RAC2 TECHNICAL STATUS REPORT

December 26, 2009 to January 29, 2010

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:	January 29, 2010

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.
- Siemens Water Technologies Corporation agreed to keep the pricing for carbon changeout services for 2010 at the 2009 rates; therefore, the performance period was extended through March 14, 2011.
- The performance period for the purchase orders (POs) for Maurer Power to perform emergency troubleshooting support and for Austin Lake Landscaping to supply fertilizer and seeding for the site were extended through March 14, 2011.
- The PO for Alar Engineering was updated to reflect revised pricing for supplying diatomaceous earth (DE) through January 31, 2011.

Task B (PJ)

- An estimated 2.26 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 112.76 MG of water have been treated. An estimated 656.8 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 39,657 gallons.
- The system remained shut down for the winter months. Operation of the system will resume in the spring.
- The Lindberg Company was onsite on December 28 and December 30 to perform routine annual maintenance on the backflow preventer.

- Maurer Power was onsite on January 2 and January 5 to service the caustic and ferric vessel heating pads.
- On January 13, North Shore Environmental picked up approximately 13 tons of spent carbon and 14 tons of filter cake.
- On January 14, Northland Fire and Safety Inc. was onsite to perform the annual inspection on the plant fire extinguishers.
- Maurer Power was onsite on January 15 to align the filtrate pump, install new parts into the float feed pump, and to remove blockages in the caustic piping with a bucket truck.
- On January 18 and January 19, Maurer Power was onsite to troubleshoot the filtrate pump and motor.
- On January 21, Chuck's Garage was onsite to change out the gear box oil in all of the mixers.
- 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 concentrations of analytes were in compliance with the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- USEPA validation for benzene, ethylbenzene, toluene, and xylene (BTEX) and naphthalene was received for the June 2009 semiannual groundwater sampling event. Within the validation report, the validator rejected several samples due to initial calibration and internal standard and instrument tuning exceedances. The chemist discussed these issues with the laboratory and it was determined that errors had occurred during the reporting of the hard copy of this event. Revised copies with corrections to the exceedances were submitted to USEPA on January 28. A similar error was identified in the data packages from the October 2009 event and revised copies with the errors corrected will be submitted to USEPA during the next reporting period.

Task D (PC)

- Continued preparation of the *2009 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		78	0
B (PJ)	07/29/06	07/29/06	03/14/11		71	0
C (CV)	07/29/06	07/29/06	03/14/11		64	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**

During the pH calibration of the neutralization tank on January 2, the site operator observed a low pH reading. After an investigation, it was determined that the pump was not discharging which resulted in the pH in the neutralization to continue dropping. Piping and tubing were checked for blockages, but none were found. The temperature in the outside chemical storage tanks were less than the set point. Maurer Power was onsite to check the heating pads and heat tracing to determine if they were functioning properly. It was determined that the ground fault indicator (GFI) for the control panel had been tripped. The panel was reset, which returned operations to normal conditions.

On January 4, the operator again observed that the caustic was not dosing. The dosing pump and breaker were tested and both were operating properly. Maurer Power returned to the site on January 5 to perform additional troubleshooting of the caustic tank heating pad. Heating element and sensors were checked and were performing properly. It was determined that the extreme ambient temperatures were affecting the ability of the heating elements to maintain the set point temperatures. The thermostat on the unit was adjusted to increase the internal set point and has been functioning properly since.

When the operator arrived onsite on January 16, the system was shut down due to an alarm on the filtrate pump. The pump was changed out with the spare pump; however, the system continued to shut down due to an alarm on the filtrate pump. Maurer Power was onsite on January 18 and January 19 to troubleshoot the pump. It was determined that the startup speed for the replacement pump was higher than the old pump. The speed of the pump at the variable frequency drive was increased and has been functioning properly since. The old pump was disassembled once again and all parts were removed and tested. Replacement parts for the old pump were ordered and will be used to rebuild the pump for use at a later date.

3. **Problem Areas and Recommended Solutions**

None.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

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

- Monthly project management activities will be performed.

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

- Operation of the groundwater treatment system will be continued.

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

- 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**

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 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 December 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 the 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. The bioventing system was shut down on November 10 for the winter due to the health and safety concern for 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. Therefore, the bioventing system met the performance standard for this period.

Task C – Groundwater Treatment

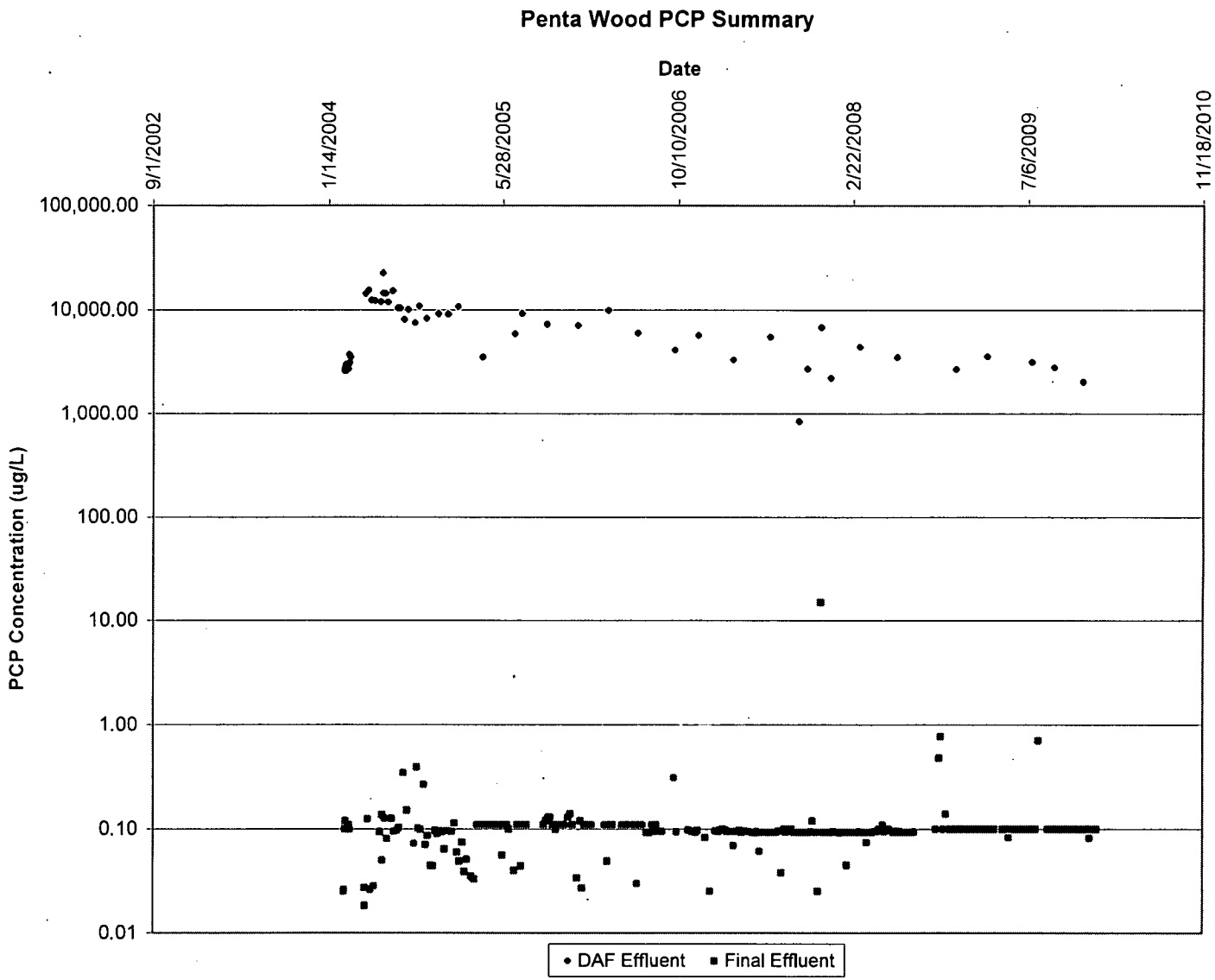
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0 meeting the performance standard.

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)
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	–	–	–	–	–	–	–	–	–	–	–		
14-Jul-09	3,140	6.5		17.8	0.1U					–	0.10U	–	1.0U	–	–	–	–	2.0U	6.8	40.4	329J	1,100		

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)
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		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		

WPDES SAMPLING SUMMARY

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19-Jan-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Jan-10	–	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

January 30, 2010 to February 26, 2010

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:	February 26, 2010

COPIES:

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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 new subcontractor for North Shore Environmental was approved for transporting hazardous-listed waste from the site to the disposal facility.
- Purchase orders for Nijhuis Water Technology to perform maintenance on the dissolved air floatation unit and for Alar Engineering to perform maintenance on the rotary drum vacuum filtration unit were closed.

Task B (PJ)

- An estimated 1.75 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 114.51 MG of water have been treated. An estimated 136 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 39,793 gallons.
- The biovent system remains shut down for the winter months. Operation of the system will resume in the spring.
- On February 9, North Shore Environmental picked up approximately 15 tons of filter cake.
- The electronic copy of the Draft Penta Wood Products Site-Specific Sustainable Remediation System Evaluation prepared by AECOM was received on February 2 and the site 5-Year Review prepared by USEPA was received on February 3.

- The biovent system remains shut down for the winter months. Operation of the system will resume in the spring.
- During the fire extinguisher inspection performed by Northland Fire and Safety, Inc. on January 14, if was found that the site fire extinguishers were not within the appropriate charge zone and required replacement. Northland Fire and Safety, Inc. provided rental units for the site until the replacement fire extinguishers were installed on February 11.
- On February 13, U.S. Water Services delivered two 5-gallon totes of polymer.
- On February 15, Alar Engineering delivered two pallets of diatomaceous earth.
- On February 24, the subcontracted welder for North Shore Environmental was onsite to repair cracks and locks on the dumpsters used for filter cake.
- 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 concentrations of analytes were in compliance with the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- Revised data packages with the benzene, ethylbenzene, toluene, and xylene and naphthalene results from the October 2009 annual groundwater sampling event were received from Environmental Monitoring Technologies with corrected errors associated with the initial calibration, internal standards and/or instrument tuning. The packages were resubmitted to USEPA on February 15.

Task D (PC)

- Continued preparation of the *2009 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		79	0
B (PJ)	07/29/06	07/29/06	03/14/11		73	0
C (CV)	07/29/06	07/29/06	03/14/11		64	0
D (PC)	07/29/06	07/29/06	03/14/11		62	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

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 Interim Long-Term Remedial Action 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**

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 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 January 2010 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 the 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. The bioventing system was shut down on November 10 for the winter due to the health and safety concern for methane migration. 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 met the performance standard for this period.

Task C – Groundwater Treatment

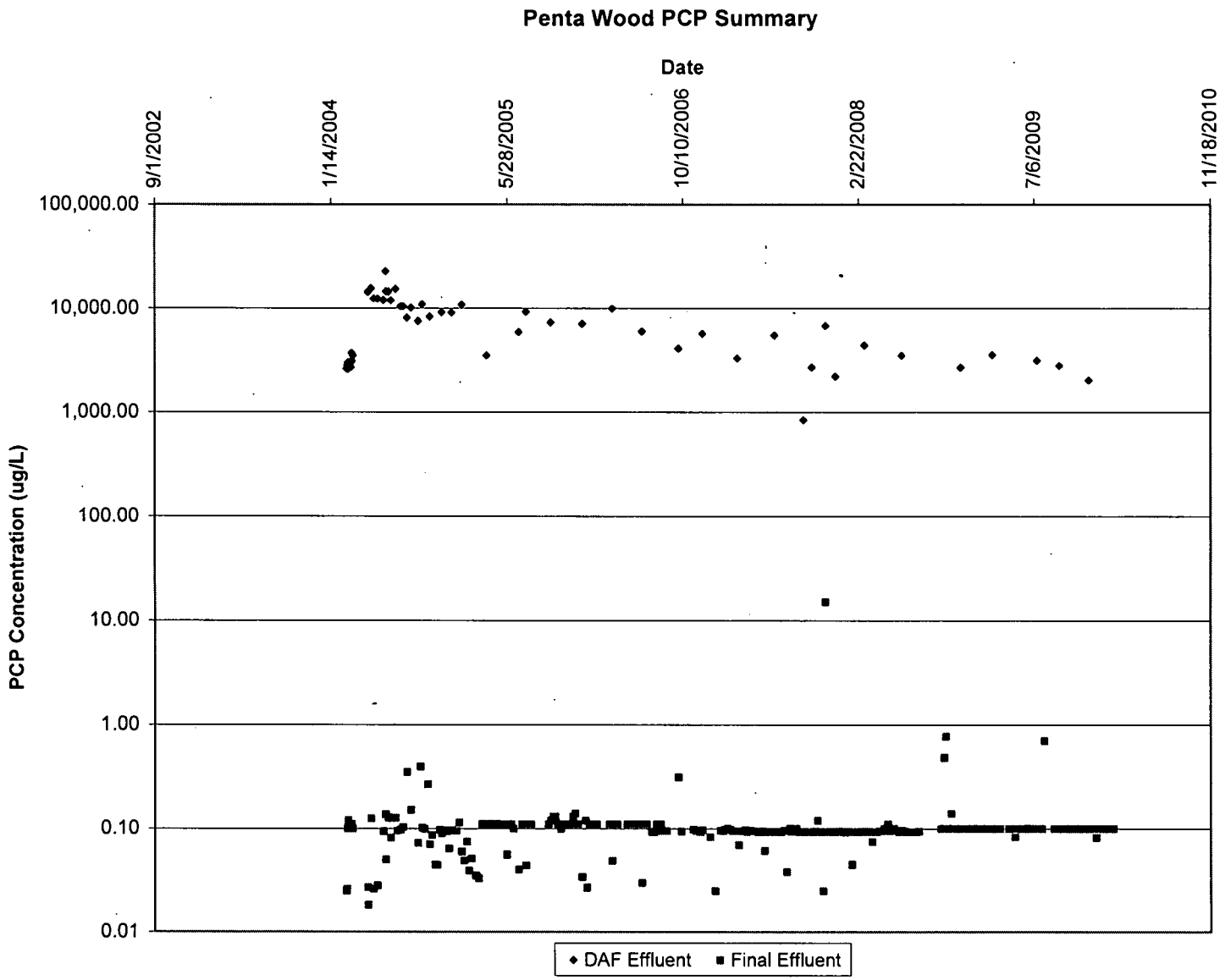
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 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 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-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	--	--	--	--	--	--	--	--	--	--	--		
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	--	--	--	--	--	--	--	--	--	--	--		

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)
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		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	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)
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	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.

