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Ralph Erickson
Pretreatment Issues and Waste Acceptance
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, Wisconsin 53713

Subject:

Groundwater Extraction Pump Test and Full-Scale Extraction System Summary,
Madison-Kipp Corporation, Madison, Wisconsin.

Dear Mr. Erickson:

ARCADIS is pleased to submit the following summary to the Madison Metropolitan Sewerage District (MMSD) to outline the initial groundwater extraction activities related to a pump test at the facility located at 201 Waubesa Street in Madison, Wisconsin (site). As discussed during our meeting on November 13, 2013, the purpose of this letter is to provide a description of the initial groundwater extraction activities, present analytical data that is representative of the groundwater at the site, and request approval to temporarily discharge groundwater to the sanitary sewer during these activities.

A *Groundwater Remedial Strategy* letter was submitted to the Wisconsin Department of Natural Resources (WDNR) on October 16, 2013 and approved by WDNR in email correspondence on October 17, 2013. The letter to WDNR presented a groundwater remedial strategy for the site utilizing groundwater extraction and an in-situ chemical oxidation injection. The initial activities related to the groundwater extraction remedy include the completion of a step and a pump test. The step test provides information for efficient operation of the pump test, and the pump test provides critical information related to the volume of groundwater that can be recovered/pumped from a single well. This data will be used to develop a basis of design for the full-scale groundwater extraction system. This summary includes a description of the proposed testing and preliminary full-scale system design.

Step/Pump Test Description

The pump test has been developed based on the WDNR-approved *Groundwater Remedial Strategy* letter dated October 16, 2013. The following steps outline the pump test scope:

- Submit application to the MMSD and city of Madison for permits required to temporarily discharge extracted groundwater to the sanitary sewer during the

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December 2, 2013

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DRAFT

proposed step/pump test. A summary of representative groundwater analytical data is presented in Table 1.

- Per the request of MMSD, groundwater samples were collected for laboratory analysis of polychlorinated biphenyls (PCBs) at a lower detection limit using Northern Lakes Service. Total and dissolved PCB results were reported below the detection limit for all samples. Additionally, groundwater samples were collected for analysis of biochemical oxygen demand (BOD) and chemical oxygen demand (COD). Both BOD and COD were reported below the method detection limit. The samples were collected from the existing monitoring wells located nearest the proposed extraction well (Figure 1). Analytical reports for the PCB, BOD, and COD sampling are included as Attachment A.
- Install one groundwater extraction well in the northern parking lot to a depth up to 185 feet below land surface (Figure 1).
- Set up equipment, temporary hose, and traffic controls for the step/pump test. A traffic control plan will be submitted to the city of Madison and the MMSD before the initiation of any testing to document the proposed safety precautions for the placement of the hose at the sanitary sewer (MSD-MH06-110). The groundwater extracted during the testing will be screened through a 100 micron bag filter prior to discharge to the sanitary sewer. All major equipment will be kept on Madison-Kipp property. Temporary discharge hose will be placed along the easement between the bike path/rain garden and the residential properties of South Marquette Street, and routed into the sanitary sewer manhole. The temporary hose is proposed for the duration of the step and pump tests. ARCADIS and/or Madison-Kipp personnel will inspect the hose during the testing to ensure the integrity of the connections and confirm there are no leaks. The routing of the hose will be identified using a-frame barricades. Traffic controls will be placed on the northern end of South Marquette Street to protect the temporary discharge hose and proposed discharge manhole from any vehicle or foot traffic. The temporary hose and traffic controls will be stored at the Madison-Kipp facility during off-test hours.
- Completion of three 4-hour step tests (one each at 40, 60, and 80 gallons per minute [gpm]) to determine the appropriate pumping rate for the pump test. Total discharge volume from the step test is approximately 43,200 gallons. The step test is proposed to be completed in one day.

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- Routine groundwater elevation monitoring will be completed at site-wide monitoring wells to monitor influence from this test. Data will be analyzed and used to confirm the proposed pumping rate for the 24-hour test.
- One grab effluent sample will be collected and analyzed during each of the three step tests. The samples will be analyzed for volatile organic compounds (VOCs), total dissolved solids (TDS), dissolved and total iron, and dissolved and total manganese.
- Completion of a 24-hour pump test to determine the necessary operational requirements of the extraction well and to guide final design specifications for the groundwater extraction and treatment system. The pump test will be initiated approximately 48 hours after the initiation of the step test. The maximum groundwater discharge (pump test rate of 80 gallons per minute [gpm]) to the sanitary sewer from the pump test is approximately 115,200 gallons.
- Routine groundwater elevation monitoring will be completed at site-wide monitoring wells to monitor influence from this test.
- One grab sample will be collected from the influent before the bag filter assembly to monitor total suspended solids before the proposed bag filter assembly.
- One grab effluent sample will be collected every six hours during the pump test. Effluent samples will be analyzed for VOCs, TDS, dissolved and total iron, and dissolved and total manganese.

Full-Scale System Design Considerations

Following completion of the pump test the full-scale system basis of design will be completed. Based on the site information collected during the investigation activities, the preliminary basis of design for the full-scale system includes solids filtration, air stripping, and vapor-phase carbon treatment. The estimated groundwater extraction rate for the full-scale system is 60 gpm. Preliminary evaluation of the potential stripping efficiency indicates greater than 99% removal of VOCs present at the site can be removed from the extracted groundwater prior to discharge. An evaluation of the options for disposal of the extracted groundwater, including discharge to the sanitary sewer or storm sewer and/or potential reuse at Madison-Kipp, will be completed as part of the final design.

