RAC2 TECHNICAL STATUS REPORT
December 29, 2007 to January 25, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products – OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	January 25, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP):

- Performed monthly project management activities.

Task B (PJ):

- Operation of the system under this task continued.
- An estimated 1.36 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 72.6 MG of water have been treated. An estimated 122 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 26,837 gallons.
- On December 31, Glacier Pure was onsite for the delivery of approximately 4,700 gallons of caustic.
- On January 2, Reliable Services was onsite to service the odorous air (OA) fan. Reliable Services removed ice that was preventing one of the exhaust fans from operating.
- On January 4, DR Tech was onsite to install the replacement polymer pumphead. On December 21, the operator had identified that the polymer transfer pump had failed and polymer was not being dosed into the mix tank. A new polymer pump was ordered at that time. The operator manually mixed the polymer to the correct concentration and filled the mix tank to operate the groundwater treatment system until the replacement pump was installed.

- On January 16, DR Tech was onsite for service of the hydrogen (ion) concentration (pH) probes in the neutralization tank. The pH probes are now calibrating properly.
- On January 21, North Shore Environmental picked up an approximate 15 tons of filter cake for disposal.
- On January 21, DR Tech was onsite for inspection and service of the flocculation tank mixer variable flow drive (VFD) in response to an alarm from a VFD error. DR Tech identified that there was a power issue and Maurer Power was contacted. On January 23, Maurer Power jumped it from a spare motor starter to get the mixer working at the motor control center (MCC) panel as a temporary fix. A new breaker was ordered.
- On January 22 and 23, Nijhuis Water Technologies was onsite for the inspection and service of the dissolved air flotation (DAF) and polymer systems. The skimmer blades were replaced and the system was checked. The skimmer motor needs to be replaced, but currently all sludge on top of the DAF tank can be removed until the replacement motor is received.
- The status of recommendations resulting from the remediation system evaluation is summarized and presented in the table located at the end of this report.
- The results of the Wisconsin Pollutant Discharge Elimination System (WPDES) sampling are presented in the chart and summarized in the table located at the end of this report. The December 18 treatment system effluent sampling results had an exceedance of the WPDES Permit No. WI-0061531-01-0 discharge criteria for arsenic. Arsenic concentrations will continue to be monitored and the laboratory is reanalyzing the sample using the correct method detection limit to verify the results. All other parameters from December 18 and December 28 treatment system effluent sampling met the discharge criteria.

Task C (CV):

- Continued to perform operational monitoring under this task.

Task D (PC):

- Continued preparation of the *2007 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		36	0
B (PJ)	07/29/06	07/29/06	03/14/11		35	0
C (CV)	07/29/06	07/29/06	03/14/11		26	0
D (PC)	07/29/06	07/29/06	03/14/11		27	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

On December 21, the operator identified that the polymer pump had failed and polymer was not being dosed into the mix tank. The operator manually mixed the polymer to the correct concentration and filled the mix tank. The mix tank will be manually filled until the replacement polymer pump can be installed. The installation of the pump and piping replacement work was performed on January 4.

On January 16, DR Tech serviced the pH probes in the neutralization tank and now calibrate properly.

3. Problem Areas and Recommended Solutions

On January 21, DR Tech was onsite for inspection and service of the flocculation tank mixer VFD in response to an alarm from a VFD error. DR Tech identified that there was a power issue and Maurer Power was contacted. On January 23, Maurer Power jumped it from a spare motor starter to get the mixer working at the MCC panel as a temporary fix. A new breaker was ordered.

Evaluation of the project costs has indicated that some of the subcontractor costs and expenses are trending higher than estimated based on 2005 costs. These costs include those for propane, electrical, carbon changeout services, and hazardous waste disposal services. CH2M HILL is continuing to evaluate ways to optimize the system operation and evaluate options to reduce these operating costs. Also, additional travel expenses and labor are being incurred as a result of the unexpected departure of the permanent operator. A temporary operator has been at the site since December 8 to support the previous operator during medical leave and following the resignation of the permanent operator. Additional training and support has been needed for the temporary operator. CH2M HILL is working to find a replacement full-time operator that will either relocate to Siren or find an operator locally.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP): CH2M HILL will perform monthly project management.

Task B (PJ): CH2M HILL will continue to operate the treatment system.

Task C (CV): CH2M HILL will perform sample management tasks as results are received from the laboratory.

Task D (PC): CH2M HILL will continue preparing the *2007 Interim Long-Term Remedial Action Annual Report.*

6. Key Personnel Changes

The site operator, Mary Wicklund, resigned on December 27 at the end of the previous reporting period. Lisa Mauser is filling in as the onsite operator while a new permanent operator is being identified.

7. **Subcontractor Services**

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

8. **Travel**

Lisa Mauser was onsite November 21 for system operation. Travel charges are included in this invoice.

Travel expenses for Lisa Mauser from December 8 through the end of December were reported last month. Lisa left the site from January 2 through January 7, but has remained onsite through the end of this reporting period. Travel charges from January 12 through January 25 will be included in the next reporting period.

Travel expenses for Christie Walker for the soil gas monitoring on December 17 and 18 were reported last month. Travel charges are included in this invoice.

Bill Andrae traveled to the site on January 2 to temporarily relieve the operator. Bill returned to Milwaukee on January 5. Travel charges are included in this invoice.

Christie Walker traveled to the site on January 21 and returned on January 24 after assisting the operator. Travel charges will be included in the next reporting period.

9. **Laboratories**

System monitoring samples were submitted to STL of Chicago, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 analytical services.

10. **Project Performance**

The following tasks, with associated performance criteria, were active this month:

Task A—LTRA Monthly Progress Report

- The *December 2007 Technical Status Report* was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing

- The bioventing system did not operate during this reporting period. The bioventing system was shut down on December 18 after evaluating soil gas monitoring data. As a result of sufficient oxygen remaining in the subsurface to support aerobic biodegradation and the health and safety concern of methane migration under the frozen ground surface, it was recommended that the

bioventing system remain off for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of PCP in the subsurface and will provide cost savings on energy consumption.

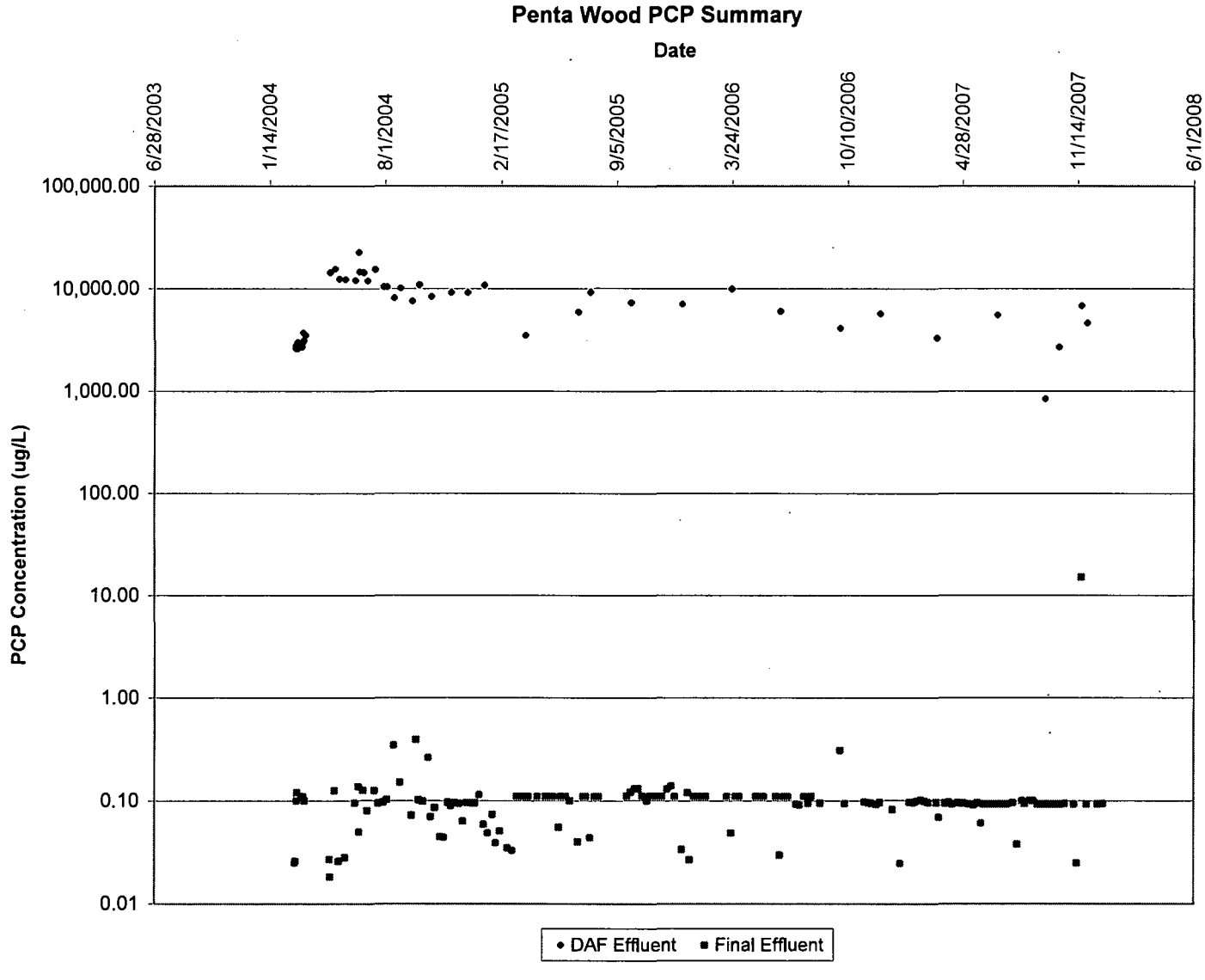
- The groundwater treatment system was operational 100 percent of the time based on the approved clarification to this performance standard.

Task C—Groundwater Treatment

- Sampling began under the new WPDES Permit No. WI-0061531-01-0 effective January 1. The revised sampling program, as approved by the WDNR, should result in an annual cost savings of approximately $3,800.
- The December 18 treatment system effluent sampling results had an exceedance of the WPDES Permit No. WI-0061531-01-0 discharge criteria for arsenic. Arsenic concentrations will continue to be monitored. All other parameters from December 18 and December 28 treatment system effluent sampling met the discharge criteria.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow Water Quality Trends in Monitoring Wells to Determine if Plume is Migrating	CH2M HILL continued to evaluate the PCP data to determine if plume migration is expanding and if additional monitoring sites may be needed. If continued increases are observed in Monitoring Well MW-13, installation of a monitoring well to the east, in the direction of two residences, may be considered.
Provide More Accurate Prediction of Consumables and Disposal Costs	The budget for this *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs.
Consider Modifying Management of Granular Activated Carbon (GAC) Units	CH2M HILL is continuing to evaluate alternatives to reduce the carbon changeout frequency.
Eliminate Redundant or Unnecessary Laboratory Analysis	Historical metals data were reviewed to verify elimination of total metals from the annual sampling of the monitoring wells and will not affect data evaluation. As instructed by USEPA, CH2M HILL will eliminate 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 in order to fully evaluate the contaminant plume. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted a number of the recommendations which will result in an annual cost savings of $3,800.
Savings From the Use of Dedicated Pumps in Monitoring Wells	The use of dedicated pumps has reduced the overall CH2M HILL level of effort required for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce travel costs.
Investigate Possibility of Declassifying Waste	CH2M HILL investigated the possibility of declassifying the waste and determined that this action is not feasible due to the continued presence of LNAPL in the ground, which is considered to be a listed hazardous waste.
Decrease Project Management/ Reporting Costs	CH2M HILL expects project management costs to decrease during this LTRA work assignment. Data management costs may remain high due to the volume of analytical data generated for the site and the level of effort associated with meeting USEPA reporting requirements.
Develop Tracking of Routine and Non-Routine Costs	For this LTRA work assignment, CH2M HILL is developing a tracking system to assist in analyzing routine and non-routine maintenance activities, the associated costs, and possible ways to reduce the costs.
Evaluate Potential to Reduce Groundwater Extraction Without Substantially Affecting LNAPL Recovery	As part of the data evaluation activities for this LTRA work assignment, CH2M HILL will continue to evaluate LNAPL recovery and dissolved plume containment to determine the potential for reduced groundwater pumping. The LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on the LNAPL recovery. The results of the optimization test were summarized and submitted in a technical memorandum on June 29.
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 will monitor the effects that the bioventing operation has on the LNAPL, groundwater, and other subsurface conditions (i.e., temperature, methane productions, etc.). The bioventing will be performed concurrently with the LNAPL recovery system.


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
10-Jun-04	12,000B	7	2.13U	29	0.10U	0.775B	5.0U	5.0U	10.0U	1.78U	0.0943U	5.0U	5.0U	0.5U	5.0U	5.0U	5.0U	0.967B	4.92	111	412	2,230	–	–
16-Jun-04	–	7	–	–	–	–	–	–	–	–	0.137	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jun-04	–	7	–	–	–	–	–	–	–	–	0.050U	–	–	–	–	–	–	–	–	–	–	–	–	–
23-Jun-04	–	7	–	–	–	–	–	–	–	–	*NA	–	–	–	–	–	–	–	–	–	–	–	–	–
24-Jun-04	–	7	–	–	–	–	–	–	–	–	0.127	–	–	–	–	–	–	–	–	–	–	–	–	–
1-Jul-04	–	7	–	–	–	–	–	–	–	–	0.081JB	–	–	–	–	–	–	–	–	–	–	–	–	–
14-Jul-04	–	7	–	–	–	–	–	–	–	–	0.126	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Jul-04	–	7	2.13U	30B	0.10U	1.12	1.0U	1.0U	2.0U	1.78U	0.0952U	4.85U	1.0U	0.5U	1.0U	1.0U	1.0U	0.843B	3.49	79.7	5.48B	2,460	–	–
29-Jul-04	–	7	–	–	–	–	–	–	–	–	0.0971U	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Aug-04	–	7	–	–	–	–	–	–	–	–	0.103	–	–	–	–	–	–	–	–	–	–	–	–	–
16-Aug-04	–	7	–	–	–	–	–	–	–	–	0.348	–	–	–	–	–	–	–	–	–	–	–	–	–
27-Aug-04	–	7	4.0U	–	0.10U	0.789B	1.0U	1.0U	2.0U	1.58U	0.151	9.62U	1.0U	0.5U	1.0U	1.0U	1.0U	2.19	3.75	98.1	–	–	–	–
16-Sep-04	–	7	–	–	–	–	–	–	–	–	0.0724JB	–	–	–	–	–	–	–	–	–	–	–	–	–
23-Sep-04	–	7	–	–	–	–	–	–	–	–	0.393B	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Sep-04	10,900B	7	4.0U	28	0.10U	0.811B	1.0U	1.0U	2.0U	2.17U	0.102B	9.43U	1.0U	0.5U	1.0U	1.0U	1.0U	1.0U	5.51	95.5	36.8B	2,470	–	–
5-Oct-04	–	7	–	–	–	–	–	–	–	–	0.099	–	–	–	–	–	–	–	–	–	–	–	–	–
14-Oct-04	–	7	–	–	–	–	–	–	–	–	0.265B	–	–	–	–	–	–	–	–	–	–	–	–	–
19-Oct-04	8,310B	7	–	–	0.143B	1.01	–	–	–	0.97U	0.0702JB	9.52U	1.0U	0.5U	–	–	–	0.500B	–	–	–	–	–	–
26-Oct-04	–	7	–	–	–	–	–	–	–	–	0.0861J	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Nov-04	–	7	–	–	–	–	–	–	–	–	0.0447J	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Nov-04	–	7	–	–	–	–	–	–	–	–	0.0442J	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Nov-04	–	7	–	–	–	–	–	–	–	–	0.0971U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Nov-04	9,140	7	–	–	0.0935U	0.787JB	–	–	–	0.82U	0.0900J	9.43U	1.0U	0.5U	–	–	–	0.727B	–	–	–	–	–	–
29-Nov-04	–	7	–	–	–	–	–	–	–	–	0.0962U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
7-Dec-04	–	7	–	–	–	–	–	–	–	–	0.0943U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Dec-04	–	7	–	–	–	–	–	–	–	–	0.0637J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Dec-04	9,100	7	4.0U	27	0.0962U	0.905B	1.0U	1.0U	2.0U	1.17U	0.0962U	9.62U	1.0U	0.5U	1.0U	1.0U	1.0U	0.550B	1.66B	66.7	8.35B	2,670	–	–
30-Dec-04	–	7	–	–	–	–	–	–	–	–	0.0952U	–	–	–	–	–	–	–	–	–	–	–	–	–
3-Jan-05	–	7	–	–	–	–	–	–	–	–	0.0952U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Jan-05	–	7	–	–	–	–	–	–	–	–	0.114B	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Jan-05	10,800B	7	–	–	0.12	0.923B	–	–	–	2.65U	0.0595JB	9.52U	5.0U	0.5U	–	–	–	0.454B	–	–	–	–	–	–
25-Jan-05	–	7	–	–	–	–	–	–	–	–	0.049J	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Feb-05	–	7	–	–	–	–	–	–	–	–	0.074J	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Feb-05	–	7	–	–	–	–	–	–	–	–	0.039J	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Feb-05	–	7	–	–	–	–	–	–	–	–	0.051J	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Feb-05	–	7	–	–	0.096U	0.67B	–	–	–	0.43U	0.035J	4.7U	0.94U	0.5U	–	–	–	14	–	–	–	–	–	–
8-Mar-05	–	7	–	–	–	–	–	–	–	–	0.033J	–	–	–	–	–	–	–	–	–	–	–	–	–
16-Mar-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Mar-05	3,500	7	5.0U	22	0.094U	0.37B	1.0U	1.0U	2.0U	1.4U	0.11U	4.7U	0.93	0.5U	1.0U	1.0U	1.0U	1.0U	7.4B	44	50U	2,400	[c]ND	[c]ND
30-Mar-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Apr-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Apr-05	–	7	–	–	0.098U	0.69B	–	–	–	–	0.066J	4.8U	0.95U	0.5U	–	–	–	1.0U	–	–	–	–	–	–
4-May-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-May-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-May-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
27-May-05	0.11U	7	–	–	0.093U	0.63B	–	–	–	1.2U	0.056J	4.8U	0.95U	0.5U	–	–	–	1.0U	–	–	–	–	–	–
1-Jun-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Jun-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
15-Jun-05	–	7	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Jun-05	5,900	7	6	29	0.091U	0.66B	1.0U	1.0U	1.0U	2.3U	0.040J	4.8U	0.95U	0.50U	5.0U	5.0U	5.0U	9.1	10U	96	5,500	2,500	–	–
8-Jul-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Jul-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Jul-05	9,200	7	–	–	0.093U	0.64B	–	–	–	–	0.044J	4.7U	0.93U	–	–	–	–	–	–	–	–	–	–	–
28-Jul-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
4-Aug-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Sep-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Sep-05	7,300	7	2.0B	24	0.095U	0.50B	1.0U	1.0U	1.0U	0.68U	0.12U	4.6U	0.93U	0.5U	5.0U	5.0U	5.0U	1.0U	10U	35	50U	2,100	–	–
6-Oct-05	–	7	–	–	–	–	–	–	–	–	0.13U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-05	–	7	–	–	–	–	–	–	–	–	0.13U	–	–	–	–	–	–	–	–	–	–	–	–	–
19-Oct-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
27-Oct-05	–	7	–	–	0.093U	0.61B	–	–	–	–	0.099J	4.7U	–	–	–	–	–	–	–	–	–	–	–	–
1-Nov-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Nov-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Nov-05	–	7	–	–	0.024J	0.59B	–	–	–	–	0.11U	4.7U	–	–	–	–	–	–	–	–	–	–	–	–
22-Nov-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
1-Dec-05	–	7	–	–	–	–	–	–	–	–	0.13U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Dec-05	–	7	–	–	–	–	–	–	–	–	0.14U	–	–	–	–	–	–	–	–	–	–	–	–	–
14-Dec-05	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
27-Dec-05	7,100	7	5.0U	23	0.093U	0.70B	1.0U	1.0U	1.0U	0.33U	0.034J	4.8U	37	0.50U	5.0U	5.0U	5.0U	5	2.5B	72	390	3,600	–	–
6-Jan-06	–	7	–	–	–	–	–	–	–	–	0.12U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Jan-06	–	7	–	–	–	–	–	–	–	–	0.027J	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jan-06	–	7	–	–	0.098U	0.81B	–	–	–	–	0.11U	4.9U	0.97U	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
25-Jan-06	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
1-Feb-06	–	7	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
7-Feb-06	–	7	–	–	0.097U	0.67B	–	–	–	–	0.11U	4.7U	0.93U	–	–	–	–	–	–	–	–	–	–	–
15-Mar-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
23-Mar-06	9,900	6.5	5.0U	23	0.035J	0.68B	1.0U	1.0U	1.0U	0.32U	0.049J	4.7U	0.93U	0.50U	5.0U	5.0U	5.0U	1.0U	10U	34	50U	2,300	[c]ND	[c]ND
30-Mar-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Apr-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	4.7U	0.93U	–	–	–	–	–	–	–	–	–	–	–
4-May-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
11-May-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-May-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
8-Jun-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-06	6,000	6.5	5.0U	25	0.093U	0.43B	1.0U	1.0U	1.0U	0.87U	0.03J	4.8U	0.88J	0.50U	5.0U	5.0U	5.0U	3	4.3B	52	130	2,300	–	–
21-Jun-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Jun-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Jul-06	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
19-Jul-06	–	6.5	–	–	0.096U	0.61B	–	–	–	–	0.092U	4.7U	0.93U	–	–	–	–	–	–	–	–	–	–	–
27-Jul-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
3-Aug-06	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Aug-06	–	6.5	–	–	–	–	–	–	–	–	0.11U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-Aug-06	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
27-Sep-06	4,100	6.5	5.0U	20	0.018U	0.89B	1.0U	1.0U	1.0U	1.6U	0.31	4.5U	0.91U	0.50U	5.0U	5.0U	5.0U	1.0U	10U	39	50	2,000	–	–
5-Oct-06	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-06	–	6.5	–	–	–	–	–	–	–	–	0.098U	–	–	–	–	–	–	–	–	–	–	–	–	–
16-Nov-06	–	6.5	–	–	0.095U	1.4	–	–	–	–	0.096U	–	0.95U	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
20-Nov-06	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Nov-06	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Dec-06	5,700	6.5	5.0U	22	0.096U	0.91B	1.0U	1.0U	1.0U	0.56U	0.097U	4.7U	0.93U	0.5U	5.0U	5.0U	5.0U	1.0U	10U	39	50U	2,300	–	–
27-Dec-06	–	6.5	–	–	–	–	–	–	–	–	0.083U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Jan-07	–	6.5	–	–	0.096U	2.1	–	–	–	–	0.025J	5.0U	1.0U	–	–	–	–	–	–	–	–	–	–	–
25-Jan-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
1-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
7-Feb-07	–	6.5	–	–	0.094U	0.91B	–	–	–	–	0.098U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
14-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.098U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
14-Mar-07	3,300	6.5	5.0U	17	0.094U	1.3	1.0U	1.0U	1.0U	3.9U	0.095U	4.8U	0.95U	0.50U	5.0U	5.0U	5.0U	8.8	2.2B	49	160	5,400	–	[c]ND
18-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.069J	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Apr-07	–	6.5	–	–	0.097U	0.68B	–	–	–	–	0.097U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
10-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
26-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-May-07	–	6.5	–	–	0.094U	0.43J	–	–	–	–	0.095U	4.6U	0.92U	–	–	–	–	–	–	–	–	–	–	–
18-May-07	–	6.5	–	–	–	–	–	–	–	–	0.092U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-May-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
31-May-07	–	6.5	–	–	–	–	–	–	–	–	0.061J	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8 U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7 U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8 U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7 U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59JB	–	–	–	–	15J *	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7 U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	NR					–	NR	–	NR	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	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
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
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
January 26, 2008 to February 29, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products – OU #1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	February 29, 2008