= 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

February 27, 2010 to March 26, 2010

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:	March 26, 2010

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 scope of work was prepared for database management and geographic information system (GIS) support by Critigen. The final purchase order will be issued for approval during the next reporting period.

Task B (PJ)

- An estimated 1.76 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 116.27 MG of water have been treated. An estimated 202 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 39,995 gallons.
- The biovent system remains shut down for the winter months. Operation of the system will resume in the spring.
- On March 2, 4, and 22, Daniels Plumbing was onsite to troubleshoot and repair the toilet.
- After a power failure on March 4, Maurer Power was onsite to reset the dissolved air floatation (DAF) control panel.
- On March 15, Glacier Pure delivered approximately 3,600 gallons of ferric sulfate.
- The depths of the free product pumps were adjusted on March 16 by the site operator.

- On March 16, North Shore Environmental picked up approximately 15 tons of filter cake. North Shore returned on March 19 to pick up approximately 5,200 gallons of light non-aqueous phase liquids (LNAPL).
- On March 22, Alar Engineering delivered two pallets of diatomaceous earth.
- On March 24, Maurer Power was onsite to install replacement parts in the filtrate pump and repair the seal on the granular activated carbon vessel manway lid.
- 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 concentrations of analytes were in compliance with 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)

- Continued preparation of the *2009 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		80	0
B (PJ)	07/29/06	07/29/06	03/14/11		75	0
C (CV)	07/29/06	07/29/06	03/14/11		65	0
D (PC)	07/29/06	07/29/06	03/14/11		68	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

On March 4, a power failure occurred at the site. The treatment system was shut down for approximately one hour before Northwestern Wisconsin Electric Company called the site operator to inform her that the main breaker would need to be reset. Following the system reset, the operator observed that the DAF control panel had not reset. Maurer Power was onsite the same day to troubleshoot the problem. It was determined that the two starters with the DAF control panel had fused together. Maurer was able to separate the fused parts, and the unit has been operational since the repair.

3. Problem Areas and Recommended Solutions

The groundwater level at the site has been slowly declining over the last few years; therefore, the amount of water available in monitoring wells is decreasing. During the last groundwater sampling event there was still enough water present to manually bail the wells; however, if water levels continue to decline, alternative onsite wells will have to be considered. The semiannual groundwater sampling event has been tentatively scheduled for the week of May 17, and the site operator will collect water levels for

2 weeks prior to the sampling event to confirm the amount of water in the wells for sampling. If alternative wells are needed, the recommended changes will be provided to the Work Assignment Manager for approval.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- Purchase order for Critigen to perform database management and GIS work will be finalized.

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 Interim Long-Term Remedial Action 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 February 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 Technical Status Report for February 2010 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 the 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. The bioventing system was shut down on November 10 for the winter due to the health and safety concern for methane migration. 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 met the performance standard for this period.

Task C – Groundwater Treatment

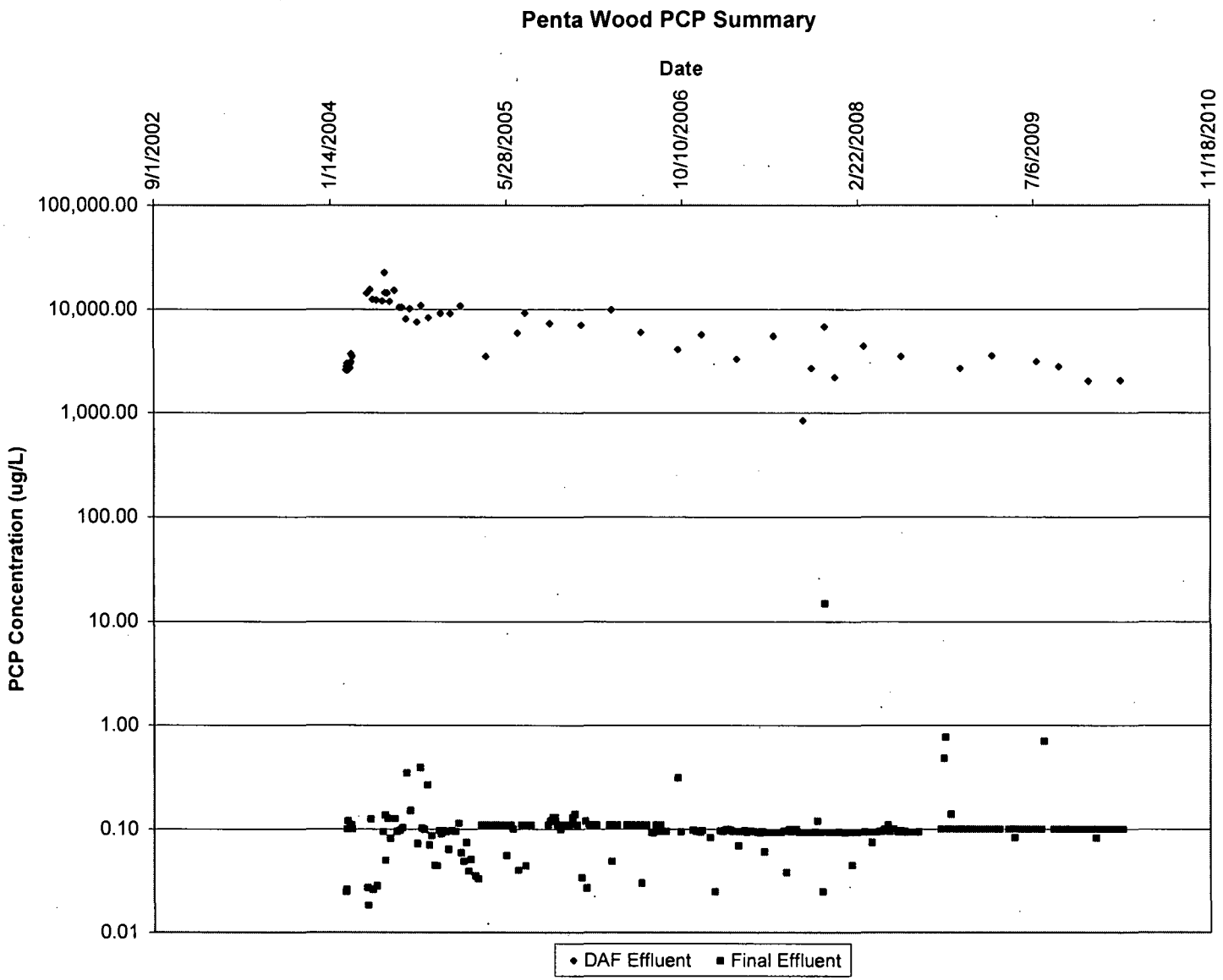
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 operations and maintenance costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 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 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-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	--	--	--	--	--	--	--	--	--	--	--		
14-Jul-09	3,140	6.5		17.8	0.10U					--	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	--	--	--	--	--	--	--	--	--	--	--		

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)
8-Sep-09	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
15-Sep-09	2,800	6.5		19	0.10U					--	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		--	0.10U					--	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		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	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-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050	6.5		18.9	0.10U					NR	0.10U	8.4U	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	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.

= 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

March 27, 2010 to April 30, 2010

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:	April 30, 2010

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 purchase order for database management and geographic information system support by Critigen was issued.
- The purchase order for the replacement of the ferric pump was issued.
- A progress meeting was held in Milwaukee, Wisconsin, to discuss the continued operation of the treatment system and potential modification to accelerate the site cleanup activities, reduce the long-term operations and maintenance costs associated with continued operation, or both. The meeting was attended by Tom Williams/USEPA, Bill Schultz/Wisconsin Department of Natural Resources (WDNR), Gary A. Edlestein/WDNR, Phil Richard/WDNR, Keli McKenna/CH2M HILL, Mike Jury/CH2M HILL, Phil Smith/CH2M HILL, and Mike Niebauer/CH2M HILL. The *Penta Wood Remedial Action Optimization Evaluation* technical memorandum was updated to incorporate current site information presented and to capture the alternative selected during the meeting.

Task B (PJ)

- An estimated 1.0 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 117.24 MG of water have been treated. An estimated 624 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 40,619 gallons.

- The biovent system remains shut down for the winter months. Operation of the system will resume in the spring following the semiannual sampling event.
- On March 29, Maurer Power was onsite to troubleshoot lost power to the programmable logic controller (PLC). A fuse was replaced and the unit was reset.
- After a power failure on March 31, Maurer Power was onsite to remove electrical boxes and wiring from the light pole at the entrance of the site.
- On April 6 and 7, Maurer Power was onsite to troubleshoot the ferric pump.
- Maurer Power was onsite on April 21 to install the replacement ferric pump.
- On April 27 and 28, Siemens completed a carbon changeout on the small 2,500-pound (lb) vessel and the large 10,000-lb vessel.
- On April 28, DR Tech was onsite to take measurements for a replacement of an elbow pipe within the granular activated carbon (GAC) vessel pre-filter.
- 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 concentrations of analytes were in compliance with 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)

- Continued preparation of the *2009 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		85	0
B (PJ)	07/29/06	07/29/06	03/14/11		76	0
C (CV)	07/29/06	07/29/06	03/14/11		66	0
D (PC)	07/29/06	07/29/06	03/14/11		72	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

On March 31, a power failure occurred at the site. The site operator reset each system alarm until the treatment system was fully operational. The operator observed that the grass around a disconnected light pole at the front of the site was burned. The operator contacted the Siren Fire Department and the WDNR in Webster to determine what occurred. Northwestern Wisconsin Electric (NWE) arrived onsite and informed the operator that the disconnected light pole likely came too close to the live electrical wires from high winds causing a surge to run down the old conduit on the disconnect pole. The surge burned the grass around the pole and was

extinguished by the WDNR. The disconnected pole and associated conduit were removed from the site.

Starting on April 3, the ferric pump began to operate intermittently. Following initial troubleshooting, the site operator was able to get the pump working temporarily. On April 6 and 7, Maurer Power was onsite to assist the site operator with troubleshooting the pump including testing of the pump electrical. The pump was switched out with the caustic pump to determine if the pump motor was bad or if the issue was with the communication from the PLC to the pump. It was determined that the control interface box (CIB), which is the component that communicates with the PLC, was faulty. The site operator called Watson Marlow to inquire about purchasing a new CIB. It was determined that the CIB is now an integrate component of the pump; therefore, the entire pump needed to be replaced. The pump was ordered on Monday April 12 and had a lead time of 2 weeks. An expedited delivery was requested, and delivery was scheduled for Friday, April 16. The pump actually arrived onsite on April 21 and was immediately installed by Maurer Power. The pump has been operational since the installation.

On April 18, the site operator arrived at the site to a PLC alarm failure. After several attempts, the alarm could not be cleared, and as a result, the system could not be restarted. CH2M HILL's instrumentation and control engineer, Jack Knight, assisted the operator with troubleshooting the failure. It was determined that an analog input card within the PLC was faulty and needed to be replaced. A new card was ordered April 20 and was installed by the site operator on April 21. The PLC and system have been fully operational since the new card was installed.

3. Problem Areas and Recommended Solutions

The site operator observed during the carbon changeout that an elbow pipe within the pre-filter GAC vessel was severely eroded. DR Tech was contacted to take measurements for a replacement pipe. A quote is being obtained, and the new pipe will be installed during the next carbon changeout. An additional pipe is also being made to store onsite as a backup.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

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

- Monthly project management activities will be performed.
- The *Penta Wood Remedial Action Optimization Evaluation* technical memorandum will be submitted during the next reporting period.

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

- Operation of the groundwater treatment system will continue.
- The bioventing system will be restarted following the semiannual groundwater monitoring event scheduled for the week of May 17.

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 semiannual groundwater sampling event will be performed the week of May 17.