DRAFT**Project Schedule**

Following receipt of approval from MMSD to discharge extracted groundwater during the step/pump test to the sanitary sewer and issuance of the respective permits, a schedule for the commencement of the step/pump test activities will be confirmed with the MMSD. It is understood that no discharge events will be approved in December 2013; therefore, ARCADIS would like to request approval to complete the step/pump test in January 2014 pending coordination with respective drilling and equipment contractors. It is anticipated that the drilling of the extraction well will be initiated on December 6, 2013; however, no testing will be scheduled until the approval from MMSD is confirmed.

Closing

ARCADIS appreciates the opportunity to submit this summary and looks forward to working with you on this project. Should you have any questions relating to the information presented herein, please call any of the undersigned.

Sincerely,
ARCADIS U.S., Inc.

Rebecca Robbennolt
Remediation Specialist

Scott Murphy, PE
Principal Engineer

Jennine L. Trask, PE
Certified Project Manager

Attachments:

Table 1 – Groundwater Analytical Results
Figure 1 – Proposed Extraction Well Location
Attachment A – November 2013 – Lab Analytical Reports

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Copies:

David Taylor – Madison Metropolitan Sewerage District

Tim Troester – City of Madison

Brynn Bemis – City of Madison

Mark Meunier – Madison Kipp

Alina Walcek – Madison Kipp

Mike Schmoller – WDNR (electronic)

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Table

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	Preventive Action	Enforcement Standard	MW-3D			MW-3D2			MW-3D3	
			48-53'	48-53'	48-53'	76-81'	76-81'	76-81'	214-224'	214-224'
Sample Interval (feet bls)	Limit		11/30/2012	10/10/2013	11/18/2013	11/30/2012	10/10/2013	11/18/2013	11/27/2012	10/7/2013
VOCs (µg/L)										
1,1,1,2-Tetrachloroethane	7	70	<1.3	<0.25	NA	<1.3	<0.25	NA	<0.25	<0.25
1,1,2-Trichloroethane	0.5	5	<1.4	<0.28	NA	<1.4	<0.28	NA	<0.28	<0.28
1,1-Dichloroethene	0.7	7	<1.6	<0.31	NA	<1.6	<0.31	NA	<0.31	<0.31
1,2,4-Trimethylbenzene	96	480	<0.7	<0.14	NA	<0.7	<0.14	NA	<0.14	<0.14
1,2-Dibromoethane	0.005	0.05	<1.8	<0.36	NA	<1.8	<0.36	NA	<0.36	<0.36
1,2-Dichlorobenzene	60	600	<1.4	<0.27	NA	<1.4	<0.27	NA	<0.27	<0.27
1,2-Dichloropropane	0.5	5	<1	<0.2	NA	<1	<0.2	NA	<0.2	<0.2
1,3,5-Trimethylbenzene	96	480	<0.9	<0.18	NA	<0.9	<0.18	NA	<0.18	<0.18
Benzene	0.5	5	<0.37	0.36 J	NA	<0.37	<0.074	NA	<0.074	<0.074
Bromoform	0.44	4.4	<1.4	<0.28	NA	<1.4	<0.28	NA	<0.28	<0.28
Bromomethane	1	10	<1.6	<0.31	NA	<1.6	<0.31	NA	<0.31	<0.31
Carbon tetrachloride	0.5	5	<1.3	<0.26	NA	<1.3	<0.26	NA	<0.26	<0.26
Chloroform	0.6	6	<1	0.85 J	NA	<1	<0.2	NA	<0.2	<0.2
Chloromethane	3	30	<0.9	<0.18	NA	<0.9	<0.18	NA	<0.18	<0.18
cis-1,2-Dichloroethene	7	70	520	180	NA	420	21	NA	6.8	<0.12
Dichlorodifluoromethane	200	1000	<1	<0.2	NA	<1	<0.2	NA	<0.2	<0.2
Ethylbenzene	140	700	<0.65	<0.13	NA	<0.65	<0.13	NA	<0.13	<0.13
Isopropylbenzene	NE	NE	<0.7	<0.14	NA	<0.7	<0.14	NA	<0.14	<0.14
Methyl tert-butyl ether	12	60	<1.2	<0.24	NA	<1.2	<0.24	NA	<0.24	<0.24
Methylene Chloride	0.5	5	<3.4	<0.68	NA	<3.4	<0.68	NA	<0.68	<0.68
Naphthalene	10	100	<0.8	<0.16	NA	<0.8	<0.16	NA	<0.16	<0.16
n-Butylbenzene	NE	NE	<0.65	<0.13	NA	<0.65	<0.13	NA	<0.13	<0.13
N-Propylbenzene	NE	NE	<0.65	<0.13	NA	<0.65	<0.13	NA	<0.13	<0.13
p-Isopropyltoluene	NE	NE	<0.85	<0.17	NA	<0.85	<0.17	NA	<0.17	<0.17
sec-Butylbenzene	NE	NE	<0.75	<0.15	NA	<0.75	<0.15	NA	<0.15	<0.15
Styrene	10	100	<0.5	<0.1	NA	<0.5	<0.1	NA	<0.1	<0.1
tert-Butylbenzene	NE	NE	<0.7	<0.14	NA	<0.7	<0.14	NA	<0.14	<0.14
Tetrachloroethene	0.5	5	1,800	620	NA	2,800	150	NA	1.7	<0.17
Toluene	160	800	<0.55	<0.11	NA	<0.55	<0.11	NA	<0.11	<0.11
trans-1,2-Dichloroethene	20	100	7.7	5.2	NA	5.6	0.52 J	NA	<0.25	<0.25
Trichloroethene	0.5	5	250	100	NA	190	9.8	NA	1.1	0.5
Vinyl chloride	0.02	0.2	<0.5	<0.1	NA	<0.5	<0.1	NA	<0.1	<0.1
Xylenes, Total	400	2000	<0.34	<0.068	NA	<0.34	<0.068	NA	<0.068	<0.068

