled for the week of March 30. The relining of the carbon vessels is scheduled for the week of April 6. The safety audit is also planned for the same week. The vessels will be refilled with carbon the week of April 20. The treatment system will be down for approximately 3 to 4 weeks for the removal of the carbon, application and curing of the epoxy, and replacement of the carbon, as described in the request for extension of the 10 days allowable for site repairs.

<u>Task C (CV)</u>

- Sample management tasks will be performed as results from operational monitoring and groundwater sampling events are received from the laboratory.

<u>Task D (PC)</u>

- CH2M HILL will continue preparing the *2008 Interim Long-Term Remedial Action Annual Report.*

6. Key Personnel Changes

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services	Environmental Monitoring and Technologies, Inc.
Carbon Changeout Services:	Siemens Water Technologies, Inc.

8. **Travel**

None.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc. of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008–2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

<u>Task A – LTRA Monthly Progress Report</u>

- The February 2009 Technical Status Report was submitted, meeting the performance standard.

<u>Task B – Groundwater Containment and Bioventing</u>

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing the upward release of methane and resulting in the migration of methane. With the health and safety concern of methane migration, it was recommended that the bioventing system be shut down for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will result in cost savings on energy consumption. Therefore, the bioventing system was shut down on

December 16 after evaluation of the soil gas monitoring data. The bioventing system will be restarted in the spring.

Task C—Groundwater Treatment

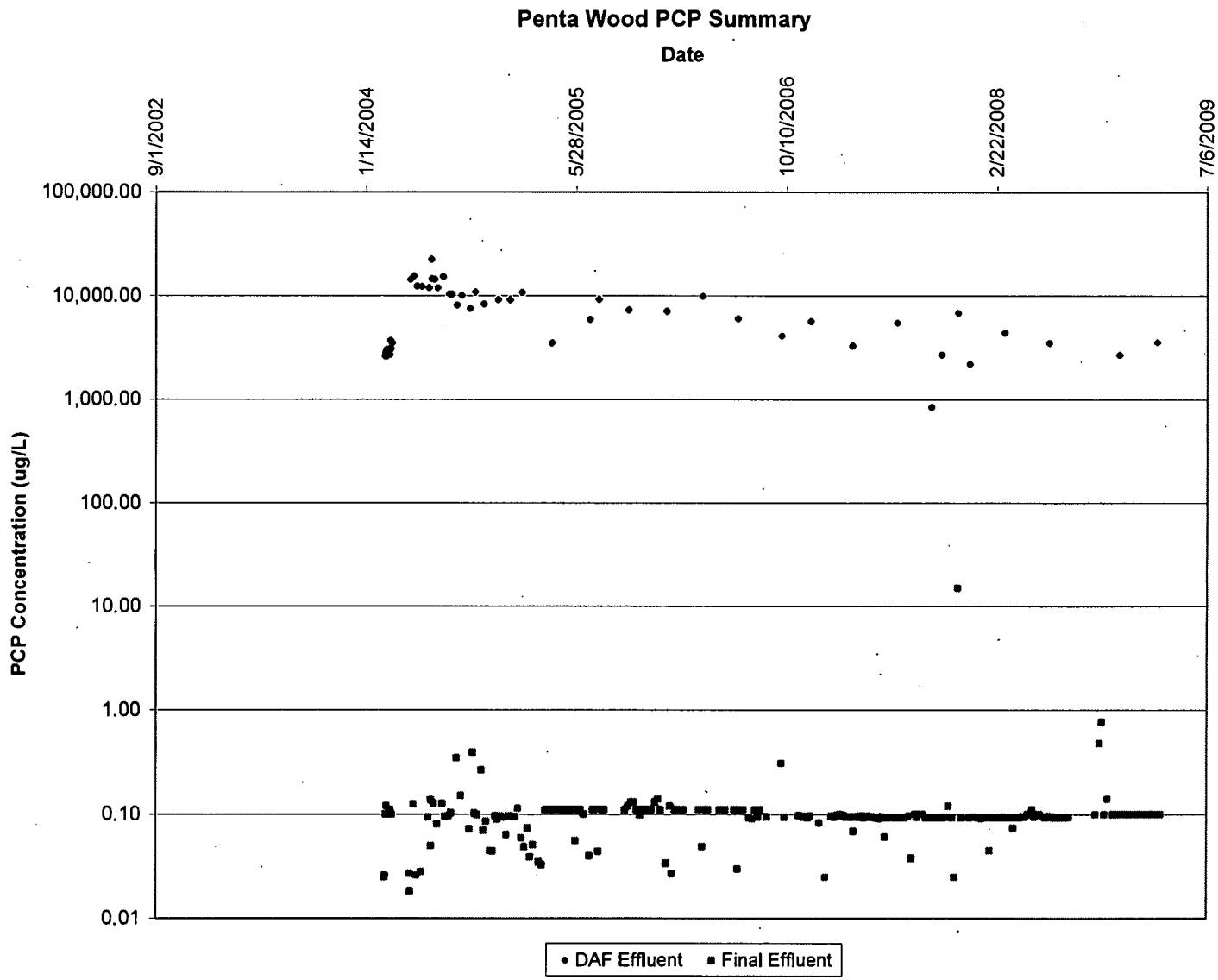
- Treatment system effluent sampling results did not meet the discharge criteria in the WPDES Permit No. WI-0061531-01-0, therefore, not meeting the performance standard. The concentration of arsenic exceeded the permit average of 5 µg/L. Similar concentrations have been observed in the past; however, there is no corrective action since the treatment system is not designed to treat metals.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 µg/L in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operation and maintenance costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, break-through analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to evaluate the contaminant plume fully. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The Wisconsin Department of Natural Resources (WDNR) accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the long-term remedial action (LTRA). Data management costs may remain high because of the volume of analytical data generated for the site and the level of effort (LOE) hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3,500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

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3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					NR	0.10U	8.39U	1.0U	0.5U	5.0U	0.92J	5.0U	11.1	62.9	84.2	390	3,300		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

= Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
March 28, 2009 to April 24, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	April 24, 2009

COPIES:

RPM:	Tom Williams, USEPA Region 5
PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
WDNR:	Bill Schultz, WDNR, Rhinelander, WI
WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- A draft Work Plan Revision Request (WPPR) was prepared.
- Following the carbon changeout on April 2, a letter was submitted to Siemens Water Technologies, Inc. (Siemens) summarizing the difficulties encountered during the loading of the carbon supersacks for disposal because the wrong pallets were supplied by Siemens. The letter reiterated the expectation that the pallets as specified would be supplied for all future changeouts and any proposed changes would be communicated to CH2M HILL for approval prior to the carbon changeout.
- During the relining of the carbon vessel, excessive erosion of an internal influent pipe was identified and required replacement. The subcontractor onsite (Champion Coating, Inc.) was able to perform the work while onsite; therefore, it was incorporated into their scope of work.
- The purchase order was finalized for Alar Engineering Corp. to provide the diatomaceous earth (DE) through March 14, 2011.

Task B (PJ)

- An estimated 0.59 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 96.70 MG of water have been treated. An estimated 70 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 33,167 gallons. It has been noted that although light nonaqueous phase liquid (LNAPL) is being recovered; the level in the tank has not shown a representative change. During the

next reporting period, the ultrasonic level indicator and the elevation of the LNAPL pump inlets will be checked.

- Welders, subcontracted by North Shore Environmental, were onsite on March 28 to continue to repair latches on the dumpsters that contain DE filter cake.
- On April 2, Siemens was onsite to remove the carbon from the 2,500-pound (lb) and 10,000-lb granular activated carbon (GAC) vessels. The laterals in the 10,000-lb vessels were also removed in preparation of the relining on the interior of the 10,000-lb vessel. Upon completion of the vessels relining and curing time, Siemens returned to the site to reinstall the laterals and fill both vessels with carbon. After the carbon had soaked for 24 hours, the system was restarted.
- North Country Plumbing and Heating was onsite on April 2 to replace two propane valves.
- Because the relining of the carbon vessels required confined space entry and supplied air, additional oversight support was needed. Mark Orman, who is trained in both confined space entry and Level B work, was onsite April 6 through April 9 to performed oversight of the subcontractor. While onsite, he also completed the final safety audit described in the approved work plan.
- Maurer Power was onsite on April 3 to install new parts in the coagulation tank pH probe and to reset the variable frequency drive (VFD) on the filtrate tank.
- Champion Coatings Inc. was onsite April 6 through April 16 to reline the 10,000-lb carbon vessel. The work included sandblasting of the interior of the vessel, spot welding, coating application, and testing of the blast materials. The sand blast material was removed and placed in a dumpster until the toxicity characteristic leaching procedure (TCLP) results were received. TCLP results were all non-detects.
- During the relining of the carbon vessel, excessive erosion of an internal influent pipe was identified and required replacement. Champion Coating Inc. was able to perform the work while onsite for the relining activities.
- North Shore Environmental picked up approximately 9 tons of filter cake, 12 supersacks of spent carbon, and 4 drums of debris for disposal on April 8.
- Maurer Power was onsite on April 14 to troubleshoot the surge suppression in the programmable logic controller (PLC) located in the GAC room.
- Northwestern Electric (NWE) was onsite on April 14 to change the electrical voltage being received by the plant.
- U.S. Water Services delivered two 50 lb carboys of polymer on April 16.
- Austin Lake Greenhouse was onsite April 21 through April 23 to plant approximately 2,000 trees in barren areas east of the corrective action management unit (CAMU).
- An in-depth discussion occurred with the project manager, the review team leader, and an air sparging expert to determine whether a bio sparging system will provide substantial benefit to reducing LNAPL and if it could be

implemented with the existing equipment at the site. It was determined that the blower onsite could provide sufficient amount of air for an air sparging system. The extraction wells currently onsite could be used for an air sparge system, but their construction and location is not ideal and may result in channeling or short circuiting. Dual-phase extraction was also discussed as a possible alternative, which has a much cheaper startup when compared to air sparging. A summary of the two alternatives and a price comparison is currently being developed.

- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. The metal results reported in last month's Technical Status Report were incorrect. The laboratory revised the sample results in the hard copy, which was validated this month. The metal sample had been prepped twice due to a carryover issue and the initial run result was reported in the PDF package. The laboratory performed an internal review of the data and realized that the incorrect result had been reported. The corrected results are shown in the table presented at the end of this document. Based on the correct results, there were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.
- The Quality Assurance Project Plan (QAPP) Addendum was updated to incorporate comments received from USEPA on April 10.

Task D (PC)

- Preparation of the *2008 Interim Long-Term Remedial Action Annual Report* was continued.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		68	0
B (PJ)	07/29/06	07/29/06	03/14/11		67	0
C (CV)	07/29/06	07/29/06	03/14/11		44	0
D (PC)	07/29/06	07/29/06	03/14/11		43	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

On April 9, an alarm was received by the surge suppression equipment. The site operator attempted to reset the equipment at the PLC, but this did not correct the problem. Maurer Power was onsite on April 14 to troubleshoot the problem and determined that the unit had been accidently disconnected during the carbon vessel relining. Mauer Power reconnected the unit and it is operating normally.

Both the filtrate and equalization pump VFDs periodically set off into an alarm condition. Maurer determined that the plant is receiving too much voltage from Northwestern Wisconsin Electric Co. (NWE), which is causing an overcurrent. NWE was onsite on April 14 to change the amount of electrical voltage received by the

plant to an acceptable level. No alarms have been observed since the voltage was lowered by NWE.

3. **Problem Areas and Recommended Solutions**

As of the March invoice, the total project expenditures are at 75 percent of the expenditure limit.

Following the system startup on April 23, the site operator observed an influent flow rate of only 30 gallons per minute (gpm) with all the extraction pumps operating. Because the settings on the VFDs for the extraction pumps had not been changed, the influent flow rate for the system should have been approximately 55 gpm. The operator performed troubleshooting to determine if there was an obstruction in the system piping, ensure that all of the valves were open, confirm that no air was trapped in the flow meter, and reset the VFD. The VFD settings were adjusted to increase the reading on the influent flow rate to the normal flow rate; however, the effluent flow meter read a flow rate of 74 gpm. It appears that there is an issue with the influent flow meter. An instrumentation technician will come out to the site during the next reporting period to troubleshoot the meter. The operator will use the system turbidity as a guide to dose the polymer until the issue can be resolved.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

<u>Task A (PP)</u>

- Monthly project management will be performed.
- CH2M HILL will submit the WPPR to USEPA.