Task D (PC)

- Preparation of the *2009 Interim Long-Term Remedial Action 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

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 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 March 2010 was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing

- The groundwater treatment system was not operational from April 7 until April 21 while a replacement ferric pump was ordered. The 10-day period for making equipment repairs was exceeded by 4 days. The groundwater treatment system was also down for the carbon changeout on April 26 and restarted on April 30 after the changeout was completed.

- 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 migration of methane. Soil gas measurements indicated sufficient oxygen is present in the subsurface to support aerobic biodegradation. The bioventing system was shut down on November 10 for the winter due to the health and safety concern for methane migration. 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 met the performance standard for this period.

Task C—Groundwater Treatment

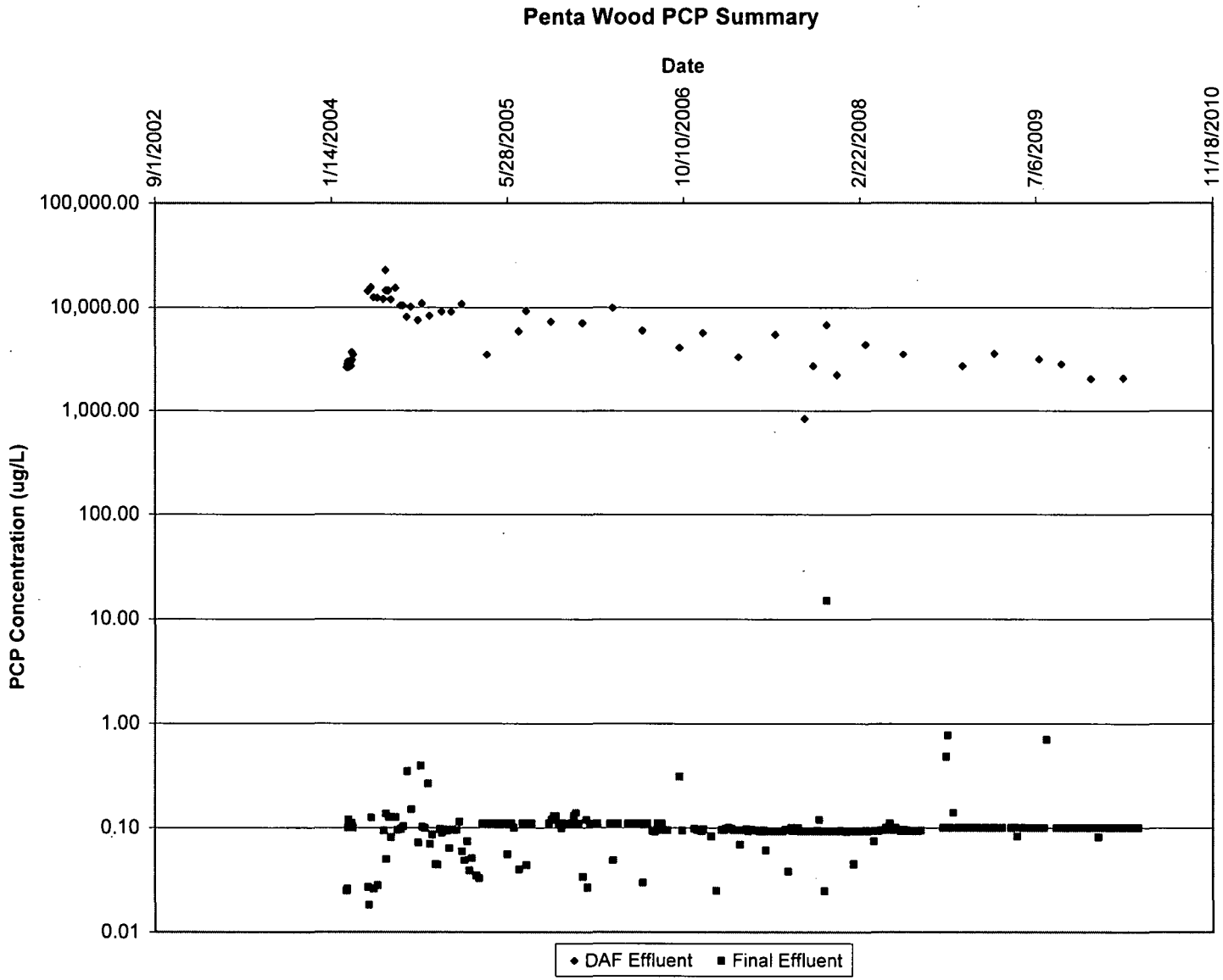
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 operations and maintenance costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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 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)
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	0.10U					--	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	0.10U					--	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		--	0.10U					--	0.10U	--	1.0UJ	--	--	--	--	--	--	--	--	--		

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-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		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	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)
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		

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.

= 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

May 1, 2010 to May 28, 2010

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:	May 28, 2010

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 Penta Wood Remedial Action Optimization Evaluation Technical Memorandum was revised to incorporate the discussions from the project meeting held April 7 in Milwaukee, Wisconsin, with USEPA and Wisconsin Department of Natural Resources. The memorandum was submitted May 4.

Task B (PI)

- An estimated 1.21 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 118.45 MG of water have been treated. An estimated 593 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is approximately 41,212 gallons.
- Austin Lake Landscaping was onsite on May 1, May 14, and May 28 to mow and trim tall weeded areas to allow the operator access to the extraction wells and monitoring wells.
- On May 17, Maurer Power was onsite to remove and install new pH probe electrodes in the neutralization tank.
- On May 20, Maurer Power and Northwestern Wisconsin Electric Company (NWE) were onsite after a power failure occurred while trying to start the bioventing system. NWE replaced a blown fuse on the utility line and Maurer Power reset the main breaker.

- The bioventing system was shut down on November 5, 2009, and restarted on May 20, 2010, after the semiannual groundwater sampling event was completed. Soil gas monitoring was performed and compared to the measurements collected before system shutdown in November 2009 (see the table on the following page). Soil gas readings collected on the same day of startup (May 20) indicated oxygen utilization during the winter months. The sampling on May 23 indicated that oxygen saturation was achieved in all 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). The bioventing system operated for 5 days and was shut down again on May 25 in accordance with the current operating strategy for the biovent system.
- 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 concentrations of analytes were in compliance with the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- The semiannual groundwater sampling event was performed the week of May 17.

Task D (PC)

- A draft version of the *2009 Interim Long-Term Remedial Action Annual Report* is pending 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		85	0
B (PJ)	07/29/06	07/29/06	03/14/11		78	0
C (CV)	07/29/06	07/29/06	03/14/11		68	0
D (PC)	07/29/06	07/29/06	03/14/11		72	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

None.

4. Deliverables Submitted

None.

Penta Wood Products – Biovent System												
	O2 (%)			CO2 (%)			CH4 (%)			LEL (%)		
Well ID	11/3/2009	1 hour after startup (5/20/2010)	5/23/2010	11/3/2009	1 hour after startup (5/20/2010)	5/23/2010	11/3/2009	1 hour after startup (5/20/2010)	5/23/2010	11/3/2009	1 hour after startup (5/20/2010)	5/23/2010
Shallow												
SG-22	9.1	0.5	0.8	9.0	23.9	25.5	2.2	7.6	6.6	45.0	100.0	100.0
SG-04S	21.3	19.3	20.2	0.3	0.2	0.1	0.1	0.0	0.0	2.0	0.0	1.0
SG-07S	2.8	1.0	0.1	13.9	1.0	28.3	5.8	21.4	18.8	100.0	100.0	100.0
SG-05S	21.6	17.6	20.1	0.1	0.5	0.4	0.1	0.0	0.0	2.0	0.0	1.0
SG-06S	21.3	20.0	20.5	0.1	0.0	0.0	0.1	0.0	0.0	2.0	1.0	1.0
Intermediate												
SG-04I	20.4	9.2	20.0	0.3	3.5	0.4	0.1	0.0	0.0	2.0	1.0	1.0
SG-07I	20.5	14.9	20.0	0.5	1.7	0.3	0.1	0.1	0.0	2.0	2.0	1.0
SG-05I	21.7	17.2	19.8	0.2	0.4	1.4	0.1	0.0	0.0	1.0	0.0	1.0
SG-06I	21.3	19.7	20.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0
Deep												
SG-04D	20.6	6.7	20.2	0.2	7.4	0.5	0.2	0.0	0.0	2.0	1.0	1.0
SG-07D	20.1	15.0	19.5	0.5	2.1	0.3	0.2	0.1	0.2	3.0	2.0	3.0
SG-05D	21.6	17.0	20.2	0.2	0.5	0.4	0.1	0.0	0.0	2.0	1.0	1.0
SG-06D	21.3	19.3	20.4	0.0	0.4	0.1	0.1	0.0	0.0	2.0	1.0	1.0
Perimeter												
SG-23 (3')	21.3	20.6	20.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
SG-24 (5')	21.2	20.4	20.2	0.0	0.3	0.1	0.0	0.0	0.0	0.0	1.0	1.0
SG-25 (5')	21.2	20.6	20.2	0.0	0.0	0.0	0.1	0.0	0.0	2.0	0.0	1.0
SG-26 (5')	NM	20.4	20.2	NM	0.0	0.0	NM	0.0	0.0	NM	0.0	1.0

NM – not measured

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Monthly project management activities will be performed.

Task B (PI)

- Operation of the groundwater treatment system will continue.

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)

- After receipt of the remaining validated data, CH2M HILL will submit the *2009 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:	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**

Dave Shekoski and Shannon Olson travelled to the site on May 17 and returned to Milwaukee on May 20. Keli McKenna travelled to the site on May 17 and returned to Milwaukee on May 19. Travel charges for Shannon Olson are included in this invoice. Remaining 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 Technical Status Report for April 2010 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 was restarted on May 20 and operated for 5 days after being shutdown for the winter. The soil gas readings collected at restart indicated that oxygen achieved saturation levels in all the locations except two (SG-22 and SG-07S) located in the wood chip area. Similar to historical data, these two wells continue to have low oxygen levels (less than 2 percent). Therefore, the bioventing system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment

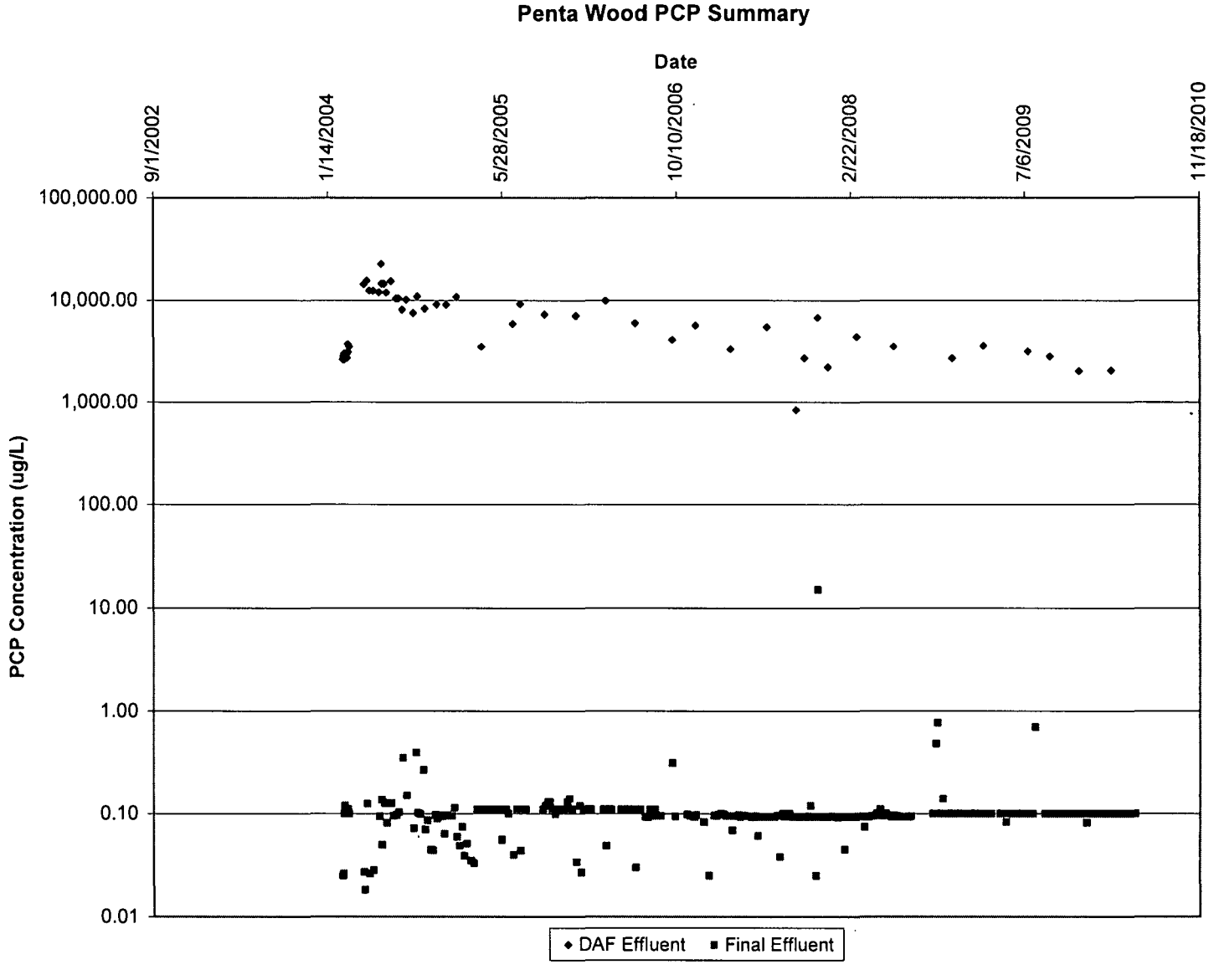
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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 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)
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	0.10U					--	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	0.10U					--	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		--	0.10U					--	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		--	0.10UJ					--	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		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
1-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
8-Dec-09	2,030	6.5		18.1	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		

WPDES SAMPLING SUMMARY

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11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	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.
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

May 29, 2010 to June 25, 2010

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:	June 25, 2010

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 purchase order for Maurer Power to perform future troubleshooting support for the site was increased by $9,000.
- CH2M HILL and USEPA discussed the path forward for the work associated with installing new light nonaqueous phase liquids (LNAPL) extraction wells, replacement monitoring wells, and additional trees west of the Corrective Action Management Unit (CAMU). USEPA agreed to move forward to prepare work plan revision request No. 2 while USEPA revises the Statement of Work to include these tasks.