Footnotes on Page 3.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	Preventive Action	Enforcement Standard	MW-3D			MW-3D2			MW-3D3	
			48-53'	48-53'	48-53'	76-81'	76-81'	76-81'	214-224'	214-224'
Sample Interval (feet bls)	Limit		11/30/2012	10/10/2013	11/18/2013	11/30/2012	10/10/2013	11/18/2013	11/27/2012	10/7/2013
Total PCBs										
PCB-1016	0.003	0.03	NA	NA	<0.023	NA	NA	<0.023	NA	NA
PCB-1221	0.003	0.03	NA	NA	<0.06	NA	NA	<0.06	NA	NA
PCB-1232	0.003	0.03	NA	NA	<0.037	NA	NA	<0.037	NA	NA
PCB-1242	0.003	0.03	NA	NA	<0.04	NA	NA	<0.04	NA	NA
PCB-1248	0.003	0.03	NA	NA	<0.045	NA	NA	<0.045	NA	NA
PCB-1254	0.003	0.03	NA	NA	<0.026	NA	NA	<0.026	NA	NA
PCB-1260	0.003	0.03	NA	NA	<0.034	NA	NA	<0.034	NA	NA
Dissolved PCBs										
PCB-1016	0.003	0.03	NA	NA	<0.023	NA	NA	<0.023	NA	NA
PCB-1221	0.003	0.03	NA	NA	<0.06	NA	NA	<0.06	NA	NA
PCB-1232	0.003	0.03	NA	NA	<0.037	NA	NA	<0.037	NA	NA
PCB-1242	0.003	0.03	NA	NA	<0.04	NA	NA	<0.04	NA	NA
PCB-1248	0.003	0.03	NA	NA	<0.045	NA	NA	<0.045	NA	NA
PCB-1254	0.003	0.03	NA	NA	<0.026	NA	NA	<0.026	NA	NA
PCB-1260	0.003	0.03	NA	NA	<0.034	NA	NA	<0.034	NA	NA
Total Metals (µg/L)										
Arsenic	10	1	0.32 J	NA	NA	0.21 J	NA	NA	0.93 J	NA
Chromium	100	10	3.7 J	NA	NA	4.1 J	NA	NA	0.83 J	NA
Iron	300	150	400	NA	NA	<37	NA	NA	4,400	NA
Manganese	300	60	42	NA	NA	1.6 J	NA	NA	870	NA
Dissolved Metals (µg/L)										
Arsenic (Dissolved)	10	1	0.23 J	NA	NA	0.28 J	NA	NA	0.91 J	NA
Barium (Dissolved)	2000	400	68	NA	NA	43	NA	NA	85	NA
Cadmium (Dissolved)	5	0.5	0.13 J	NA	NA	<0.1	NA	NA	<0.1	NA
Chromium (Dissolved)	100	10	2.4 J	NA	NA	4.0 J	NA	NA	<0.64	NA
Iron (Dissolved)	300	150	<37	NA	NA	<37	NA	NA	4,200	NA
Lead (Dissolved)	15	1.5	<0.16	NA	NA	<0.16	NA	NA	<0.16	NA
Manganese (Dissolved)	300	60	28	NA	NA	3.4	NA	NA	820	NA
Mercury (Dissolved)	2	0.2	<0.071	NA	NA	<0.071	NA	NA	0.17 J B	NA
Selenium (Dissolved)	50	10	<0.25	NA	NA	0.39 J	NA	NA	<0.25	NA
Silver (Dissolved)	50	10	<0.069	NA	NA	<0.069	NA	NA	<0.069	NA

Footnotes on Page 3.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	Preventive Action	Enforcement Standard	MW-3D			MW-3D2			MW-3D3	
			48-53'	48-53'	48-53'	76-81'	76-81'	76-81'	214-224'	214-224'
Sample Interval (feet bls)	Limit		11/30/2012	10/10/2013	11/18/2013	11/30/2012	10/10/2013	11/18/2013	11/27/2012	10/7/2013
MISC (mg/L)										
BOD	NE	NE	NA	NA	<2.0	NA	NA	<2.0	NA	NA
COD	NE	NE	NA	NA	<8.0	NA	NA	<8.0	NA	NA
Chloride	250	NE	350	NA	NA	100	NA	NA	2.5	NA
TDS	NE	NE	1,700	NA	NA	730	NA	NA	410	NA

Only VOCs detected in one or more water samples are listed on the table. Refer to laboratory analytical reports for a complete list of constituents analyzed.

Two sample dates are presented for the monitoring wells closest to the proposed extraction well. Samples collected in November and December 2012 represent aquifer conditions before the In-Situ Chemical Oxidation Pilot Test completed in December 2012. The most recent sampling event, October 2013 is also included to document current conditions.