<u>Task B (PJ)</u>

- Operation of the groundwater treatment system will be continued.
- Summaries of air sparging and other potential technologies to reduce the LNAPL will be completed.
- Comments/suggestions found during the safety site audit will continue to be addressed.
- CH2M HILL will restart the bioventing system.

<u>Task C (CV)</u>

- Sample management tasks will be performed as results from operational monitoring and groundwater sampling events are received from the laboratory.
- The semiannual groundwater sampling event is tentatively planned for the week of May 18. Water level readings will be collected to ensure that there is capture in the semi-confined aquifer before the sampling event schedule is finalized.
- CH2M HILL will submit the revised QAPP Addendum to USEPA.

Task D (PC)

- CH2M HILL will continue preparing the *2008 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Mark Orman travelled to the site on April 6 though 9. Travel charges will be invoiced during the next reporting period.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc. of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The March 2009 Technical Status Report was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system was down April 1 to April 23 due to the removal of carbon, application and curing of the epoxy, and replacement of carbon, as described in the request for extension of the 10 days allowable for site repairs. The system was restarted on April 23 and has operated 100 percent of the

time since the restart. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.

- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing the upward release of methane and resulting in the migration of methane. With the health and safety concern of methane migration, it was recommended that the bioventing system be shut down for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will result in cost savings on energy consumption. Therefore, the bioventing system was shut down on December 16 after evaluation of the soil gas monitoring data. The bioventing system will be restarted in the next reporting period.

Task C—Groundwater Treatment

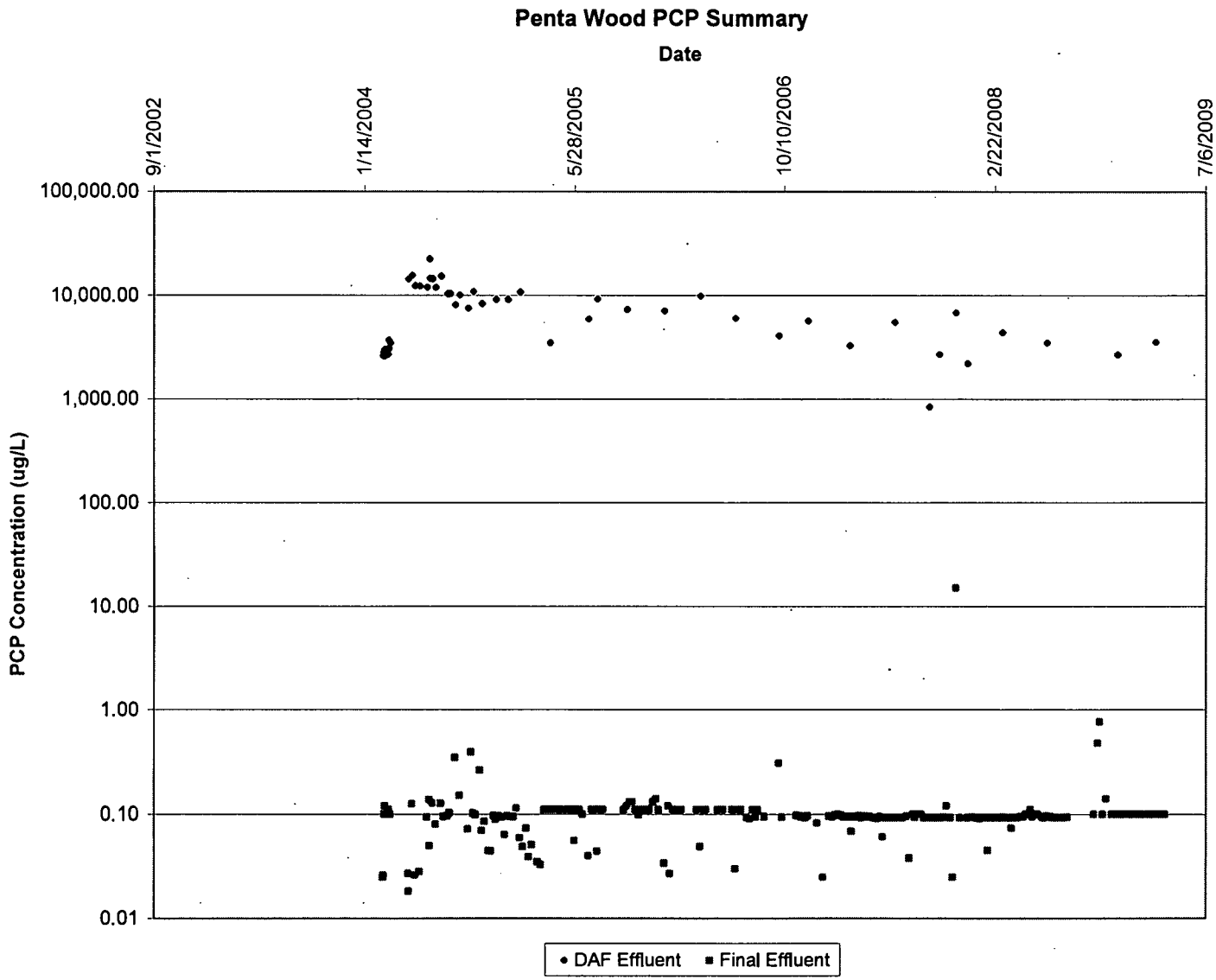
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operation and maintenance costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs.
	After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, break-through analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events.
	As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to evaluate the contaminant plume fully. Eliminating the spring sampling event in 2010 is being considered.
	CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event.
	CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The Wisconsin Department of Natural Resources (WDNR) accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3,500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

[ ] = Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
April 25, 2009 to May 29, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	May 29, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- Work Plan Revision Request No. 1 was completed and submitted to USEPA on May 14.
- The purchase order was updated for Alar Engineering Corp. to incorporate a tax exclusion for providing the diatomaceous earth (DE) through March 14, 2011.

Task B (PJ)

- An estimated 2.04 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 98.74 MG of water have been treated. An estimated 1,228 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 34,395 gallons. It was noted last month that although light nonaqueous phase liquid (LNAPL) is being recovered; the level in the tank was not showing a representative change. During this reporting period, the ultrasonic level indicator and the elevation of the LNAPL pump inlets were checked. The air pressure on the LNAPL transfer pump was increased on May 8, which appeared to clear the discharge line. The LNAPL level in the tank has increased significantly since the line to the pump was cleared.
- On May 7, Swanson Flo Systems was onsite to service the influent flow meter and the level sensor in the LNAPL tank. Action items identified during the health and safety audit were addressed, which included purchasing additional lock out/tag out equipment for the large isolation valves on the carbon vessels, labeling electrical panels and confined spaces, replacing plastic fuel cans, repairing the

backup alarm on the subcontractor's forklift, installing a safety chain across the access point of the walkway, and updating the Health and Safety Plan.

- On May 8, Maurer Power was onsite to troubleshoot the recirculation pump, service the fans in both programmable logic controllers (PLCs), perform annual service on the generator located outside, and troubleshoot the LNAPL transfer pump.
- Maurer Power was onsite on May 9 to install an insert coupler in the recirculation pump.
- On May 18 and May 19, Maurer Power was onsite to service the air compressor in the main process room.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. The sample collected on May 12 had an estimated result of 0.083 micrograms per liter (µg/L), but the monthly average was still less than 0.1 µg/L, which meets the performance standard. Therefore, treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- The revised Quality Assurance Project Plan (QAPP) Addendum was submitted to USEPA on May 22.

Task D (PC)

- Preparation of the *2008 Interim Long-Term Remedial Action Annual Report* was continued.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		70	0
B (PJ)	07/29/06	07/29/06	03/14/11		69	0
C (CV)	07/29/06	07/29/06	03/14/11		45	0
D (PC)	07/29/06	07/29/06	03/14/11		44	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

On May 1, the rotary drum vacuum filter (RDVF) float feed pump malfunctioned. The site operator disassembled the pump and determined the diaphragm within the pump was sheared and needed replacement. A diaphragm from a spare pump was used until a new one could be ordered. The new diaphragm was installed on May 17 and has been operational since the installation.

On May 7, the RDVF recirculation pump failed. The site operator attempted to reset the equipment, but this did not correct the problem. Maurer Power was onsite May 8 to troubleshoot this pump. The pump was disassembled and the coupler insert was

found to be sheared. A replacement coupler was installed on May 9 and the pump has operated normally since.

On May 14, the air compressor in the main process room was squealing excessively. The operator troubleshooted and found that two of the three belts inside the compressor were worn. Maurer Power replaced the belts on May 18. On May 19, the operator found the treatment system down for an air compressor failure. Maurer Power determined that the valve spring assembly needed to be replaced which caused oil to discharge from the air intake. This part was installed on May 19 and the air compressor has been operational since.

Following the system startup on April 23, the site operator observed an influent flow rate of only 30 gallons per minute (gpm) with all the extraction pumps operating. Because the settings on the variable frequency drives (VFDs) for the extraction pumps had not been changed, the influent flow rate for the system should have been approximately 55 gpm. It was determined that the influent flow meter was not providing an accurate measurement of flow. The flow meter was recalibrated and is now functioning properly.

3. Problem Areas and Recommended Solutions

As of the March invoice, the total amount of project expenditures is at 75 percent of the expenditure limit.

On May 11, the site operator observed that the lead granulated activated carbon (GAC) vessel had a pressure of 11.5 pounds per square inch (psi) with little to no pressure on the prefilter. The vessel was inspected and air was released. Very little change was observed. The GAC vessel was air scoured for 20 minutes on May 14, which reduced the pressure to 2.5 psi. Over the next several days, the pressure began to gradually creep up once again on the lead GAC. A breakthrough sample was collected on May 20 to ensure that no breakthrough had occurred on the vessel. The sample result was nondetectable (less than 0.1 µg/L). This situation will be closely monitored over the next reporting period.

On May 13, the in-line turbidity meter pump would not hold prime. After several attempts to flush the influent line, it was determined that the pump needs to be replaced. The pump sizing is being evaluated to determine if an alternative pump would provide the same flow and head with less maintenance. Various types of pumps will be researched and one will be purchased during the next reporting period.

4. Deliverables Submitted

Work Plan Revision Request No. 1 was submitted to USEPA on May 14.

The revised QAPP, which addresses USEPA's comments, was submitted on May 22.

5. Activities Planned Next Reporting Period

<u>Task A (PP)</u>

- Monthly project management will be performed.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.
- Comments or suggestions provided during the site safety audit will continue to be addressed.
- Summaries of air sparging and other potential technologies to reduce the LNAPL will be discussed with the work assignment manager (WAM) while onsite for the semiannual groundwater sampling event.

Task C (CV)

- Sample management tasks will be performed as results from operational monitoring and groundwater sampling events are received from the laboratory.
- The semiannual groundwater sampling event will be performed the week of June 1.

Task D (PC)

- CH2M HILL will continue preparing the *2008 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Travel for Mark Orman for April was previously reported. Travel charges are included in this invoice.

Travel charges for Lisa Mauser from April 23 are for auto mileage to pick up site supplies.

9. Laboratories

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. Project Performance

The following tasks with associated performance criteria were active this month.

Task A—LTRA Monthly Progress Report

- The April 2009 Technical Status Report was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing

- The bioventing system was restarted on May 6. Soil monitoring was performed for 3 consecutive days and the results were consistent with results obtained just prior to system shutdown in December 2008. Soil gas readings collected 1 day after startup (May 7) indicated saturation of oxygen in all the locations except the two locations (SG-22 and SG07S) located in the wood chip areas. These two wells continue to have low oxygen levels (less than 2 percent).

Soil Gas Measurements Collected on May 7				
Well ID	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	LEL (%)
SG-22	0.3	22.3	9.4	100
SG-07S	1.9	18.7	12.0	100

- The bioventing system had one temporary shutdown; however, the system was restarted within 24 hours. Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.