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

1. Progress Made This Reporting Period

Task A (PP):

- Performed monthly project management activities.

Task B (PJ):

- Operation of the system under this task continued.
- An estimated 1.26 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 73.8 MG of water have been treated. An estimated 91 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 26,928 gallons.
- On January 29, Siren Telephone Company was onsite to install DSL.
- On January 30, Northland Fire & Safety Inc. was onsite for an annual fire extinguisher inspection.
- Maurer Power was onsite on February 1 to install a new breaker in the motor control center (MCC) for the flocculation tank mixer. Maurer Power returned to the site on February 8 to replace lights on the exterior of the treatment building, replace a broken part on the safety shower, and order belts for the air compressor. Maurer Power installed the replacement belts on the air compressor on February 15.
- On February 12, DR Tech replaced the skimmer motor on the dissolved air flotation (DAF) system.

- On February 13, the groundwater treatment system was shut down due to a ruptured pipe. The operator isolated the break and contacted Reliable Services to order the replacement components. Reliable Services performed the plumbing repairs on February 20 and the system was restarted.
- On February 20, Reliable Services and Maurer Power were onsite to troubleshoot heating issues. After Reliable Services completed service and Larry's LP, Inc. refilled the propane tank, the heat was restored in the treatment building.
- The status of recommendations resulting from the remediation system evaluation is summarized and presented in the table located at the end of this report.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits. Due to the increasing length of the table, the table was revised to only include 1 year of discharge sampling results. The table had previously reported the results since the system was started in 2004.

Task C (CV):

- Continued to perform operational monitoring under this task.

Task D (PC):

- Continued preparation of the *2007 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		40	0
B (PJ)	07/29/06	07/29/06	03/14/11		37	0
C (CV)	07/29/06	07/29/06	03/14/11		27	0
D (PC)	07/29/06	07/29/06	03/14/11		29	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

On January 21, DR Tech was onsite for inspection and service of the flocculation tank mixer variable frequency drive (VFD) in response to an alarm from a VFD error. DR Tech identified that there was a power issue and Maurer Power was contacted. On January 23, Maurer Power jumped it from a spare motor starter to get the mixer working at the MCC panel as a temporary fix. A new breaker was ordered. Maurer Power installed the new breaker on February 1.

On February 13, the groundwater treatment system was shut down due to a burst pipe. The operator isolated the leak and contacted Reliable Services to order the replacement components. Reliable Services performed the plumbing repairs on February 20 and the system was restarted.

3. Problem Areas and Recommended Solutions

Evaluation of the project costs has indicated that some of the subcontractor costs and expenses are trending higher than estimated based on 2005 costs. These costs include those for propane, electrical, carbon changeout services, and hazardous waste disposal services. Also, additional travel expenses and labor are being incurred as a result of the unexpected departure of the permanent operator. A temporary operator has been at the site since December 8 to support the previous operator during medical leave and following the resignation of the permanent operator. Additional support has been needed for the temporary operator. The temporary operator accepted the position of full-time operator, and travel expenses for the operator will continue through March 2008 until the operator is able to relocate to Siren, Wisconsin.

CH2M HILL is continuing to evaluate ways to optimize the system operation and evaluate options to reduce these operating costs. Improvements in system chemistry and operation have resulted in decreased solids loading to the carbon vessels. As a result, the carbon changeout frequency has decreased along with hazardous waste generation. The current operating trends are being evaluated to determine the impact on the operating costs.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP):

- CH2M HILL will perform monthly project management.

Task B (PJ):

- CH2M HILL will continue to operate the treatment system.

Task C (CV):

- CH2M HILL will perform sample management tasks as results are received from the laboratory.

Task D (PC):

- CH2M HILL will continue preparing the *2007 Interim Long-Term Remedial Action Annual Report.*

6. Key Personnel Changes

Lisa Mauser accepted the position of the new permanent onsite operator and will be relocating to Siren, Wisconsin.

7. Subcontractor Services

Electrical Service:	Northwestern WI Electric Co.
Telephone:	Siren Telephone Company
Septic Service:	A-1 Septic Service

Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	US Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.
Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Carbon Changeout Services:	Siemens Water Technologies

8. Travel

Travel for Lisa Mauser from January 12 through January 25 was reported in the *January 2008 Technical Status Report (TSR)*. Travel charges are included in this invoice.

Lisa Mauser was onsite as the temporary operator during this reporting period. Travel charges for February will be invoiced in the next reporting period.

Travel for Christie Walker from January 21 through January 24 was reported in the *January 2008 TSR*. Travel charges are included in this invoice.

9. Laboratories

System monitoring samples were submitted to STL of Chicago, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 analytical services.

10. Project Performance

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

Task A – LTRA Monthly Progress Report:

- The *January 2008 TSR* was submitted, meeting the performance standard.

Task B – Groundwater Containment and Bioventing:

- The bioventing system did not operate during this reporting period. The bioventing system was shut down on December 18 after evaluating soil gas monitoring data. As a result of sufficient oxygen remaining in the subsurface to support aerobic biodegradation and the health and safety concern of methane migration under the frozen ground surface, it was recommended that the bioventing system remain off for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will provide cost savings on energy consumption.

- The groundwater treatment system was not operational for 2 days based on the approved clarification to this performance standard. One alarm was not acknowledged within 24 hours, which resulted in 2 days of non-operation. The system was down for repairs; however, these were completed in less than the 10 days required by the performance standard. The performance standard

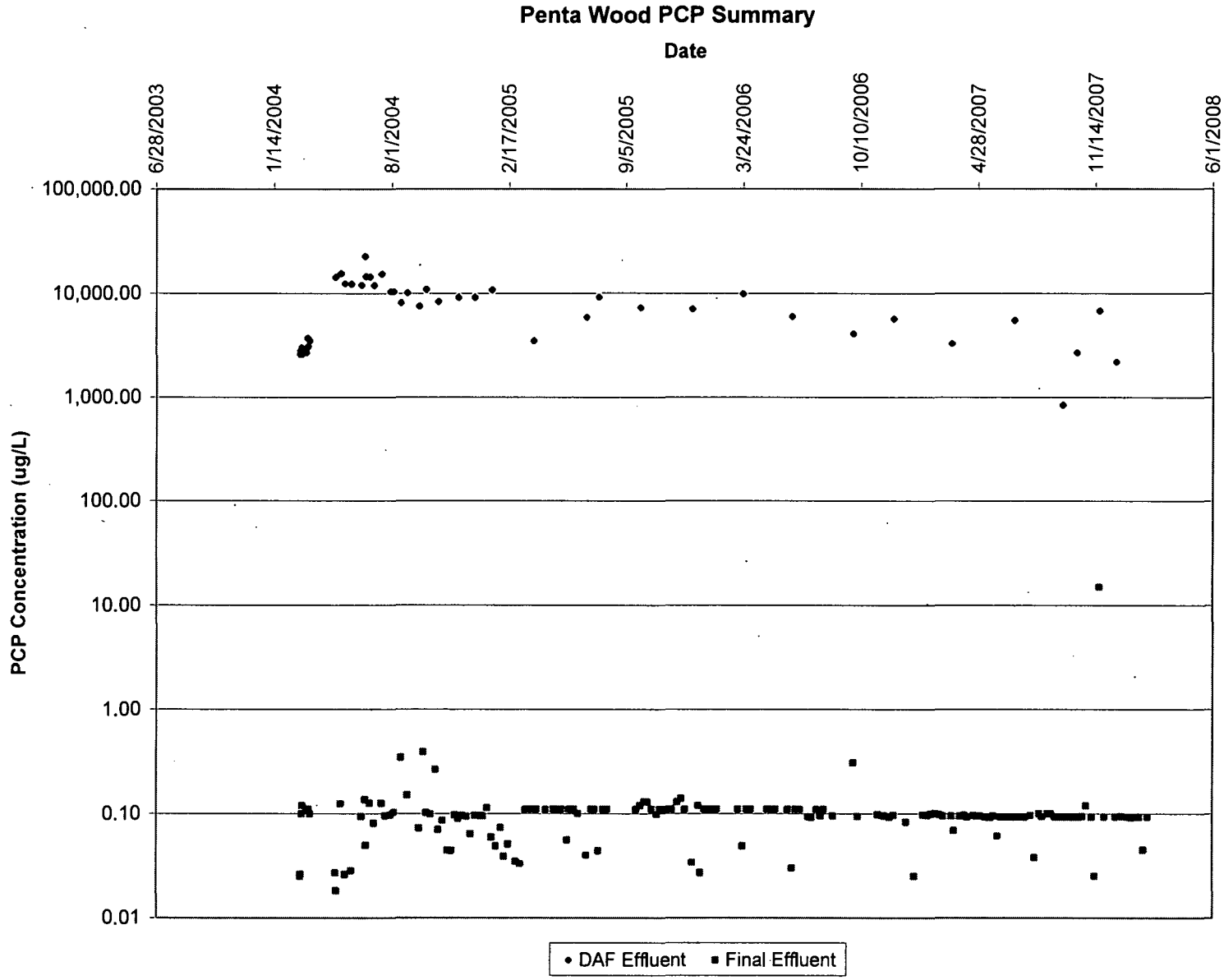
requires that the system is operational for 329 days per year, which equates to 3 days of non-operation per month. The groundwater treatment system met the performance standard for this reporting period.

Task C—Groundwater Treatment:

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow Water Quality Trends in Monitoring Wells to Determine if Plume is Migrating	CH2M HILL continued to evaluate the PCP data to determine if plume migration is expanding and if additional monitoring sites may be needed. If continued increases are observed in Monitoring Well MW-13, installation of a monitoring well to the east, in the direction of two residences, may be considered.
Provide More Accurate Prediction of Consumables and Disposal Costs	The budget for this *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs.
Consider Modifying Management of Granular Activated Carbon (GAC) Units	CH2M HILL is continuing to evaluate alternatives to reduce the carbon changeout frequency.
Eliminate Redundant or Unnecessary Laboratory Analysis	Historical metals data were reviewed to verify elimination of total metals from the annual sampling of the monitoring wells and will not affect data evaluation. As instructed by USEPA, CH2M HILL will eliminate 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 in order to fully evaluate the contaminant plume. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The WDNR accepted a number 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.
Savings From the Use of Dedicated Pumps in Monitoring Wells	The use of dedicated pumps has reduced the overall CH2M HILL level of effort required for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce travel costs.
Investigate Possibility of Declassifying Waste	CH2M HILL investigated the possibility of declassifying the waste and determined that this action is not feasible due to the continued presence of LNAPL in the ground, which is considered to be a listed hazardous waste.
Decrease Project Management/ Reporting Costs	CH2M HILL expects project management costs to decrease during this LTRA work assignment. Data management costs may remain high due to the volume of analytical data generated for the site and the level of effort associated with meeting USEPA reporting requirements.
Develop Tracking of Routine and Non-Routine Costs	For this LTRA work assignment, CH2M HILL is tracking routine and non-routine maintenance activities, the associated costs, and possible ways to reduce the costs.
Evaluate Potential to Reduce Groundwater Extraction Without Substantially Affecting LNAPL Recovery	As part of the data evaluation activities for this LTRA work assignment, CH2M HILL will continue to evaluate LNAPL recovery and dissolved plume containment to determine the potential for reduced groundwater pumping. The LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on the LNAPL recovery. The results of the optimization test were summarized and submitted in a technical memorandum on June 29.
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 will monitor the effects that the bioventing operation has on the LNAPL, groundwater, and other subsurface conditions (i.e., temperature, methane productions, etc.). The bioventing will be performed concurrently with the LNAPL recovery system.


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
1-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
7-Feb-07	–	6.5	–	–	0.094U	0.91B	–	–	–	–	0.098U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
14-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.098U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Feb-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
14-Mar-07	3,300	6.5	5.0U	17	0.094U	1.3	1.0U	1.0U	1.0U	3.9U	0.095U	4.8U	0.95U	0.50U	5.0U	5.0U	5.0U	8.8	2.2B	49	160	5,400	–	[c]ND
18-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.069J	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Apr-07	–	6.5	–	–	0.097U	0.68B	–	–	–	–	0.097U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
10-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
26-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-May-07	–	6.5	–	–	0.094U	0.43J	–	–	–	–	0.095U	4.6U	0.92U	–	–	–	–	–	–	–	–	–	–	–
18-May-07	–	6.5	–	–	–	–	–	–	–	–	0.092U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-May-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
31-May-07	–	6.5	–	–	–	–	–	–	–	–	0.061J	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8 U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7 U	0.94U	–	–	–	–	–	–	–	–	–	–	

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8 U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7 U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7 U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	[b]NR	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	[b]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
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
March 1, 2008 to March 28, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products – OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	March 28, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP):

- Performed monthly project management activities.

Task B (PJ):

- Operation of the system under this task continued.
- An estimated 1.10 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 75.0 MG of water have been treated. An estimated 50 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 26,978 gallons.
- On March 4, Maurer Power was onsite for the outside lighting and performed troubleshooting on the air compressor in the old treatment building. Maurer Power identified a loose wire on the air dryer and a relay switch that needed to be replaced on the compressor. Maurer Power performed repairs to allow it to operate manually and ordered a new relay switch.
- On March 6, DR Tech was onsite to remove one pH probe from the neutralization tank. The pH probe was not calibrating properly and was shipped to the manufacturer for service.
- On March 11, Glacier Pure delivered one pallet of DE to the site.
- On March 11, North Shore Environmental was onsite to pick up one supersack of spent carbon and four drums of debris.

- On March 12, Maurer Power was onsite to test the dissolved air flotation (DAF) regulator, solenoid, flowmeter, and pressure sensor for proper voltage and function. The operator identified an oil leak from the air compressor in the new treatment building, so Maurer Power performed troubleshooting while onsite and identified a crack in the oil filter. The service kits were ordered and Maurer Power returned on March 14 to replace the oil filter and change the oil in the air compressor.
- On March 13, Siemens was onsite to change out the carbon in the lead 10,000-pound (lb) vessel. The system was shut down on March 11 to drain the carbon and restarted on March 16 after the carbon vessel had been refilled and allowed to soak. The changeout was driven by increasing pressures in the lead carbon vessel. A total of 3.6 MG of water was treated in the 13 weeks since the previous carbon changeout performed on December 12.
- On March 20, Maurer Power checked the voltage on the DAF solenoid. A new solenoid has been ordered and will be installed after it is delivered.
- On March 25, Clay Hill was onsite to service the air dryers.
- The status of recommendations resulting from the remediation system evaluation is summarized and presented in the table located at the end of this report.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits.

Task C (CV):

- Continued to perform operational monitoring under this task.

Task D (PC):

- Continued preparation of the *2007 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		42	0
B (PJ)	07/29/06	07/29/06	03/14/11		39	0
C (CV)	07/29/06	07/29/06	03/14/11		28	0
D (PC)	07/29/06	07/29/06	03/14/11		29	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

None.

3. Problem Areas and Recommended Solutions

Evaluation of the project costs has indicated that some of the subcontractor costs and expenses are trending higher than estimated based on 2005 costs. These costs include those for propane, electrical, carbon changeout services, and hazardous waste disposal services. Also, additional travel expenses and labor are being incurred as a result of the unexpected departure of the permanent operator. A temporary operator has been at the site since December 8 to support the previous operator during medical leave and following the resignation of the permanent operator. Additional support has been needed for the temporary operator. The temporary operator accepted the position of full-time operator, and travel expenses for the operator will continue through March 2008 until the operator is able to relocate to Siren, Wisconsin.

CH2M HILL is continuing to evaluate ways to optimize the system operation and evaluate options to reduce these operating costs. Improvements in system chemistry and operation have resulted in decreased solids loading to the carbon vessels. As a result, the carbon changeout frequency has decreased along with hazardous waste generation. The current operating trends are being evaluated to determine the impact on the operating costs.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

Task A (PP):

- CH2M HILL will perform monthly project management.