Task B (PJ)

- An estimated 1.48 million gallons of groundwater were treated and discharged during the reporting period. To date, a total of 119.93 million gallons of water have been treated. An estimated 192 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is approximately 41,404 gallons.
- In accordance with the current operating strategy, the bioventing system operated for 5 days from June 24 to June 29. Soil gas readings collected at the restart (June 24) indicated saturation of oxygen in all the locations except the two locations (SG-22 and SG07S) located in the wood chip areas. Consistent with previous years, the two wells continue to have low oxygen levels (less than 5 percent).

- On June 1 and June 2, North Shore Environmental Construction, Inc., picked up approximately 14.5 tons of filter cake and 13.5 tons of spent carbon for disposal.
- On June 2, Maurer Power was onsite to troubleshoot the LNAPL storage tank heater. The unit was reprogrammed.
- On June 18, the hazardous waste generator fee of $470 was submitted to the Wisconsin Department of Natural Resource (WDNR).
- Austin Lake Landscaping was onsite on June 14 to mow and trim tall weeded areas to allow the operator access to the extraction wells and monitoring wells.
- On June 18, 21, and 22, Maurer Power was onsite to troubleshoot the granulated activated carbon (GAC) pump variable frequency drive (VFD), install new equipment and fuses, and reprogram the unit.
- On June 22, Clayhill was onsite to service the main process room air compressor including replacement of the belts, oil, and air filters.
- On June 25, Glacier Pure delivered 46,000 pounds of ferric sulfate.
- On June 24, Maurer Power and Northwestern Wisconsin Electric Company (NWE) were onsite after a power failure occurred while trying to start the bioventing system. NWE replaced a blown fuse on the utility line and Maurer Power reset the main breaker.
- 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 May 25 was initially reported by the laboratory as a detection of 0.256 micrograms per liter (µg/L). This sample would represent 4 weeks of operation following a carbon changeout; therefore, the PCP result for this sample did not seem feasible. The sample was reanalyzed and the PCP concentration was reported by the laboratory as less than 0.1 µg/L. This sample was extracted out of hold-time; therefore, the result was qualified as an estimated non-detect. The cause for the error was cited by the laboratory as a sample preparation error. The concentrations of analytes were in compliance with the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

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

- Operational monitoring was continued under this task.
- The analytical results and Level IV data packages for samples collected during the May 2010 groundwater sampling event were submitted to USEPA on June 21.
- The letter summarizing the May 2010 sampling results for the residential and potable wells was submitted to USEPA on June 21.

Task D (PC)

- A draft version of the *2009 Interim Long-Term Remedial Action Annual Report* is pending 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		81	0
B (PJ)	07/29/06	07/29/06	03/14/11		79	0
C (CV)	07/29/06	07/29/06	03/14/11		69	0
D (PC)	07/29/06	07/29/06	03/14/11		72	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

On June 17, a power failure occurred at the site. The site operator reset each system alarm; however, the GAC pump VFD would not restart. Maurer Power was onsite on June 18 to troubleshoot the unit. During the investigation, Maurer found several burned fuses. After testing the unit with replacement fuses, it was determined that the VFD would needed to be replaced. A new VFD and replacement fuses were ordered and Maurer Power installed the parts on June 21. On June 22 the unit was reprogrammed and has been fully operational since. After a discussion with the surge suppression equipment manufacturer and CH2M HILL electrical engineers, it was believed that this equipment failure was a result of an over-current condition and not a voltage spike. This VFD uses capacitors in the power supply. When the power failed, the capacitors discharged over time. When the electricity was being restored, a low-voltage "brownout" situation occurred for a brief period, during which the capacitors for this VFD attempted to recharge themselves and began drawing too much current in the process. The fuses burned out, as they are intended to in order to prevent a fire; however, fuses are a relatively slow-reacting element in an electrical circuit, which allowed the components of the VFD to be damaged before the fuses removed the electricity from the circuit. There were several VFD units onsite at the time of this event and the only one damaged was serving a motor that runs continuously. The other drives were waiting to resume operation and therefore did not experience the "brownout" and were not affected by the low-voltage, over-current situation. To prevent potential future damage from a similar condition, the replacement VFD was programmed to create a delay before the units can draw power to allow for the power to be fully restored.

3. Problem Areas and Recommended Solutions

Similar to the May 2010 biovent startup, a power failure occurred when the biovent blower was started up June 24. Maurer Power and NWE were onsite to troubleshoot the issue. NWE replaced a blown fuse on the utility line and Maurer Power reset the main breaker. Power was restored and the biovent system operated for 5 consecutive days. NWE installed a meter on the transformer to record electrical flow to and from the plant to monitor for changes in electric supply and to identify the cause of the reoccurring power failure.

The additional work discussed with USEPA: installation of new LNAPL extraction wells, replacement monitoring wells, and additional trees west of the CAMU will be incorporated into work plan revision request No. 2.

4. Deliverables Submitted

The analytical results and Level IV data packages for samples collected during the May 2010 groundwater sampling event were submitted to USEPA on June 21.

The letter summarizing the May 2010 sampling results for the residential and potable wells was submitted to USEPA on June 21.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- Work plan revision request No. 2 documenting the estimated level of effort and costs associated with the installation of new LNAPL extraction wells, replacement monitoring wells, and additional trees west of the CAMU will be submitted.

Task B (PJ)

- Operation of the groundwater treatment system will continue.

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)

- After receipt of the remaining validated data, CH2M HILL will submit the *2009 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:	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 February through May are included in this invoice.

Travel charges for Dave Shekoski and Keli McKenna 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 Technical Status Report for May 2010 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 for 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

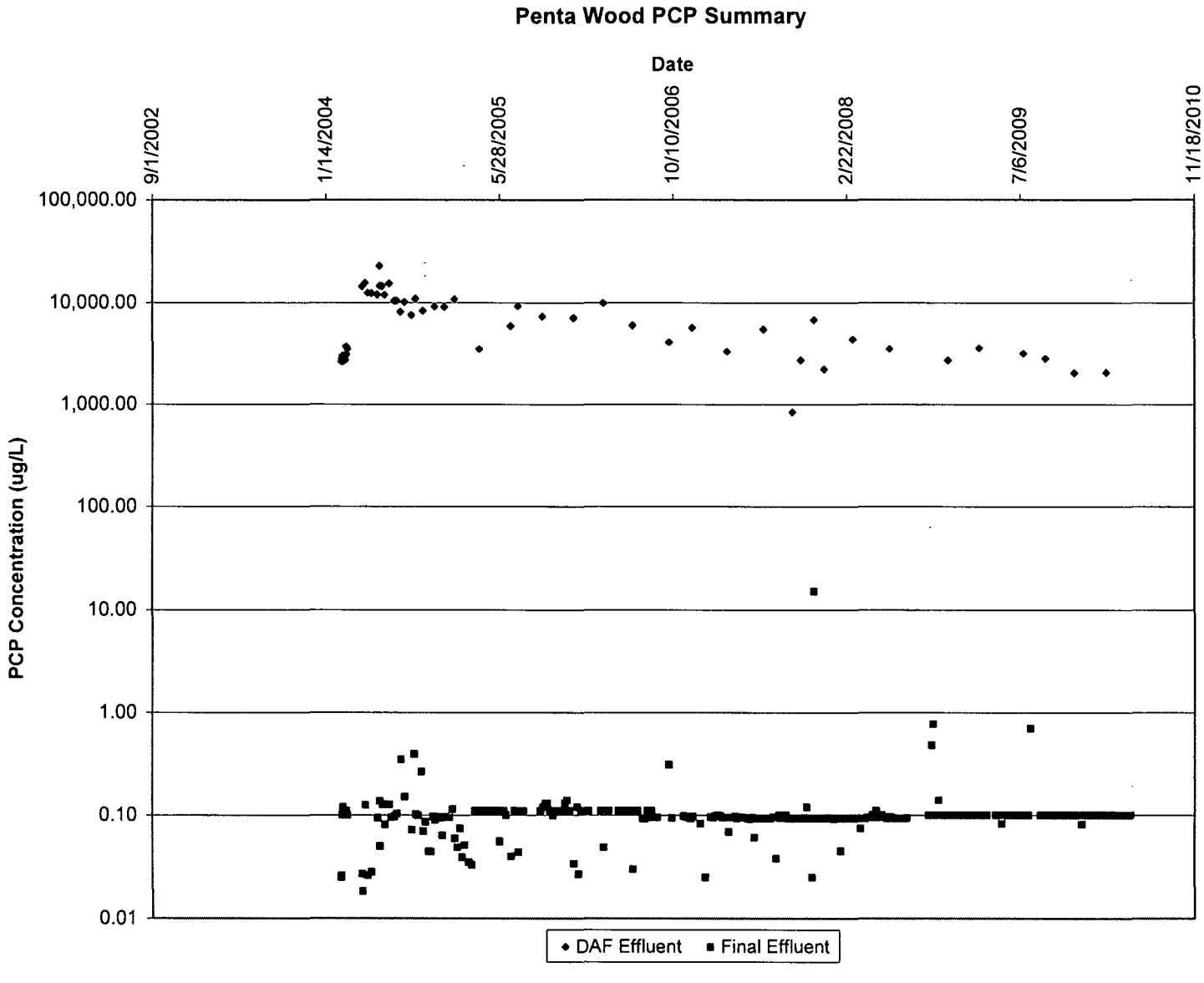
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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. 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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 sampling event. CH2M HILL reviewed the Wisconsin Pollutant Discharge Elimination System 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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 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-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	0.10U					--	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	0.10U					--	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		--	0.10U					--	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		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		

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)
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
1-Jun-10	--	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)
8-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
15-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Jun-10	--	6.5		NR	NR					--	NR	--	NR	--	--	--	--	NR	NR	NR	NR	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.
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

June 26, 2010 – July 30, 2010

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:	July 30, 2010

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. 2 documenting the estimated level of effort (LOE) and costs associated with the installation of new light nonaqueous phase liquid (LNAPL) extraction wells, replacement monitoring wells, installation of catwalk, and additional trees west of the corrective action management unit (CAMU) was completed and submitted to USEPA on July 28.

Task B (PJ)

- An estimated 1.7 million gallons of groundwater were treated and discharged during the reporting period. To date, a total of 121 million gallons of water have been treated. An estimated 200 gallons of liquid waste were recovered during this reporting period. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is approximately 41,604 gallons.
- On June 29, Austin Lake Landscaping was onsite on July 6 to mow and trim tall weeded areas to allow the operator access to the extraction and monitoring wells. Due to an equipment failure, Austin Lake Landscaping had to return on July 8 to complete the work.
- In accordance with the current operating strategy, the bioventing system operated for 5 days from June 24 to June 29. Soil gas readings collected at the restart (June 24) indicated saturation of oxygen in all the locations except the two locations (SG-22 and SG07S) in the wood chip areas. Consistent with previous years, the two wells continue to have low oxygen levels (less than 5 percent).