Task C—Groundwater Treatment

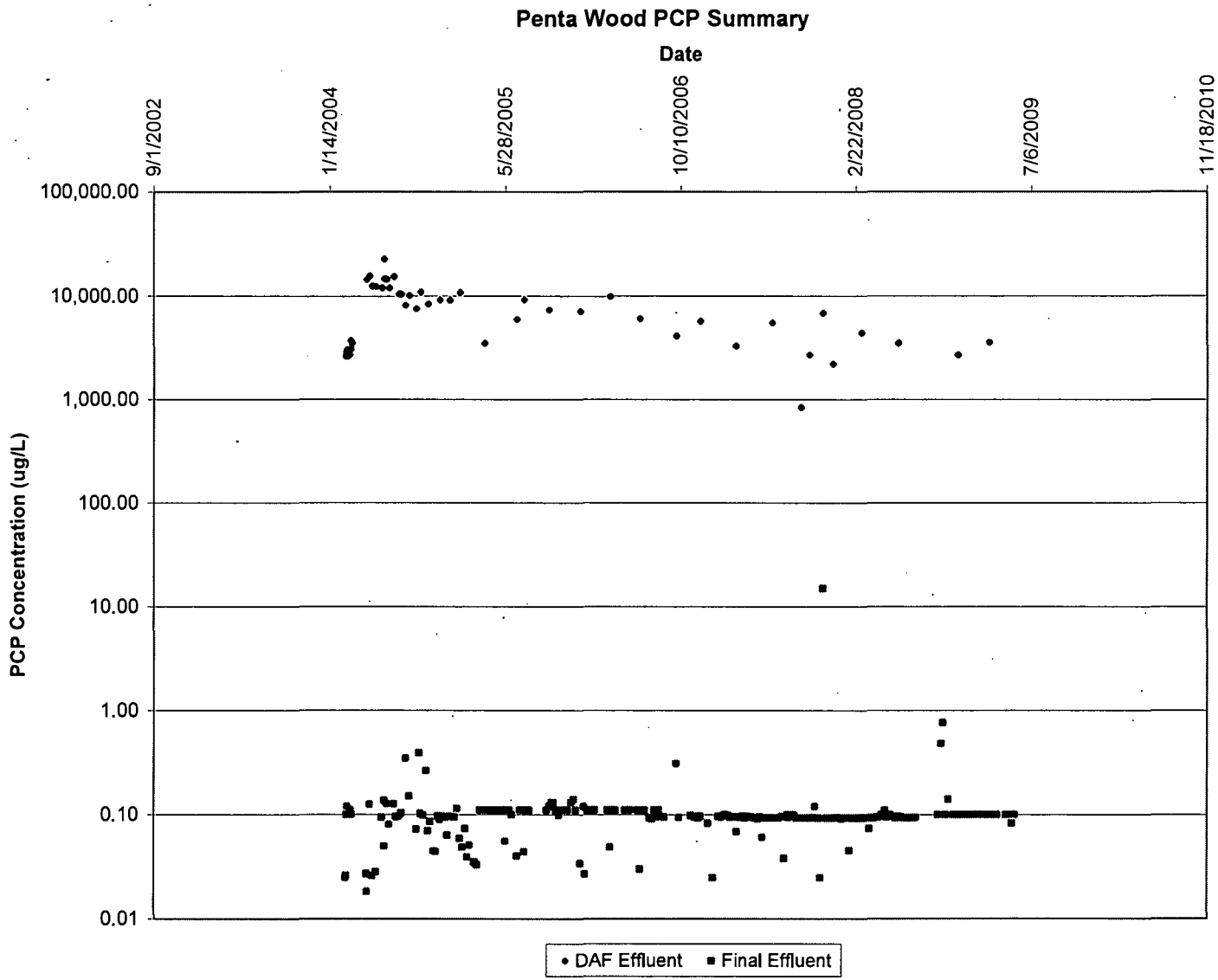
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0. The sample collected on May 12 had an estimated result of 0.083 µg/L, but the monthly average was still less than 0.1 µg/L, which meets the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 µg/L in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operation and maintenance costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The Wisconsin Department of Natural Resources (WDNR) accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3,500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

[ ] = Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
May 30, 2009 to June 26, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	June 26, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- Three quotes were received for mower rentals. The Burnett County Co-op provided the lowest bid. The site operator will pick up the mower on an as-needed basis.
- The Work Plan Revision Request No. 1 was approved by USEPA on June 22.

Task B (PJ)

- An estimated 2.02 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 100.76 MG of water have been treated. An estimated 1,302 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 35,697 gallons. The light nonaqueous phase liquid (LNAPL) recovery represented a significant increase over the typical monthly recovery due to the clearing of the discharge line in the transfer pump that occurred last month.
- On June 1 and June 24, Alar Engineering Corporation delivered two pallets of diatomaceous earth.
- On June 8, Reliable Services was onsite to service the toilet in the restroom.
- On June 9, North Shore Environmental Construction, Inc. picked up approximately 12.5 tons of filter cake and 5,350 gallons of LNAPL for disposal.
- On June 14, U.S. Water Services delivered two 5-gallon carboys of polymer.

- On June 15, Mauer Power was onsite to install a new pH probe electrode in the neutralization tank.
- On June 22 and June 23, Mike Niebauer and Dave Patterson were onsite to service the free-product pumps located within extraction wells (EW)-04 and EW-06. Confined space entry was required. The well head in EW-04 was extended 42 inches to allow for servicing of the pump without future confined space entry.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.
- The bioventing system was shut down on June 2 and restarted on June 3 after the semiannual groundwater sampling event was completed. Soil monitoring was performed and the results were consistent with the results obtained just before system shutdown in December 2008. Soil gas readings collected on the same day of startup (June 3) indicated saturation of oxygen in all the locations except the two locations (SG-22 and SG07S) located in the wood chip areas. These two wells continue to have low oxygen levels (less than 5 percent). The bioventing system was shut down again on June 22 to allow for maintenance on the free-product pumps in EW-04 and EW-06. The system was restarted on June 24.

Soil Gas Measurements Collected on June 3				
Well ID	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	LEL (%)
SG-22	2.5	14.8	1.2	22
SG-07S	2.4	15.0	0.1	1

After evaluating the monitoring results for this reporting period, it is recommended that the bioventing system operate for only 5 days a month. The historical data has shown that the oxygen levels can reach saturation levels with the first several days of restarting the biovent system, and during one month of not operating the biovent system, only a relatively small decrease in the oxygen levels have been observed. The effectiveness of the system would not be compromised by this pulsed operation; however, the reduced operation will save on energy consumption.

Task C (CV)

- Operational monitoring was continued under this task.
- The semiannual groundwater sampling event was performed the week of June 1.

Task D (PC)

- A draft version of the *2008 Interim Long-Term Remedial Action Annual Report* is completed and awaiting a final review upon receipt of the remaining validated data.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		70	0
B (PJ)	07/29/06	07/29/06	03/14/11		69	0
C (CV)	07/29/06	07/29/06	03/14/11		45	0
D (PC)	07/29/06	07/29/06	03/14/11		44	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

During the startup of the bioventing system on June 3, it was observed that the free-product pumps within EW-04 and EW-06 were not operating. Since confined space entry was required and the necessary equipment was not located at the site, a properly trained team was assembled to perform the maintenance. The pumps from EW-04 and EW-06 were pulled from their respective vaults on June 22. These pumps were taken apart, inspected, and tested to find causes for problems with operation. Cracks were observed on both the ball joints for the intake and the one way valve on the outflow tube for the pump in EW-04. A leak in the air line was identified in the pump in EW-06. The cracks and leaks were sealed in both pumps and were readjusted to ensure that LNAPL capture was occurring. These pumps have been operational since they were serviced.

3. Problem Areas and Recommended Solutions

As of the March invoice, the total amount of project expenditures is at 75 percent of the expenditure limit.

The lead granulated activated carbon (GAC) vessel continues to have high pressures with little to no pressure on the prefilter. The GAC vessel is air scoured for a minimum of 20 minutes several days per week, which reduces the pressure to around 3 pounds per square inch (psi). This process will continue to be followed until the next carbon changeout is scheduled.

The in-line turbidity meter pump is not functioning properly. The site operator is currently testing an alternative pump that was available onsite from the pilot test activities. If the pump cannot achieve the necessary head and flow rate, then a new pump will be purchased during the next reporting period.

The analytical laboratory had an instrument error during analysis of one residential well sample. There was not enough of the sample remaining to rerun the analysis; therefore, a replacement sample will be collected during the next reporting period.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

<u>Task A (PP)</u>

- Monthly project management activities will be performed.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.
- One residential well will be resampled during the next reporting period. The laboratory had an instrument issue and there was an insufficient amount of the sample remaining to reanalyze.
- During discussions with the Wisconsin Department of Natural Resources (WDNR) regarding the site operator Subclass K license, the WDNR indicated that the non-detect discharge permit results be reported in the electronic discharge monitoring report (eDMR) system as the limit of detection (LOD) instead of the limit of quantitation (LOQ) as was previously done. The appropriate corrections will be made to the previous submittals and this process will be followed with future electronic submittals to WDNR.

Task D (PC)

- After receipt of the remaining validated data, CH2M HILL will submit the *2008 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Keli McKenna and Shannon Greene travelled to the site on June 1 and returned to Milwaukee on June 3. Partial travel charges are included in this invoice.

9. Laboratories

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. Project Performance

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The May 2009 Technical Status Report was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The bioventing system had two temporary shutdowns; however, the system was restarted within the allotted timeframe. Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.
- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment

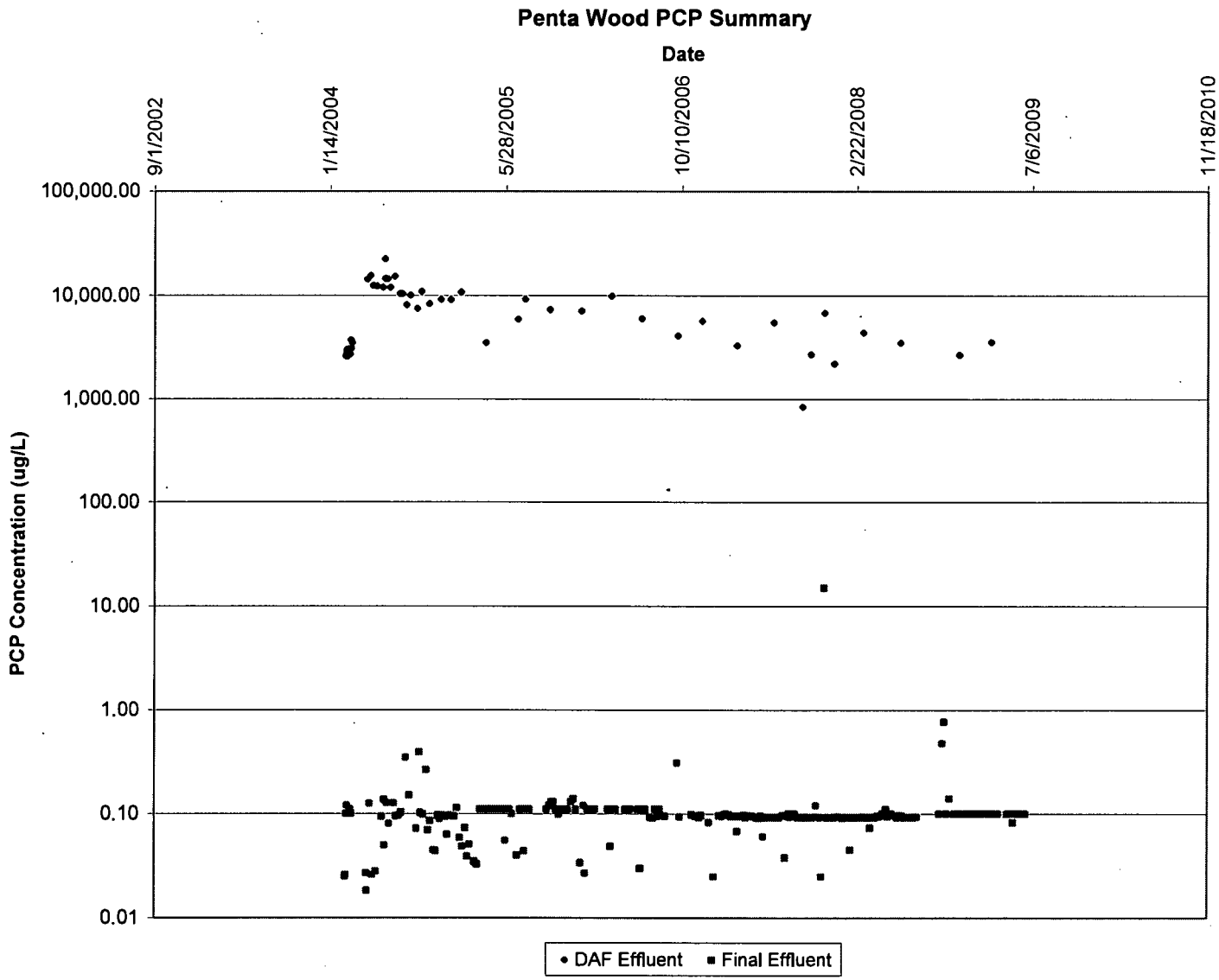
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall O&M costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3,500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	0–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Jun-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

[ ] = Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
June 27, 2009 to July 31, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	July 31, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- Three quotes were received for mower rentals. The Burnett County Co-op provided the lowest bid. After using the equipment from the Co-op, the site operator determined that the quality of the equipment was not sufficient to perform the mowing adequately. The other two quotes for mower rentals are being re-evaluated.
- One quote was received from Austin Lake Landscaping to water the seedlings planted at the site in April for the duration of the summer. Research was completed on purchasing a water spraying system for the site; however, it was determined that this alternative was not efficient or cost effective. Austin Lake Landscaping will come to the site and water the seedlings as needed based on the amount of precipitation received at the site.
- Eaton Engineering Services (Eaton) has provided a quote to investigate the power-related events that have been observed on the surge suppression equipment. Data will be extracted from the IQ analyzer and interpreted by Eaton's technical support department.

