Kalamazoo River Field Oversight Report for the Period of April 13 through April 17, 2009, Groundwater Sampling, Area 1 SRI, Kalamazoo River
WA No. 032-RSBD-059B, Contract No. EP-S5-06-01

PREPARED FOR:	Jim Saric/USEPA
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COPIES:	Paul Bucholtz/MDEQ
DATE:	4/30/2009
PROJECT NUMBER:	365780.FI.01

This memorandum summarizes field oversight by CH2M HILL of the activities performed on the Kalamazoo River by Arcadis on behalf of KRSG. Oversight activities were performed by CH2M HILL from April 13 through 17, 2009. A photo log of representative field oversight activities is provided in Attachment 1. Additional photos of sample locations and processing were transferred to the project file.

A CH2M HILL representative was onsite to observe and document the groundwater sampling from the Plainwell Time Critical Removal Action (TCRA) wells, Kalamazoo River Area 1 SRI.

The following individuals were onsite for this work:

EPA Oversight – Kristen Templin/EDI

Arcadis – Mike Kohagen/Team Lead
Amy O'neil/Field Team

Summary of Field Activities

The field effort included sampling fifteen (15) groundwater monitoring wells and collecting two (2) surface water samples from Portage Creek within the area of the Plainwell TCRA. The samples were submitted to the laboratory for analysis of: PCBs, total organic carbon, total dissolved solids, total suspended solids, chloride, sulfate, alkalinity, sodium, potassium, magnesium, and calcium.

The Arcadis sampling team did not deviate from their work plan for low flow groundwater sampling; the surface water samples were grab samples. Attached with this memo are tables for the groundwater elevation levels (Table 1), parameters taken before sampling (Table 2), and a photo log.

TABLE 1
Groundwater and Surface Water Elevations
Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site

Location	Coordinates [1]		Reference Elevation[2,3]	Water Level Elevation Date						
	Northing	Easting		3/27/09	3/30/09	4/2/09	4/3/09	4/5/09	4/13/09	4/17/09
Staff Gauges										
SG-1	350394.4	12775769.33	-	707.45	707.55	707.65	707.90	708.18	707.88	707.88
SG-2	350979.9	12772024.31	-	700.75	701.00	701.20	701.65	702.28	701.55	701.55
SG-3	350360.5	12772101.55	-	703.30	703.30	703.37	703.44	703.82	703.70	703.55
SG-4	350988.8	12772384.99	-	701.30	701.55	701.77	702.10	702.61	702.05	702.08
SG-5	350076.1	12773475.40	-	702.80	703.00	703.18	703.49	703.86	703.42	703.40
Monitoring Wells										
MW-1	350961.38	12772432.61	708.92	701.67	701.83	702.00	702.20	702.64	702.28	702.20
MW-2	350711.55	12772517.19	712.32	701.81	701.95	702.12	702.36	702.81	702.45	702.36
MW-3	350339.20	12772701.62	711.66	702.28	702.43	702.61	702.86	703.31	702.93	702.85
MW-4	350154.43	12773098.22	713.54	702.75	702.89	703.06	703.28	703.74	703.49	703.29
MW-5	350154.29	12773466.74	713.69	703.02	703.17	703.35	703.58	704.02	703.66	703.58
MW-6	350846.49	12772491.10	712.07	701.66	701.83	702.00	702.17	702.69	702.33	702.23
MW-7	350555.17	12772534.59	712.85	702.00	702.16	702.33	702.56	703.03	702.65	702.58
MW-8	350171.40	12772825.18	711.85	702.44	702.60	702.78	703.02	703.49	703.10	703.02
MW-9	350900.48	12773169.10	717.09	702.88	702.96	703.07	703.19	703.65	703.46	703.28
MW-10	350302.97	12774069.99	712.72	704.54	704.69	704.83	705.07	705.44	705.12	705.05
MW-11	350789.24	12774553.73	712.38	705.05	705.18	705.33	705.56	705.96	705.63	705.55
MW-12	350726.89	12775210.90	715.35	706.28	706.40	706.50	706.81	707.10	706.78	706.73
MW-13	350420.23	12774429.71	714.36	705.43	705.54	705.68	705.91	706.27	705.99	705.89
MW-14	350664.31	12774948.40	712.45	705.70	705.83	705.98	706.22	706.59	706.28	706.19
MW-15	350412.99	12774893.18	713.83	706.11	706.19	706.33	706.53	706.88	706.64	706.52
Groundwater - Surface Water Gradients (ft/ft) (positive gradient indicates groundwater flow to river)										
MW-5 - SG-5				0.22	0.17	0.17	0.09	0.16	0.24	0.18
MW-1 - SG-4				0.37	0.28	0.23	0.10	0.03	0.23	0.12

Notes:

[1] Coordinates are based on the North American Datum of 1983, Michigan South Zone.

[2] Elevations are based on the National Geodetic Vertical Datum of 1929.