- 100** Concentration exceeds the NR 140 Wis. adm. code Preventive Action Limit.
- 100** Concentration exceeds the NR 140 Wis. adm. code Enforcement Standard.
- < Constituent not detected above noted laboratory detection limit.
- B Compound was found in the blank and the sample.
- bls Below land surface.
- COD Chemical Oxygen Demand.
- BOD Biochemical Oxygen Demand.
- TDS Total Dissolved Solids
- J Result is between the method detection limit and the limit of quantitation.
- mg/L Milligrams per liter.
- µg/L Micrograms per liter.
- NA Not analyzed.
- NE Not established.
- PCBs Polychlorinated Biphenyls.
- VOCs Volatile Organic Compounds.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MW-3D3			MP-13						
	214-224'	67-71'	67-71'	81-85'	81-85'	102-106'	102-106'	121-125'	121-125'	135-139'
Sample Interval (feet bls)	214-224'	67-71'	67-71'	81-85'	81-85'	102-106'	102-106'	121-125'	121-125'	135-139'
Sample Date	11/18/2013	12/6/2012	10/7/2013	12/6/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012
VOCs (µg/L)										
1,1,1,2-Tetrachloroethane	NA	<1.3	<1.3	<2.5	<1.3	<1.3	<1.3	<0.5	1.1	<0.5
1,1,2-Trichloroethane	NA	<1.4	<1.4	<2.8	<1.4	<1.4	<1.4	<0.56	<0.28	<0.56
1,1-Dichloroethene	NA	2.8 J	<1.6	<3.1	<1.6	<1.6	<1.6	<0.62	<0.31	1.5 J
1,2,4-Trimethylbenzene	NA	<0.7	<0.7	<1.4	<0.7	<0.7	<0.7	<0.28	<0.14	<0.28
1,2-Dibromoethane	NA	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8	<0.72	<0.36	<0.72
1,2-Dichlorobenzene	NA	<1.4	<1.4	<2.7	<1.4	<1.4	<1.4	<0.54	<0.27	<0.54
1,2-Dichloropropane	NA	<1	<1	<2	<1	<1	<1	<0.4	<0.2	<0.4
1,3,5-Trimethylbenzene	NA	<0.9	<0.9	<1.8	<0.9	<0.9	<0.9	<0.36	<0.18	<0.36
Benzene	NA	<0.37	<0.37	<0.74	<0.37	<0.37	<0.37	<0.15	0.29 J	0.41 J
Bromoform	NA	<1.4	<1.4	<2.8	<1.4	<1.4	<1.4	<0.56	<0.28	<0.56
Bromomethane	NA	<1.6	<1.6	<3.1	<1.6	<1.6	<1.6	<0.62	<0.31	<0.62
Carbon tetrachloride	NA	<1.3	<1.3	<2.6	<1.3	<1.3	<1.3	<0.52	<0.26	<0.52
Chloroform	NA	<1	<1	<2	<1	<1	<1	<0.4	<0.2	<0.4
Chloromethane	NA	<0.9	<0.9	<1.8	<0.9	<0.9	<0.9	<0.36	<0.18	<0.36
cis-1,2-Dichloroethene	NA	3,500	1,500	1,900	1,200	1,100	600	910	650	1,100
Dichlorodifluoromethane	NA	<1	<1	<2	<1	<1	<1	<0.4	<0.2	<0.4
Ethylbenzene	NA	<0.65	<0.65	<1.3	<0.65	<0.65	<0.65	<0.26	<0.13	<0.26
Isopropylbenzene	NA	<0.7	<0.7	<1.4	<0.7	<0.7	<0.7	<0.28	<0.14	<0.28
Methyl tert-butyl ether	NA	<1.2	<1.2	<2.4	<1.2	<1.2	<1.2	<0.48	<0.24	<0.48
Methylene Chloride	NA	<3.4	<3.4	<6.8	<3.4	<3.4	<3.4	<1.4	<0.68	<1.4
Naphthalene	NA	<0.8	<0.8	<1.6	<0.8	<0.8	<0.8	<0.32	<0.16	<0.32
n-Butylbenzene	NA	<0.65	<0.65	<1.3	<0.65	<0.65	<0.65	<0.26	<0.13	<0.26
N-Propylbenzene	NA	<0.65	<0.65	<1.3	<0.65	<0.65	<0.65	<0.26	<0.13	<0.26
p-Isopropyltoluene	NA	<0.85	<0.85	<1.7	<0.85	<0.85	<0.85	<0.34	<0.17	<0.34
sec-Butylbenzene	NA	<0.75	<0.75	<1.5	<0.75	<0.75	<0.75	<0.3	<0.15	<0.3
Styrene	NA	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.2	<0.1	<0.2
tert-Butylbenzene	NA	<0.7	<0.7	<1.4	<0.7	<0.7	<0.7	<0.28	<0.14	<0.28
Tetrachloroethene	NA	3,800	2,000	5,600	5,400	1,800	1,900	1,500	6,500	1,900
Toluene	NA	<0.55	<0.55	<1.1	<0.55	<0.55	<0.55	<0.22	<0.11	<0.22
trans-1,2-Dichloroethene	NA	60	27	29	19	15	7	12	9.7	17
Trichloroethene	NA	1,100	510	940	660	440	490	340	550	450
Vinyl chloride	NA	150	92	64	48	33	20	36	8.1	50
Xylenes, Total	NA	<0.34	<0.34	<0.68	<0.34	<0.34	<0.34	<0.14	<0.068	<0.14