Task B (PJ)

- An estimated 2.14 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 102.90 MG of water have been treated. An estimated 602 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 36,300 gallons.

- Glacier Pure delivered approximately 45,000 pounds of ferric sulfate on June 30.
- North Shore Environmental Construction, Inc. picked up approximately 12.1 tons of filter cake for disposal and installed the backup alarm on the bobcat on July 14.
- On July 27 and 28, Maurer Power was onsite to troubleshoot the ferric pump.
- The appropriate corrections were made to previously submitted electronic discharge monitoring reports (eDMR) by reporting non-detect discharge permit results as the limit of detection (LOD). This process will be followed with future electronic submittals to Wisconsin Department of Natural Resources (WDNR).
- A summary of site information was provided to the WDNR in order for them to complete their sustainability remediation analysis of the site. This summary included utility costs, the most recent groundwater monitoring report, as-built drawings of the site, the most recent Operations and Maintenance (O&M) Manual, and yearly hazardous waste and chemical volumes.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.
- One residential well was resampled during this reporting period. The laboratory had an instrument issue and there was an insufficient amount of the sample remaining to reanalyze. The results from the resampled residential well were received and the concentrations were below the detection limits.
- The cover letter of the Quality Assurance Project Plan (QAPP) Addendum was signed by the subcontracting laboratory's quality assurance manager and was resubmitted to USEPA for signature.

Task D (PC)

- A draft version of the *2008 Interim Long-Term Remedial Action Annual Report* is currently under final review. The remaining validated data was received on July 24.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		71	0
B (PJ)	07/29/06	07/29/06	03/14/11		59	0
C (CV)	07/29/06	07/29/06	03/14/11		57	0
D (PC)	07/29/06	07/29/06	03/14/11		54	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		0	0

2. Problems Resolved

The site operator arrived at the site on July 26 to an alarm on the ferric pump. The operator investigated the failure and determined that there was a leak in the piping from the pump. The check valve was removed but no leaks were found. Maurer Power was onsite on July 27 to troubleshoot the pump and determined that the leak detector had malfunctioned. The instrument was disassembled and cleaned. The pump appeared to be operating normally until another issue was found when the site operator arrived at the site the morning of July 28. The pH had increased dramatically, indicating that ferric was not discharging into the storage tank. Piping and valves were dismantled to check for obstructions. All accessible tubing was cleaned and reinstalled. The valve at the top of the ferric storage tank was removed with a bucket truck. The piping inside of the tank was dismantled and cleaned. A large obstruction of crystallized ferric was found inside the piping in the storage tank. This pump has been operational since it was serviced.

3. Problem Areas and Recommended Solutions

As of the June invoice, the total amount of project expenditures is at 81 percent of the expenditure limit.

The lead granulated activated carbon (GAC) vessel continues to have high pressures with little to no pressure on the prefilter. The GAC vessel is air scoured for a minimum of 20 minutes several days per week, which reduces the pressure to around 3 pounds per square inch (psi). This process will continue to be followed until the next carbon changeout is scheduled.

The in-line turbidity meter pump is not functioning properly. This pump has been sent for repairs. If the pump cannot achieve the necessary head and flow rate, then a new pump will be purchased during the next reporting period.

Several power-related events have been observed on the power monitoring equipment during this reporting period. Eaton will visit the plant during the next reporting period and extract data from the power monitoring equipment (IQ analyzer) and interpret the events that have occurred at the site since the equipment was originally installed.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

<u>Task A (PP)</u>

- Monthly project management activities will be performed.
- The purchase orders (PO) for North Shore Environmental, Larry's LP, Inc., and Glacier Pure, Inc. will be reviewed to determine whether any price changes will be incurred for the next year of services.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.
- The carbon changeout of the 10,000-pound (lb) and 2,500-lb vessels is scheduled for August 10. The relining of the carbon vessels is scheduled for August 11 through August 14. The epoxy on the vessels will be allowed to cure during the week of August 17. The carbon vessels will be refilled the week of August 24. The treatment system will be down for approximately 3 to 4 weeks for the removal of the carbon, application and curing of the epoxy, and replacement of the carbon, as described in the request for extension of the 10 days allowable for site repairs. The request for extension was approved on July 31.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

- CH2M HILL will submit the *2008 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Travel for Shannon Greene on June 1 through 3 was reported in last month's Technical Status Report.

Travel charges for Lisa Mauser from June 20 were for the purchase of gasoline for the mower, trimmer, and power washer. Travel charges from May 5 to July 15 are for auto mileage to pick up site supplies.

Mike Niebauer and David Patterson travelled to the site on June 21 to 23 to repair the extraction pumps.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The June 2009 Technical Status Report was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The bioventing system only operated 5 days this month. After evaluating historical data, oxygen levels achieved saturation levels within the first several days of restarting the biovent system. During one month of not operating the system, only a relatively small decrease in the oxygen levels has been observed. Therefore, the operation of the biovent system has been modified, which will provide the same level of performance but provide savings on utility costs. The biovent system will be run for 5 days per month and remain off during the remaining days. Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.
- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment

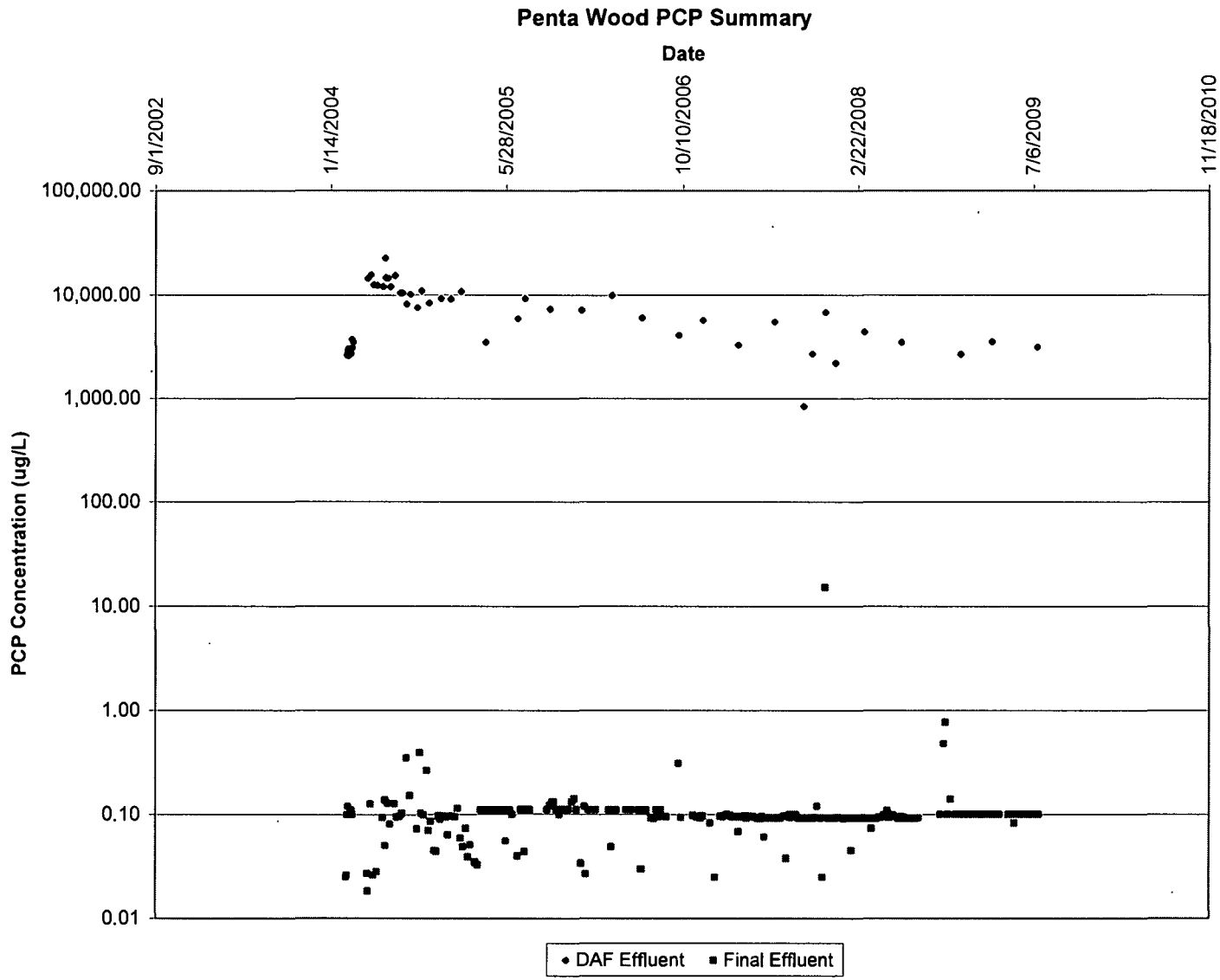
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall O&M costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
24-June-08	3,500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	0	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–	
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–	
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–	
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–	
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System was not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

[redacted]e not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
August 1, 2009 to August 28, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Mike Niebauer/MKE, Assistant Site Manager
PERIOD ENDING:	August 28, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- Three quotes were received for mower rentals. The Burnett County Co-op provided the lowest bid. After using the equipment from the co-op, the site operator determined that the quality of the equipment was not sufficient to perform the mowing adequately. Austin Lake Landscaping was chosen to mow designated areas at the site on an as-needed basis.
- The next option periods were executed with no price changes for North Shore Environmental Construction, Inc. to provide waste disposal services through September 2010 and for Glacier Pure, Inc. to supply ferric sulfate and sodium hydroxide from October 1, 2009, through March 31, 2010.
- The purchase order (PO) for Larry's LP, Inc. was reviewed to determine whether a price change will be incurred for the next year of services. An additional quote from Hedlund Gas was also obtained. After completing a price comparison, it was decided that the supply of propane would be competitively rebid.
- Eaton Engineering Services (Eaton) has provided a quote to investigate the power-related events that have been observed on the surge suppression equipment. Data will be extracted from the IQ analyzer and interpreted by Eaton's technical support department.

Task B (PJ)

- An estimated 0.51 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 103.40 MG of water have been treated. An estimated 366 gallons of liquid waste were recovered during

this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 36,666 gallons.