[3] Elevation of the top of the well's inner casing was used

* Wells installed during the weeks of February 23, March 2, March 9, 2009

* Reference elevations collected on March 24, 2009

* Staff gages installed during the week of March 23, 2009

* Wells developed during the week of March 30, 2009

TABLE 2
Sampling Data
Allied Paper Inc. /Portage Creek/Kalamazoo River Superfund Site

Well Number	Total Depth of Well (feet)	Depth to Water (DTW) (feet)	Volume of Water in Well (gallons)	Volume of Water Purged (gallons)	Turbidity (ntu)	pH	Temperature (degree C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (ORP) (mV)	Time Sampled	Date Sampled
MW-1	12.73	6.80	0.97	1.85	4.06	7.26	10.88	0.965	0.22	-123.30	13:40	4/16/09
MW-2	15.06	10.03	0.82	1.32	2.39	7.07	11.14	1.053	0.29	-104.30	10:50	4/16/09
MW-3	13.75	8.83	0.80	1.43	3.97	7.08	10.87	1.039	0.24	-90.40	13:25	4/15/09
MW-4	14.46	10.25	0.69	0.92	1.19	7.19	9.52	1.031	0.39	-101.20	10:30	4/15/09
MW-5	14.23	10.13	0.67	1.19	1.76	7.26	9.85	0.999	0.29	-107.30	10:40	4/15/09
MW-6	15.89	9.91	0.97	1.45	1.84	7.17	10.89	0.970	0.21	-100.70	11:00	4/16/09
MW-7	14.70	10.30	0.72	1.59	1.22	7.28	10.47	1.137	0.06	-88.30	13:35	4/15/09
MW-8	18.53	8.84	1.58	0.92	3.20	7.20	12.32	0.992	0.19	-96.40	11:50	4/15/09
MW-9	19.49	13.81	0.93	1.19	2.99	7.27	10.25	0.875	0.28	-64.60	11:15	4/17/09
MW-10	12.45	7.64	0.78	1.19	1.64	7.13	7.71	1.214	0.30	-73.90	13:50	4/14/09
MW-11	12.92	6.82	0.99	1.19	1.97	7.33	7.30	0.928	0.32	-99.20	10:55	4/14/09
MW-12	12.00	8.57	0.56	1.06	0.48	6.87	6.91	0.875	1.50	87.60	16:00	4/13/09
MW-13	15.00	8.38	1.08	1.72	4.74	7.29	8.39	0.096	0.37	-11.91	12:05	4/14/09
MW-14	11.61	6.17	0.89	1.45	0.99	6.20	7.04	0.813	7.78	-75.30	16:10	4/13/09
MW-15	14.49	7.10	1.20	1.59	2.58	7.18	7.58	0.782	0.24	-81.40	14:20	4/14/09

Notes
[1] Calculation for volume of water in well: (Total Depth of Well - Depth to Water)*(0.163)
[2] (0.163) is the conversion factor used to find volume of a 2" well
[3] Readings are the final readings taken before sampling, average of 8 readings of parameters were taken before sampling
* Wells developed during the week of March 30, 2009

Attachment 1

Photographic Documentation Log

Representative Photos of Sediment Sampling and Processing

Photo by K Templin
4/14/09
Description: Sampling

Photo by K Templin
4/14/09
Description: Pump controller powered off of car battery.

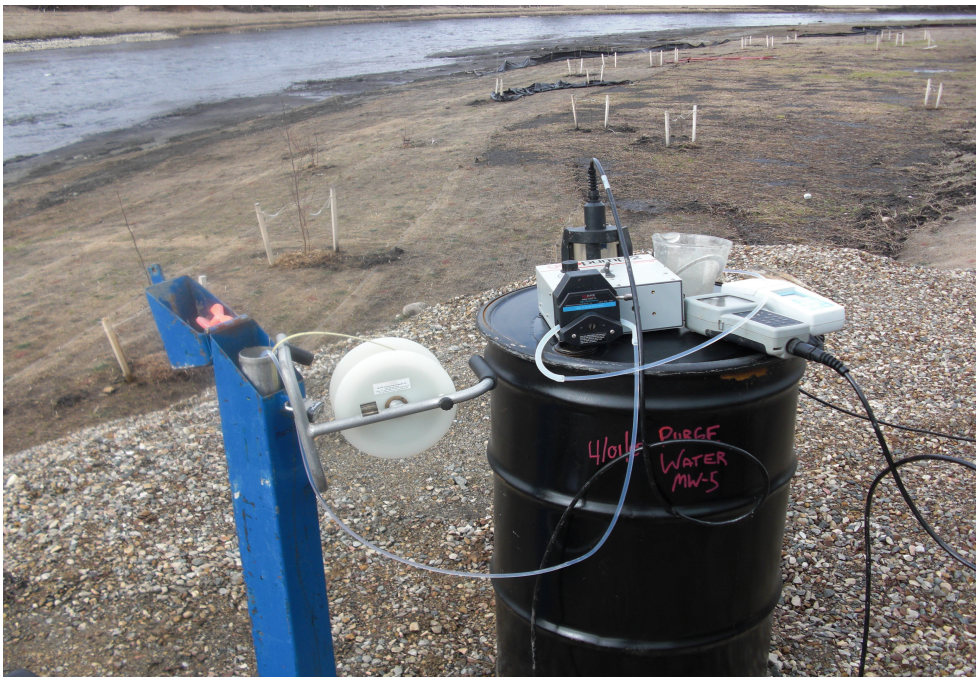

Photo by K Templin
4/14/09
Description: Sampling setup

Photo by K Templin
4/14/09
Description: Staff gauge 5