Footnotes on Page 6.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MW-3D3			MP-13						
	214-224'	67-71'	67-71'	81-85'	81-85'	102-106'	102-106'	121-125'	121-125'	135-139'
Sample Interval (feet bls)	214-224'	67-71'	67-71'	81-85'	81-85'	102-106'	102-106'	121-125'	121-125'	135-139'
Sample Date	11/18/2013	12/6/2012	10/7/2013	12/6/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012
Total PCBs										
PCB-1016	<0.023	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221	<0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232	<0.037	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248	<0.045	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254	<0.026	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260	<0.034	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved PCBs										
PCB-1016	<0.023	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221	<0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232	<0.037	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248	<0.045	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254	<0.026	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260	<0.034	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (µg/L)										
Arsenic	NA	0.16 J	NA	0.17 J	NA	0.24 J	NA	0.18 J	NA	0.15 J
Chromium	NA	6.8	NA	2.0 J	NA	4.2 J	NA	12	NA	9.6
Iron	NA	61 J B	NA	62 J B	NA	46 J B	NA	230 B	NA	86 J B
Manganese	NA	10	NA	14	NA	83	NA	63	NA	42
Dissolved Metals (µg/L)										
Arsenic (Dissolved)	NA	0.20 J	NA	<0.15	NA	0.21 J	NA	0.38 J	NA	<0.15
Barium (Dissolved)	NA	26 B	NA	24 B	NA	65 B	NA	72 B	NA	66 B
Cadmium (Dissolved)	NA	<0.1	NA	<0.1	NA	0.17 J	NA	<0.1	NA	<0.1
Chromium (Dissolved)	NA	<0.64	NA	<0.64	NA	<0.64	NA	<0.64	NA	<0.64
Iron (Dissolved)	NA	43 J B	NA	43 J B	NA	<37	NA	120 B	NA	43 J B
Lead (Dissolved)	NA	<0.16	NA	<0.16	NA	0.20 J	NA	0.23 J	NA	0.58
Manganese (Dissolved)	NA	10	NA	13	NA	86	NA	67	NA	43
Mercury (Dissolved)	NA	<0.071	NA	<0.071	NA	<0.071	NA	<0.071	NA	<0.071
Selenium (Dissolved)	NA	<0.25	NA	<0.25	NA	0.54 J	NA	0.56 J	NA	0.55 J
Silver (Dissolved)	NA	<0.069	NA	<0.069	NA	<0.069	NA	<0.069	NA	<0.069

Footnotes on Page 6.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MW-3D3					MP-13				
Sample Interval (feet bls)	214-224'	67-71'	67-71'	81-85'	81-85'	102-106'	102-106'	121-125'	121-125'	135-139'
Sample Date	11/18/2013	12/6/2012	10/7/2013	12/6/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012	10/7/2013	12/4/2012
MISC (mg/L)										
BOD	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
COD	<8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	NA	270	NA	220	NA	290	NA	310	NA	300
TDS	NA	1,100	NA	990	NA	1,100	NA	1,100	NA	1,100

Only VOCs detected in one or more water samples are listed on the table. Refer to laboratory analytical reports for a complete list of constituents analyzed.

Two sample dates are presented for the monitoring wells closest to the proposed extraction well. Samples collected in November and December 2012 represent aquifer conditions before the In-Situ Chemical Oxidation Pilot Test completed in December 2012. The most recent sampling event, October 2013 is also included to document current conditions.

- 100** Concentration exceeds the NR 140 Wis. adm. code Preventive Action Limit.
- 100** Concentration exceeds the NR 140 Wis. adm. code Enforcement Standard.
- < Constituent not detected above noted laboratory detection limit.
- B Compound was found in the blank and the sample.
- bls Below land surface.
- COD Chemical Oxygen Demand.
- BOD Biochemical Oxygen Demand.
- TDS Total Dissolved Solids
- J Result is between the method detection limit and the limit of quantitation.
- mg/L Milligrams per liter.
- µg/L Micrograms per liter.
- NA Not analyzed.
- NE Not established.
- PCBs Polychlorinated Biphenyls.
- VOCs Volatile Organic Compounds.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MP-13		
	135-139'	163-167'	163-167'
Sample Interval (feet bls)	10/7/2013	12/4/2012	10/7/2013
VOCs (µg/L)			
1,1,1,2-Tetrachloroethane	<1.3	<1.3	<0.25
1,1,2-Trichloroethane	<1.4	<1.4	<0.28
1,1-Dichloroethene	<1.6	<1.6	<0.31
1,2,4-Trimethylbenzene	<0.7	<0.7	<0.14
1,2-Dibromoethane	<1.8	<1.8	<0.36
1,2-Dichlorobenzene	<1.4	<1.4	<0.27
1,2-Dichloropropane	<1	<1	<0.2
1,3,5-Trimethylbenzene	<0.9	<0.9	<0.18
Benzene	<0.37	<0.37	<0.074
Bromoform	<1.4	<1.4	<0.28
Bromomethane	<1.6	<1.6	<0.31
Carbon tetrachloride	<1.3	<1.3	<0.26
Chloroform	<1	<1	<0.2
Chloromethane	<0.9	<0.9	<0.18
cis-1,2-Dichloroethene	380	970	170
Dichlorodifluoromethane	<1	<1	<0.2
Ethylbenzene	<0.65	<0.65	<0.13
Isopropylbenzene	<0.7	<0.7	<0.14
Methyl tert-butyl ether	<1.2	<1.2	<0.24
Methylene Chloride	<3.4	<3.4	<0.68
Naphthalene	<0.8	<0.8	<0.16
n-Butylbenzene	<0.65	<0.65	<0.13
N-Propylbenzene	<0.65	<0.65	<0.13
p-Isopropyltoluene	<0.85	<0.85	<0.17
sec-Butylbenzene	<0.75	<0.75	<0.15
Styrene	<0.5	<0.5	<0.1
tert-Butylbenzene	<0.7	<0.7	<0.14
Tetrachloroethene	6,500	1,400	680
Toluene	<0.55	<0.55	<0.11
trans-1,2-Dichloroethene	<1.3	15	2.6
Trichloroethene	310	370	96
Vinyl chloride	5.8	41	0.72
Xylenes, Total	<0.34	<0.34	<0.068