- On August 10, Siemens Water Technology, Inc. (Siemens) was onsite to remove the carbon from the 2,500-pound (lb) and 10,000-lb granular activated carbon (GAC) vessels. The laterals in the 10,000-lb vessels were also removed in preparation of the relining on the interior of the 10,000-lb vessel. Upon completion of the vessels relining and curing time, Siemens returned to the site on August 24 and August 25 to reinstall the laterals and fill both vessels with carbon.
- Champion Coatings Inc. was onsite August 11 through August 14 to reline the 10,000-lb carbon vessel. The work included sandblasting of the interior of the vessel, spot welding, coating application, and testing of the blast materials. The sand blast material was removed and placed in a dumpster until the toxicity characteristic leaching procedure (TCLP) results are received.
- Austin Lake Landscaping was onsite on August 14 to perform mowing and trimming services.
- North Country Plumbing and Heating was onsite on August 24 to install replacement filters in the blowers used for the bioventing.
- On August 26, North Shore Environmental Construction, Inc. picked up approximately 11 tons of spent carbon and 2 drums of debris for disposal.
- On August 28, Maurer Power was onsite to troubleshoot the backwash pump and dissolved air flotation (DAF) solenoids.
- The biovent system was restarted on August 25. Soil gas measurements were collected at the beginning of the restart and showed that a small decrease in oxygen levels had occurred during the time the biovent system was not operating.
- A technical memorandum was completed that described the evaluation of the current remedial system and technologies and alternatives that could reduce the operating costs until the system is transferred to the state in 2014, provide a reduced operating cost after 2014, and enable implementation without increasing budgeted costs now through 2014.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.

Task D (PC)

- The *2008 Interim Long-Term Remedial Action Annual Report* was submitted on August 14.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		73	0
B (PJ)	07/29/06	07/29/06	03/14/11		63	0
C (CV)	07/29/06	07/29/06	03/14/11		58	0
D (PC)	07/29/06	07/29/06	03/14/11		56	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		3	0

2. Problems Resolved

On August 26, the site operator restarted the treatment system following the vessel relining and carbon replacement. The operator initiated the backwashing of the prefilter and found that backwashing was not possible although forward flow was normal. The piping was removed to inspect for blockages. No large obstructions were found; however, when the piping was reconnected, backwashing capabilities were restored to normal operation.

During startup, the operator also observed that the DAF unit was not producing a sludge blanket. An air leak was found in the DAF control panel. Once repaired, normal DAF operations were restored.

3. Problem Areas and Recommended Solutions

As of this August invoice, the total amount of project expenditures is at 85 percent of the expenditure limit.

Several power-related events have been observed on the power monitoring equipment during this reporting period. Eaton will visit the plant during the next reporting period and extract data from the power monitoring equipment (IQ analyzer) and interpret the events that have occurred at the site since the equipment was originally installed.

4. Deliverables Submitted

- The *2008 Interim Long-Term Remedial Action Annual Report* was submitted on August 14.
- A technical memorandum describing the evaluation of the current remedial system and technologies and alternatives that could reduce the operating costs until the system is transferred to the state in 2014, provide a reduced operating cost after 2014, and enable implementation without increasing budgeted costs now through 2014 was submitted on August 21.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- Competitive bids for a supply of propane gas will be solicited.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.
- The biovent system will be shut down after 5 days of operation.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.
- The annual groundwater sampling event is tentatively planned for the week of October 5.

Task D (PC)

None.

6. **Key Personnel Changes**

The assistant site manager will be changed from Beth Rohde to Mike Niebauer.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Mike Niebaurer and David Patterson travelled to the site in June for confined space entry to repair several light nonaqueous phase liquid (LNAPL) pumps. Additional travel charges are included in this invoice.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The July 2009 Technical Status Report was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system was down August 8 to August 26 due to the removal of carbon, application and curing of the epoxy, and replacement of carbon, as described in the request for extension of the 10 days allowable for site repairs. The system was restarted on August 26; however, issues with the air supply in the DAF unit and backwash pump required a temporary shutdown for troubleshooting. The issues were resolved and the system was restarted within the allowable 5 days. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- The bioventing system operated 5 days this month. The soil gas reading collected at restart indicated oxygen levels decreased during the time the biovent system was shutdown. Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment

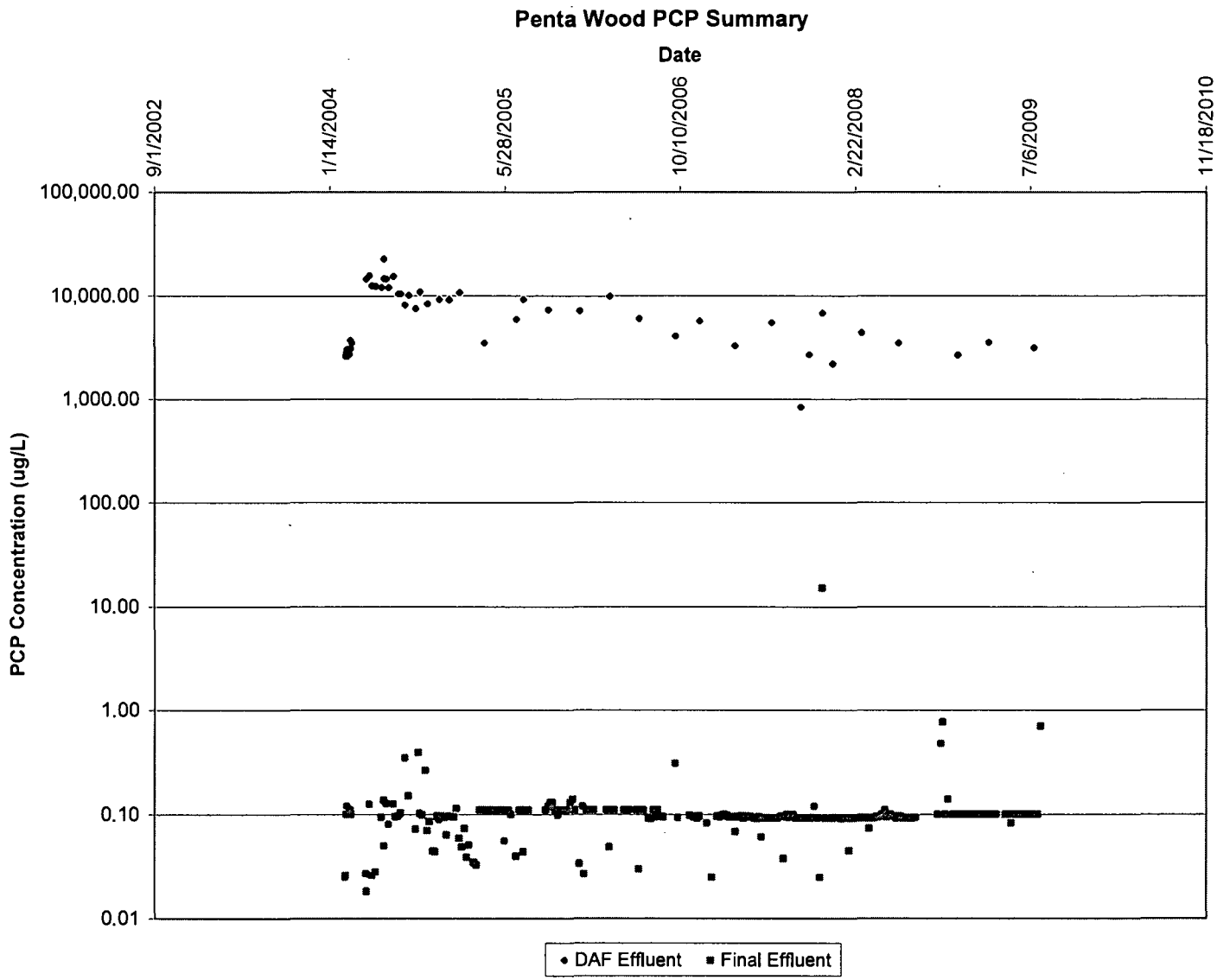
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operations and maintenance (O&M) costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–	
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
4-Aug-09	–	6.5		–	–					–	0.70U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
-- = Not sampled.

* = System was not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

= Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in Technical Status Report text.

RAC2 TECHNICAL STATUS REPORT
August 29, 2009 to September 25, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Mike Niebauer/MKE, Assistant Site Manager
PERIOD ENDING:	September 25, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- The solicitation for 2009/2010 propane supply was sent to three offerers. Two quotes were received. The subcontract was awarded to the lowest bidder, Hedlund Gas, Inc.

Task B (PI)

- An estimated 1.53 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 104.93 MG of water have been treated. An estimated 628 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 37,294 gallons.
- On August 29 and 30, Bill Andrae travelled to the site to troubleshoot the dissolved air flotation (DAF) unit. An air leak was found in the DAF solenoids within the control panel. Once repaired, normal DAF operations were restored.
- On August 31, Maurer Power was onsite to replace the DAF solenoids.
- Austin Lake Landscaping was onsite on September 3, 4, 17, and 24 to perform mowing, trimming, and tree watering services.
- On September 5, Maurer Power was onsite to replace the odorous air fan belts.
- North Country Plumbing and Heating was onsite on September 10 and 11 to troubleshoot the ferric feed. They were also onsite on September 14 to perform routine maintenance on the furnaces.

- Maurer Power was onsite on September 16 to replace a defective pH electrode in the neutralization tank.
- On September 21, Champion Coating was onsite to remove the dumpster filled with sand blast material from the relining of the granulated activated carbon (GAC) vessels. Toxicity characteristic leaching procedure (TCLP) results were received and were within acceptance criteria.
- On September 22, Alar Engineering delivered two pallets of diatomaceous earth.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.

Task D (PC)

- None.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		74	0
B (PJ)	07/29/06	07/29/06	03/14/11		64	0
C (CV)	07/29/06	07/29/06	03/14/11		58	0
D (PC)	07/29/06	07/29/06	03/14/11		56	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		56	0

2. Problems Resolved

The site operator arrived at the site on September 10 to an alarm on the ferric pump. The operator investigated the failure and determined that there was a blockage in the discharge side of the pump. The piping was disassembled and cleaned. The piping was reassembled, but the pump was still not operational. North Country Plumbing and Heating arrived onsite on September 10 to troubleshoot the pump and determined that a metal fitting on the suction side of the pump was badly corroded. This part was replaced and the pump was operating normally; however, the site operator arrived at the site the morning of September 11 to elevated pH readings in the coagulation tank indicating that ferric was not discharging into the tank. North Country Plumbing and Heating inspected the pump once again, and after checking all fittings for corrosion and piping for obstructions, a broken nipple was found. The part was replaced and the pump has been operational since it was serviced.

Several power-related events have been observed on the power monitoring equipment during this reporting period. Northwestern Electric came to the site and replaced equipment on the service to the site. Since that time, no electrical events have occurred that would trip a system alarm. Small drops in the voltage have been observed, but not at levels that affect system operation. The incoming power will continue to be monitored and, if necessary, Eaton will be contacted again to visit the

site to extract data from the power monitoring equipment (IQ analyzer) and interpret the events that have occurred since the equipment was originally installed.

3. **Problem Areas and Recommended Solutions**

None.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Monthly project management activities will be performed.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.
- The biovent system will be shut down after 5 days of operation.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.
- The annual groundwater sampling event is tentatively planned for the week of October 5.

Task D (PC)

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Hedlunds Gas, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Bill Andrae travelled to the site on August 29 to August 30 to troubleshoot the DAF unit issues.

Travel charges for Lisa Mauser on September 16 are for auto mileage to pick up site supplies.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A—LTRA Monthly Progress Report

- The *August 2009 Technical Status Report* was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- The bioventing system is now only operating 5 days per month since soil gas readings collected at restart indicated that oxygen levels decreased slightly during the shutdown time period. The system will be turned on the week of September 28 and operated for 5 days. Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.