- On June 29, two pallets of diatomaceous earth were delivered to the site.
- On June 30, the system was shutdown when the operator arrived onsite. Northwestern Wisconsin Electric (NWE) indicated that the power company had a temporary interrupt in service. The power had been restored by the time the operator arrived onsite; therefore, she was able to reset and restart the system. NWE indicated that the recorder is still in place and would remain online until July 5.
- On July 5, the system was shutdown when the operator arrived onsite. NWE indicated the recorded would be removed on July 5; therefore, it is believed that the removal of the recorder caused the system to shut down the system.
- Austin Lake Landscaping was onsite on July 6 to mow and trim tall weeded areas to allow the operator access to the extraction and monitoring wells. Due to the failure of mowing equipment, Austin Lake Landscaping had to return on July 8 to complete the work.
- On July 8, a replacement manway lid and hardware were installed on the granulated activated carbon vessel #1.
- The current operator, Lisa Mauser, will be transitioning out as the operator; therefore, a temporary operator arrived onsite July 12 to beginning training on the site operations. The temporary operator, Jack Lundberg, will operate the system following training until a permanent replacement can be identified.
- On July 14 and July 18, the system was shutdown due to power loss caused by severe weather.
- On July 14, the LNAPL pumps were adjusted to ensure proper placement to maximize recovery.
- On July 14, North Shore Environmental Construction, Inc., picked up approximately 16 tons of filter cake.
- On July 15, different bag filter sizes (75- and 100-micron) were tested to determine if longer operating times could be achieved. It was determined that the 100-micron bag filter could extend the operating time by roughly 24 hours.
- 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 July 6 arrived at the laboratory with all the ice melted. The sample arrived at a temperature of 17 degrees Celsius. The sample was recollected on July 9 and shipped in a larger cooler with additional ice. This sample also arrived with some of the ice melted and at a temperature of 8 degrees Celsius. The sample collected on July 9 was selected for analysis. The PCP concentration was reported as <0.1 micrograms per liter (µg/L) and was qualified as estimated due to the temperature exceeding the standard requirement of less than 4 degrees Celsius. The concentrations of analytes were in compliance with the discharge criteria in the WPDES Permit No. WI-0061531-01-0.

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

- Operational monitoring was continued under this task.

Task D (PC)

- A draft version of the *2009 Interim Long-Term Remedial Action Annual Report* is pending 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		83	0
B (PJ)	07/29/06	07/29/06	03/14/11		81	0
C (CV)	07/29/06	07/29/06	03/14/11		69	0
D (PC)	07/29/06	07/29/06	03/14/11		72	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

None.

4. Deliverables Submitted

Work Plan Revision Request No. 2 documenting the estimated LOE and costs associated with the installation of new LNAPL extraction wells, replacement monitoring wells, and additional trees west of the CAMU was submitted on July 28.

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 continue.

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)

- After receipt of the remaining validated data, CH2M HILL will submit the *2009 Interim Long-Term Remedial Action Annual Report.*

6. Key Personnel Changes

Shawn Broughman will replace Lisa Mauser as the site operator beginning August 3.

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 June through July are included in this invoice. Travel charges for Jack Lundberg 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 Technical Status Report for June 2010 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 for 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

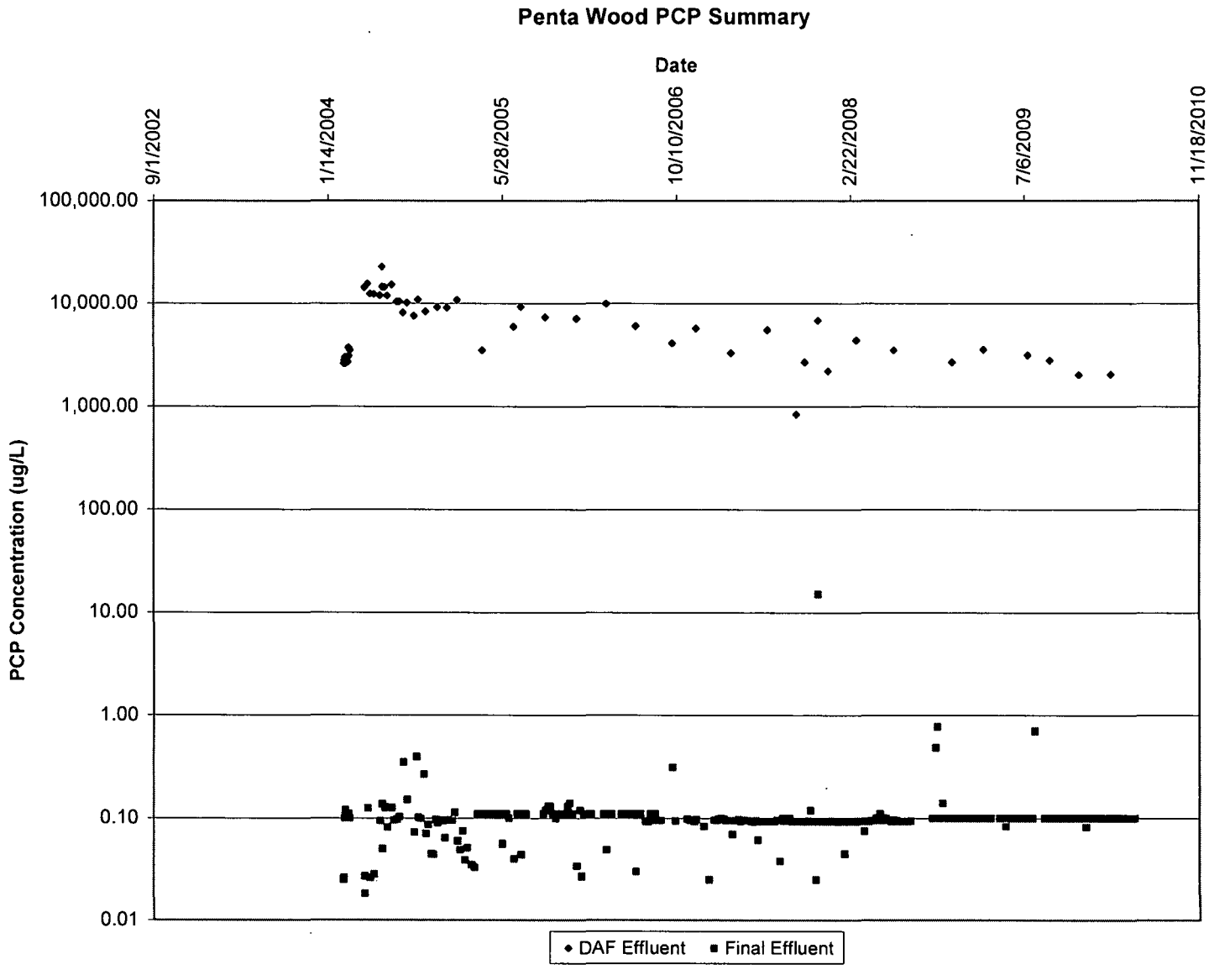
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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 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-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	0.10U					--	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	0.10U					--	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		--	0.10U					--	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		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		

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)
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
1-Jun-10	--	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)
8-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
15-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Jun-10	1970	6.5		21	0.10U					--	0.1U	--	1.0U	--	--	--	--	2.0U	33	31	367	1510		
29-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
09-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
13-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Jul-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
27-Jul-10	--	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.
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 28, 2010 - September 24, 2010

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 24, 2010

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 purchase order for Hedlund Gas was extended through March 2011.
- The purchase order was initiated for Alar Engineering Corp. to provide onsite routine maintenance on the rotary drum vacuum filter (RDVF).

Task B (PI)

- During the reporting period, an estimated 0.65 million gallons of groundwater were treated and discharged. To date, 122 million gallons of water have been treated. During this reporting period, an estimated 102 gallons of liquid waste were recovered. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is 41,827 gallons.
- In accordance with the current operating strategy, the bioventing system operated for 5 days from September 20 to September 25. Soil gas readings collected at the restart (September 20) indicated saturation of oxygen in all the locations except two (SG-22 and SG07S) in the wood chip areas. Consistent with previous years, the two wells continue to have low oxygen levels (less than 5 percent).
- From August 31 through September 3, Lisa Mauser assisted the new operator, Shawn Broughman, during the carbon removal and vessel relining.
- On August 31, Siemens was onsite to remove carbon from the 2,500-pound and 10,000-pound granular activated carbon (GAC) vessels. The laterals in the 10,000-pound vessels also were removed in preparation of the relining on the

interior of the 10,000-pound vessel. Upon completion of the vessel relining and curing time, Siemens returned to the site to reinstall the laterals, drain, support rail, and fill both vessels with carbon on September 14. After the carbon had soaked for 24 hours, the system was restarted.

- On August 31, Maurer Power was onsite to clean the air dryer unit.
- Champion Coatings Inc. was onsite September 1 through September 3 to repair the liner on the 10,000-pound carbon vessel, which was under warranty. The work included sandblasting the interior of the vessel, spot welding, and coating application. During the carbon changeout, excessive erosion of the smaller vessel (2,500-pound unit) was identified. Champion Coating Inc. was able to perform this additional work while onsite.
- Austin Lake Landscaping was onsite on September 3 and 20 to mow and trim tall weeded areas to allow the operator access to the extraction and monitoring wells.
- On September 9, North Shore Environmental picked up 13 supersacks of spent carbon.
- On September 10, Maurer Power was onsite to replace worn belts in the odorous air fans.
- On September 14, Maurer Power was onsite to install the repaired ferric pump.
- On September 15, odorous air fans alarmed again. Maurer Power came to the site and determined the motor in one fan needed to be replaced. A replacement motor was ordered and installed on September 17.
- On September 23, Maurer Power was onsite to troubleshoot the ferric pump. Replacement check valves were ordered.
- On September 24, Maurer Power was onsite to troubleshoot the filtrate pump. A rebuild kit was ordered.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table at the end of this report. The concentrations of analytes were in compliance with the discharge criteria in WPDES Permit No. WI-0061531-01-0.

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

- Operational monitoring was continued under this task.
- The Quality Assurance Project Plan (QAPP) Addendum No. 4 was submitted to the U.S. Environmental Protection Agency (USEPA) on September 21.

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

- Continued preparation of the *2009 Interim Long-Term Remedial Action Annual Report.*

Task E (MS)

- Continued the design and preparation of the subcontract documents for the installation of the three new extraction wells and monitoring wells.
- Continued preparation the Field Sampling Plan for the collection of soil samples to be collected during the installation of the new extraction wells.

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		81	0
B (PJ)	07/29/06	07/29/06	03/14/11		84	0
C (CV)	07/29/06	07/29/06	03/14/11		71	0
D (PC)	07/29/06	07/29/06	03/14/11		79	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		47	0
G (MS)	08/01/10	08/01/10	03/14/11		7	0

2. Problems Resolved

On September 7, the site operator noticed a slight smell in the process room and determined that one of the ventilation fans was not operating. After troubleshooting the unit, Maurer Power replaced two belts in each fan on September 10. The odorous air fans shut down again on September 15. Maurer Power was onsite to assist with the troubleshooting. The motor in one fan was not functioning. A replacement motor was purchased and was installed on September 17.

The treatment system was manually operated until the ferric pump that was repaired under warranty was received at the site on September 9. The antilog board was replaced. Maurer Power installed the pump on September 14, and it has been fully operational since the install.

During the carbon changeout, the small 2,500-gallon vessel was found to have excessive pitting on the interior walls. Champion Coating was scheduled to be onsite to perform warranty repairs on the lead vessel coating. They were able to repair both vessels at the same time, saving time and mobilization costs.

3. Problem Areas and Recommended Solutions

On September 23, the site operator found ferric sulfate on the ground under the pump. The pipelines and tubing were checked for leaks. Following troubleshooting, it was determined that the check valves on the pump were not operating properly. A replacement air pressure valve and pressure relief valve were ordered and will be installed once they arrive onsite. The unit is able to operate manually without these parts.

On September 24 following the backwashing process, the operator observed that the filtrate pump was not functioning. The pipelines were checked for blockages, and none was found. Maurer Power was onsite to assist with the troubleshooting. The pump was disassembled, and several worn parts were found. The backup pump was

installed, and a rebuild kit was ordered to allow for the necessary repairs to be made to the removed pump. The parts in the rebuild kit will be installed during the next reporting period.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Monthly project management activities will be performed.

Task B (PI)

- Operation of the groundwater treatment system will continue.
- Comments/suggestions found during the safety site audit will continue to be addressed.

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 will be performed the week of October 4.

Task D (PC)

- The remaining validated data were received on September 17. CH2M HILL will submit the *2009 Interim Long-Term Remedial Action Annual Report* during the next reporting period.

Task E (MS)

- The design and subcontract documents for installation of the three new extraction wells and monitoring wells will be completed and submitted to subcontractors for bid during the next reporting period.