Task B (PJ):

- CH2M HILL will continue to operate the treatment system.
- CH2M HILL will perform soil gas monitoring during the week of March 31 to evaluate the current soil gas concentrations in preparation for restarting the bioventing system.

Task C (CV):

- CH2M HILL will perform sample management tasks as results are received from the laboratory.
- CH2M HILL will begin preparing for the semi-annual groundwater sampling event which is currently scheduled for the week of May 19.

Task D (PC):

- CH2M HILL will continue preparing the *2007 Interim Long-Term Remedial Action Annual Report.*

6. Key Personnel Changes

None.

7. Subcontractor Services

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

8. Travel

Travel for Lisa Mauser from February was previously reported. Travel charges are included in this invoice.

Lisa Mauser was onsite in March as the site operator and is in the process of relocating to Siren. Travel charges for March will be invoiced in the next reporting period.

9. Laboratories

System monitoring samples were submitted to STL of Chicago, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 analytical services.

10. Project Performance

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

Task A—LTRA Monthly Progress Report:

- The *February 2008 Technical Status Report (TSR)* was submitted, meeting the performance standard.

Task B—Groundwater Containment and Bioventing:

- The bioventing system did not operate during this reporting period. The bioventing system was shut down on December 18 after evaluating soil gas monitoring data. As a result of sufficient oxygen remaining in the subsurface to support aerobic biodegradation and the health and safety concern of methane migration under the frozen ground surface, it was recommended that the bioventing system remain off for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will provide cost savings on energy consumption.

- The groundwater treatment system was not operational for 2 days based on the approved clarification to this performance standard. One alarm was not acknowledged within 24 hours, which resulted in 2 days of non-operation. The system was also down for a carbon changeout; however, this was completed in

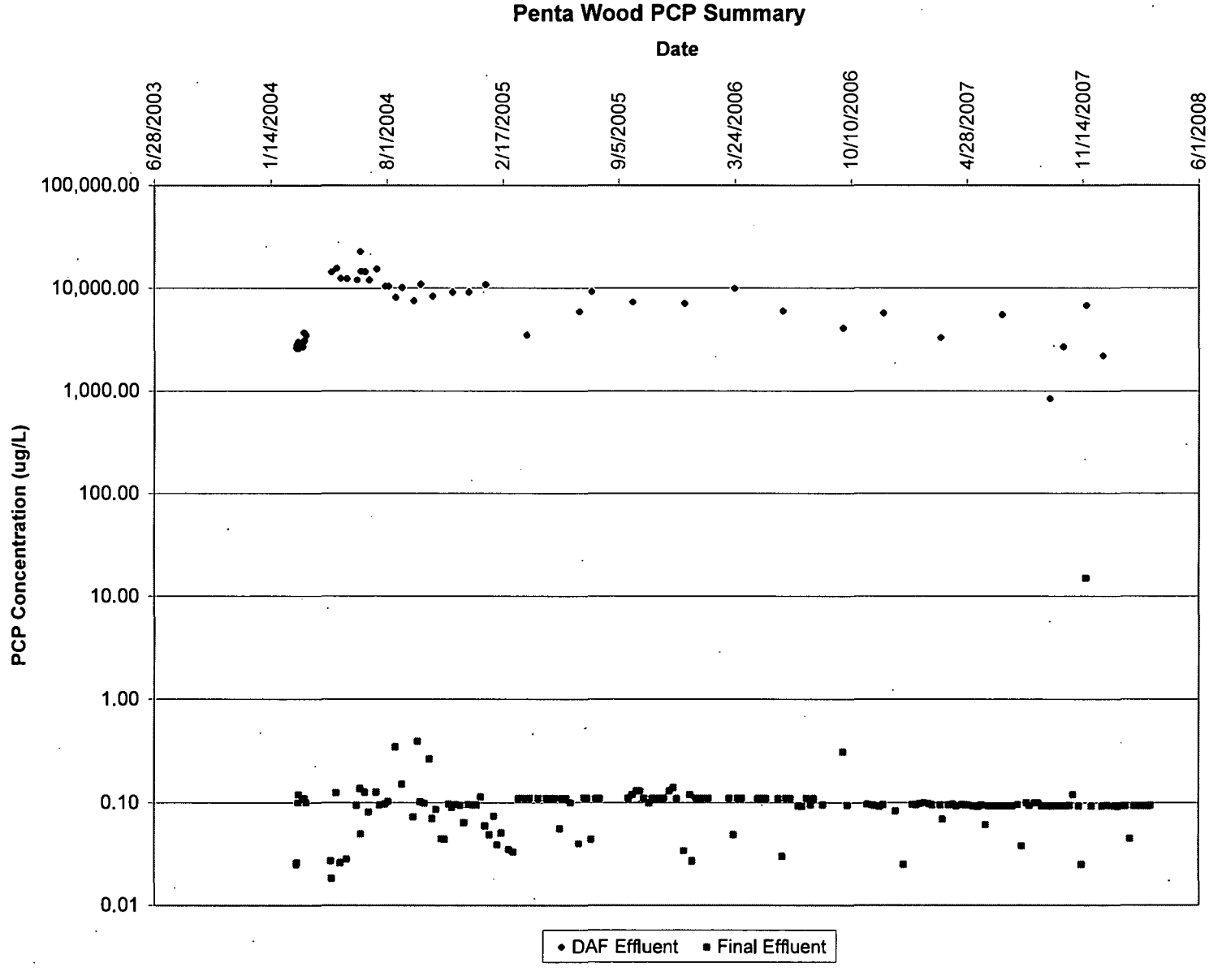
5 days as required by the performance standard. The performance standard requires that the system is operational for 329 days per year, which equates to 3 days of non-operation per month. The groundwater treatment system met the performance standard for this reporting period.

Task C – Groundwater Treatment:

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Follow Water Quality Trends in Monitoring Wells to Determine if Plume is Migrating	CH2M HILL continued to evaluate the PCP data to determine if plume migration is expanding and if additional monitoring sites may be needed. If continued increases are observed in Monitoring Well MW-13, installation of a monitoring well to the east, in the direction of two residences, may be considered.
Provide More Accurate Prediction of Consumables and Disposal Costs	The budget for this *Long-Term Remedial Action (LTRA) Work Plan* is more accurate because of the availability of actual costs.
Consider Modifying Management of Granular Activated Carbon (GAC) Units	CH2M HILL is continuing to evaluate alternatives to reduce the carbon changeout frequency.
Eliminate Redundant or Unnecessary Laboratory Analysis	Historical metals data were reviewed to verify elimination of total metals from the annual sampling of the monitoring wells and will not affect data evaluation. As instructed by USEPA, CH2M HILL will eliminate 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 in order to fully evaluate the contaminant plume. CH2M HILL reviewed the number of locations and frequency of the sampling performed during the groundwater sampling events and presented USEPA with recommended reductions in the number of sampling locations. CH2M HILL reviewed the WPDES discharge sampling requirements and recommended a reduction in the analyses and frequency of sample collection. The Wisconsin Department of Natural Resources (WDNR) accepted a number 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.
Savings From the Use of Dedicated Pumps in Monitoring Wells	The use of dedicated pumps has reduced the overall CH2M HILL level of effort required for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce travel costs.
Investigate Possibility of Declassifying Waste	CH2M HILL investigated the possibility of declassifying the waste and determined that this action is not feasible due to the continued presence of LNAPL in the ground, which is considered to be a listed hazardous waste.
Decrease Project Management/ Reporting Costs	CH2M HILL expects project management costs to decrease during this long-term remedial action (LTRA) work assignment. Data management costs may remain high due to the volume of analytical data generated for the site and the level of effort associated with meeting USEPA reporting requirements.
Develop Tracking of Routine and Non-Routine Costs	For this LTRA work assignment, CH2M HILL is tracking routine and non-routine maintenance activities, the associated costs, and possible ways to reduce the costs.
Evaluate Potential to Reduce Groundwater Extraction Without Substantially Affecting LNAPL Recovery	As part of the data evaluation activities for this LTRA work assignment, CH2M HILL will continue to evaluate LNAPL recovery and dissolved plume containment to determine the potential for reduced groundwater pumping. The LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on the LNAPL recovery. The results of the optimization test were summarized and submitted in a technical memorandum on June 29.
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 will monitor the effects that the bioventing operation has on the LNAPL, groundwater, and other subsurface conditions (i.e., temperature, methane productions, etc.). The bioventing will be performed concurrently with the LNAPL recovery system.


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
14-Mar-07	3,300	6.5	5.0U	17	0.094U	1.3	1.0U	1.0U	1.0U	3.9U	0.095U	4.8U	0.95U	0.50U	5.0U	5.0U	5.0U	8.8	2.2B	49	160	5,400	–	[c]ND
18-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.069J	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Mar-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Apr-07	–	6.5	–	–	0.097U	0.68B	–	–	–	–	0.097U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
10-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
26-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-May-07	–	6.5	–	–	0.094U	0.43J	–	–	–	–	0.095U	4.6U	0.92U	–	–	–	–	–	–	–	–	–	–	–
18-May-07	–	6.5	–	–	–	–	–	–	–	–	0.092U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-May-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
31-May-07	–	6.5	–	–	–	–	–	–	–	–	0.061J	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8 U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7 U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8 U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7 U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7 U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					NR	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1800		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
18-Mar-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	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
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
March 29, 2008 to April 25, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products—OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	April 25, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP):

- Performed monthly project management activities.

Task B (PJ):

- Operation of the system under this task continued.
- An estimated 2.26 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 77.4 MG of water have been treated. An estimated 2,713 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 29,691 gallons. The LNAPL recovery represented a significant increase over the typical monthly recovery. A sludge judge was used to determine if water had been pumped into the LNAPL tank, but no water was observed. The apparent rapid recovery may be the result of the temporary malfunction of the level indicator or increased recovery due to the current operation of the treatment system, but the sludge judge confirmed the current readings in the LNAPL tank.
- On April 1 and 2, Dave Shekoski travelled to the site from Milwaukee to temporarily restart the bioventing system and perform soil gas monitoring with the site operator. The results of the soil gas monitoring indicated that methane concentrations are elevated in the shallow wells in the wood chip area of the Corrective Action Management Unit (CAMU). Oxygen concentrations have decreased more significantly in the deep wells than in the intermediate wells indicating a greater amount of biological activity in this zone. Following the measurements of the soil gas, the bioventing system was turned off while the soil

gas measurements were being evaluated and until the ground thawed. The bioventing system will be restarted after the semi-annual groundwater sampling is performed the week of May 19.

- Maurer Power was onsite on April 2 to troubleshoot the air compressor and reset the overload switch.
- On April 3, North Shore Environmental picked up approximate 10 tons of spent carbon and 4 drums of debris for disposal. North Shore returned on April 8 to pick up an approximate 15 tons of filter cake.
- Reliable Services was onsite on April 7, 8, and 9 to troubleshoot and service the heater.
- On April 9, Glacier Pure delivered two pallets of diatomaceous earth.
- On April 25, Reliable Services and Maurer Power were onsite to service the odorous air (OA) fan.
- The status of recommendations resulting from the remediation system evaluation is summarized and presented in the table located at the end of this report.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits.

Task C (CV):

- Continued to perform operational monitoring under this task.

Task D (PC):

- Continued preparation of the *2007 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		43	0
B (PJ)	07/29/06	07/29/06	03/14/11		40	0
C (CV)	07/29/06	07/29/06	03/14/11		30	0
D (PC)	07/29/06	07/29/06	03/14/11		30	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

None.

3. Problem Areas and Recommended Solutions

CH2M HILL is continuing to evaluate ways to optimize system operation and evaluate options to reduce these operating costs. Improvements in system chemistry and operation have resulted in decreased solids loading to the carbon vessels. As a

result, the carbon changeout frequency has decreased along with hazardous waste generation. The current operating trends are being evaluated to determine the impact on the operating costs.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

Task A (PP):

- CH2M HILL will perform monthly project management.

Task B (PJ):

- CH2M HILL will continue to operate the groundwater treatment system.
- CH2M HILL will restart the bioventing system after the semi-annual groundwater monitoring is performed the week of May 19.

Task C (CV):

- CH2M HILL will perform sample management tasks as results are received from the laboratory.
- The semi-annual groundwater sampling event will be performed the week of May 19.

Task D (PC):

- CH2M HILL will continue preparing the *2007 Interim Long-Term Remedial Action Annual Report*. If the validated data is not received prior to the semi-annual sampling event, a draft report will be provided to the WAM for review and discussion.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

Travel for Lisa Mauser from February and March was previously reported. Travel charges are included in this invoice.

Dave Shekoski travelled to the site on April 1 and returned to Milwaukee on April 2. Travel charges are included in this invoice.

9. **Laboratories**

System monitoring samples were submitted to STL of Chicago, Illinois for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 analytical services.

10. **Project Performance**

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

Task A – LTRA Monthly Progress Report:

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

Task B – Groundwater Containment and Bioventing:

- The bioventing system did not operate during this reporting period. The bioventing system was shut down on December 18 after evaluating soil gas monitoring data. As a result of sufficient oxygen remaining in the subsurface to support aerobic biodegradation and the health and safety concern of methane migration under the frozen ground surface, it was recommended that the bioventing system remain off for the winter. The bioventing system will be restarted after the semi-annual groundwater sampling event in May.
- The groundwater treatment system was operational 100 percent of the time based on the approved clarification to this performance standard.

Task C – Groundwater Treatment:

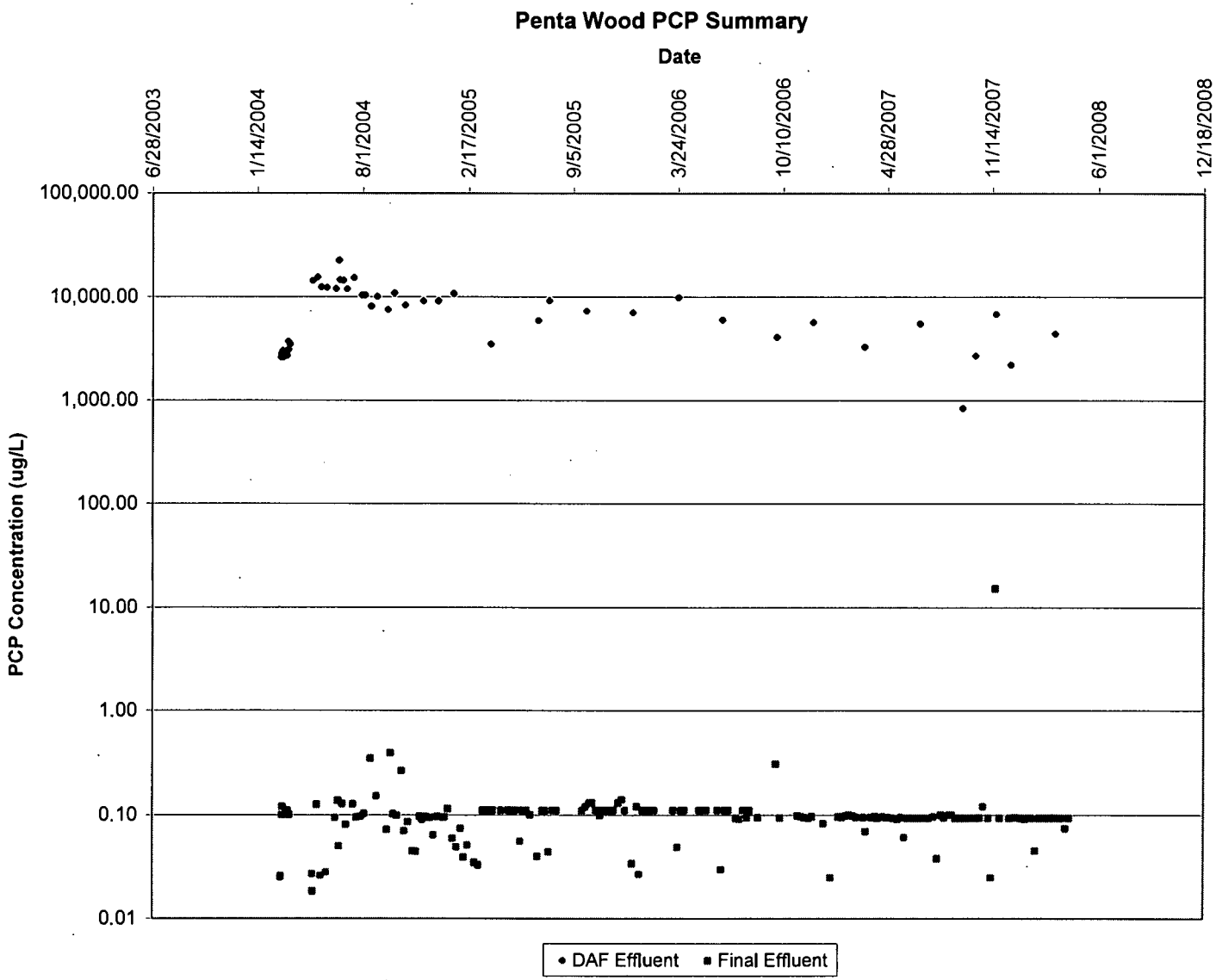
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Polllutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to look for opportunities to optimize the system and reduce 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. 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
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/5/2005
3/24/2006
10/10/2006
4/28/2007
11/14/2007
6/1/2008
12/18/2008
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
5-Apr-07	–	6.5	–	–	0.097U	0.68B	–	–	–	–	0.097U	4.8U	0.95U	–	–	–	–	–	–	–	–	–	–	–
10-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
26-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Apr-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
8-May-07	–	6.5	–	–	0.094U	0.43J	–	–	–	–	0.095U	4.6U	0.92U	–	–	–	–	–	–	–	–	–	–	–
18-May-07	–	6.5	–	–	–	–	–	–	–	–	0.092U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-May-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
31-May-07	–	6.5	–	–	–	–	–	–	–	–	0.061J	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8 U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7 U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8 U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7 U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7 U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
10-Mar-08	4,400	6.5		20	0.094U					NR	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1800		
18-Mar-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	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.

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

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

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

RAC2 TECHNICAL STATUS REPORT
April 25, 2008 to May 30, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products – OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	May 30, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP):

- Performed monthly project management activities.

Task B (PJ):

- Operation of the system under this task continued.
- An estimated 2.53 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 79.93 MG of water have been treated. An estimated 306 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 29,997 gallons.
- Reliable Services was onsite on April 29 to service the heater.
- On April 29, Larry's LP filled the propane tank at the site. Now that the temperatures are rising, the tank will be filled on a less frequent basis.
- On May 1, Glacier Pure delivered 45,220 pounds of ferric sulfate. On May 6, Glacier Pure delivered two pallets of diatomaceous earth.
- On May 13, North Shore Environmental picked up approximately 15 tons of filter cake and four 1.5 cubic yard supersacks of spent carbon at 1 ton each.
- Barnett Co-op delivered 23 gallons of diesel fuel for the bobcat.
- On May 22, Jennifer Hovis and Tom Williams of USEPA, Bill Shultz of the Wisconsin Department of Natural Resources (DNR), Doug Sutton of GeoTrans, and Keli McKenna of CH2M HILL had a conference call to follow up on the recommendations from the remediation system evaluation performed in October

2006. Progress on the recommendations made to increase the efficiency and effectiveness of the operations were summarized (see table located at the end of this report) and provided to USEPA prior to the conference call.

- On May 30, Maurer Power was onsite to remove the RDVF vacuum pump and install the newly purchased pump. One solenoid was also replaced in the DAF unit.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits. The results are being submitted to WDNR through their electronic submittal process (eDMR).

Task C (CV):

- Continued to perform operational monitoring under this task.
- On May 19, Keli McKenna, Dave Shekoski, and Shannon Greene travelled to the site from Milwaukee to perform the semi-annual groundwater sampling event and to restart the bioventing system. The semi-annual groundwater monitoring was performed on May 19 and May 20. The bioventing system was restarted on May 21.