Task C—Groundwater Treatment

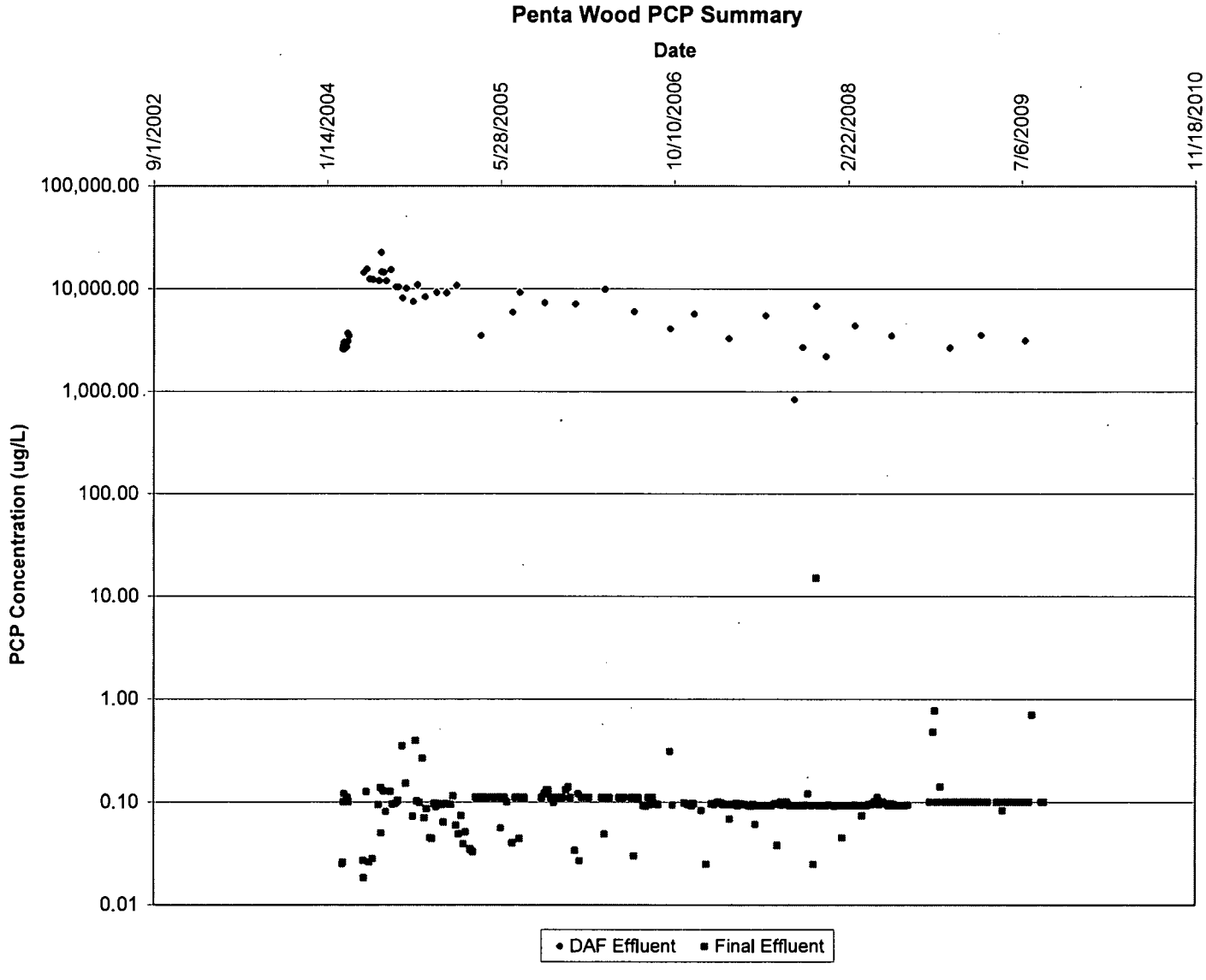
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operations and maintenance (O&M) costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs.
	After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events.
	As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exist to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered.
	CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event.
	CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329J	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
4-Aug-09	–	6.5		–	–					–	0.70U	–	–	–	–	–	–	–	–	–	–	–		
1-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
8-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
15-Sep-09	2,800	6.5		19	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0	9.75U	52.9	642	1,230		
22-Sep-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

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[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
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[c]ND = Compound was not detected in sample.
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RAC2 TECHNICAL STATUS REPORT
September 26, 2009 to October 30, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Mike Niebauer/MKE, Assistant Site Manager
PERIOD ENDING:	October 30, 2009

COPIES:	RPM:	Tom Williams, USEPA Region 5
	PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
	RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
	WDNR:	Bill Schultz, WDNR, Rhinelander, WI
	WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.

Task B (PJ)

- An estimated 2.19 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 107.12 MG of water have been treated. An estimated 367 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 37,661 gallons.
- The 5-day bioventing system operation occurred from September 30 to October 5. Soil gas readings were collected at the restart and indicated oxygen levels had decreased slightly during the time the biovent system was shut down.
- Maurer Power was onsite on September 30 to replace the pH electrode in the neutralization tank and to install replacement couplers in the dissolved air flotation (DAF) air control panel. The parts received for the replacement of the couplers were the incorrect size; therefore, the parts were returned and new parts were ordered.
- North Shore Environmental picked up approximately 13 tons of filter cake on October 1.
- North Country Plumbing and Heating was onsite on September 28, October 2, and October 8 to order and replace parts in the main process room furnace and to repair a propane leak.

- Maurer Power was onsite on October 3 to troubleshoot the rotary drum vacuum filter (RDVF) float feed pump and returned on October 5 to install the replacement air regulator in the float feed pump.
- Clayhill was onsite on October 13 to perform annual maintenance on the air compressors.
- Champion Coating was onsite on October 13 to complete touch-up painting on the granulated activated carbon (GAC) vessels.
- Alar Engineering delivered two pallets of diatomaceous earth on October 17.
- Maurer Power was onsite on October 21 to replace the DAF couplers and to install a pH probe in the neutralization tank.
- Maurer Power was onsite on October 23 to replace the DAF solenoids and to troubleshoot the odorous air (OA) fans.
- North Country Plumbing and Heating was onsite on October 26 to troubleshoot the OA fans.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.
- The annual groundwater sampling event was performed the week of October 5. One residential well was resampled during this reporting period. The initial result for pentachlorophenol was detected slightly above the preventative action limit (PAL) at 0.15 micrograms per liter (µg/L). The results from the resampled residential well were received and the concentrations were below the detection limits.

Task D (PC)

- Hard copies of final 2008 Annual Report were prepared.
- Water levels collected during the 2009 sampling events were contoured for inclusion in the 2009 Annual Report.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		75	0
B (PJ)	07/29/06	07/29/06	03/14/11		66	0
C (CV)	07/29/06	07/29/06	03/14/11		61	0
D (PC)	07/29/06	07/29/06	03/14/11		57	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		77	0

2. Problems Resolved

None.

3. Problem Areas and Recommended Solutions

During operation of the RDVF on September 26, the operator observed a reduced vacuum causing little to no solids to be filtered through the diatomaceous earth. After initially troubleshooting, discussions with the manufacturer and further troubleshooting by Maurer Power, it was determined that the float feed pump was not pumping enough wastewater to adequately operate the unit. The pump was disassembled and it was determined that the pump seals, balls, and chambers needed to be replaced. The parts were ordered and will be installed during the next reporting period.

On October 2, North Country Plumbing and Heating was onsite to install a flame sensor and a belt on the blower motor in the RDVF room furnace; however, the ability to access the parts on the MAU is restricted by the presence of the RDVF below the MAU unit. Alternatives have been considered to provide either improved access to the MAU for continued maintenance. In addition, alternative options to heat the RDVF room and provide more cost-effective operation and maintenance than the MAU are being considered.

On October 21, the system alarm went off due to a low flow condition in the OA system. In the past, this condition has typically been associated with a broken belt in one of the fans. On October 23, Maurer Power was onsite with a bucket truck to access the fans and perform troubleshooting. The motor and belts within the unit were examined and the fans were found to be operating normally. During this time, the treatment system continues to operate; however, both OA fans must be running to prevent the alarm from reoccurring. Additional troubleshooting of the air flow sensor will be performed during the next reporting period, including potential recalibration or replacement.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- The purchase order for Maurer Power to perform future troubleshooting support for the site will be increased by $9,000.

Task B (PI)

- Operation of the groundwater treatment system will be continued.
- The biovent system will be restarted on November 2 and will operate for 5 consecutive days.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Hedlunds Gas, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Shannon Greene, Ian Mueller, and Carolyn Fehn travelled to the site for groundwater sampling on October 5 and returned to Milwaukee on October 8. Keli McKenna travelled to the site to meet with USEPA and the Wisconsin Department of Natural Resources (WDNR) during the groundwater sampling event on October 5 and returned to Milwaukee on October 6. Travel charges for Shannon Greene, Carolyn Fehn, and Keli McKenna will be invoiced during the next reporting period.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The *September 2009 Technical Status Report* was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- The bioventing system operated 5 days this month in accordance with the modified operation schedule. Therefore, the bioventing system met the performance standard for this period.

Task C – Groundwater Treatment

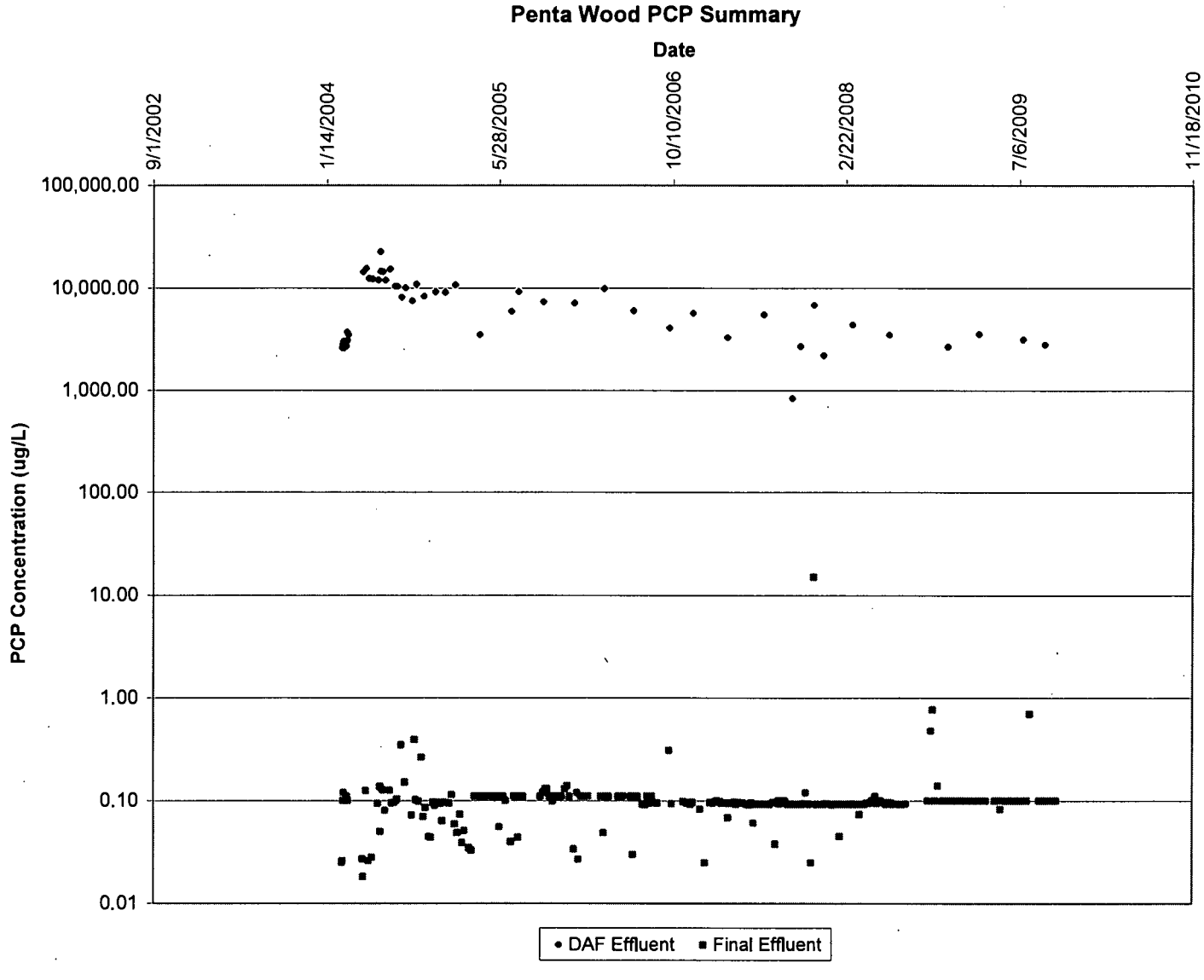
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow.water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the LNAPL and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operations and maintenance (O&M) costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exists to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1.0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (ug/L)	Acid Extractables	Dioxins and Furans (all cogeners)
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329J	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
4-Aug-09	–	6.5		–	–					–	0.70U	–	–	–	–	–	–	–	–	–	–	–		
1-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
8-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
15-Sep-09	2,800	6.5		19	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0	9.75U	52.9	642	1,230		
22-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
29-Sep-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Oct-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Oct-09	–	6.5		–	0.1U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Oct-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
27-Oct-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System was not discharging water during this time due to damage resulting from power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

= Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in Technical Status Report text.