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 has:	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**

Lisa Mauser traveled to the site August 31 to September 3 to assist the new operator with the carbon removal process and vessel relining. 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 Technical Status Report for August 2010 was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system was down August 30 to September 15 due to the removal of carbon, application and curing of the epoxy, and replacement of carbon. The system was restarted on September 15. The groundwater treatment system had temporary shutdowns since the restart; however, the alarms all were 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 for 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

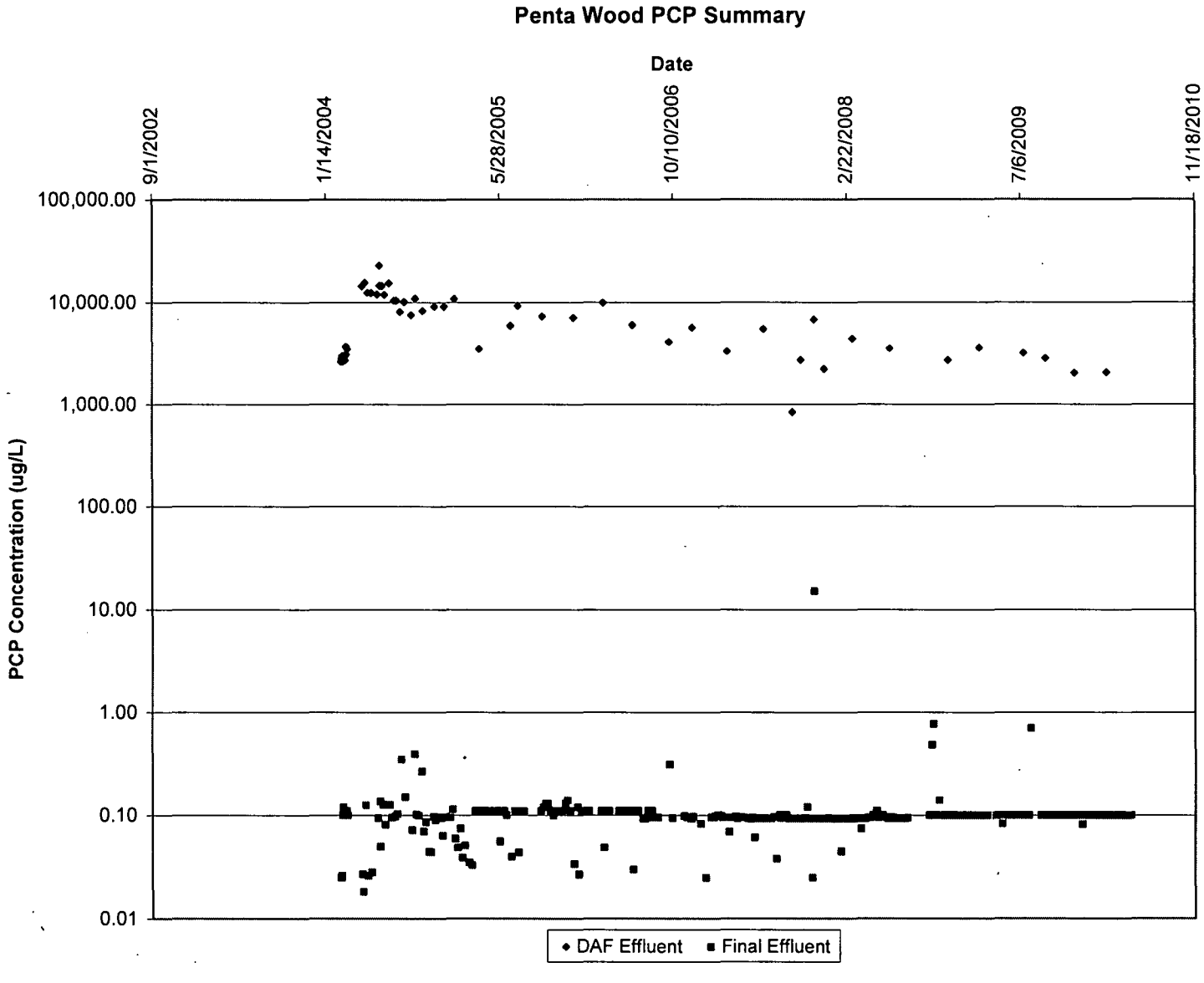
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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.	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 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)
15-Sep-09	2,800	6.5		19	0.10U					--	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		--	0.10U					--	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		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	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)
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
1-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
8-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
15-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Jun-10	1970	6.5		21	0.10U					--	0.10U	--	1.0U	--	--	--	--	2.0U	33	31	367	1510		
29-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
09-Jul-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
13-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Jul-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
27-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
5-Aug-10	--	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)
11-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Aug-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
24-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
16-Sep-10	1,830	6.5		16	0.10U					--	0.10U	--	1.0U	--	--	--	--	4.4	3.2	14	389	904		
21-Sep-10	--	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.
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

September 25, 2010 to October 29, 2010.

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 29, 2010

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 purchase order was finalized for Alar Engineering Corp. to provide onsite routine maintenance on the rotary drum vacuum filter (RDVF).
- Prepared bid documents for the installation of catwalk system for improved service access to the makeup air units in the main process room. The bid documents were submitted to potential bidders on September 29. Bids were due back on October 13; however, no bids were received. The subcontractors were contacted to determine whether subcontractors had intended to submit bids. One subcontractor indicated that if they could have until October 25, they could submit. The submitted bid was significantly higher than the engineer's estimate, and not all required documentation was provided. Alternative solutions are being considered
- Bid documents were submitted to potential bidders on September 28 for drilling and earthwork/well connection work associated with the installation of three new extraction well nests and two new monitoring wells. Bids were evaluated and subcontractors selected.

Task B (PI)

- During the reporting period, an estimated 2.3 million gallons of groundwater were treated and discharged. To date, 125 million gallons of water have been treated. During this reporting period, an estimated 36 gallons of liquid waste were recovered. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is 41,863 gallons.

- In accordance with the current operating strategy, the bioventing system operated for 5 days from September 20 to September 25 and from October 18 to October 23. Soil gas readings collected at the restart (September 20 and October 18) indicated saturation of oxygen in all the locations except two (SG-22 and SG-07S) in the wood chip areas. Consistent with previous years, the two wells continue to have low oxygen levels (less than 5 percent).
- Finalized design drawings and scope of work for the installation of catwalk system for improved service access to the makeup air units in the main process room.
- On October 7, Glacier Pure delivered approximately 4,200 gallons of 20 percent sodium hydroxide to the site.
- On October 9, the monthly adjustment to the light nonaqueous phase liquid (LNAPL) recovery pumps was performed.
- Austin Lake Landscaping was onsite on October 10 to mow and trim tall weeded areas to allow the operator access to the extraction and monitoring wells.
- On October 12, the system shut down due to an overvoltage condition in the ferric pump. Maurer Power was onsite October 13 to reset the pump.
- On October 14, Glacier Pure delivered approximately 46,000 pounds of ferric sulfate to the site.
- On October 15, the system shut down due to three broken fan belts in air compressor (M-24A) located in the main process room. Mauer Power was onsite October 15 to replace the broken belts.
- On October 15, the operator identified that the heater located within the hallway between the two buildings was not functioning. Earth Energy was contacted and arrived on October 18. A loose relay switch was found and replaced.
- On October 18, North Shore Environmental picked up 14 tons of filter cake.
- On October 18, firefighters from the Siren Fire Department visited the site to see the equipment and operations of the treatment system.
- On October 19, the passive LNAPL recovery socks were removed from the two monitoring wells: MW-18 and MW-20. Replacement socks will be installed following the construction activities.
- On October 21, two pallets of diatomaceous earth were delivered to the site.
- On October 22, an air leak in the free product recovery pump in FP-06 was identified. The pump will be removed during the construction activities for repair.
- On October 26, a leaky diaphragm valve (3-way valve) was replaced on the RDVF.
- Alar Engineering was onsite October 26 and 27 to perform a full inspection of the RDVF unit.

- On October 28 the RDVF feed pump was rebuilt. The housing, gaskets, balls, and O-rings were all replaced.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table at the end of this report. The concentrations of analytes were in compliance with the discharge criteria in WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- The annual groundwater sampling effort was performed the week of October 4.

Task D (PC)

- The *2009 Interim Long-Term Remedial Action Annual Report* was submitted October 8 for review. A copy was also submitted to the WDNR on October 11 for review.

Task E (MS)

- The design and subcontract documents for the installation of the three new extraction wells and monitoring wells were completed. The subcontract documents were submitted to potential bidders on September 28. A mandatory bid walk was held at the site on October 5. Bids were due back October 12. An extension until October 14 was requested for Solicitation No. 694 (Earthworks/Well Connection subcontract).
- The Field Sampling Plan for the collection of soil samples to be collected during the installation of the new extraction wells was completed.

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		82	0
B (PJ)	07/29/06	07/29/06	03/14/11		87	0
C (CV)	07/29/06	07/29/06	03/14/11		76	0
D (PC)	07/29/06	07/29/06	03/14/11		81	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		47	0
G (MS)	08/01/10	08/01/10	03/14/11		11	0

2. Problems Resolved

None.

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 (PI)

- Operation of the groundwater treatment system will continue.

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

Task E (MS)

- Mobilization of the drilling subcontractor will occur during the next reporting period.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Drilling Services:	Layne Christensen Company
Earthworks/Well connections	HIS Constructors, Inc
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 has:	Hedlunds Gas, Inc.
Contaminated media removal:	Siemens Water Technologies, Inc.
Hazardous waste disposal:	North Shore Environmental Construction, Inc.
Treatment system chemicals:	Glacier Pure, Inc.
Diatomaceous earth 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**

Dave Shekoski travelled to the warehouse to gather equipment for the Penta Wood sampling event on October 2.

Dave Shekoski, Carlan Johnson, and Ian Mueller travelled to the site October 4 to October 8 for groundwater sampling. Keli McKenna and Mike Niebauer travelled to the site on October 4 to October 5 for the subcontractors site walk. Travel charges for

Dave Shekosi, Ian Mueller, and Mike Niebauer are included in this invoice. The remaining 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 Technical Status Report for September 2010 was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns since the restart; however, the alarms were 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 for 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

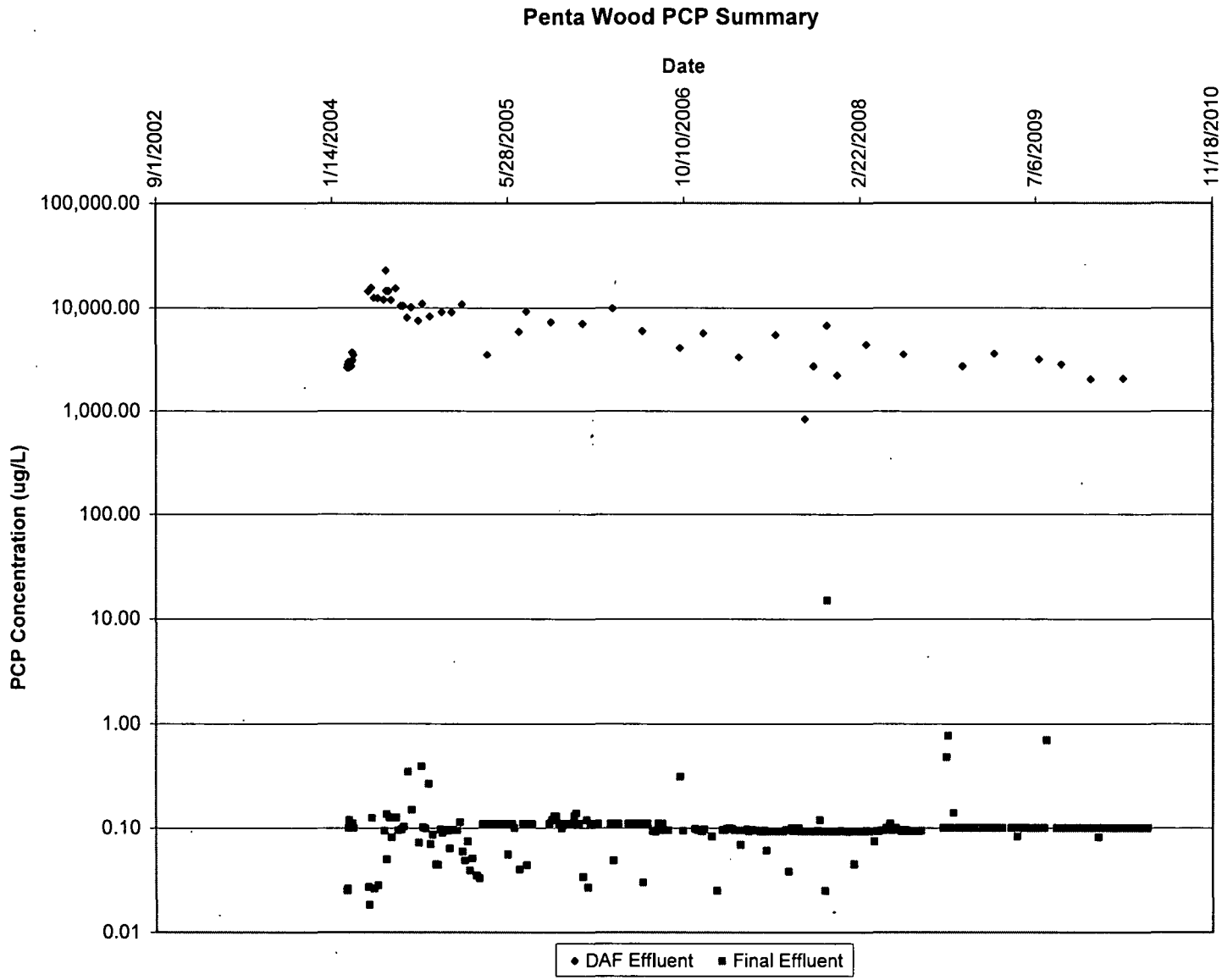
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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.	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 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)
6-Oct-09	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
13-Oct-09	–	6.5		–	0.10U					–	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		–	0.10UJ					–	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	0.10U					–	0.355UB	–	0.99U	–	–	–	–	2.0U	30.1	31.2	209	1,060		
22-Dec-09	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
29-Dec-09	–	6.5		–	–					–	0.082J	–	–	–	–	–	–	–	–	–	–	–		
5-Jan-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Jan-10	–	6.5		–	0.10UJ					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
19-Jan-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
26-Jan-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Feb-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Feb-10	–	6.5		–	0.10U					–	0.10UJ	–	1.0U	–	–	–	–	–	–	–	–	–		
16-Feb-10	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
23-Feb-10	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
2-Mar-10	–	6.5		–	–					–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		