  After the bioventing system was restarted, soil gas monitoring was performed in accordance with the bioventing startup plan. The results of the soil gas monitoring indicate that there are still two shallow soil gas wells within the woodchip area of the Corrective Action Management Unit (CAMU) that have elevated methane concentrations. No oxygen was detected within these wells. Oxygen concentrations found in all of the other monitored soil gas wells remain at similar levels found during the initial biovent startup.

Task D (PC):

- A draft *2007 Interim Long-Term Remedial Action Annual Report* was prepared and provided to the WAM and WDNR for review and discussion. Validated results are still outstanding for a number of samples so the report could not be finalized.

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		45	0
B (PJ)	07/29/06	07/29/06	03/14/11		41	0
C (CV)	07/29/06	07/29/06	03/14/11		32	0
D (PC)	07/29/06	07/29/06	03/14/11		33	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

None.

3. **Problem Areas and Recommended Solutions**

On May 24, the operator tried to run the RDVF system and noticed that the diatomaceous earth (DE) would not coat the drum. The operator began troubleshooting the problem with the manufacturer, Alar Engineering Corp, and technical resources within CH2M HILL. Troubleshooting identified that the vacuum pump was not operating. As a result, the groundwater treatment system was shut down on May 26 because no additional storage was available in the float tank and the RDVF could not be run.

A new pump was ordered from Alar on May 26 and was delivered to the site on May 30. Maurer Power was onsite on May 30 to remove the old pump and assist the operator with the installation of the new vacuum pump. The treatment system was restarted on May 30 after the pump installation and is operating normally.

4. **Deliverables Submitted**

A draft *2007 Interim Long-Term Remedial Action Annual Report* was prepared and provided to the WAM for review and discussion. Validated results are still outstanding for a number of samples so the report has not been finalized.

5. **Activities Planned Next Reporting Period**

Task A (PP):

- CH2M HILL will perform monthly project management.

Task B (PJ):

- CH2M HILL will continue to operate the groundwater treatment and bioventing systems.

Task C (CV):

- CH2M HILL will perform sample management tasks as results from operational monitoring and the semi-annual sampling event are received from the laboratory.

Task D (PC):

- CH2M HILL will continue to finalize the *2007 Interim Long-Term Remedial Action Annual Report*. The validated data has not been received for 10 samples.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

Electrical Service:	Northwestern WI Electric Co.
Telephone:	Siren Telephone Company
Septic Service:	A-1 Septic Service
Nonhazardous Waste Disposal:	Allied Waste Services
Polymer:	US Water Services
Propane Tank and Gas:	Larry's LP, Inc.
Contaminated Media Removal:	Siemens Water Technologies, Inc.

Hazardous Waste Disposal:	North Shore Environmental
Treatment System Chemicals:	Glacier Pure, Inc.
Well Pump Inspection and Replacement:	WDC Exploration and Wells
Road Maintenance, Erosion Control, and Repair:	Brust Excavating
Carbon Changeout Services:	Siemens Water Technologies

8. **Travel**

Travel for Lisa Mauser from March and April are the remaining expenses for relocation to Siren.

Keli McKenna, Dave Shekoski, and Shannon Greene traveled to the site on May 19 and returned to Milwaukee on May 21. Travel charges will be invoiced in the next reporting period.

9. **Laboratories**

Samples were submitted to STL of Chicago, Illinois for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006-2008 analytical services.

10. **Project Performance**

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

Task A – LTRA Monthly Progress Report:

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

Task B – Groundwater Containment and Bioventing:

- The bioventing system was restarted on May 21. Soil gas monitoring has been performed daily since the system was restarted and the results are consistent with the monitoring results during operation of the bioventing system in 2007. The bioventing system was operational 100 percent of the time after the system was restarted, meeting the performance standard.
- The groundwater treatment system was nonoperational for 5 days during this reporting period due to the necessary repairs of the RDVF system. The groundwater treatment system was shut down on May 26 and restarted on May 30 after a new vacuum pump was installed. The repairs were completed in 5 days, which is less than the allotted 10 days given for system repairs. All alarms were acknowledged within 24 hours as required. The groundwater treatment system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment:

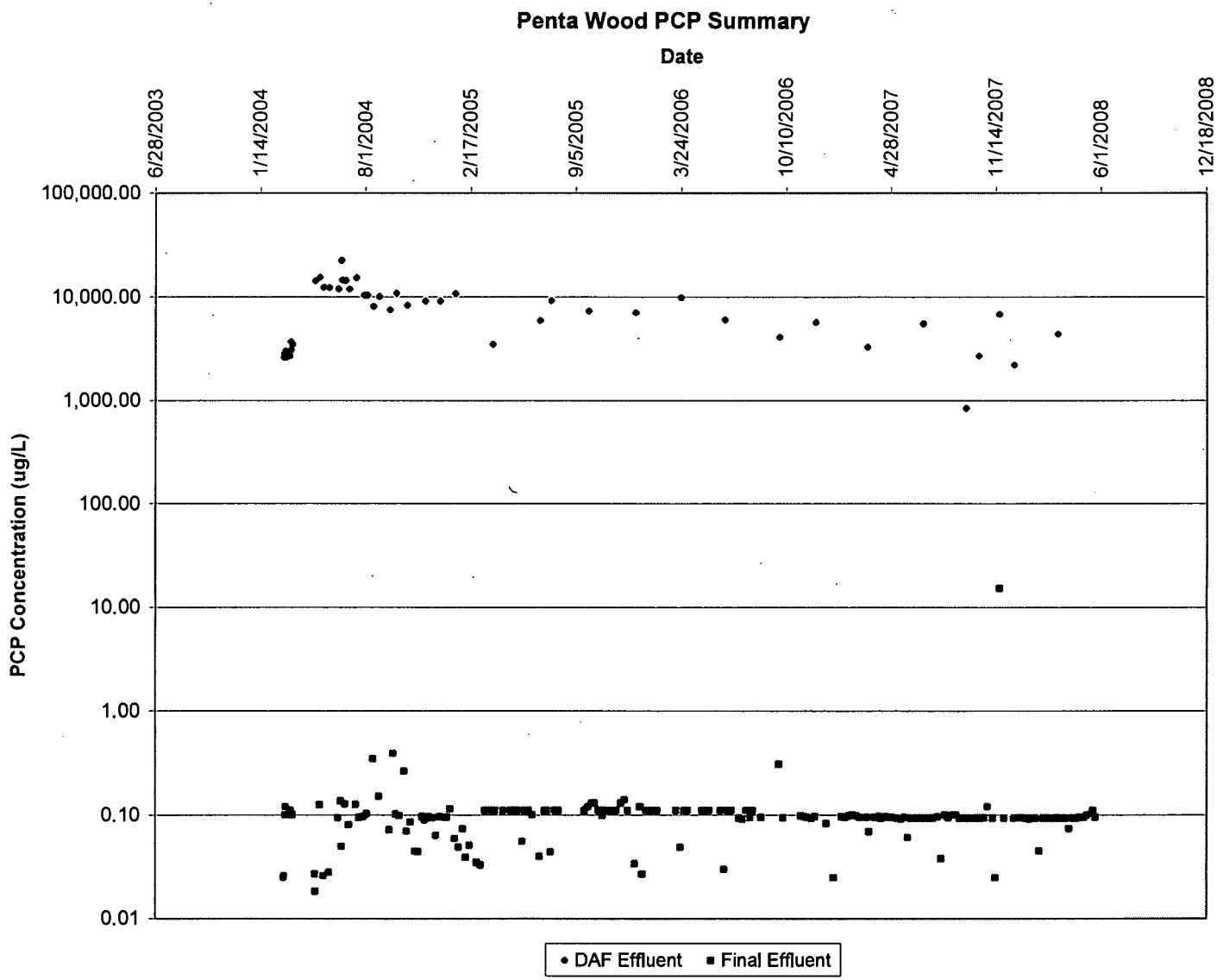
- Treatment system effluent sampling results met the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to look for opportunities to optimize the system and reduce 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. 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
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/5/2005
3/24/2006
10/10/2006
4/28/2007
11/14/2007
6/1/2008
12/18/2008
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
8-May-07	–	6.5	–	–	0.094U	0.43J	–	–	–	–	0.095U	4.6U	0.92U	–	–	–	–	–	–	–	–	–	–	–
18-May-07	–	6.5	–	–	–	–	–	–	–	–	0.092U	–	–	–	–	–	–	–	–	–	–	–	–	–
24-May-07	–	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
31-May-07	–	6.5	–	–	–	–	–	–	–	–	0.061J	–	–	–	–	–	–	–	–	–	–	–	–	–
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8 U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7 U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8 U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7 U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	0.15*	4.7 U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7 U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		

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 TSR text.

RAC2 TECHNICAL STATUS REPORT
May 31, 2008 to June 27, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	June 27, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.

Task B (PJ)

- Operation of the system under this task continued.
- An estimated 1.45 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 81.38 MG of water have been treated. An estimated 275 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 30,272 gallons.
- On June 6, the facility experienced a power outage that caused the facility to lose power temporarily. The loss of power activated the treatment system "No Power" alarm and shut the treatment system down. Mauer Power was on site the same day to reset the motor control center (MCC) panel following the power outage at the plant. The operator was able to restart the system; however, an alarm shut the system down again on June 9. The operator attempted to restart the system, but discovered the dissolved air flotation (DAF) recirculation pump, granular activated carbon (GAC) pump, and the biovent blower would not restart. After troubleshooting each component, the following issues were identified:
  - GAC Pump - The pump's coupler insert was worn out. The coupler insert is a rubber part that connects the motor shaft to the pump shaft. The pump motor

was turning, but the pump shaft was not spinning and no water was being pumped. A replacement insert was ordered on June 10 and installed on June 13.

- DAF Recirculation Pump - The pump needed to be reset from inside the DAF control panel. Once the reset button was depressed, the pump operated normally.
- Biovent Blower - One of the fuses in the MCC bucket for the blower was blown. The fuse was replaced on June 10 and the blower restarted.

- On June 24, Maurer Power adjusted the rotary vacuum drum filters (RDVF) knife blade and repaired the grease fittings.
- On June 6, U.S. Water Services delivered 5 gallons of polymer.
- On June 10, Glacier Pure delivered two pallets of diatomaceous earth.
- On June 16, North Shore Environmental picked up approximately 13 tons of filter cake and 4,000 gallons of LNAPL.
- On June 25, the odorous air fan belts were checked for wear, the switches were reset, and the amps on the motor were assessed by Reliable Services.
- Soil gas monitoring has been performed weekly since the biovent system was restarted and the results have been consistent with previous monitoring results. The frequency of the monitoring will be reduced to monthly during the next reporting period due to the consistency of the results.
- Reliable Services was onsite on June 26 to service the heater. The HI/Low pressure switches were replaced, the filter screens were cleaned, bug screens were installed, and a new switchboard was ordered.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits. The results are being submitted to Wisconsin Department of Natural Resources (WDNR) through their electronic submittal process (eDMR).

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

- Results were received from the semi-annual groundwater sampling event (May 2008). These results were submitted to USEPA for validation. A letter providing the analytical results for the residential wells was submitted to USEPA and WDNR.
- Continued to perform operational monitoring under this task.

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

- Final validated results from the September 2007 sampling event were received on June 12. The final *2007 Interim Long-Term Remedial Action Annual Report* was prepared and will be submitted during the next reporting period.

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		47	0
B (PJ)	07/29/06	07/29/06	03/14/11		44	0
C (CV)	07/29/06	07/29/06	03/14/11		33	0
D (PC)	07/29/06	07/29/06	03/14/11		33	0
E (CO)	03/01/11		03/14/11		0	0

2. **Problems Resolved**

The GAC pump's coupler insert was replaced. The pump motor was turning, but the pump shaft was not spinning and no water was being pumped. A replacement insert was ordered on June 10 and installed on June 13.

The bioventing system was shutdown on June 6 because a fuse for the biovent blower in the MCC bucket was blown. The system was restarted on June 10 when a temporary fuse was installed until the replacement fuses could be received. The rating of the temporary fuse was not large enough for continuous operation of the blower. The system was turned off on June 14 and 15 until the replacement fuse could be installed on June 16 and the blower restarted.

3. **Problem Areas and Recommended Solutions**

The site continues to have power outages that temporarily shut the system down. The operator is able to reset the system each time. Due to the frequency of the events, the power company was contacted to determine if the cause of the power outages are related to site equipment or power supply. The power company was on site June 20 to install a logging device to track and graph the incoming power to the site. The logs will be evaluated during the next reporting period.

4. **Deliverables Submitted**

- A letter with the residential and potable well results from the semi-annual groundwater sampling event that took place in May 2008 was submitted to the WAM and WDNR on June 19.

5. **Activities Planned Next Reporting Period**

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

- CH2M HILL will perform monthly project management.

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

- CH2M HILL will continue to operate the groundwater treatment and bioventing systems. Per the discussion with the WAM and WDNR project manager during the May groundwater sampling event, both fertilizer and grass seed are being evaluated to fill in areas on the site that have limited vegetation.

Task C (CV)

- CH2M HILL will perform sample management tasks as results from operational monitoring and the semi-annual sampling event are received from the laboratory.

Task D (PC)

- CH2M HILL will submit the final *2007 Interim Long-Term Remedial Action Annual Report.*

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

Travel for Keli McKenna, Dave Shekoski, and Shannon Greene in May was previously reported.

Mileage charges for Lisa Mauser are included in the invoice for travel associated with pick up of site supplies (i.e., weed trimmer, ice, pump repairs, skimmer motor repair, etc.) from May 5 to June 11.

9. **Laboratories**

Samples were submitted to STL of Chicago, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 analytical services.

10. **Project Performance**

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

Task A—LTRA Monthly Progress Report

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

Task B – Groundwater Containment and Bioventing

- The bioventing system was shut down on June 6 due to a power outage that blew a fuse on the MCC system panel that operates the blower. The system was restarted on June 10 when a temporary fuse was installed until the replacement fuses could be received. The rating of the temporary fuse was not large enough for continuous operation of the blower. The system was turned off on June 14 and 15 until the replacement fuse could be installed on June 16. The repairs were completed in 3 days, which is less than the 10 days given for system repairs. The bioventing system met the performance standard for this period, based on the approved clarification.

- The groundwater treatment system was nonoperational for 4 days during this reporting period for repairs of the GAC and DAF recirculation pumps. The groundwater treatment system was shut down on June 9 due to a power outage and restarted on June 13 after a new coupler insert was installed in the GAC pump. The repairs were completed in 4 days, which is less than the allotted 10 days given for system repairs. All alarms were acknowledged within 24 hours as required. The groundwater treatment system met the performance standard for this period, based on the approved clarification.

Task C – Groundwater Treatment

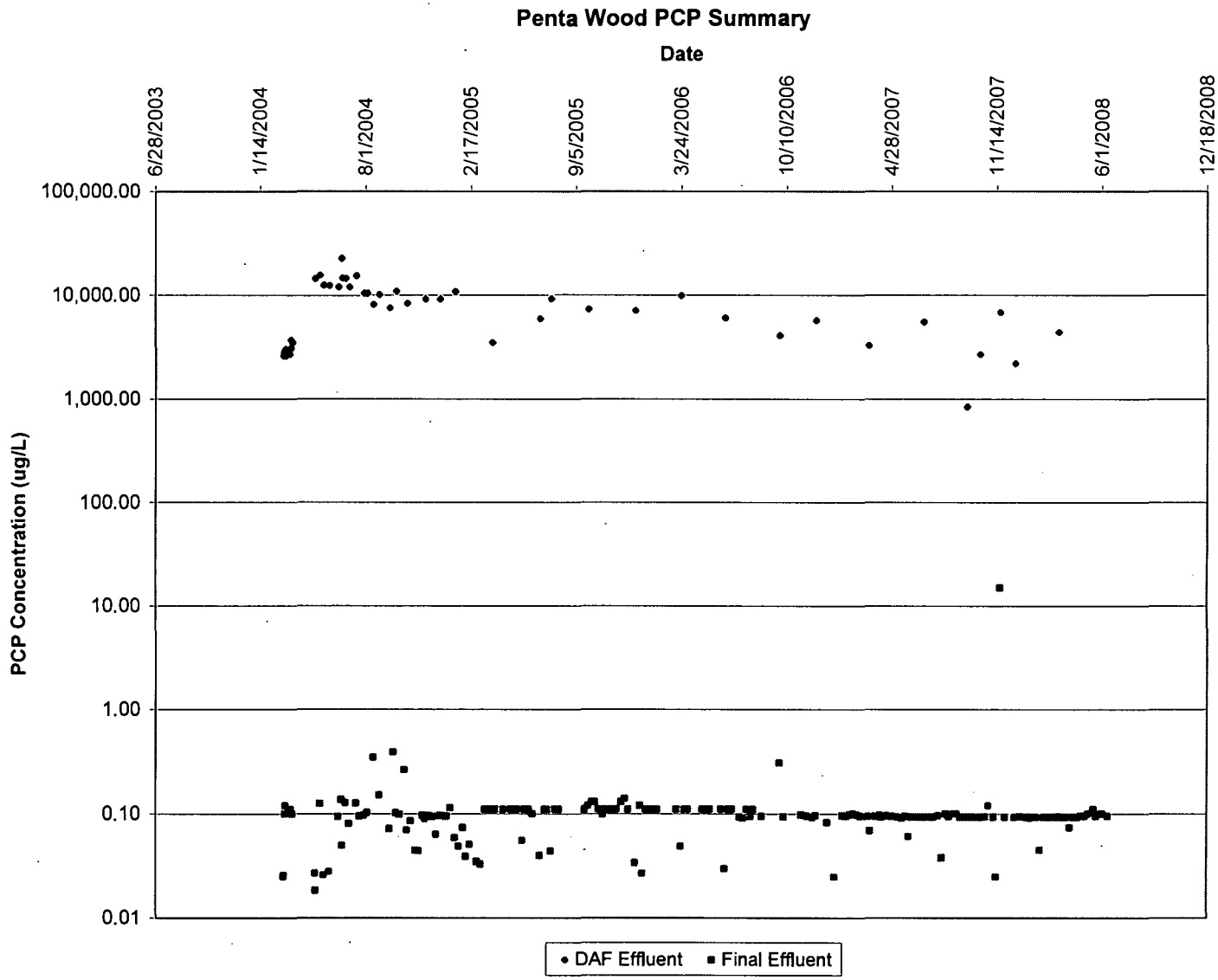
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to look for opportunities to optimize the system and reduce 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 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. 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
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/5/2005
3/24/2006
10/10/2006
4/28/2007
11/14/2007
6/1/2008
12/18/2008
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
5-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
22-Jun-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
						B																		
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	NR	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.