RAC2 TECHNICAL STATUS REPORT
October 31, 2009 to November 27, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Mike Niebauer/MKE, Assistant Site Manager
PERIOD ENDING:	November 27, 2009

COPIES:

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PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
WDNR:	Bill Schultz, WDNR, Rhinelander, WI
WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.
- The purchase order for Maurer Power to perform future troubleshooting support for the site was increased by $9,000.

Task B (PJ)

- An estimated 2.05 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 109.17 MG of water have been treated. An estimated 1,046 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 38,707 gallons.
- The 5-day bioventing system operation occurred from November 3 to November 10. Soil gas readings were collected at the restart and indicated oxygen levels have remained the same or have decreased slightly during the time the bioventing system was shut down.
- A-1 Septic was onsite on November 2 to empty the septic holding tank.
- Maurer Power was onsite on November 8 to install replacement chambers and seals in the float feed pump.
- Alar Engineering delivered two pallets of diatomaceous earth on November 13.

- Glacier Pure delivered approximately 4,700 gallons of sodium hydroxide on November 16. On November 17, they delivered approximately 3,700 pounds of ferric sulfate.
- North Shore Environmental picked up approximately 16.5 tons of filter cake on November 17.
- Earth Energy was onsite n November 25 to troubleshoot the furnace in the main process room.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. There were no exceedances of the target discharge limits.

Task C (CV)

- Operational monitoring was continued under this task.

Task D (PC)

- Hard copies of the final *2008 Annual Report* were sent to USEPA, WDNR, and the local libraries in Webster and Grantburg, Wisconsin, on November 16.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		75	0
B (PJ)	07/29/06	07/29/06	03/14/11		68	0
C (CV)	07/29/06	07/29/06	03/14/11		61	0
D (PC)	07/29/06	07/29/06	03/14/11		60	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		77	0

2. Problems Resolved

The pump seals, balls, and chambers were replaced in the rotary drum vacuum filter (RDVF) feed pump which corrected the problems with the reduced vacuum and filtering capacity of the RDVF and returned operations to normal conditions.

3. Problem Areas and Recommended Solutions

During the month of November, the site operator observed soot at the heating vents in the main process room. On November 25, Earth Energy was onsite to troubleshoot the makeup air unit (MAU) in the main process room. Following the inspection, the contractor determined that the blower within the MAU needed to be replaced and the soot needed to be cleaned from the vents to prevent potential fire and inhalation hazards. Subcontracts are being set up to perform the repairs on the MAU and clean the ducts. Temporary heaters will be rented, if needed, to prevent frozen pipes and potential damage. Additionally, alternative heating scenarios in the main process room will be evaluated to determine if more cost-effective options can be identified.

Alternatives have been considered for solving the access issues related to the RDVF room MAU. The options considered included installation of an access platform to the unit, relocation of the current unit, and use of an electric heater in placement of the MAU. It was determined that the most cost-effective approach would be to use electric heaters to heat the RDVF room. Potential health and safety considerations associated with nuisance odors from fuel oil will continue to be managed by the existing exhaust fan. However, the fan will set up to run in manual mode so the operator can turn it on or off as needed. Maurer Power will be performing the installation during the next reporting period.

The system alarm continues to go off due to low flow conditions in the OA system. During this time, the treatment system continues to operate; however, both OA fans must be running to prevent the alarm from reoccurring. The manufacturer's representative will be onsite during the next reporting period to recalibrate or replace the air flow sensor.

4. **Deliverables Submitted**

Hard copies of final *2008 Annual Report* were sent to USEPA, WDNR, and the local libraries in Webster and Grantsburg, Wisconsin, on November 16.

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Monthly project management activities will be performed.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

- None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Hedlunds Gas, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.

Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Travel for Shannon Olson (formerly Greene), Carolyn Fehn, and Keli McKenna from October was reported in last months Technical Status Report.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The Technical Status Report for October 2009 was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- The bioventing system operated 5 days this month in accordance with the modified operation schedule. Therefore, the bioventing system met the performance standard for this period.

Task C – Groundwater Treatment

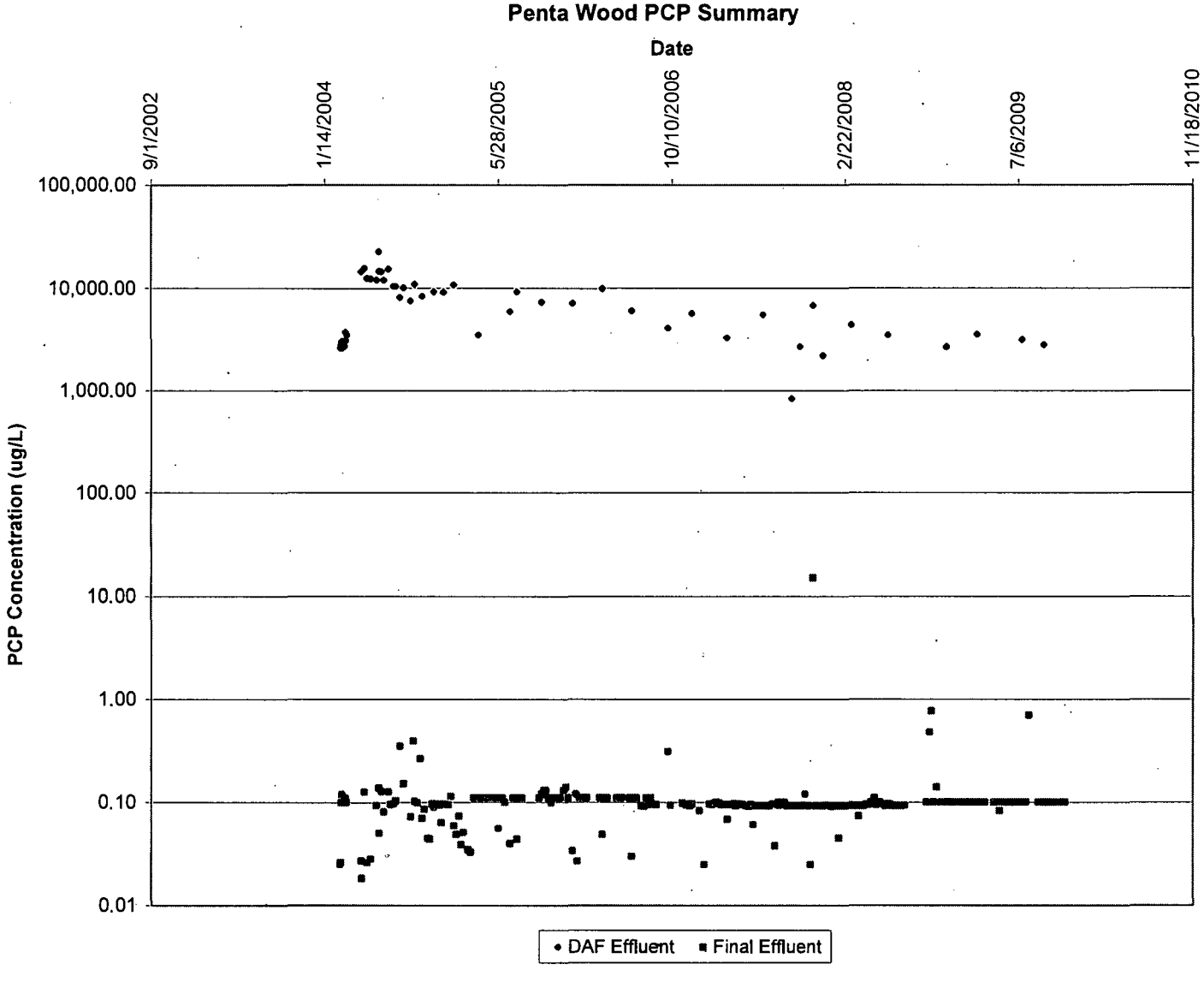
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the pentachlorophenol (PCP) data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the light nonaqueous phase liquid [LNAPL] and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operations and maintenance (O&M) costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exists to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2,680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329J	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
4-Aug-09	–	6.5		–	–					–	0.70U	–	–	–	–	–	–	–	–	–	–	–		
1-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
8-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
15-Sep-09	2,800	6.5		19	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0UB	9.75U	52.9J	642J	1,230		
22-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
29-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
6-Oct-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
13-Oct-09	–	6.5		–	0.1U					–	0.10U	–	1.0UJ	–	–	–	–	–	–	–	–	–		
20-Oct-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
27-Oct-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Nov-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Nov-09	–	6.5		–	0.1U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
17-Nov-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Nov-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System was not discharging water during this time due to damage resulting from a power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

= Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in Technical Status Report text.

RAC2 TECHNICAL STATUS REPORT

November 28, 2009 to December 25, 2009

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Mike Niebauer/MKE, Assistant Site Manager
PERIOD ENDING:	December 25, 2009

COPIES:

RPM:	Tom Williams, USEPA Region 5
PM:	Isaac H. Johnson, CH2M HILL, Milwaukee, WI
RTL:	Phil Smith, CH2M HILL, Milwaukee, WI
WDNR:	Bill Schultz, WDNR, Rhinelander, WI
WDNR:	Pete Prusak, WDNR, Cumberland, WI

1. Progress Made This Reporting Period

Task A (PP)

- Monthly project management activities were performed.

Task B (PI)

- An estimated 1.3305 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 110.10 MG of water have been treated. An estimated 293.6 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovery from March 2004 through the end of this reporting period is approximately 39,001 gallons.
- Based on the potential for methane migration as a result of the snow cover, the biovent system was shut down on November 10 for the winter months similar to the winter months of 2008/2009. Soil gas readings collected prior to shutdown indicated that oxygen levels have remained the same or have decreased slightly during the time the bioventing system was shut down. Based on the oxygen utilization observed during the 2008/2009 shutdown, it is not anticipated that the oxygen will drop below the 5 percent minimum level for aerobic biodegradation while shut down. The system will resume operation in the spring.
- Maurer Power was onsite on December 1 to service the flow meters on the odorous air (OA) fans.
- On December 2 and December 4, Northwestern Electric replaced two electrical poles along Daniels 70, which caused a temporary (less than 6 hours each) of the system.

- The make-up air unit (MAU) located in the main process room was not operating. While troubleshooting and repair was being performed, temporary heaters were rented to ensure the water within the plant did not freeze. Maurer Power was onsite on December 5 to install and wire four temporary heaters in the main process room. On December 7 and December 8, Maurer Power installed and wired one permanent electric heater in the rotary drum vacuum filter (RDVF) room.
- Clayhill was onsite on December 8 to service the air dryers.
- On December 10 and December 11, KMS Air Duct Cleaning cleaned up the soot that resulted from the MAU failure and was covering the furnace and exhaust ducts.
- Earth Energy was onsite on December 11 and December 14 to repair the main process room MAU including replacement of belts, tightening, and realignment.
- On December 16 and December 17, Siemens Water Technologies, Inc. was onsite to perform the carbon changeout of the 2,500-pound (lb) and 10,000-lb granular activated carbon (GAC) vessels. New laterals were also installed in the 2,500-lb vessel.
- Maurer Power was onsite on December 22 to troubleshoot the dissolved air floatation (DAF) control panel.
- On December 22, Swanson Flo-Systems was onsite to recalibrate the influent flow meter.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. The pentachlorophenol (PCP) sample collected on December 8 had an estimated result of 0.355 micrograms per liter (µg/L). Upon discussion with the laboratory, the influent sample collected for the month was analyzed prior to the effluent sample which resulted in carryover. Therefore, the treatment system effluent sampling result was qualified as non-detect due to blank contamination and met the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.

Task D (PC)

- Preparation of the *2009 Interim Long-Term Remedial Action Annual Report* was started.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		75	0
B (PJ)	07/29/06	07/29/06	03/14/11		68	0
C (CV)	07/29/06	07/29/06	03/14/11		61	0
D (PC)	07/29/06	07/29/06	03/14/11		60	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		77	0

2. Problems Resolved

The service and repairs to the furnace in the main process room and installation of the electric heaters in the RDVF room were completed during this reporting period. Both units are now operating normally.