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-Mar-10	–	6.5		–	–					–	0.10U	–												
23-Mar-10	–	6.5		–	–					–	0.10U	–												
30-Mar-10	–	6.5		–	–					–	0.10U	–												
6-Apr-10	–	6.5		–	–					–	0.10U	–												
22-Apr-10	–	6.5		–	0.10U					–	0.10U	–	1.0U											
4-May-10	–	6.5		–	–					–	0.10U	–												
11-May-10	–	6.5		–	–					–	0.10U	–												
18-May-10	–	6.5		–	0.10UJ					–	0.10U	–	1.0U											
25-May-10	–	6.5		–	–					–	0.10UJ	–												
1-Jun-10	–	6.5		–	–					–	0.10U	–												
8-Jun-10	–	6.5		–	–					–	0.10U	–												
15-Jun-10	–	6.5		–	–					–	0.10U	–												
22-Jun-10	1970	6.5		21	0.10U					–	0.10U	–	1.0U					2.0U	33	31	367	1510		
29-Jun-10	–	6.5		–	–					–	0.10U	–												
09-Jul-10	–	6.5		–	–					–	0.10UJ	–												
13-Jul-10	–	6.5		–	–					–	0.10U	–												
20-Jul-10	–	6.5		–	0.10U					–	0.10U	–	1.0U											
27-Jul-10	–	6.5		–	–					–	0.10U	–	–											
5-Aug-10	–	6.5		–	–					–	0.10U	–	–											
11-Aug-10	–	6.5		–	–					–	0.10U	–	–											
20-Aug-10	–	6.5		–	0.10U					–	0.10U	–	1.0U											
24-Aug-10	–	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)
16-Sep-10	1,830	6.5	[redacted]	16	0.10U	[redacted]	[redacted]	[redacted]	[redacted]	–	0.10U	–	1.0U	–	–	–	–	4.4	3.2	14	389	904	[redacted]	[redacted]
21-Sep-10	–	6.5	[redacted]	–	–	[redacted]	[redacted]	[redacted]	[redacted]	–	NR	–	–	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]
28-Sep-10	–	6.5	[redacted]	–	–	[redacted]	[redacted]	[redacted]	[redacted]	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]
12-Oct-10	–	6.5	[redacted]	–	0.10U	[redacted]	[redacted]	[redacted]	[redacted]	–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]
19-Oct-10	–	6.5	[redacted]	–	–	[redacted]	[redacted]	[redacted]	[redacted]	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]
27-Oct-10	–	6.5	[redacted]	–	–	[redacted]	[redacted]	[redacted]	[redacted]	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]
2-Nov-10	–	6.5	[redacted]	–	–	[redacted]	[redacted]	[redacted]	[redacted]	–	NR	–	–	–	–	–	–	–	–	–	–	–	[redacted]	[redacted]

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.
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 30, 2010 to November 26, 2010

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 26, 2010

COPIES:

RPM:	Denise Boone, 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 purchase orders for Northwestern Wisconsin Electric Co., North Shore Environmental, Siemens Water Technologies Inc., Maurer Power, and Glacier Pure, Inc., are being revised.
- Began to prepare a bid package for the planting of additional trees on the western side of the site driveway.

Task B (PJ)

- During the reporting period, an estimated 1.3 million gallons of groundwater were treated and discharged. To date, 126 million gallons of water have been treated. During this reporting period, an estimated 246 gallons of liquid waste were recovered. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is 42,109 gallons.
- Based on the potential for methane migration as a result of the snow cover, the biovent system was shut down on October 22 for the winter months—similar to the winter months of 2008/2009 and 2009/2010. Soil gas readings collected prior to previous shut downs indicate that oxygen levels remain the same or decrease slightly during the time the bioventing system is shut down. Based on the oxygen use observed during the 2009/2010 shut down, it is not anticipated that the oxygen will drop below the 5 percent minimum level for aerobic biodegradation during the shut down period. The system will resume operation in the spring.

- Austin Lake Landscaping was onsite on November 8 to mow and trim tall weeded areas to allow the operator access to the extraction and monitoring wells.
- On November 8, Maurer Power replaced the sensors in the coagulation tank pH probes.
- On November 10, Maurer Power was onsite to replace the belts in the air compressor.
- On November 17, Maurer Power replaced both of pH probes in the coagulation tank.
- On November 5, the operator identified that the heater located in the main process room was not functioning. Earth Energy was onsite on November 11, 15, 23, and 24 to make the necessary repairs to the heater. A sensor switch, bulbs within the control panel, and a temperature control switch were ordered.
- On November 26, firefighters from the Siren Fire Department visited the site to see the equipment and operations of the treatment system and also performed a fire inspection. No issues were found during the inspection.
- On November 13, an air leak in the free product recovery pump in FP-06 was repaired.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table at the end of this report. The concentrations of analytes were in compliance with the discharge criteria in WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- The analytical results and Level IV data packages for samples collected during the October 2010 annual groundwater sampling event were submitted to USEPA on November 23. During our review of the laboratory hard copy packets, it was found that the internal standards for the volatile organic compound (VOC) analysis associated with the samples from monitoring well (MW)-15 (11CP02-30) and RW-01 (11CP02-36) did not meet acceptance criteria. The wells will be resampled for benzene, toluene, ethylbenzene, and xylene (BTEX) and resubmitted for review under a separate cover letter.

Task D (PC)

- None.

Task E (MS)

- The drilling subcontractor mobilized to the site the week of November 8. One complete pilot hole boring for extraction well nest EW-14 was completed to a depth of 175 feet below ground surface. The second pilot hole boring for extraction well nest EW-13 was advanced to a depth of 120 feet below ground surface. Four

borehole soil samples have been collected thus far and are being analyzed for pentachlorophenol (PCP), diesel range organics, and gasoline range organics.

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		83	0
B (PJ)	07/29/06	07/29/06	03/14/11		88	0
C (CV)	07/29/06	07/29/06	03/14/11		79	0
D (PC)	07/29/06	07/29/06	03/14/11		81	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		47	0
G (MS)	08/01/10	08/01/10	03/14/11		15	0

2. Problems Resolved

On November 7, the site operator began to experience difficulty calibrating the pH probes in the coagulation tank. The pH probe vendor was contacted to troubleshoot the problem. The service technician suggested replacing the bulbs in the probes. Maurer Power was onsite on November 8 to install the bulbs; however, the probes were still not calibrating properly. New probes were ordered and arrived onsite on November 16. Maurer Power installed the new probes on November 17.

3. Problem Areas and Recommended Solutions

On November 5, the site operator identified that the heater located in the main process room was not functioning. The burner on the heater was reignited, but the unit would not start. Earth Energy was contacted and they arrived on November 11 to troubleshoot the unit. Additional information and drawings were needed from the manufacturer of the heater to perform repairs. Earth Energy returned to the site on November 15 and restarted the burner in the unit. Access to a second panel on the unit was not possible without a lift. On November 23, Earth Energy returned with the lift and found several loose belts, the sensor switch was not functioning, and a number of indicator lights within the control panel were burned out. It was also determined that the temperature control switch was not functioning. The parts were ordered and all replacement parts will be installed during the next reporting period.

4. Deliverables Submitted

The analytical results and Level IV data packages for samples collected during the October 2010 annual groundwater sampling event were submitted to USEPA on November 23.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- The revised purchase orders for Northwestern Wisconsin Electric Co., North Shore Environmental, Siemens Water Technologies, Inc., Maurer Power, and Glacier Pure, Inc., will be completed during the next reporting period.

- The bid package for the planting of additional trees on the western side of the site driveway will be completed.

Task B (PJ)

- Operation of the groundwater treatment system will continue.

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.
- During our review of the laboratory hard copy packets for the October 2010 annual groundwater sampling event, we found that the internal standards for the VOC analysis associated with the samples from MW-15 (11CP02-30) and RW-01 (11CP02-36) did not meet acceptance criteria. The wells will be resampled for BTEX during the next reporting period.

Task D (PC)

- None.

Task E (MS)

- The installation of the three new extraction wells and monitoring wells will continue during the next reporting period. The earthworks/well connection subcontractor will mobilize to the site.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Drilling Services:	Layne Christensen Company
Earthworks/Well Connections:	HIS Constructors, Inc
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 has:	Hedlunds Gas, Inc.
Contaminated media removal:	Siemens Water Technologies, Inc.
Hazardous waste disposal:	North Shore Environmental Construction, Inc.
Treatment system chemicals:	Glacier Pure, Inc.
Diatomaceous earth 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 Carlan Johnson and Keli McKenna for the October 2010 groundwater sampling event and subcontractor site walk were reported in last month's Technical Status Report and are included in this invoice.

Travel charges for Mike Niebauer from October 4 to October 5 were reported in last month's Technical Status Report.

Mike Niebauer travelled to the site November 8 to 11 to help with the mobilization of the drilling subcontractor. Craig Haas travelled to the site November 6 to 24 to perform oversight of the drilling activities. Travel charges for Craig Haas are included in this invoice. The remaining 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.

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

- The Technical Status Report for October 2010 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 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 October 22 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 October in accordance with the modified operation schedule prior to the shutdown. Therefore, the bioventing system met the performance standard for this period.

<u>Task C—Groundwater Treatment</u>

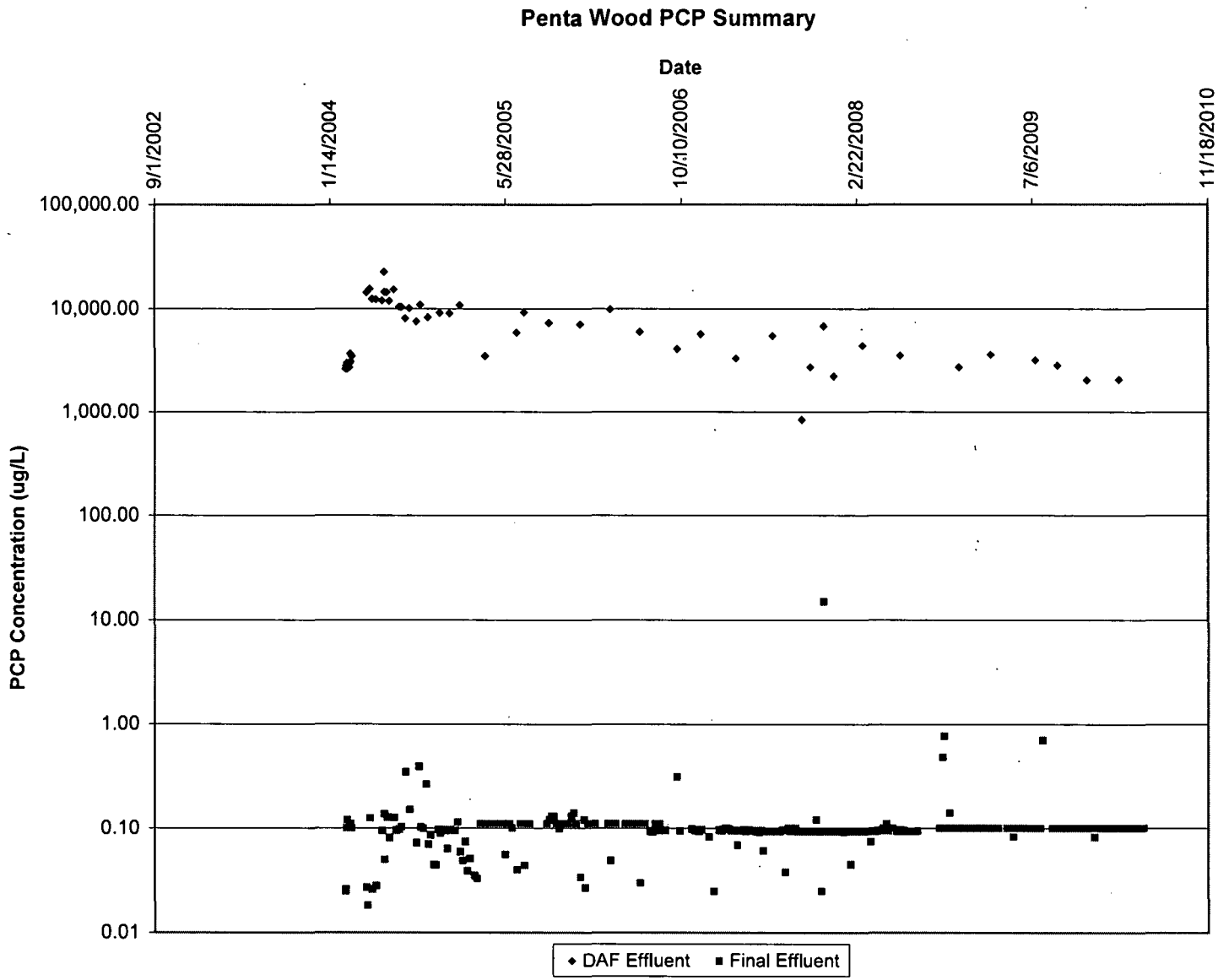
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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.	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 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)
3-Nov-09	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
10-Nov-09	--	6.5		--	0.10UJ					--	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	0.10U					--	0.355UB	--	0.99U	--	--	--	--	2.0U	30.1	31.2	209	1,060		
22-Dec-09	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
29-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	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)
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
1-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
8-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
15-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Jun-10	1970	6.5		21	0.10U					--	0.10U	--	1.0U	--	--	--	--	2.0U	33	31	367	1510		
29-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
09-Jul-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
13-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Jul-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
27-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
5-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Aug-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
24-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
16-Sep-10	1,830	6.5		16	0.10U					--	0.10U	--	1.0U	--	--	--	--	4.4	3.2	14	389	904		
21-Sep-10	--	6.5		--	--					--	NR	--	--	--	--	--	--	--	--	--	--	--		
28-Sep-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Oct-10	--	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)
19-Oct-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
27-Oct-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Nov-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Nov-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
18-Nov-10	--	6.5		--	--					--	NR	--	--	--	--	--	--	--	--	--	--	--		
22-Nov-10	--	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.
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 27, 2010 to December 31, 2010

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 31, 2010

COPIES:

RPM:	Denise Boone, 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 purchase orders for Northwestern Wisconsin Electric Co., North Shore Environmental, Siemens Water Technologies, Inc., Maurer Power, and Glacier Pure, Inc., were revised and updated.
- Completed preparation of the bid package for the planting of additional trees on the western side of the site driveway.
- Mike Niebauer and Keli McKenna met Tom Williams and Denise Boone at the site for a site walk and the work assignment manager (WAM) transition on November 29 and 30.