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

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

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

Standard Form 1035 | PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL | Voucher No. A033 Sheet No. 44

U.S. ENVIRONMENTAL PROTECTION AGENCY
RTP-FINANCIAL MANAGEMENT CENTER
MAIL CODE-D143-02
RESEARCH TRIANGLE PARK, NC 27711

Contract No. EP-S5-06-01
CH2M HILL, INC.
1300 S.W. 5th Ave.
Portland, OR 97201

CURRENT AND CUMULATIVE COSTS, BASE FEE AND PERFORMANCE FEE
Completion Form
Penta Wood Products, WI
Work Assignment 004-LRLR-05WE
For the month of JUNE, 2008 Period: BASE

Major Cost Element	Hours Current	Hours Cumulative	Amount Claimed Current	Amount Claimed Cumulative
LOE	544.40	10,189.60	16,391.47	286,247.07
Clerical	14.40	1,229.20	316.88	34,381.77
1. HOURS/DIRECT LABOR	558.80	11,418.80	16,708.35	320,628.84
2. FRINGE BENEFITS			5,058.09	102,001.76
3. OVERHEAD			5,763.51	154,204.31
4. GENERAL AND ADMINISTRATIVE			4,332.11	126,763.79
5. SUBTOTAL LABOR			31,862.06	703,598.70
6. OTHER DIRECT COSTS			6,713.21	137,283.81
7. COMPUTER			0.00	1,791.97
8. TRAVEL			1,560.47	29,348.52
9. EQUIPMENT			2,460.63	28,764.42
10. SUBTOTAL			10,734.31	197,188.72
11. TEAM SUBCONTRACTS AND SUBCONTRACT POOL SUBCONTRACT POOL			33,441.13	1,049,352.71
12. SUBTOTAL SUBCONTRACTS			33,441.13	1,049,352.71
13. TOTAL COSTS			76,037.50	1,950,140.13
14. BASE FEE			2,281.17	58,504.42
15. PERFORMANCE (AWARD) FEE			0.00	0.00
16. FIXED PRICE			0.00	0.00
17. TOTAL VOUCHER LESS PLI			78,318.67	2,008,644.55
18. POLLUTION LIABILITY INSURANCE			0.00	5,444.56
19. LABORATORY SERVICES			0.00	0.00
20. AMOUNT CLAIMED THIS VOUCHER			78,318.67	2,014,089.11
21. LESS PRIOR PAYMENTS				1,890,644.62
22. TOTAL AMOUNT DUE				123,444.49

>>> THIS VOUCHER CONTAINS CONFIDENTIAL BUSINESS INFORMATION <<<
(344511)

RAC2 TECHNICAL STATUS REPORT
June 28, 2008 to July 25, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	July 25, 2008

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.

Task B (PJ)

- Operation of the system under this task continued.
- An estimated 2.04 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 83.42 MG of water have been treated. An estimated 1,444 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 31,716 gallons.
- On July 1, Glacier Pure delivered two pallets of diatomaceous earth.
- On July 16, North Shore Environmental picked up approximately 28,000 pounds of filter cake.
- On July 17, Glacier Pure delivered 48,000 pounds of ferric and 44,120 pounds of caustic.
- Maurer Power checked over the floc mixer on July 17. On the same visit, Maurer discovered that the uninterruptible power supply (UPS) in the process room was hooked up incorrectly and rewired the instrument.
- On July 21 and 22, Austin Lake Greenhouse laid seed in areas that had limited vegetation. The crew sowed the seed, fertilized, and placed straw over the seeded area.

- Summarized the results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits. The results are being submitted to the Wisconsin Department of Natural Resources (WDNR) through their electronic submittal process (eDMR).

Task C (CV)

- Continued to perform operational monitoring under this task.

Task D (PC)

- The final *2007 Interim Long-Term Remedial Action Annual Report* was prepared and submitted during this reporting period.

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		47	0
B (PJ)	07/29/06	07/29/06	03/14/11		44	0
C (CV)	07/29/06	07/29/06	03/14/11		35	0
D (PC)	07/29/06	07/29/06	03/14/11		35	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

Maurer Power performed troubleshooting on the mixer in the floc tank which would overheat and shut down. After troubleshooting, the variable frequency drive (VFD) in the floc tank mixer was reprogrammed to allow the motor control center (MCC) panel to automatically reset the mixer. The reprogramming appears to have resolved the shut down problems that the mixer has incurred and has lowered the turbidity that resulted from sheared floc when mixing at high speeds.

Maurer Power was onsite to troubleshoot the cause for the site computer shutting down during temporary power failures. It was discovered that the UPS in the process room was hooked up incorrectly. The UPS was rewired to ensure the programmable logic controller (PLC) and site computers would continue to operate in the event of a power outage. Replacement batteries were also ordered for the UPS located in the older treatment building.

3. Problem Areas and Recommended Solutions

The site continues to have power outages that temporarily shut the system down. The operator is able to reset the system each time. Due to the frequency of the events, Northwestern Wisconsin Electric Company (NWEC) was contacted to determine if the cause of the power outages were related to site equipment or power supply. The power company installed a logging device to track and graph the incoming power to the site. The logs determined that each of the power failures at the site correlated with the NWEC power outages that resulted from storms and other uncontrollable

circumstances. Therefore, the failures are going to be examined by the power company on a case-by-case basis to determine if there is another underlying issue taking place.

4. **Deliverables Submitted**

CH2M HILL submitted the final *2007 Interim Long-Term Remedial Action Annual Report.*

5. **Activities Planned Next Reporting Period**

Task A (PP)

- CH2M HILL will perform monthly project management.

Task B (PI)

- CH2M HILL will continue to operate the groundwater treatment and bioventing systems.

Task C (CV)

- CH2M HILL will perform sample management tasks as results from operational monitoring and the semi-annual sampling event are received from the laboratory.

Task D (PC)

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

None.

9. Laboratories

Samples were submitted to STL of Chicago, Illinois, for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006–2008 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 2008 was submitted, meeting the performance standard.

Task B–Groundwater Containment and Bioventing

- The groundwater treatment and biovent systems met the performance standard for this period, based on the approved clarification. Both the groundwater treatment and biovent systems were operational each day during the reporting period and all alarms were acknowledged within 24 hours, as required.

Task C–Groundwater Treatment

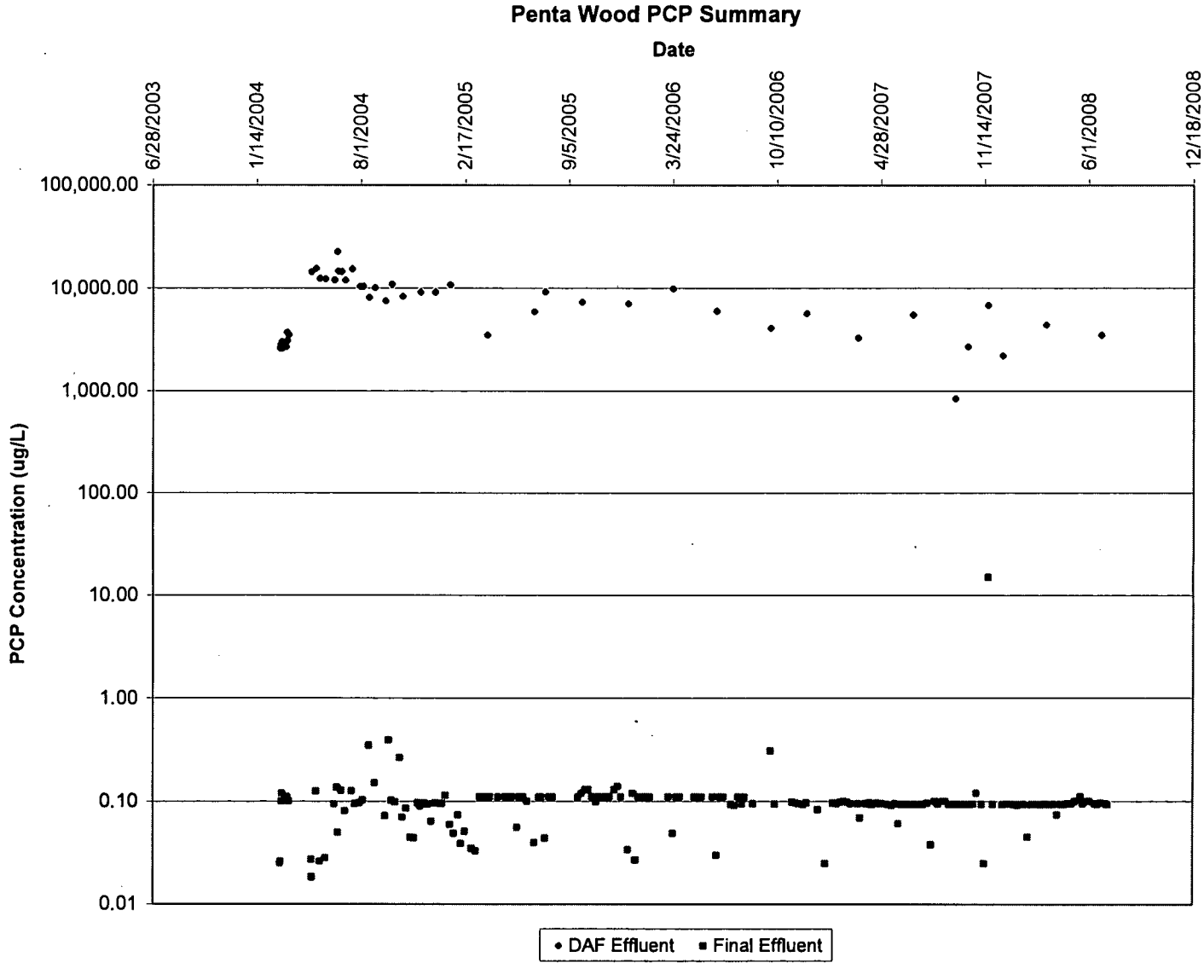
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to look for opportunities to optimize the system and reduce 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 pentachlorophenol (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. 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
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/5/2005
3/24/2006
10/10/2006
4/28/2007
11/14/2007
6/1/2008
12/18/2008
100,000.00
10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
28-Jun-07	5,500	6.5	5.0U	22B	0.095U	0.45J	1.0U	1.0U	3.2 U	3.2U	0.093U	4.8U	0.95 U	1.0U	1.0U	1.0U	2.0U	10U	10U	27	100U	2,100	–	–
5-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Jul-07	–	6.5	–	–	0.094U	0.59JB	–	–	–	–	0.093U	4.7U	0.94U	–	–	–	–	–	–	–	–	–	–	
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
24-June-08	3500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	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.
= Analyte not required under WPDES permit No. WI-0061531-01-0 effective January 1, 2008
mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L= picograms per liter
Qualifiers:
B = Analyte found in the method blank
J = Estimated value
R = Result is rejected due to quality control issues
U = Analyte was not detected at or above the stated limit
* = Result is suspect. Refer to discussion of WPDES monitoring in TSR text.

RAC2 TECHNICAL STATUS REPORT
July 26, 2008 to August 29, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	August 29, 2008

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- CH2M HILL has terminated the lab contract with the current analytical laboratory based on poor performance. CH2M HILL prepared a Laboratory Scope of Work and contract documents that were submitted to seven potential laboratories for bid.

Task B (PJ)

- Operation of the system under this task continued.
- An estimated 0.85 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 84.27 MG of water have been treated. An estimated 30 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 31,746 gallons.
- On July 28, Glacier Pure delivered two pallets of diatomaceous earth.
- On July 29, Siemens completed a carbon changeout on the small 2,500-pound (lb) vessel and the large 10,000-lb vessel.
- On July 31 and August 1, North Shore Environmental repackaged spent carbon bags and picked up eleven supersacks and five 55-gallon drums containing filter bags and personal protective equipment (PPE) from the site.

- On August 4 and August 19, Reliable Services, now named North Country, was on site for plumbing repairs to the toilet and sink in the restroom.
- On August 14, Glacier Pure delivered two pallets of diatomaceous earth to replace a previous delivery from an incorrect supplier.
- On August 19 and August 22, North Country was on site to troubleshoot the odorous air fans and furnaces in the main process and RDVF rooms.
- Maurer Power assessed damage at the site resulting from a power surge that occurred the early morning of August 14. Some of their service included installing three new variable-frequency drives (VFDs) for filtrate pump, equalization pump and flocculation tank mixer, new starters for seven of the groundwater extraction pumps, new central processing units (CPUs) in the dissolved air flotation (DAF) and RDVF control panels and replacement of fuses in the motor control center (MCC) panel, solenoid coils in the air dryer in the granular activated carbon (GAC) room, and miscellaneous indicator lights. In addition, the surge surpression device was damaged, but has not been replaced at this time. Evaluation of replacement equipment is ongoing.
- Summarized the results of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge sampling which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits. No samples were collected after the power surge on August 14. The results are being submitted to the Wisconsin Department of Natural Resources (WDNR) through their electronic submittal process (eDMR).

Task C (CV)

- Continued to perform operational monitoring under this task.

Task D (PC)

None.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		50	0
B (PJ)	07/29/06	07/29/06	03/14/11		49	0
C (CV)	07/29/06	07/29/06	03/14/11		36	0
D (PC)	07/29/06	07/29/06	03/14/11		35	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

A power surge occurred on August 14 that damaged various pieces of equipment at the site. Both the groundwater treatment and bioventing systems have not been operational since the surge occurred. Maurer Power performed troubleshooting on the electrical components and is replacing damaged equipment as it is identified.

Installation of new equipment is still occurring at the site. This electrical investigation is an ongoing process which will result in additional downtime for the treatment system. An extension on the allotted 10 days to make repairs was requested on August 25 to USEPA.

Northwestern Wisconsin Electric Company (NWEC) was contacted to determine the cause of the power surge and how it relates to the site equipment. After an investigation by the power company was completed, they provided the following explanation: "The report from our crew would indicate abnormal voltage to the facility for a short period from the time the fuse/cutout was fixed to the point at which the crews cut power to the facility to replace the transformer. NWEC crews removed the fuse/cutout assembly and, upon further inspection, it appears that this device was struck by lightening at some point and failed. As for the transformer, we will be inspecting the unit to try and discover the cause of a failure and abnormal secondary voltage." A discussion transpired with the utility company regarding insurance coverage for the damage to the treatment system. They indicated that the process requires a letter be sent to the utility requesting an explanation of the power conditions that occurred for that day. Once the utility provides that documentation to CH2M HILL, they will submit it to their insurance company. The insurance company will then determine whether the costs for repairing the damage would be reimbursable.

3. **Problem Areas and Recommended Solutions**

CH2M HILL has requested onsite technical support to assist in the evaluation and replacement of the existing surge suppression equipment. The recommended equipment will be based on a detailed review of the existing facility documents, an on-site inspection and evaluation, and discussions on the level of surge protection desired for the site. Per the discussion with the work assignment manager (WAM), the system will remain powered down unless testing is being performed and until such time that replacement surge suppression can be installed.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

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

- CH2M HILL will perform monthly project management.
- Evaluate the laboratory proposal and a new laboratory will be selected to complete the duration of work at the site. This lab will be utilized for the annual sampling event occurring in October.

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

- CH2M HILL will continue to evaluate the damage at the site and provide USEPA with recommendations for replacement surge protection.

Task C (CV)

- CH2M HILL will perform sample management tasks as results from operational monitoring and the semi-annual sampling event are received from the laboratory.

Task D (PC)

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

Travel charges for Lisa Mauser for June and August are included in this invoice.

9. **Laboratories**

Samples were submitted to STL of Chicago, Illinois for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006-2008 analytical services.

10. **Project Performance**

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

Task A-LTRA Monthly Progress Report

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

Task B-Groundwater Containment and Bioventing

- The groundwater treatment and bioventing systems were not operational after the power event that occurred on August 14. An extension of the timeframe to repair equipment was requested and verbal approval was provided by the WAM. CH2M HILL continues to work diligently to repair equipment as quickly as possible and restart the system.

Task C-Groundwater Treatment

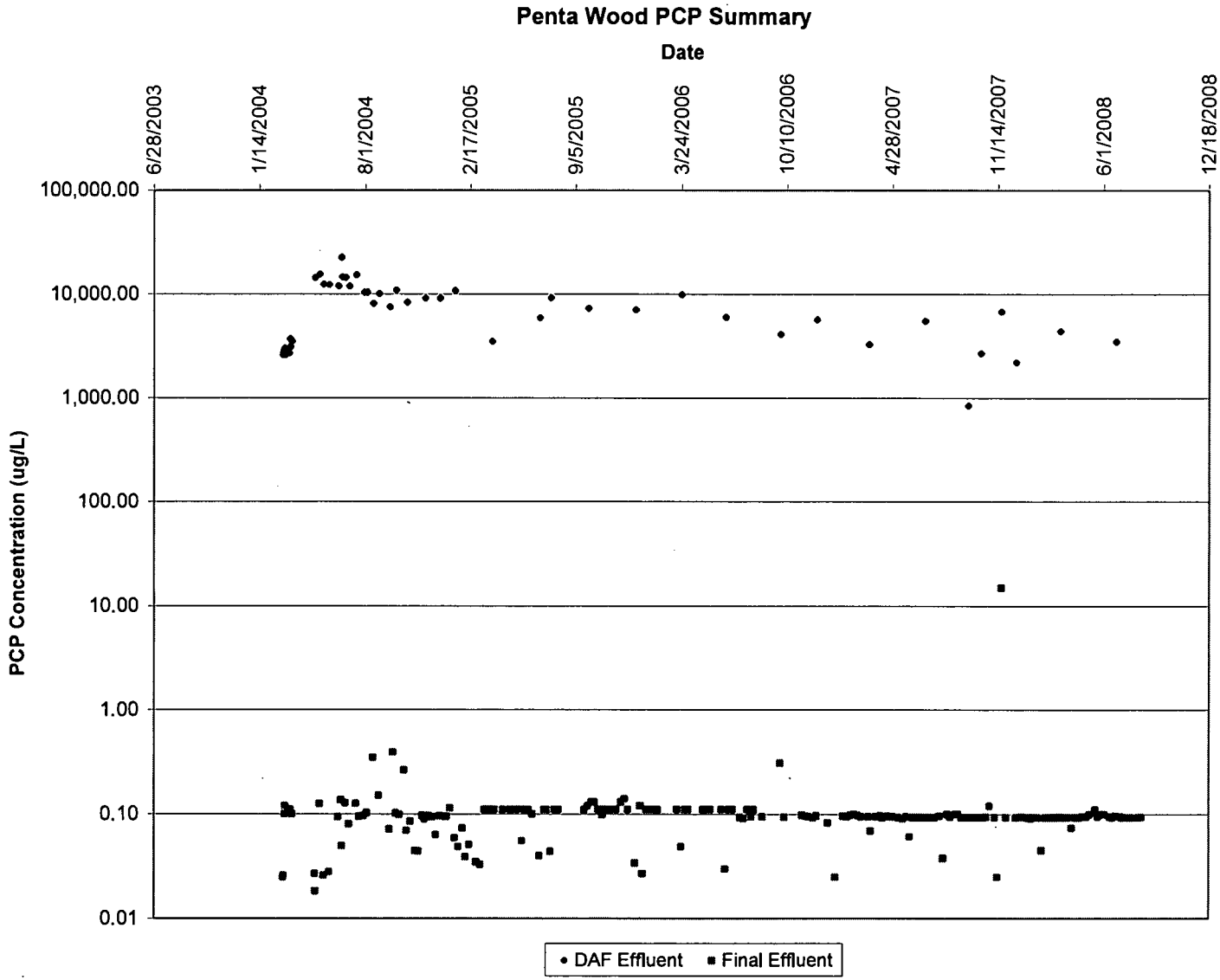
- Treatment system effluent sampling results met the discharge criteria in the WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to look for opportunities to optimize the system and reduce 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 pentachlorophenol (PCP) dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		

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 TSR text.

RAC2 TECHNICAL STATUS REPORT
August 30, 2008 to September 26, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	September 26, 2008

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- CH2M HILL has terminated the lab contract with the current analytical laboratory based on poor performance. A Request for Proposal (RFP) was sent to multiple laboratories for future analytical services. Responses to questions from the laboratories were prepared and an addendum to the RFP was provided. The final bids were received and evaluated. The new lab contract will be awarded in October.
- On September 18, Jed Hoffman, David Dalley, and Jeff McCormick of Siemens Water Technologies (Siemens) and Mark Norris of North Shore Environmental met with Keli McKenna, Shannon Greene, Donna Navarro, and Matt Kluge to discuss the options for addressing issues with leaking super sacks filled with spent carbon.
- Siemens and North Shore Environmental have approached CH2M HILL to request consideration for a change to the unit pricing associated with their services. The subcontractor's reason for the request is increased fuel costs that are impacting the cost of the transportation, disposal, and carbon activation.

Task B (PI)

- No groundwater was treated and/or discharged during the reporting period due to the shutdown caused by the power surge. To date, a total of 84.27 million gallons (MG) of water have been treated. To date, a total of 31,746 gallons of light nonaqueous phase liquid (LNAPL) has been recovered since March 2004.