Following the system startup on December 19, the site operator observed an influent flow rate of only 20 gallons per minute (gpm) with all the extraction pumps operating. Because the settings on the variable frequency drives (VFDs) for the extraction pumps had not been changed, the influent flow rate for the system should have been approximately 55 gpm. It was determined that the influent flow meter was not providing an accurate measurement of flow. The flow meter was recalibrated by Swanson Flo-Systems on December 22 and is now functioning properly.

When the operator arrived on the site on December 22, the system was shut down due to an alarm on the DAF unit. After an initial investigation, she found that the control panel of the unit was not receiving any power. It was determined that the GFI for the control panel had been tripped. The DAF control panel was reset, which returned operations to normal conditions.

3. Problem Areas and Recommended Solutions

None.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.

Task B (PJ)

- Operation of the groundwater treatment system will be continued.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

- Preparation of the *2009 Annual Report* will continue.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern Wisconsin Electric Co.
Telephone:	Siren Telephone Co.
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	U.S. Water Services
Propane Tank and Gas:	Hedlunds Gas, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental Construction, Inc.
Treatment System Chemicals:	Glacier Pure, Inc.
DE Supplier:	Alar Engineering Corp.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Analytical Laboratory Services:	Environmental Monitoring and Technologies, Inc.

8. **Travel**

Travel charges for Lisa Mauser from November 21 are for auto mileage for driving to pick up site supplies.

9. **Laboratories**

System monitoring samples were submitted to Environmental Monitoring and Technologies, Inc., of Morton Grove, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2008 to 2011 analytical services.

10. **Project Performance**

The following tasks with associated performance criteria were active this month.

Task A – LTRA Monthly Progress Report

- The Technical Status Report for November 2009 was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing upward release of

methane and resulting in migration of methane. Soil gas measurements indicated sufficient oxygen is present in the subsurface to support aerobic biodegradation. As recommended in 2008, the bioventing system was shut down on November 10 for the winter due to the health and safety concern of methane migration. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of PCP in the subsurface and will provide cost savings on energy consumption. The bioventing system did operate for 5 days in November in accordance with the modified operation schedule prior to the shutdown. Therefore, the bioventing system met the performance standard for this period.

Task C – Groundwater Treatment

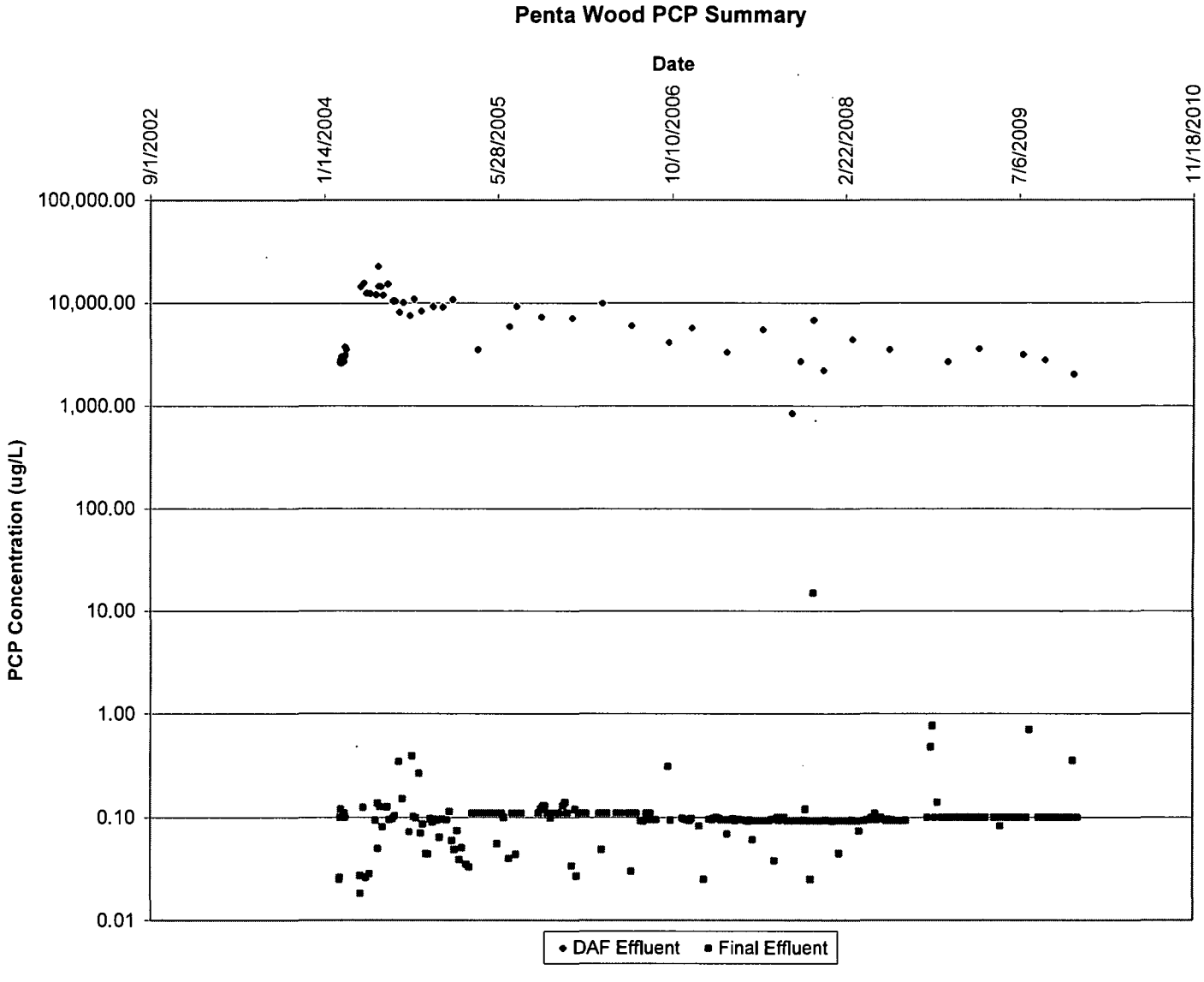
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard. The PCP effluent sample collected on December 8 had an estimated result of 0.355 µg/L. Based on discussion with the laboratory, it was determined that the influent sample collected for the month was analyzed prior to the effluent sample, which resulted in carryover of PCP. Therefore, the sample was qualified as non-detect due to blank contamination, which meets the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow water quality trends in monitoring wells to determine if the plume is migrating.	CH2M HILL continues to evaluate the PCP data to determine if the plume is expanding and if additional monitoring sites are needed. PCP concentrations generally decreased from 2004 to 2007 throughout the site. This includes consistent decreases in Monitoring Well (MW)-9 and MW-13, both in the northeastern part of the site. PCP concentrations in 2007 were 0.37 micrograms per liter (µg/L) in MW-9 and 0.53 µg/L in MW-13—the lowest concentrations measured in the wells since 2001. Installation of a monitoring well to the east, in the direction of two residences, does not appear to be warranted based on the current data and trends.
Provide more accurate prediction of consumables and disposal costs.	The budget for the Long-Term Remedial Action (LTRA) Work Plan is more accurate because of the availability of actual costs from previous years. CH2M HILL has established tracking tools for consumable and disposal costs since the beginning of this work assignment. The overall system operations have improved, causing some costs to decrease (for example, longer run cycles between carbon changeouts has resulted in decreased carbon changeouts and disposal costs) and others to increase (for example, increased operating time increased the light nonaqueous phase liquid [LNAPL] and filter cake disposal cost). CH2M HILL continues to optimize the system performance and to decrease overall operations and maintenance (O&M) costs.
Consider modifying management of GAC units.	CH2M HILL evaluated options for reducing the carbon changeout frequency, including the overall evaluation of system operations, jar testing, additional chemical conditioning to reduce solids loading, and a carbon backwash system. While the system optimization was being performed, a procedure was implemented for the partial changeout of the carbon vessels (removing the top quarter of the carbon where solids loading was occurring) to extend the life of the carbon and to reduce carbon changeout and disposal costs. After the overall system evaluation and jar tests were completed, improvements to the operating procedures were implemented. Those efforts significantly reduced the solids loading to the carbon vessels, resulting in carbon changeout frequencies of about 12 weeks, which exceeds the maximum cycles achieved historically. Although the additional chemical conditioning and carbon backwashing can be effective methods for increasing the run cycle of the carbon, the use of the carbon (that is, breakthrough analysis) needs to be determined to calculate whether the run cycles can be improved still more.
Eliminate redundant or unnecessary laboratory analysis.	Historical metals data were reviewed to verify that elimination of total metals from the annual sampling of the monitoring wells would not affect data evaluation. As instructed by USEPA, CH2M HILL eliminated the total metals analysis from the groundwater sampling events. As instructed by USEPA, CH2M HILL will not eliminate the spring sampling event until sufficient data exists to fully evaluate the contaminant plume. Eliminating the spring sampling event in 2010 is being considered. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the annual groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. The reduced sampling network will be used during the September 2008 sampling event. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted some of the recommendations, which will result in an annual cost savings of $3,800. The revised sampling program began under the new WPDES Permit No. WI-0061531-01-0, effective January 1.
Investigate possibility of declassifying waste.	CH2M HILL investigated the possibility of declassifying the waste and determined that this is infeasible because of the continued presence of LNAPL, which is considered a listed hazardous waste.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced CH2M HILL's overall level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to achieve the further reduction of travel costs. It is estimated that the use of dedicated pumps has eliminated the need for a second sampling team during the semiannual sampling event. This equates to two people for 3 days, including labor and travel costs. The annual sampling event was reduced by one person for 4 days, including labor and travel costs. Use of the dedicated pumps has also provided more representative groundwater data. For example, pumps installed in wells where LNAPL is present now can be sampled without collecting entrained free product. Measured groundwater concentrations have significantly decreased in the wells with LNAPL.
Decrease project management/reporting costs.	CH2M HILL expects project management costs to decrease during the LTRA. Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren, Wisconsin. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shutdown did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


Penta Wood PCP Summary
Date
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
30-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-Jan-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
20-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
27-Jan-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
10-Feb-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Feb-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-09	3,560	6.5		19	0.10U					3.0U	0.10U	8.39UJ	1.0U	0.5U	5.0U	0.92UB	5.0U	4.42	25.2UB	33.7UB	156UB	1,320		
17-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
31-Mar-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Apr-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-May-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
12-May-09	–	6.5		–	–					–	0.083J	–	–	–	–	–	–	–	–	–	–	–		
20-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-May-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Jun-09	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins and Furans (all cogeners)
24-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
30-Jun-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
6-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329J	1,100		
22-Jul-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
28-Jul-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
4-Aug-09	–	6.5		–	–					–	0.70U	–	–	–	–	–	–	–	–	–	–	–		
1-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
8-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
15-Sep-09	2,800	6.5		19	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0UB	9.75U	52.9J	642J	1,230		
22-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
29-Sep-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
6-Oct-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
13-Oct-09	–	6.5		–	0.1U					–	0.10U	–	1.0UJ	–	–	–	–	–	–	–	–	–		
20-Oct-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
27-Oct-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
3-Nov-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
10-Nov-09	–	6.5		–	0.1UJ					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
17-Nov-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
24-Nov-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
1-Dec-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
8-Dec-09	2,030	6.5		18.1	0.1U					–	0.355UB	–	0.99U	–	–	–	–	2U	30.1	31.2	209	1,060		

WPDES SAMPLING SUMMARY

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22-Dec-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
29-Dec-09	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

Notes:
[a]NA = Sample analysis was on hold and cancelled based on the results of the quick turnaround time samples.
[b]NR = Sample results are not yet available from the laboratory.
[c]ND = Compound was not detected in sample.
– = Not sampled.

* = System was not discharging water during this time due to damage resulting from a power surge, therefore, September quarterly results were not collected. After discussion with WDNR, it was agreed that the routine sample schedule would remain unchanged and the next quarterly samples would be collected in December 2008.

= Analyte not required under WPDES Permit No. WI-0061531-01-0, effective January 1, 2008.

mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter

Qualifiers:
B = Analyte found in the method blank.
J = Estimated value
R = Result is rejected due to quality control issues.
U = Analyte was not detected at or above the stated limit.
* = Result is suspect. Refer to discussion of WPDES monitoring in Technical Status Report text.