Footnotes on Page 9.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MP-13		
	135-139'	163-167'	163-167'
Sample Interval (feet bls)	10/7/2013	12/4/2012	10/7/2013
Sample Date			
Total PCBs			
PCB-1016	NA	NA	NA
PCB-1221	NA	NA	NA
PCB-1232	NA	NA	NA
PCB-1242	NA	NA	NA
PCB-1248	NA	NA	NA
PCB-1254	NA	NA	NA
PCB-1260	NA	NA	NA
Dissolved PCBs			
PCB-1016	NA	NA	NA
PCB-1221	NA	NA	NA
PCB-1232	NA	NA	NA
PCB-1242	NA	NA	NA
PCB-1248	NA	NA	NA
PCB-1254	NA	NA	NA
PCB-1260	NA	NA	NA
Total Metals (µg/L)			
Arsenic	NA	0.15 J	NA
Chromium	NA	<0.64	NA
Iron	NA	200 B	NA
Manganese	NA	100	NA
Dissolved Metals (µg/L)			
Arsenic (Dissolved)	NA	<0.15	NA
Barium (Dissolved)	NA	70 B	NA
Cadmium (Dissolved)	NA	<0.1	NA
Chromium (Dissolved)	NA	<0.64	NA
Iron (Dissolved)	NA	52 J B	NA
Lead (Dissolved)	NA	<0.16	NA
Manganese (Dissolved)	NA	100	NA
Mercury (Dissolved)	NA	<0.071	NA
Selenium (Dissolved)	NA	0.61 J	NA
Silver (Dissolved)	NA	<0.069	NA

Footnotes on Page 9.

Table 1. Groundwater Analytical Results, Representative Data for Proposed Pump Test Discharge, Madison-Kipp Corporation, 201 Waubesa Street, Madison, Wisconsin.

Well ID	MP-13		
	135-139'	163-167'	163-167'
Sample Interval (feet bls)	135-139'	163-167'	163-167'
Sample Date	10/7/2013	12/4/2012	10/7/2013
MISC (mg/L)			
BOD	NA	NA	NA
COD	NA	NA	NA
Chloride	NA	320	NA
TDS	NA	1,100	NA

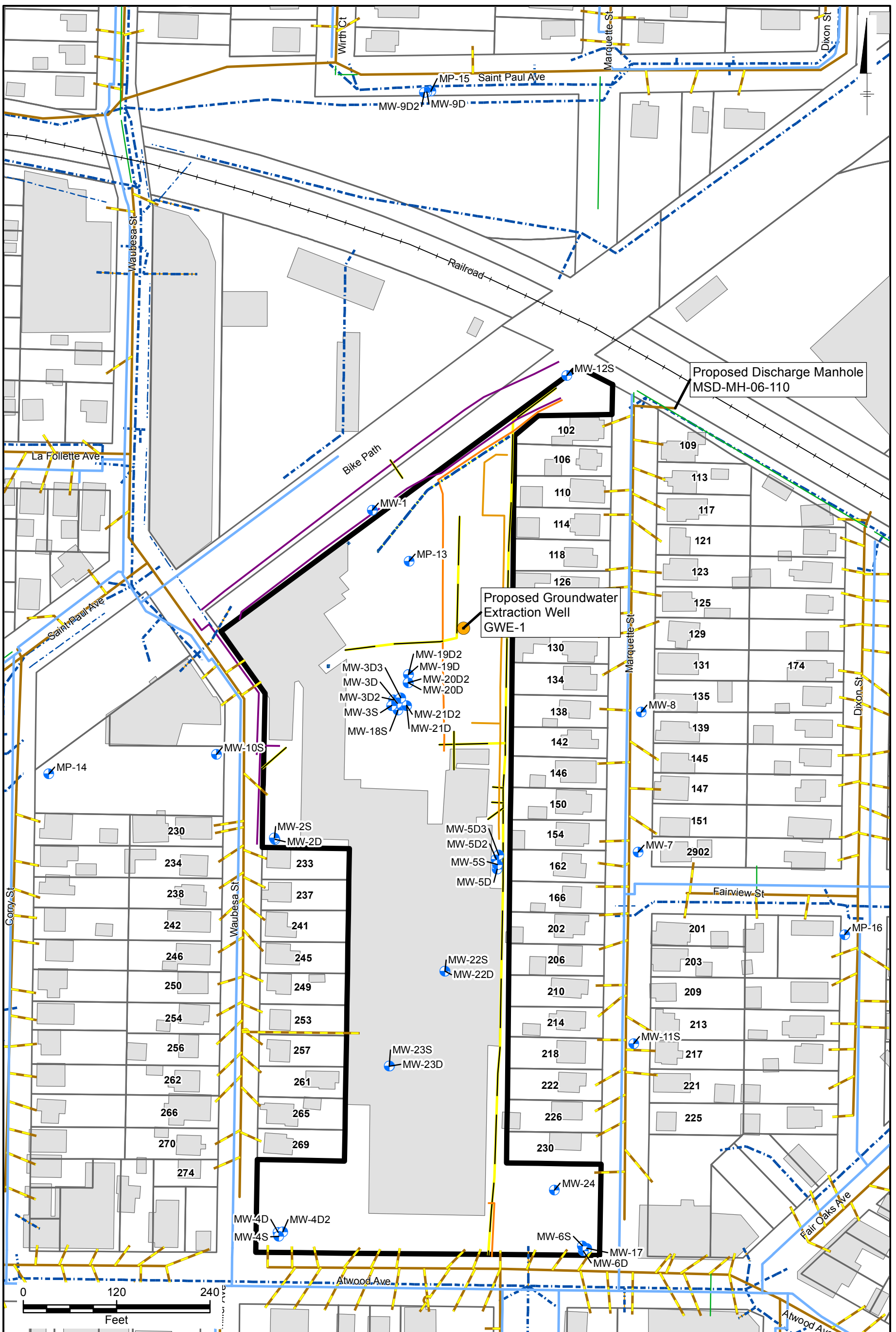
Only VOCs detected in one or more water samples are listed on the table. Refer to laboratory analytical reports for a complete list of constituents analyzed.