- Maurer Power continued to assess the electrical damage at the site resulting from the power surge that occurred on August 14. Some of their service included troubleshooting the uninterruptible power supply (UPS) and generator issues, troubleshooting the filtrate pump, checking the horsepower on motors, ground resistance megger testing.
- On September 4, Swanson Flo Systems was onsite to troubleshoot and repair the influent and filtrate flowmeters.
- On September 4, Keli McKenna, Marc Goslow, and Rick Stevens /Surge Suppression, Inc. were onsite to evaluate and inspect the site in order to develop recommendations for upgrading the existing surge suppression. A detailed review of the existing facility documents, an onsite inspection and evaluation, and discussions of the level of surge protection desired for the site took place.
- On September 4, Northwestern Wisconsin Electric Company (NWEC) was onsite to remove/restore power to the transformer located onsite and disassemble cable wires in the transformer so that the megger testing could be conducted.
- On September 15, North Country Plumbing and Heating, formerly known as Reliable Services, was onsite to troubleshoot the furnace. Two blower belts were installed.
- On September 18, Randy Massie was onsite to perform the confined space activities required to repair the broken valve in Bioventing Well BV-8.
- On September 22, Glacier Pure delivered three pallets of diatomaceous earth.
- On September 26, Daniels Plumbing was onsite to evaluate the type of pump that would be most appropriate to pump out solids in the filtrate tank.
- No Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were collected during this reporting period because the system has remained shut down until replacement surge suppression equipment can be installed.

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

- Operational monitoring under this task has been halted until the replacement surge suppression equipment can be installed.

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

None.

Summary of Project Status						
Task No./ Code	Planned Start	Actual Start	Planned Completion	Actual Completion	Percent Complete	Schedule Variance
A (PP)	07/01/06	07/01/06	03/14/11		52	0
B (PJ)	07/29/06	07/29/06	03/14/11		51	0
C (CV)	07/29/06	07/29/06	03/14/11		36	0
D (PC)	07/29/06	07/29/06	03/14/11		35	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

Swanson Flo Systems was onsite to troubleshoot and repair the influent and filtrate flowmeters. The influent flowmeter had to be reset and recalibrated following the power surge. The filtrate flowmeter had a loose wire; however, it was determined that the low flow reading was not an issue with the flowmeter. It was concluded that although the filtrate pump motor was running, the pump was not pumping properly. A replacement stator was ordered and will be installed during the next reporting period.

Maurer Power continued to perform troubleshooting on the electrical components and is replacing damaged equipment as it is identified. Maurer Power also conducted a ground resistance megger test per the request of CH2M HILL's electrical engineer, Marc Goslow. The megger testing concluded that the insulating values of the power distribution system and various pump/blower motors do not appear to be damaged by the electrical event.

During the meeting with Siemens Water Technologies and North Shore Environmental on September 18, alternative packaging options to prevent the leaking of the water present in the spent carbon. Following a discussion of the current carbon packaging practices, a number of packaging alternatives were discussed. These options included a pallet-based containment system, open-top 55-gallon drums, dewatering container capturing spent carbon via slurry methods and prelined roll-off containers. Siemens and North Shore agreed to provide costs for the alternatives discussed so a decision could be made for the next carbon change out which is not anticipated to occur until December 2008.

It was determined during the discussions with Siemens and North Shore Environmental that pricing for the services would be evaluated on an annual basis due to the changing fuel costs that are affecting the cost of the transportation, disposal, and carbon activation.

3. Problem Areas and Recommended Solutions

On Thursday, September 4, Marc Goslow of CH2M HILL, along with Rick Stevens of Surge Suppression, Inc., visited the site to investigate the damage to the electrical distribution and programmable logic control (PLC) systems, oversee various electrical tests, and provide a course of action to both complete the repairs on the facility and provide protection against similar future events.

In addition to the electrical tests conducted both prior to and during the site visit, other site investigations and actions also took place. These included the following: a detailed walk-through of the facility to determine the best means of providing equipment surge protection for possible future power line surge events and a review of existing electric service conditions including service voltage, tap settings, and equipment grounding.

On September 26, a memorandum describing the power surge that occurred on August 14 and provided recommendation for upgraded surge suppression equipment including the following:

- Install fully integrated and staged transient voltage surge suppression system (TVSS) devices as manufactured by Surge Suppression, Inc. of Destin, Florida. This system will provide surge voltage and current protection at every stage of the electric distribution system, including all electronic point-of-use devices (i.e., PLCs, computers, and flowmeters).
- Install an adjustable under-voltage protective relay in the service-entrance motor control center (MCC) (MCC-2) to detect low-voltage and loss-of-phase conditions on the utility service and to trip the service-entrance disconnect should pre-determined limits be exceeded. Replace the existing power monitor in the service-entrance MCC (MCC-2) with a unit that will track and record events both during and prior to an event occurring.
- Replace the existing power monitor in the service entrance MCC (MCC-2) with a unit that will track and record events both during and prior to an event occurring.

4. Deliverables Submitted

CH2M HIILL provided USEPA with recommendations for replacement surge protection on September 26.

5. Activities Planned Next Reporting Period

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

- Perform monthly project management.
- Evaluate the laboratory proposal and a new laboratory will be selected to complete the duration of work at the site. This lab will be used for the annual sampling event scheduled for late October.

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

- CH2M HILL will purchase and install the recommended surge suppression equipment at the site. The treatment system will then be restarted and evaluated for any additional electrical issues.

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

- CH2M HILL will perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.

Task D (PC)

None.

6. Key Personnel Changes

None.

7. Subcontractor Services

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

8. Travel

Keli McKenna and Marc Goslow traveled to the site on September 3 and returned on September 5. Travel charges for Marc Goslow are included in this invoice. Travel charges for Keli McKenna will be invoiced in the next reporting period.

9. Laboratories

No samples were submitted to STL of Chicago, Illinois for analysis. They are a Wisconsin-certified laboratory with the subcontract for 2006-2008 analytical services.

10. Project Performance

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

Task A-LTRA Monthly Progress Report

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

Task B-Groundwater Containment and Bioventing

- The groundwater treatment and bioventing systems are still not operational after the power event that occurred on August 14. An extension of the timeframe to repair equipment was requested and verbal approval was provided by the WAM. CH2M HILL continues to work diligently to repair equipment as quickly as possible and restart the system.

Task C-Groundwater Treatment

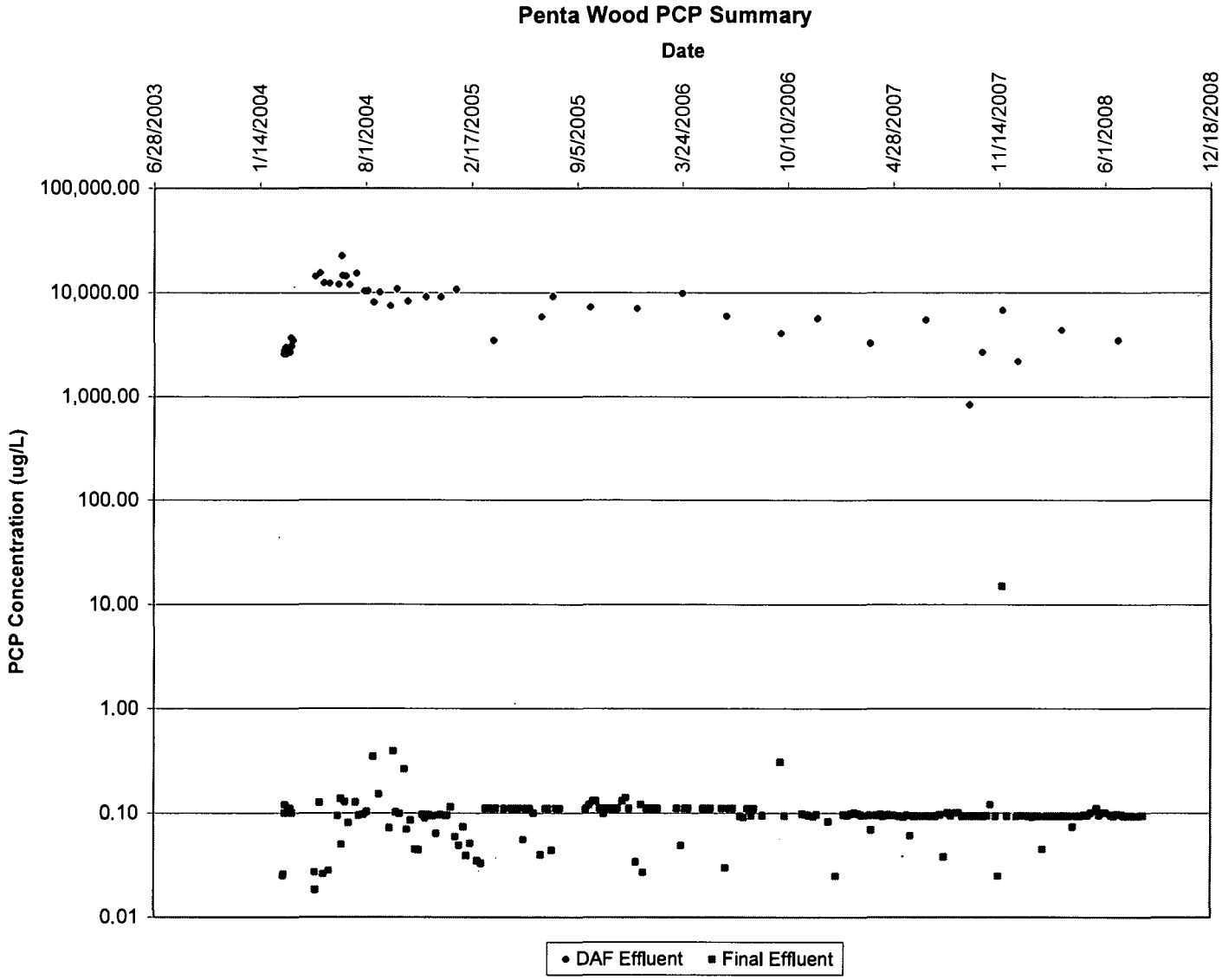
- No treatment system effluent samples were analyzed during this reporting period.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 long-term remedial action (LTRA). Data management costs may remain high because of the volume of analytical data generated for the site and the level of effort (LOE) hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. 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 look for opportunities to optimize the system and reduce 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 pentachlorophenol (PCP) dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
26-Jul-07	–	6.5	–	–	–	–	–	–	–	–	0.096U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.038JB	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
15-Aug-07	–	6.5	–	–	0.093U	0.69JB	–	–	–	–	0.094U	4.8U	0.95 U	–	–	–	–	–	–	–	–	–	–	–
24-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10UJ	–	–	–	–	–	–	–	–	–	–	–	–	–
30-Aug-07	–	6.5	–	–	–	–	–	–	–	–	0.10U	–	–	–	–	–	–	–	–	–	–	–	–	–
6-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
10-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Sept-07	840	6.5	5.0U	74	0.093U	0.63J	1.0U	1.0U	1.0U	3.1U	0.093U	4.7U	0.93 U	1.0U	1.0U	1.0U	2.0U	10U	10U	36	450	2,100	–	–
24-Sept-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		

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 TSR text.

RAC2 TECHNICAL STATUS REPORT
September 27, 2008 to October 31, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products–OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	October 31, 2008

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities including beginning the preparation of a work plan revision request (WPRR) for the costs associated with the power surge that damaged equipment in August 2008.
- The price comparison of the bids for the analytical services at the site was reviewed. CH2M HILL has selected Environmental Monitoring and Technologies, Inc. as the new analytical laboratory to complete the remaining lab contract at the Penta Wood Products site. The bid documents were reviewed, revisions were made to the pricing tables, method detection limits (MDLs) were requested, insurance forms were completed, a fact-finding investigation was initiated, and a final procurement memorandum was written.

Task B (PJ)

- An estimated 1.53 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 85.80 MG of water have been treated. An estimated 188 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 31,934 gallons.
- On October 6, Northwestern Wisconsin Electric was onsite to shut down all power at the site in order to install the surge suppression equipment.
- Rick Stevens of Surge Suppression, Inc. and Maurer Power were onsite to install the surge suppression devices from October 6-8. The monitoring and alarm equipment is still on order and will need to be installed once it is received; however, protection from a power surge is in place allowing the system to be

restarted on October 8. The bioventing system was restarted on October 10. Monitoring measurements were collected on the same day.

- On October 9, the operator attempted to run the rotary drum vacuum filter (RDVF) system; however, the vacuum pump did not operate. Maurer Power was onsite the same day and identified that a new starter for the pump was needed. The starter for the pump was ordered on October 9 and delivered to the site on October 10, and installed. Maurer Power also installed a coupler on the granular activated carbon (GAC) pump, the replacement filtrate pumphead, and sight windows on the surge devices. The replacement filtrate pumphead received was damaged and had to be returned for repairs. A replacement starter for the pumphead was also ordered.

- On October 9, North Country Plumbing and Heating (formerly known as Reliable Services) was onsite to purge the propane lines in preparation for the cold weather and next delivery of propane.

- On October 11, the operator noticed the level in the float tank was not decreasing while the RDVF was operating. It was determined that the piping to the RDVF was plugged. The operator tried to clear the plug by removing the pump and attempting to flush the pipe; however, it was unsuccessful. On October 13, North Country Plumbing and Heating was onsite and was able to unplug the line. While the pump was disconnected, the operator inspected the pump and noticed that the seats, seals, and balls needed to be replaced. A backup pump was available onsite. The backup pump was installed until the replacement parts are received.

- On October 13 and 14, Maurer Power was onsite to feed the electrical wires from the surge devices to the programmable logic controller (PLC) and to assure the appropriate alarms were signaled for each surge device.

- On October 14, the operator noticed that the RDVF wash down pump was not operating properly when the RDVF overflowed. Maurer Power replaced the spray gun on the RDVF hose on October 15. The RDVF system is now operating normally.

- On October 16, North Country Plumbing and Heating was onsite to troubleshoot the erratic temperature changes in the RDVF room. A replacement furnace thermostat was ordered. The reigniter on the propane tank and the thermostat on the furnace were replaced on October 20.

- On October 20, Bill Andrae met with the work assignment manager (WAM) and Bill Shultz of the Wisconsin Department of Natural Resources (WDNR) to discuss current system operations and status of electrical repairs and surge suppression installation. Items discussed during the meeting also included status of May 2008 groundwater sampling data, concerns about lack of vegetation/trees along the east side of the corrective action management unit (CAMU), and potential options for continued improvement of the overall effectiveness of the remediation at the site.

- On October 20, it was identified that no flow was present to the turbidity meter. The operator tried flushing the tubing to the pump. The pump was disassembled and the power supply to the pump was tested by Maurer Power. The pump was reassembled and reconnected to the steel tubing. The turbidity pump has been operating properly since the troubleshooting occurred. Maurer Power also installed the replacement starter in the filtrate pump on October 20.
- On October 27 and 28, Maurer Power was onsite to remove the float switch for the recirculation tank, remove and clean the shaft on the solenoid in the air dryer, and install temporary power supply for North Shore to operate their welding equipment in order to mount brackets on the dumpsters.
- On October 27, North Shore Environmental picked up approximately 12.5 tons of filter cake. North Shore returned on October 28 to weld side mount brackets for pickup to the dumpsters.
- On October 28 and 29, Randy Massie and Mary-Beth Wintercorn were onsite to assist the operator in troubleshooting the overall system operations. The solids loading to the bag filters had increased such that they required changeout a minimum of every 12 hours. In addition, the bags continued to push up out from the metal basket in the housing. An air line to introduce air into the small pre-filter vessel (2,500 lb unit) to the backwash process was added to improve the backwash of the carbon in this vessel. Jar testing was performed to determine if a change in chemistry was needed. The calibration of the pH probes in the coagulation tank is not providing the expected accuracy and shows the probes are biased high. Replacement probes for this tank will be ordered.
- Summarized the results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples which are presented in the table located at the end of this document. There were no exceedances of the target discharge limits.

Task C (CV)

- On October 20, Shannon Greene, Dave Shekoski, and Ian Mueller traveled to the site from Milwaukee, Wisconsin to conduct the annual groundwater sampling event. The sampling event was conducted from October 20-24.
- Continued to perform operational monitoring under this task.

Task D (PC)

- Prepared groundwater contour maps from the May 2008 sampling event.

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		54	0
B (PJ)	07/29/06	07/29/06	03/14/11		54	0
C (CV)	07/29/06	07/29/06	03/14/11		38	0
D (PC)	07/29/06	07/29/06	03/14/11		35	0
E (CO)	03/01/11		03/14/11		0	0

2. **Problems Resolved**

- Repairs of the equipment damaged from the power surge were completed and the upgraded surge suppression equipment was installed allowing the system to be restarted.
- Additional equipment that required troubleshooting resulting from the system remaining idle was repaired. Although most equipment required a few days of lead time for delivery, workaround solutions were found to allow the system to remain fully operational for the two weeks between the restart and the groundwater sampling event.

3. **Problem Areas and Recommended Solutions**

Beginning October 9, an increased solid loading to the bag filters was observed and continues to shut down the system approximately every 12 hours. Under normal operating conditions, turbidity readings are typically below 5 nepholometric turbidity units (NTUs) and iron content of the DAF effluent are below 5 milligrams per liter (mg/L) when the pH is held constant at 5.2. Because the pH probes are not responding quickly and the monitored parameters are within the expected range, it is believed that the increased solids loading is a result of pH changes in the coagulation tank that are not being detected by the pH probes. It is anticipated that replacement of the probes will correct the problem. The probes will be installed during the next reporting period.

4. **Deliverables Submitted**

None.

5. **Activities Planned Next Reporting Period**

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

- Perform monthly project management.
- Submit a WPRR to include new subtask for electrical work performed at the site after the power surge occurred on August 14.

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

- CH2M HILL will continue to operate the groundwater treatment system.
- The alarm and monitoring equipment for the surge suppression will be installed.
- The replacement pH probes will be installed.

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

- CH2M HILL will perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.

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

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

Travel charges for Lisa Mauser from August 26 and September 28 are for gas for the power washer and auto mileage to pick up site supplies.

Travel for Keli McKenna from September was previously reported. Travel charges are included in this invoice.

Bill Andrae traveled to the site on October 20 and returned to Milwaukee, Wisconsin on October 21. Travel charges will be invoiced in the next reporting period.

Shannon Greene, Dave Shekoski, and Ian Mueller traveled to the site on October 20 and returned to Milwaukee, Wisconsin on October 24. Travel charges will be invoiced in 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 2008–2011 analytical services.

10. **Project Performance**

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

Task A–LTRA Monthly Progress Report

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

Task B-Groundwater Containment and Bioventing

- The groundwater treatment system was restarted on October 8 after the installation of the surge suppression equipment. The system was turned off on October 20 for the annual groundwater sampling event and resumed operation on October 24. Following the restart, the groundwater treatment has had temporary shutdowns; however, the alarms have all been acknowledged within 24 hours and the system restarted. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.

- The bioventing system was restarted on October 10. The bioventing system was operational 100 percent of the time after the system was restarted. The biovent system was temporarily shut down during the groundwater sampling event for the health and safety of the sampling staff working near the well heads. The bioventing system met the performance standard for this period, based on the approved clarification.