Task B (PJ)

- During the reporting period, an estimated 2.3 million gallons of groundwater were treated and discharged. To date, 128 million gallons of water have been treated. During this reporting period, an estimated 246 gallons of liquid waste were recovered. The total volume of liquid waste recovered from March 2004 through the end of this reporting period is 42,355 gallons.
- Based on the potential for methane migration as a result of the snow cover, the biovent system was shut down on October 22 for the winter months—similar to the winter months of 2008/2009 and 2009/2010. Soil gas readings collected prior to previous shut downs indicate that oxygen levels remain the same or decrease slightly during the time the bioventing system is shut down. Based on the oxygen use observed during the 2009/2010 shutdown, it is not anticipated that the oxygen will drop below the 5 percent minimum level for aerobic

biodegradation during the shutdown period. The system will resume operation in the spring.

- On December 6, Maurer Power repaired a corroded wire in the sensor switch of the recirculation pump and an alarm in rotary drum vacuum filter panel. The heat sensor in the granular activated carbon room was also replaced.
- On December 14, Earth Energy was onsite to install a sensor switch, control panel indicator lights, and a temperature control switch on the heater in the main process room.
- On December 17, C3D Testing Company was onsite to install a replacement backflow preventor in the laboratory.
- On December 28, C3D Testing Company was onsite to replace the o-ring in the toilet in the office.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table at the end of this report. The concentrations of analytes were in compliance with the discharge criteria in WPDES Permit No. WI-0061531-01-0.

Task C (CV)

- Operational monitoring was continued under this task.
- Residential well RW-01 was resampled on November 30 for benzene, toluene, ethylbenzene, and xylene (BTEX) due to issues found with the internal standards during the original sample analysis performed in October.

Task D (PC)

- None.

Task E (MS)

- The following items were completed through this reporting period:

Summary of Drilling Progress			
Location	**Description**	**Date Completed**	**Depth**
EW-12	Pilot Boring	12/7/10	164
EW-13	Pilot Boring	12/1/10	170
EW-14	Pilot Boring	11/22/10	175
EW-14	Nest Well Construction	In Progress	
MW-27	Monitoring Well Drilling and Construction	12/17/10	135
MW-28	Monitoring Well Drilling and Construction	12/10/10	140

Six soil samples have been collected during the installation of the pilot borings and were analyzed for pentachlorophenol (PCP), diesel range organics, and gasoline range organics.

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		85	0
B (PJ)	07/29/06	07/29/06	03/14/11		91	0
C (CV)	07/29/06	07/29/06	03/14/11		80	0
D (PC)	07/29/06	07/29/06	03/14/11		81	0
E (CO)	03/01/11		03/14/11		0	0
F (RV)	02/01/09	02/01/09	03/14/11		47	0
G (MS)	08/01/10	08/01/10	03/14/11		43	0

2. Problems Resolved

On November 5, the site operator identified that the heater located in the main process room was not functioning. It was found that several belts were loose, the sensor switch was not functioning, and a number of indicator lights within the control panel were burned out. It was also determined that the temperature control switch was not functioning. On December 14, these parts were installed and the heater is functioning normally.

3. Problem Areas and Recommended Solutions

None.

4. Deliverables Submitted

The 2009 Annual Report hardcopies were submitted to the Grantsburg Public Library and the Burnett Community Library on December 17.

5. Activities Planned Next Reporting Period

Task A (PP)

- Monthly project management activities will be performed.
- The bid package for the planting of additional trees on the western side of the site driveway will be bid during the next reporting period.

Task B (PJ)

- Operation of the groundwater treatment system will continue.

Task C (CV)

- Sample management tasks will be performed as the results from the operational monitoring, groundwater sampling events, and soil sample collection are received from the laboratory.
- During our review of the laboratory hardcopy packets for the October 2010 annual groundwater sampling event, we found that the internal standards for the volatile

organic compound analysis associated with the samples from MW-15 (11CP02-30) and RW-01 (11CP02-36) did not meet acceptance criteria. RW-01 was resampled on November 30. MW-15 will be resampled for BTEX along with the newly installed monitoring wells during the next reporting period.

- The analytical results and Level IV data package for the residential well (RW-01) that was resampled will be submitted to USEPA for review. All of the residential well results will also be submitted to USEPA during the next reporting period.

Task D (PC)

- The 2010 Annual Report will be drafted.

Task E (MS)

- The remaining nested extraction wells will be installed. The extraction wells and the newly installed monitoring wells will be developed and groundwater samples collected during the next reporting period. The earthworks/well connection subcontractor will mobilize to the site.
- Sample management tasks will be performed as the results from the soil sample collection are received from the laboratory.

6. Key Personnel Changes

None.

7. Subcontractor Services

Drilling Services:	Layne Christensen Company
Earthworks/Well Connections:	HIS Constructors, Inc
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 has:	Hedlunds Gas, Inc.
Contaminated media removal:	Siemens Water Technologies, Inc.
Hazardous waste disposal:	North Shore Environmental Construction, Inc.
Treatment system chemicals:	Glacier Pure, Inc.
Diatomaceous earth 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 Craig Haas in November was reported in last month's Technical Status Report.

Travel for Mike Niebauer on November 8 to 11 was reported in last month's Technical Status Report.

Keli McKenna and Mike Niebauer travelled to the site November 29 and 30 for a site walk with USEPA. Travel charges for Keli McKenna will be invoiced during the next reporting period.

Craig Haas travelled to the site November 27 to December 23 and December 27 to 30 to perform oversight of the drilling activities. Travel charges from December 11 to 30 will be invoiced during the next reporting period.

Caitlin Lippincott travelled to the site December 6 to 11 to perform oversight of the drilling activities.

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 2010 was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were 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 October 22 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 October 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

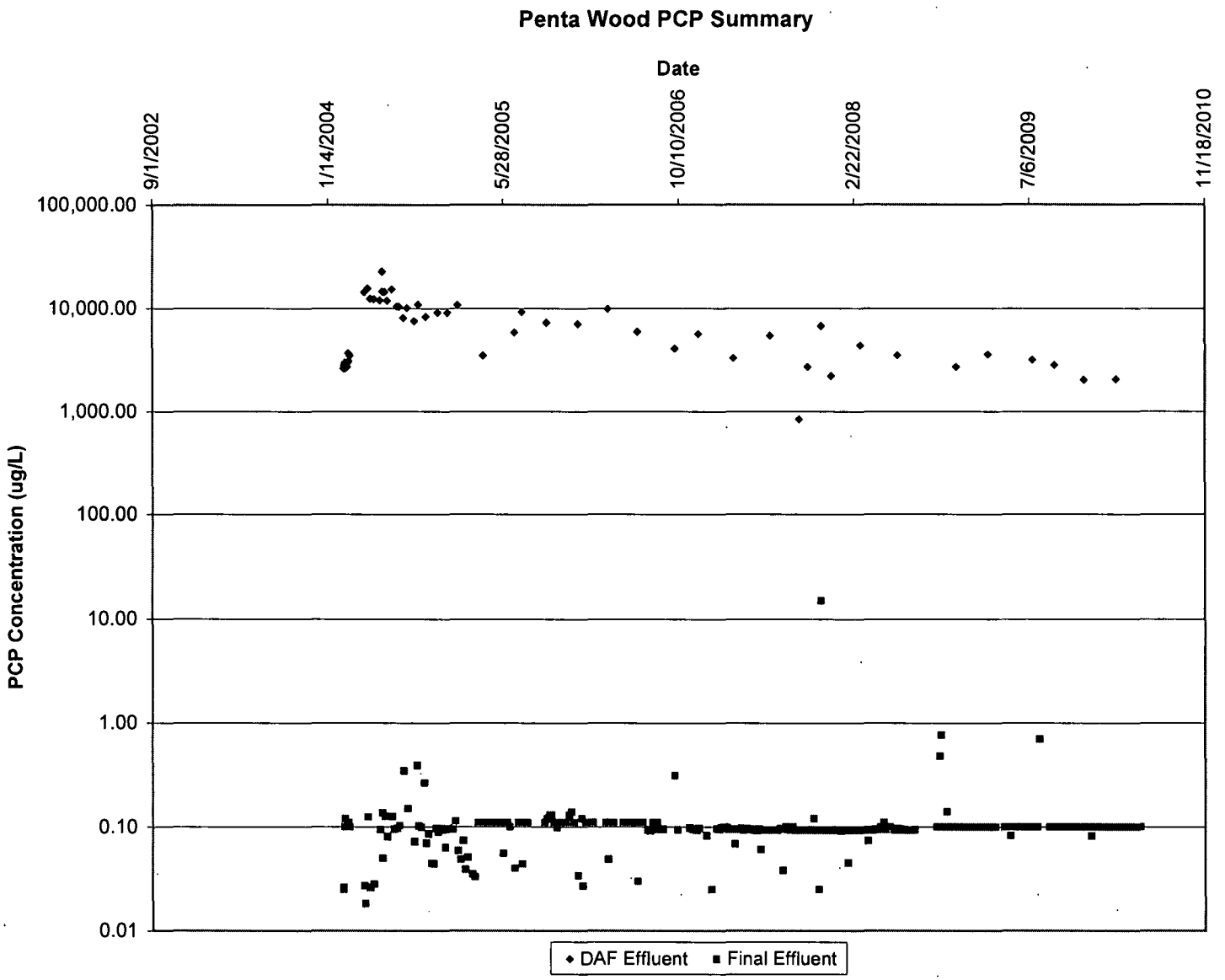
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

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 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 costs.
Consider modifying management of granular activated carbon 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 was started during the spring 2009 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 2 people for 3 days, including labor and travel costs. The annual sampling event was reduced by 1 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, 2009, to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, 2009, 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, 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.	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 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-Dec-09	--	6.5		--	--					--	0.082J	--	--	--	--	--	--	--	--	--	--	--		
5-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Jan-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
26-Jan-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Feb-10	--	6.5		--	0.10U					--	0.10UJ	--	1.0U	--	--	--	--	--	--	--	--	--		
16-Feb-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Feb-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
2-Mar-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
9-Mar-10	2,050J	6.5		18.9	0.10U					3.0U	0.10U	8.4UJ	1.0U	0.10U	0.4U	0.4U	1.0U	2.0U	10U	13	238J	1,030		
16-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
23-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Mar-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
6-Apr-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Apr-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
4-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-May-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
18-May-10	--	6.5		--	0.10UJ					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
25-May-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
1-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
8-Jun-10	--	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)
15-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Jun-10	1970	6.5		21	0.10U					--	0.10U	--	1.0U	--	--	--	--	2.0U	33	31	367	1510		
29-Jun-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
09-Jul-10	--	6.5		--	--					--	0.10UJ	--	--	--	--	--	--	--	--	--	--	--		
13-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Jul-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
27-Jul-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
5-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
11-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
20-Aug-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
24-Aug-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
16-Sep-10	1,830	6.5		16	0.10U					--	0.10U	--	1.0U	--	--	--	--	4.4	3.2	14	389	904		
21-Sep-10	--	6.5		--	--					--	NR	--	--	--	--	--	--	--	--	--	--	--		
28-Sep-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
12-Oct-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
19-Oct-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
27-Oct-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
2-Nov-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
9-Nov-10	--	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	--	--	--	--	--		
18-Nov-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
22-Nov-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
30-Nov-10	--	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)
7-Dec-10	1,940	6.5		--	0.10U					--	0.10U	--	1.0U	--	--	--	--	2.0U	9.0U	9.7	175	831		
14-Dec-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
21-Dec-10	--	6.5		--	--					--	0.10U	--	--	--	--	--	--	--	--	--	--	--		
28-Dec-10	--	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.
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.