Two sample dates are presented for the monitoring wells closest to the proposed extraction well. Samples collected in November and December 2012 represent aquifer conditions before the In-Situ Chemical Oxidation Pilot Test completed in December 2012. The most recent sampling event, October 2013 is also included to document current conditions.

- 100** Concentration exceeds the NR 140 Wis. adm. code Preventive Action Limit.
- 100** Concentration exceeds the NR 140 Wis. adm. code Enforcement Standard.
- < Constituent not detected above noted laboratory detection limit.
- B Compound was found in the blank and the sample.
- bls Below land surface.
- COD Chemical Oxygen Demand.
- BOD Biochemical Oxygen Demand.
- TDS Total Dissolved Solids
- J Result is between the method detection limit and the limit of quantitation.
- mg/L Milligrams per liter.
- µg/L Micrograms per liter.
- NA Not analyzed.
- NE Not established.
- PCBs Polychlorinated Biphenyls.
- VOCs Volatile Organic Compounds.

ARCADIS

Figure



Proposed Discharge Manhole
MSD-MH-06-110

Proposed Groundwater
Extraction Well
GWE-1

CITY: MKE DIV/ GROUP: IM DB: GM LD: CK MADISON-KIPP
G:\GIS\Projects\MadisonKipp\Map2013-11\Proposed_EW_20131118.mxd

LEGEND			
	PROPOSED EXTRACTION WELL		ABANDONED STORM MAINS
	MONITORING WELL		ELECTRIC
	WATER MAIN		GAS
	ABANDONED SANITARY MAIN		SVE TRENCH
	SANITARY LATERALS		TELEPHONE
	SANITARY MAINS		STORM WATER
	PRIVATE STORM PIPES		ONSITE STORM WATER DISCHARGE
	PARCELS		BUILDING FOOTPRINTS
	SITE		

MADISON-KIPP CORPORATION
201 WAUBESA STREET
MADISON, WISCONSIN

PROPOSED EXTRACTION WELL

FIGURE X

ARCADIS

Attachment A
November 2013 – Lab Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-67091-1
Client Project/Site: MadisonKipp

For:
ARCADIS U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Attn: Rebecca Robbennolt



Authorized for release by:
11/25/2013 11:25:55 AM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
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Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Detection Summary	4
Method Summary	5
Sample Summary	6
Client Sample Results	7
Definitions	8
QC Association	9
QC Sample Results	10
Chronicle	11
Certification Summary	12
Chain of Custody	13
Receipt Checklists	14

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Job ID: 500-67091-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-67091-1

Comments

No additional comments.

Receipt

The samples were received on 11/19/2013 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

General Chemistry

No analytical or quality issues were noted.

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Client Sample ID: MW-3D

Lab Sample ID: 500-67091-1

No Detections.

Client Sample ID: MW-3D2

Lab Sample ID: 500-67091-2

No Detections.

Client Sample ID: MW-3D3

Lab Sample ID: 500-67091-3

No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Method	Method Description	Protocol	Laboratory
SM 5210B	BOD, 5-Day	SM	TAL CHI
SM 5220C	COD	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-67091-1	MW-3D	Ground Water	11/18/13 14:30	11/19/13 10:10
500-67091-2	MW-3D2	Ground Water	11/18/13 16:15	11/19/13 10:10
500-67091-3	MW-3D3	Ground Water	11/18/13 12:25	11/19/13 10:10

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- 14

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Client Sample ID: MW-3D
Date Collected: 11/18/13 14:30
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-1
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<2.0		2.0	2.0	mg/L			11/19/13 16:30	1
Chemical Oxygen Demand	<8.0		10	8.0	mg/L		11/20/13 10:36	11/20/13 14:23	1

Client Sample ID: MW-3D2
Date Collected: 11/18/13 16:15
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-2
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<2.0		2.0	2.0	mg/L			11/19/13 16:30	1
Chemical Oxygen Demand	<8.0		10	8.0	mg/L		11/20/13 10:36	11/20/13 14:24	1

Client Sample ID: MW-3D3
Date Collected: 11/18/13 12:25
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-3
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<2.0		2.0	2.0	mg/L			11/19/13 16:30	1
Chemical Oxygen Demand	<8.0		10	8.0	mg/L		11/20/13 10:36	11/20/13 14:25	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