Task C-Groundwater Treatment

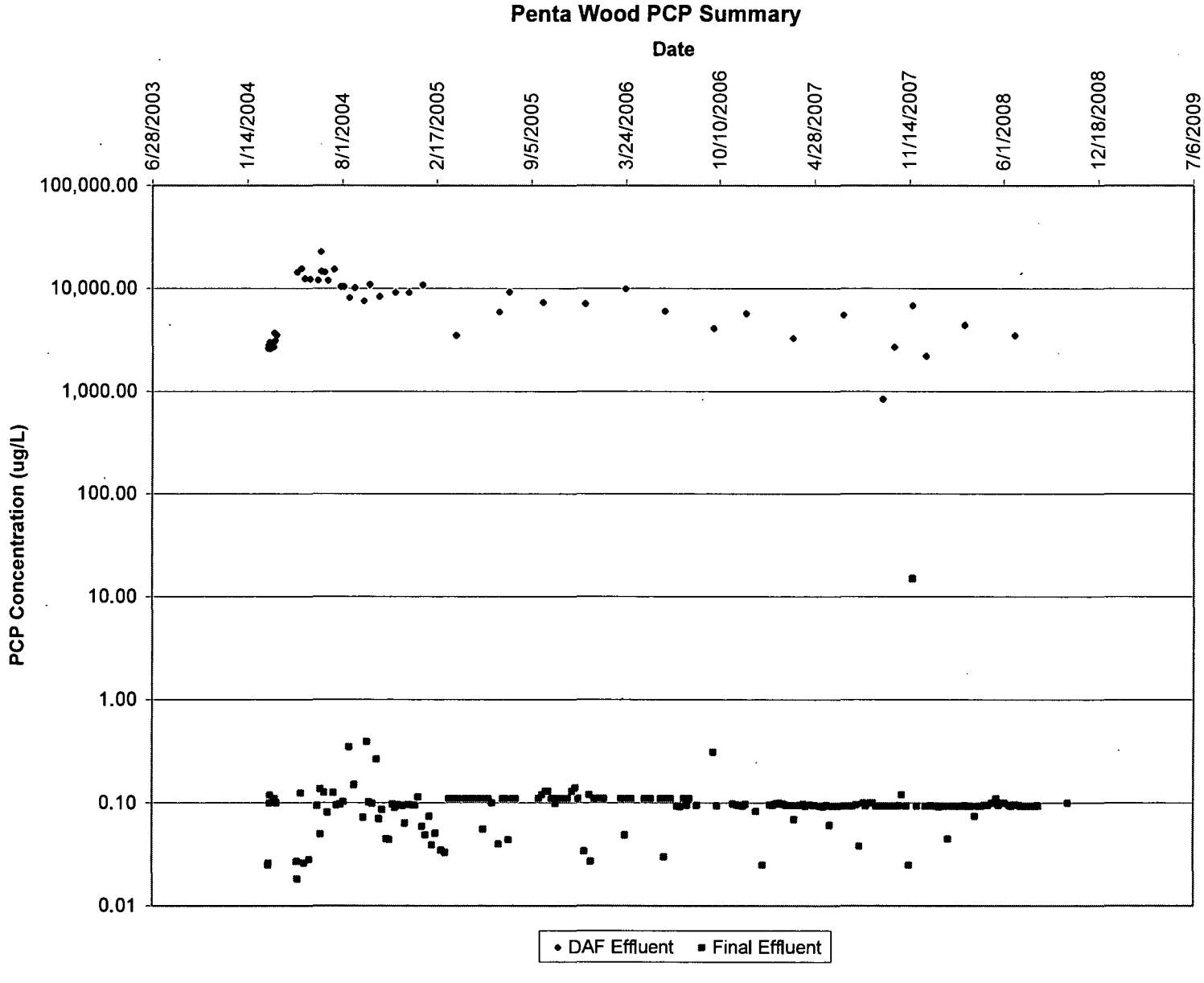
- Treatment system effluent sampling results met the discharge criteria in WPDES Permit No. WI-0061531-01-0, meeting the performance standard.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
2-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
12-Oct-07	2,700	6.5	–	–	–	–	–	–	–	–	0.095U	–	–	–	–	–	–	–	–	–	–	–	–	–
17-Oct-07	–	6.5	–	–	0.093U	0.54J	–	–	–	–	0.093U	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
23-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
29-Oct-07	–	6.5	–	–	–	–	–	–	–	–	0.12B	–	–	–	–	–	–	–	–	–	–	–	–	–
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
14-Oct-08	–	6.5		–	0.01U					–	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 & Furans (all cogeners)
23-Oct-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	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 TSR text.

RAC2 TECHNICAL STATUS REPORT
November 1, 2008 to November 28, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	November 28, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- Evaluated the need for a Work Plan Revision Request (WPRR) to document the change in scope of work and cost incurred to repair and replace the equipment damaged by the August power surge; identify, procure, and install additional surge suppression equipment; and perform an onsite inspection. Participated in a teleconference with the USEPA project officer (PO) and CH2M HILL program manager (PM) on November 20 to discuss appropriate timing for submittal of the WPRR. It was determined that the WPRR would be submitted after the insurance claim filed with the local utility is resolved.
- Due to the uncertainty of energy costs, Siemens (subcontractor responsible for carbon changeouts) had requested an increase to their contracted unit rates. They were unable to provide the necessary documentation to perform a cost analysis of the requested pricing increase and have chosen to compete in a bid process for each of the upcoming years. The current contract is effective through March 2009.

Task B (PJ)

- An estimated 1.62 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 87.42 MG of water have been treated. An estimated 350 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 32,284 gallons.
- Planting of additional trees along the northeast side of the site was evaluated. Information about the appropriate planting season, quantity and type of trees

recommended for this area and cost were presented to USEPA on November 11. USEPA approved having a mixture of red and white pine planted by a local nursery in the early spring of 2009. This change in scope of work will also be included in the future WPRR.

- On November 12, Maurer Power was onsite to install new pH probes in the coagulation tank, repair the rotary drum vacuum filter (RDVF) feed pump, install a new float switch in the RDVF recirculation tank, and troubleshoot the autodialer and fax machine wiring issues.
- On November 14, North Country Plumbing and Heating (formerly known as Reliable Services) was onsite to make repairs to the furnace. They also assisted the operator with clearing an obstruction in the float tank effluent piping. The solids that accumulate in the float tank have been obstructing flow to the RDVF. The RDVF feed pump and float tank effluent line were disassembled and flushed multiple times to clear the obstruction. On November 15, the float tank was pumped to less than 3 percent to inspect the solids accumulated on the bottom of the tank. Confined space entry will be required to remove the approximate 4 inches of solids (mixture of sand, carbon, and DE) on the bottom of the tank.
- The remaining monitoring equipment for the surge suppression was received on November 13. On November 17 and 18, Maurer Power was onsite to install the new equipment and remove the previous voltage meter and analyzer.
- On November 19, Northwestern Electric Power Company was onsite to confirm that all three power phases had been restored after a power failure occurred overnight.
- The system alarmed and shut off in the late evening of November 17 due to high pressure on the bag filters. The granular activated carbon (GAC) vessels were to be drained on November 18 in preparation of the carbon changeout; therefore, the system was not restarted. The biovent system was also shut down in preparation of the carbon changeout. On November 19 and 20, Siemens was onsite to perform a carbon changeout of the 2,500-pound (lb) carbon vessel and the lead 10,000-lb carbon vessel, including inspection of the laterals. The groundwater treatment and bioventing systems were restarted on November 22.
- Soil gas measurements were collected on November 4 and again following the carbon changeout on November 27. Over the course of operation, oxygen levels have increased to approximately 21 percent; and methane, carbon dioxide, and lower explosive levels (LELs) have decreased to less than 1 percent in all except two shallow monitoring wells located in the wood chip area (SG-22 and SG-07S). The measurements collected during the November 27 event for these locations were as follows:

Soil Gas Measurements from November 27				
Well ID	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	LEL (%)
SG-22	7.6	14.0	1.4	0.0
SG-07S	1.0	18.7	0.0	1.0

- On November 20 and 21, Maurer Power was onsite to check both the air ventilation pipes and gutters for blockage using a bucket truck. Maurer also helped troubleshoot the polymer and dissolved air flotation (DAF) system power failures. The temperature sensor on the polymer heat pump was tested, the relay for the DAF air pressure sensor was examined, and the solenoid air meter was checked. The DAF panel relay switch for the pump sensor was reset which restored the system to normal operation.

- The results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. Analytical results were received from the last two samples collected in October and the first two samples collected in November. Three of the four samples had concentrations of pentachlorophenol (PCP) that exceeded the target discharge limits. These exceedances may be the result of channeling through the carbon vessels caused by the extended shutdown from the August power surge event. A carbon changeout was immediately scheduled once breakthrough was identified, and the changeout was completed on November 20.

Task C (CV)

- Continued to perform operational monitoring under this task.

- CH2M HILL was informed that the Wisconsin Department of Natural Resources (WDNR) had not yet accredited the subcontracted lab to analyze for PCP by Method SW-846 8321. This method is being used by the laboratory in order to meet the required reporting limit of 0.1 micrograms per liter (µg/L). EMT, the lab subcontractor, contacted the WDNR about obtaining certification for this parameter immediately per the accreditation updates that were made on November 1. The WDNR was able to expedite the certification process and accredited the analysis of PCP by Method SW-846 8321. Certification was obtained on December 4.

- The analytical results from residential well samples, collected during the annual groundwater event performed in October, had elevated detections of PCP. After a review of the laboratory data packages, it was determined that these samples were analyzed immediately after the monitoring wells with the highest PCP concentrations, and carryover was suspected. In addition, laboratory blanks were not run between samples as required by the laboratory scope of work. The laboratory was contacted and instructed to reanalyze the samples. The reanalyzed results were also elevated and are likely not representative of actual conditions. Method blank contamination was also found in the benzene, toluene, ethylbenzene, and xylene (BTEX) results for the residential well samples. The residential wells will be resampled for PCP and BTEX during the next reporting period. The cost for reanalysis will be covered by the laboratory.

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		57	0
B (PJ)	07/29/06	07/29/06	03/14/11		55	0
C (CV)	07/29/06	07/29/06	03/14/11		39	0
D (PC)	07/29/06	07/29/06	03/14/11		35	0
E (CO)	03/01/11		03/14/11		0	0

2. Problems Resolved

- On November 12, the autodialer failed to call out when the system shut down. Troubleshooting of the equipment revealed that changes to the wiring were required following the installation of the surge suppression equipment. The changes were made and the dialer is fully operational.
- The system continued to receive heavy solids loading to the bag filters and prefilter carbon vessel following the restart of the system after the power surge event. It was determined that the pH probes in the coagulation tank were bad. Replacement pH probes were ordered and installed. Solids loading to the bag filters are now within normal operating conditions.
- On November 20, the polymer and DAF systems failed. During troubleshooting of the alarms, the DAF panel relay switch for the pump sensor was reset, which restored the system to normal operation.
- During past carbon changeouts, a small amount of water has been observed dripping from the supersacks used for packaging the spent carbon. Alternative packaging and handling options have been considered to eliminate the potential for future leaks. During the November carbon changeout, a second interior liner and absorbent polymer material were used. The supersacks were stored inside the building to allow the operator to inspect the supersacks until they are picked up for disposal. No water has been observed on any supersacks. Northshore Environmental, the disposal subcontractor, is providing an additional layer of coated polypropylene on the bottom of the supersack to provide added protection against leaking during transport to the incinerator.
- CH2M HILL was informed that WDNR had not yet accredited the subcontracted lab, EMT, to analyze for PCP by Method SW-846 8321. This method is being used by the laboratory in order to meet the required reporting limit of 0.1 µg/L. EMT contacted the WDNR about obtaining certification for this parameter immediately per the accreditation updates that were made on November 1. The WDNR was able to expedite the certification process and accredited the analysis of PCP by Method SW-846 8321. Certification was obtained on December 4.

3. Problem Areas and Recommended Solutions

- The float tank effluent pipe has been obstructed and prevents the RDVF pump from transferring float to the RDVF. The piping and pump have been disassembled and flushed. The level in the tank was reduced to less than

3 percent to estimate the amount and characteristics of the solids that have accumulated in the bottom of the tank. There are approximately 4 inches of solids (mixture of sand, carbon, and DE) on the bottom of the tank. Solids are heavy; however, the operator was able to push some material away from the tank effluent and operate the system. Removal of the solids will require entry into the tank, which would be considered a confined space entry effort. Preliminary quotes are being requested to determine whether it would be more cost effective for a subcontractor or for CH2M HILL staff to perform the work when additional staff will be onsite.

- The bag filters continue to be pushed out or into the basket in the filter housing. The operator replaced the bag filter gaskets, drained and cleaned the DAF, and inspected the air release valve and ventilation pipes to identify potential back pressure sources. This phenomenon is not significantly affecting the operation of the system; however, troubleshooting will continue during the next reporting period.

- Analytical results were received from the last two samples collected in October and the first two samples collected in November. Three of these four samples had concentrations of PCP that exceeded the target discharge limits. A carbon changeout was immediately scheduled once breakthrough was discovered and was performed on November 19 and 20. In addition, the groundwater extraction flow rate was increased slightly to ensure that the overall flow rate through the carbon vessels would not drop below the minimum rated flow rate of the carbon vessels (i.e., 50 gallons per minute), which could have also caused channeling through carbon vessels.

- The analytical results from residential well samples, collected during the annual groundwater event performed in October, had elevated detection levels of PCP. After a review of the laboratory data packages, it was determined that these samples were analyzed immediately after the monitoring wells with the highest PCP concentrations and carryover was suspected. In addition, laboratory blanks were not run between samples as required by the laboratory scope of work. The laboratory was contacted and instructed to reanalyze the samples. The reanalyzed results were also elevated and are likely not representative of actual conditions. Method blank contamination was also found in the BTEX results for the residential well samples. The residential wells will be resampled for PCP and BTEX during the next reporting period. The cost for reanalysis will be covered by the laboratory. Once the analytical results are received from the reanalysis, the full data package from the annual groundwater event will be submitted to USEPA for validation.

4. Deliverables Submitted

A draft summary of the May 2008 groundwater analytical results was provided on November 3. Information will be incorporated into the *2008 Annual Report* that will be submitted following the receipt of the final validated data from the fall 2008 sampling event.

5. **Activities Planned Next Reporting Period**

Task A (PP)

- Perform monthly project management.

Task B (PJ)

- Continue to operate the groundwater treatment system.

Task C (CV)

- Perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.
- Submit the annual groundwater sampling hard copy results to USEPA to validate.
- Resample the residential wells for PCP and BTEX.

Task D (PC)

None.

6. **Key Personnel Changes**

None.

7. **Subcontractor Services**

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

8. **Travel**

Travel for Bill Andrae, Shannon Greene, Dave Shekoski, and Ian Mueller from October was previously reported in the October 2008 Technical Status Report. 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 2008–2011 analytical services.

10. Project Performance

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

Task A-LTRA Monthly Progress Report

- The October 2008 TSR was submitted, meeting the performance standard.

Task B-Groundwater Containment and Bioventing

- The groundwater treatment system was down for the carbon changeout on November 18 and restarted on November 22 after the changeout was completed. The groundwater treatment has 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 shut down on November 18 and restarted on November 22 after the carbon changeout was completed. The bioventing system was operational 100 percent of the time before and after the system was restarted. The bioventing system met the performance standard for this period, based on the approved clarification.

Task C-Groundwater Treatment

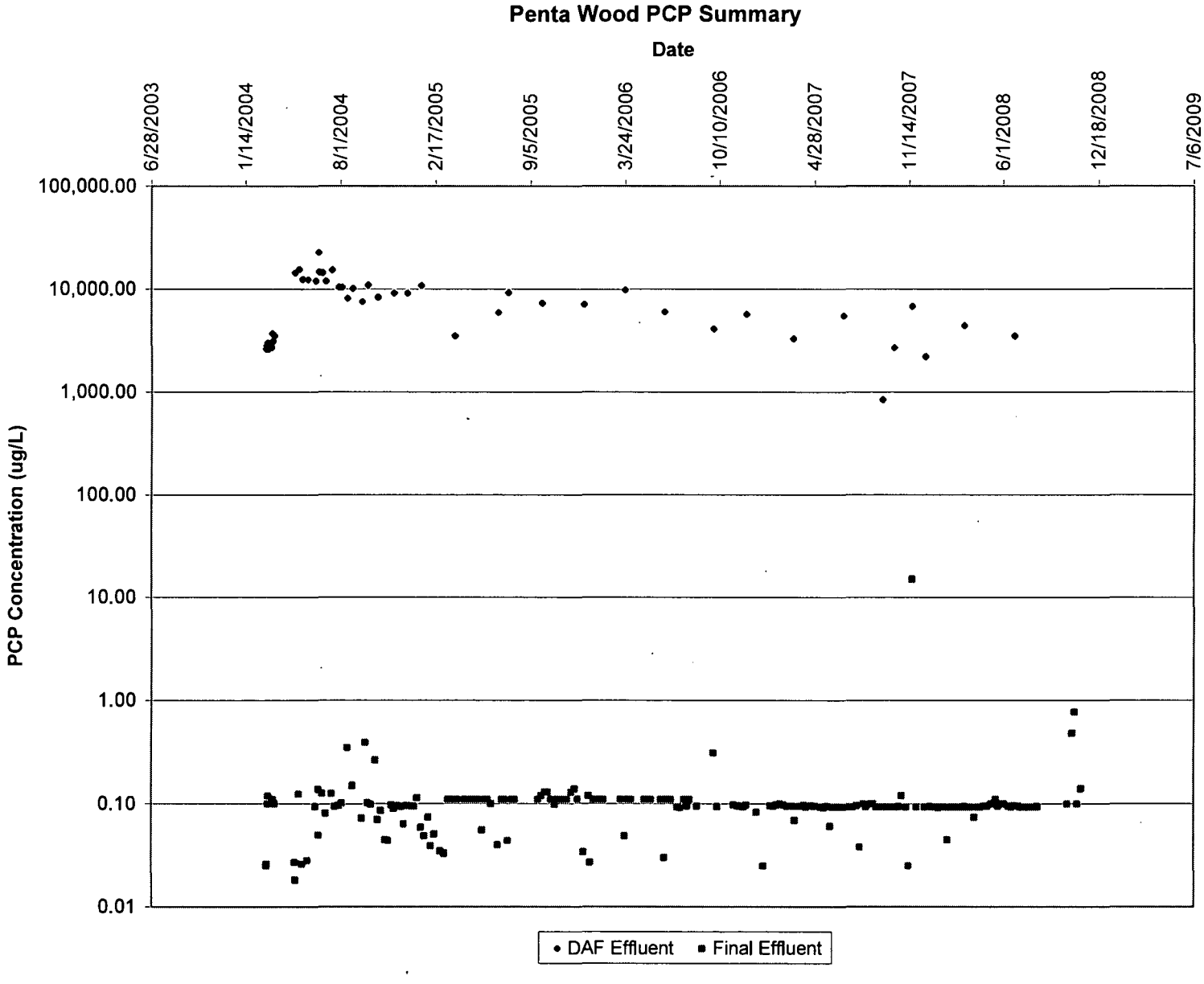
- Treatment system effluent sampling results did not meet the discharge criteria in WPDES Permit No. WI-0061531-01-0; therefore, not meeting the performance standard. Three of the last four analytical results received had concentrations of PCP that exceeded the target discharge limits. These exceedances may be the result of channeling through the carbon vessels caused by the extended shutdown from the August power surge event. A carbon changeout was immediately scheduled once breakthrough was identified and the changeout was completed on November 20.

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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


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

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
8-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
13-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.025J	–	–	–	–	–	–	–	–	–	–	–	–	–
20-Nov-07	6,800	6.5	–	–	0.097U	0.59J B	–	–	–	–	15*	4.7U	0.93 U	–	–	–	–	–	–	–	–	–	–	–
30-Nov-07	–	6.5	–	–	–	–	–	–	–	–	0.093U	–	–	–	–	–	–	–	–	–	–	–	–	–
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		

RAC2 TECHNICAL STATUS REPORT
November 29, 2008 to December 26, 2008

WORK ASSIGNMENT NUMBER:	004-LRLR-05WE
SITE NAME:	Penta Wood Products-OU1, WI
ACTIVITY:	Long-Term Response Action
CH2M HILL JOB NUMBER:	344511
PREPARED BY:	Keli McKenna/MKE, Site Manager Beth Rohde/MKE, Assistant Site Manager
PERIOD ENDING:	December 26, 2008

COPIES:

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

1. Progress Made This Reporting Period

Task A (PP)

- Performed monthly project management activities.
- The purchase order (P.O.) for North Shore Environmental Services, the hazardous waste disposal contractor, was revised to add a unit rate for a polypropylene layer on the exterior of the supersacks at the request of CH2M HILL prior to transport to the disposal facility. The unit rate was added, but a change in the contract rate was not required.

Task B (PJ)

- An estimated 1.99 million gallons (MG) of groundwater were treated and discharged during the reporting period. To date, a total of 89.41 MG of water have been treated. An estimated 182.4 gallons of light nonaqueous phase liquid (LNAPL) were recovered, bringing the total recovered volume of LNAPL since March 2004 to approximately 32,466 gallons.
- On December 1, A-1 Septic was onsite to empty the septic holding tank.
- On December 1, C3D Testing Company was onsite to perform annual testing on the backflow preventor.
- Maurer Power was onsite for several days in December to finish the installation of the surge suppression equipment. On December 11, Northwestern Electric Power Company was onsite with Maurer Power to remove and restore power to allow for the installation of the adjustable under-voltage protective relay and associated equipment. Programming of the power monitor was completed on December 30. The final programming of the adjustable under-voltage protective relay will be completed during the next reporting period.

- On December 4, Maurer Power and North Country Plumbing and Heating (formerly known as Reliable Services) were onsite to troubleshoot the furnace wiring issues. All circuits and wiring in the circuit box were tested, the burner light was replaced and confirmed the blower will stay in winter mode.
- On December 5, Maurer Power was onsite to install new pH probes in the neutralization tank.
- On December 9, North Shore Environmental picked up 12 supersacks of spent carbon, approximately 13 tons of filter cake and 3 drums of debris for disposal.
- On December 15, Maurer Power was onsite to troubleshoot the rotary drum vacuum filter (RDVF). Debris was identified in the check valve at the diatomaceous earth (DE) pump allowing wastewater to siphon back into the DE tank. The obstruction was removed and valves are operating normally.
- On December 19, Maurer Power performed troubleshooting and repairs on the RDVF knife advance and installed replacement parts in the filtrate pump. The RDVF knife advance and filtrate pump are currently operating normally.
- On December 22, Glacier Pure delivered two pallets of diatomaceous earth.
- On December 30, Maurer Power was onsite to troubleshoot the DE solenoid valves.
- Based on the potential for methane migration as a result of the snow cover, the biovent system was shut down on December 16 for the winter months similar to that done during the winter months of 2007/2008. Soil gas readings collected prior to the shutdown (November 27) indicated saturation of oxygen in all the locations except the two locations (SG-22 and SG07S) located in the wood chip areas. These two wells continue to have low oxygen levels (less than 8 percent). Based on the oxygen utilization observed during the 2007/2008 shutdown, it is not anticipated that the oxygen will drop below the 5 percent minimum level for aerobic biodegradation while shut down. The system will resume operation in the spring.

Soil Gas Measurements from November 27				
Well ID	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	LEL (%)
SG-22	7.6	14.0	1.4	0.0
SG-07S	1.0	18.7	0.0	1.0

- The results of Wisconsin Pollutant Discharge Elimination System (WPDES) discharge samples were summarized and are presented in the table located at the end of this report. The concentration of arsenic exceeded the monthly permit average of 5 micrograms per liter (µg/L) at 8.9 µg/L. Similar concentrations have been observed in the past; however, there is no corrective action since the treatment system is not designed to treat metals. Although the permit limit is based on a monthly average, only a single arsenic sample is collected every quarter per the permit sample frequency. Considering the arsenic results for the last 12 months, the average arsenic concentration is 4.9 µg/L.

Task C (CV)

- Continued to perform operational monitoring under this task.
- The residential wells were resampled on December 10 and 11 because of suspected carryover and lab contamination. The analytical results from the resampled residential well samples revealed no detections of benzene, toluene, ethylbenzene, and xylene (BTEX) or pentachlorophenol (PCP).
- It was identified that the laboratory did not perform the analyses for calcium and magnesium, which are used to calculate hardness. The laboratory was contacted and reanalyzed the samples on December 22, within hold time.

Task D (PC)

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

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

2. Problems Resolved

The operator observed a discrepancy between the pH probe in the coagulation tank and the portable meter used to test the wastewater. A new portable meter arrived at the site on December 1. The pH readings of the portable meter versus the readings in the neutralization tank were still showing a high variance. It was determined that the portable meter was not accurately compensating for the chemical in the coagulation tank and that the in-line probes are reading correctly. The system set points remain at 5.2 for the coagulation tank and 6.5 for the neutralization tank. No additional changes to the system were needed.

During the operation of the RDVF on December 14, wastewater was observed to be filling the filter aid tank. The actuator valve connected to the float tank was found to be open which resulted in float flowing into the filter aid tank. This valve was manually closed. After performing several tests, debris was found in the check valve at the DE pump which caused float to siphon back into the DE tank. The obstruction was removed and is fully operational. Standard operating procedures were updated to include a step to flush the pipe in order to prevent this from occurring in the future.

On December 17, the operator observed that the knife advance for the RDVF was not functioning properly and would stop operating if the knife was not manually held. On December 19, Maurer Power was onsite to troubleshoot the motor used to

advance the knife. After an investigation, it was determined that the problem was not the motor, but that a set screw located inside the shaft that runs the length of the knife had been stripped. The screw was replaced and is fully operational.

The operator arrived onsite on December 22 to find the DE tank overflowing with clean water. It was identified that the solenoid valve to the clean water source was stuck in the open position. On December 30, Maurer Power was onsite to repair the faulty solenoid valves. The power to the valve was tested and the float switch was inspected. The valve is now fully operational.

3. Problem Areas and Recommended Solutions

The float tank effluent pipe occasionally becomes obstructed and prevents the RDVF pump from transferring float to the RDVF. The piping and pump are disassembled and flushed. Quotes for installation of an additional isolation valve and cleanout are being requested. In addition, a scope of work will be prepared and bids requested for the cleanout of the tank.

The bag filters continue to be pushed out or into the basket in the filter housing. There are also large visible holes throughout the bag. The operator has replaced the bag filter gaskets, drained and cleaned the dissolved air flotation (DAF) system, replaced the air release tubing, and inspected the ventilation pipes to identify potential back pressure sources. This phenomenon is not significantly affecting the operation of the system; however, troubleshooting will continue during the next reporting period.

It was identified that the laboratory did not perform the analyses for calcium and magnesium, which are used to calculate hardness. The laboratory was contacted and reanalyzed the samples on December 22, within hold time. The cost for the reanalysis will be covered by the laboratory. Once the analytical results are received from the reanalysis, the full data package from the annual groundwater event will be submitted to USEPA for validation.

4. Deliverables Submitted

None.

5. Activities Planned Next Reporting Period

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

- Perform monthly project management.
- A bid package will be prepared for the carbon changeout services.
- During carbon changeouts, the interior of the carbon vessels are inspected. During the last carbon changeouts of the vessels, it was observed that the internal epoxy liner is worn and will need to be repaired. A bid package will be prepared for competitive bid.
- A P.O. will be set up for Maurer Power, the electrical subcontractor, for any future service requests made. A quote prior to work being performed will be submitted when possible.

Task B (PJ)

- Continue to operate the groundwater treatment system.

Task C (CV)

- Perform sample management tasks as results from operational monitoring and groundwater sampling events are received from the laboratory.
- Submit the annual groundwater sampling hard copy results to USEPA for validation.
- A Quality Assurance Project Plan (QAPP) Addendum will be prepared and submitted to USEPA reflecting changes with the new analytical laboratory.

Task D (PC)

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

6. Key Personnel Changes

None.

7. Subcontractor Services

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

8. Travel

Travel for Maribeth Wintercorn from October 28-29 was previously reported in the October 2008 Technical Status Report (TSR). Travel charges are included in this invoice.

Travel charges for Lisa Mauser from November 17 are for auto mileage to pick up site supplies.

9. Laboratories

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

10. Project Performance

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

Task A-LTRA Monthly Progress Report

- The November 2008 TSR was submitted, meeting the performance standard.

Task B-Groundwater Containment and Bioventing

- The groundwater treatment system had temporary shutdowns; however, the alarms were all acknowledged within 24 hours. Therefore, the groundwater treatment system met the performance standard for this period, based on the approved clarification.
- Running the bioventing system for an extended time during the winter is a safety concern because the frozen soils can act as a cap, preventing upward release of methane and resulting in migration of methane. Soil gas measurements indicated sufficient oxygen is present in the subsurface to support aerobic biodegradation. With the health and safety concern of methane migration, it was recommended that the bioventing system be shut down for the winter. The bioventing system can remain off throughout the winter without appreciably affecting the biodegradation of pentachlorophenol (PCP) in the subsurface and will provide cost savings on energy consumption; therefore, the bioventing system was shut down on December 16 after evaluation of the soil gas monitoring data. The bioventing system was operational 100 percent of the time before the system was shut down. The bioventing system met the performance standard for this period, based on the approved clarification.

Task C-Groundwater Treatment

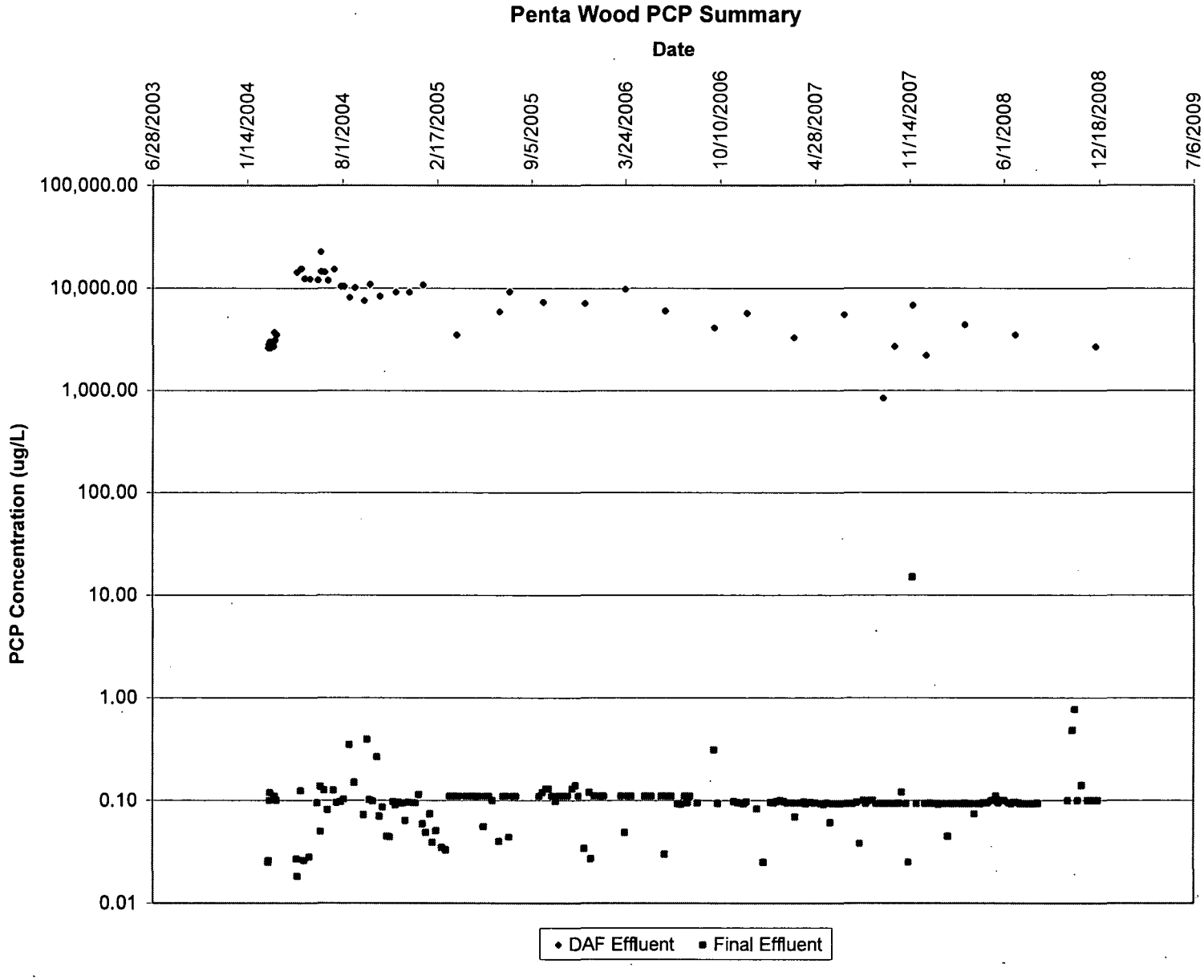
- Treatment system effluent sampling results did not meet the discharge criteria in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0061531-01-0; therefore, not meeting the performance standard. The concentration of arsenic exceeded the permit average of 5 µg/L. Similar concentrations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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

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

REMEDIATION SYSTEM EVALUATION RECOMMENDATION STATUS

Recommendation	Status
Use dedicated pumps in monitoring wells.	The use of dedicated pumps has reduced overall CH2M HILL's level of effort (LOE) for the sampling events. The CH2M HILL plant operator will continue to serve as a field team member to further reduce 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 long-term remedial action (LTRA). Data management costs may remain high because of the volume of analytical data generated for the site and the LOE hours associated with meeting USEPA reporting requirements. CH2M HILL continues to monitor the monthly project management cost and has established an LOE for staff for the remainder of the assignment. An unexpected change in the permanent operator resulted in a monthly LOE higher than the target until the replacement operator was identified and permanently relocated to Siren. Since that time, the monthly LOE for both project management and subcontractor management has been less than the established LOE.
Develop tracking of routine and nonroutine costs.	For this LTRA, CH2M HILL is tracking routine and nonroutine maintenance activities and the associated costs. CH2M HILL uses this tracking tool to investigate opportunities for optimizing the system and reducing costs wherever possible.
Evaluate potential to reduce groundwater extraction without substantially affecting LNAPL recovery.	As part of the data evaluation activities for the LTRA, CH2M HILL continues to monitor and evaluate recovery of LNAPL and containment of the dissolved plume to determine the potential for reduced groundwater pumping. An LNAPL recovery optimization test was performed the week of May 7 to evaluate the effect of the cone of depression on recovery. The results of the test, presented in a technical memorandum on June 29, indicated that LNAPL recovery is not affected by a change in the groundwater extraction rate. The groundwater extraction rate was reduced to 55 gallons per minute (gpm), and the treatment system has maintained capture of the PCP dissolved contamination. Additional operational procedures were implemented to ensure that the LNAPL recovery pumps are at the proper depth in the recovery well to account for water table fluctuations.
Adjust pH to 6.5 instead of 7.0.	As instructed by USEPA, CH2M HILL has implemented this recommendation.
Transition from groundwater extraction and LNAPL recovery system to bioventing system and intrinsic remediation.	CH2M HILL started the bioventing system in September 2007 and collected soil gas data over 575 hours of operation. The system was shut down over the winter months, and changes in condition were monitored. The shut down did not appreciably affect the biodegradation of the PCP in the subsurface, but provided cost savings on energy usage. The bioventing system will be restarted after the spring groundwater sampling event and operated until the shallow soils are fully oxygenated. Based on the data collected during operation, once the shallow soils are oxygenated, the intermediate and deep soils will also be oxygenated. The system then can be operated in a pulsed mode, so that oxygen is maintained above 5 percent at all locations to promote aerobic degradation. The ongoing operating schedule of the bioventing system will be determined based on results of soil gas monitoring following spring startup. Bioventing will be performed concurrently with the LNAPL recovery system.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12/18/2008
7/6/2009
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10,000.00
1,000.00
100.00
10.00
1.00
0.10
0.01
PCP Concentration (ug/L)
DAF Effluent
Final Effluent

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
18-Dec-07	2,200	6.5	5.0U	21	0.020J	0.42JB	1.0U	1.0U	1.0U	1.9U	0.093U	4.7U	0.94 U	1.0U	1.0U	1.0U	2.0U	9.3J	10U	66	770	3,500	–	–
28-Dec-07	–	6.5	–	–	–	–	–	–	–	–	0.094U	–	–	–	–	–	–	–	–	–	–	–	–	–
9-Jan-08	–	6.5		–	0.047J					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
15-Jan-08	–	6.5		–	–					–	0.092U	–	–	–	–	–	–	–	–	–	–	–		
21-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
28-Jan-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
4-Feb-08	–	6.5		–	–					–	0.045J	–	–	–	–	–	–	–	–	–	–	–		
11-Feb-08	–	6.5		–	0.093U					–	0.093U	–	0.93 U	–	–	–	–	–	–	–	–	–		
21-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
26-Feb-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
7-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
10-Mar-08	4,400	6.5		20	0.094U					1.4U	0.094U	4.7U	0.93U	1.0U	1.0U	1.0U	2.0U	0.43J	1.7J	33JB	200U	1,800		
18-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
25-Mar-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
1-Apr-08	–	6.5		–	–					–	0.074J	–	–	–	–	–	–	–	–	–	–	–		
8-Apr-08	–	6.5		–	–					–	0.093R	–	–	–	–	–	–	–	–	–	–	–		
15-Apr-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
22-Apr-08	–	6.5		–	0.039J					–	0.095U	–	0.93U	–	–	–	–	–	–	–	–	–		
29-Apr-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
6-May-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
16-May-08	–	6.5		–	–					–	0.11U	–	–	–	–	–	–	–	–	–	–	–		
21-May-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
31-May-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
2-June-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
13-June-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
17-June-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-June-08	3500	6.5		21	0.095U					–	0.096U	–	0.94U	–	–	–	–	1.0U	11	33	100U	1,600		
3-July-08	–	6.5		–	–					–	0.095U	–	–	–	–	–	–	–	–	–	–	–		
7-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
15-July-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
24-July-08	–	6.5		–	0.094U					–	0.093U	–	0.94U	–	–	–	–	–	–	–	–	–		
5-Aug-08	–	6.5		–	–					–	0.093U	–	–	–	–	–	–	–	–	–	–	–		
12-Aug-08	–	6.5		–	–					–	0.094U	–	–	–	–	–	–	–	–	–	–	–		
Aug 13 – Oct 8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14-Oct-08	–	6.5		–	0.10U					–	0.10U	–	1.0U	–	–	–	–	–	–	–	–	–		
23-Oct-08	–	6.5		–	–					–	0.48	–	–	–	–	–	–	–	–	–	–	–		
28-Oct-08	–	6.5		–	–					–	0.77	–	–	–	–	–	–	–	–	–	–	–		
4-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
12-Nov-08	–	6.5		–	0.10U					–	0.14	–	1:0U	–	–	–	–	–	–	–	–	–		
25-Nov-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
2-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		
9-Dec-08	2680	6.5		21	0.10U					–	0.10U	–	1.0U	–	–	–	–	8.9	18.9	31.2	450	1,640		
16-Dec-08	–	6.5		–	–					–	0.10U	–	–	–	–	–	–	–	–	–	–	–		

WPDES SAMPLING SUMMARY

Date	Pentachlorophenol (µg/L) Influent	pH Field	Total Suspended Solids (mg/L)	Chloride (mg/L)	Diesel Range Organics (mg/L)	Total Organic Carbon (mg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	Total Trimethylbenzene (µg/L)	Dioxin (2,3,7,8 TCDD; pg/L; 3.0 pg/L monthly average limit)	Pentachlorophenol (µg/L; 0.1 µg/L monthly average limit)	Phenol (µg/L)	Naphthalene (µg/L; 8.0 µg/L monthly average limit)	Benzene (µg/L; 0.5 µg/L monthly average limit)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylene (µg/L)	Arsenic, Total Recoverable (µg/L); 5.0 µg/L monthly average limit)	Copper, Total Recoverable (µg/L)	Zinc, Total Recoverable (µg/L)	Iron, Total Recoverable (µg/L)	Manganese, Total Recoverable (µg/L)	Acid Extractables	Dioxins & Furans (all cogeners)
26-Dec-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		
30-Dec-08	–	6.5		–	–					–	NR	–	–	–	–	–	–	–	–	–	–	–		

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

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

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

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

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