General Chemistry

Analysis Batch: 212678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-67091-1	MW-3D	Total/NA	Ground Water	SM 5210B	
500-67091-2	MW-3D2	Total/NA	Ground Water	SM 5210B	
500-67091-3	MW-3D3	Total/NA	Ground Water	SM 5210B	
LCS 500-212678/2	Lab Control Sample	Total/NA	Water	SM 5210B	
USB 500-212678/1 USB	Method Blank	Total/NA	Water	SM 5210B	

Prep Batch: 212824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-67091-1	MW-3D	Total/NA	Ground Water	SM 5220	
500-67091-2	MW-3D2	Total/NA	Ground Water	SM 5220	
500-67091-3	MW-3D3	Total/NA	Ground Water	SM 5220	
LCS 500-212824/2-A	Lab Control Sample	Total/NA	Water	SM 5220	
MB 500-212824/1-A	Method Blank	Total/NA	Water	SM 5220	

Analysis Batch: 212873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-67091-1	MW-3D	Total/NA	Ground Water	SM 5220C	212824
500-67091-2	MW-3D2	Total/NA	Ground Water	SM 5220C	212824
500-67091-3	MW-3D3	Total/NA	Ground Water	SM 5220C	212824
LCS 500-212824/2-A	Lab Control Sample	Total/NA	Water	SM 5220C	212824
MB 500-212824/1-A	Method Blank	Total/NA	Water	SM 5220C	212824

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 500-212678/1 USB
Matrix: Water
Analysis Batch: 212678

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	<2.0		2.0	2.0	mg/L			11/19/13 16:30	1

Lab Sample ID: LCS 500-212678/2
Matrix: Water
Analysis Batch: 212678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	206		mg/L		104	85 - 115

Method: SM 5220C - COD

Lab Sample ID: MB 500-212824/1-A
Matrix: Water
Analysis Batch: 212873

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 212824

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<8.0		10	8.0	mg/L		11/20/13 10:36	11/20/13 14:15	1

Lab Sample ID: LCS 500-212824/2-A
Matrix: Water
Analysis Batch: 212873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 212824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	50.0	50.9		mg/L		102	80 - 120

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Client Sample ID: MW-3D
Date Collected: 11/18/13 14:30
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5210B		1	212678	11/19/13 16:30	JG	TAL CHI
Total/NA	Prep	SM 5220			212824	11/20/13 10:36	MAB	TAL CHI
Total/NA	Analysis	SM 5220C		1	212873	11/20/13 14:23	MAB	TAL CHI

Client Sample ID: MW-3D2
Date Collected: 11/18/13 16:15
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5210B		1	212678	11/19/13 16:30	JG	TAL CHI
Total/NA	Prep	SM 5220			212824	11/20/13 10:36	MAB	TAL CHI
Total/NA	Analysis	SM 5220C		1	212873	11/20/13 14:24	MAB	TAL CHI

Client Sample ID: MW-3D3
Date Collected: 11/18/13 12:25
Date Received: 11/19/13 10:10

Lab Sample ID: 500-67091-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5210B		1	212678	11/19/13 16:30	JG	TAL CHI
Total/NA	Prep	SM 5220			212824	11/20/13 10:36	MAB	TAL CHI
Total/NA	Analysis	SM 5220C		1	212873	11/20/13 14:25	MAB	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: MadisonKipp

TestAmerica Job ID: 500-67091-1

Laboratory: TestAmerica Chicago

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40461	04-30-14
California	NELAP	9	01132CA	04-30-14
Georgia	State Program	4	N/A	04-30-14
Hawaii	State Program	9	N/A	04-30-14
Illinois	NELAP	5	100201	04-30-14
Indiana	State Program	5	C-IL-02	04-30-14
Iowa	State Program	7	82	05-01-14
Kansas	NELAP	7	E-10161	10-31-14 *
Kentucky	State Program	4	90023	12-31-13
Kentucky (UST)	State Program	4	66	04-30-14
Louisiana	NELAP	6	30720	06-30-14
Massachusetts	State Program	1	M-IL035	06-30-14
Mississippi	State Program	4	N/A	04-30-14
North Carolina DENR	State Program	4	291	12-31-13 *
North Dakota	State Program	8	R-194	04-30-14
Oklahoma	State Program	6	8908	08-31-14
South Carolina	State Program	4	77001	04-30-14
Texas	NELAP	6	T104704252-09-TX	02-28-14
USDA	Federal		P330-12-00038	02-06-15
Wisconsin	State Program	5	999580010	08-31-14
Wyoming	State Program	8	8TMS-Q	04-30-14

* Expired certification is currently pending renewal and is considered valid.



TestAmerica

THE LEADER IN ENVIRONMENTAL

2417 Bond Street, University Park, IL 6
Phone: 708.534.5200 Fax: 708.53



500-67091 COC

Report To (optional)
Contact: _____
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____
E-Mail: _____

Bill To (optional)
Contact: _____
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____
PO#/Reference# _____

Chain of Custody Record

Lab Job #: 500-67091
Chain of Custody Number: _____
Page _____ of _____
Temperature °C of Cooler: 5.3

Client		Client Project #		Preservative																Preservative Key	
Project Name		Parameter																		1. HCL, Cool to 4°	
Project Location/State		Lab Project #																		2. H2SO4, Cool to 4°	
Sampler		Lab PM																		3. HNO3, Cool to 4°	
Lab ID	MS/MSD	Sample ID	Date	Time	# of Containers	Matrix															4. NaOH, Cool to 4°
1		MW-3D	11/18/13	14:30	2	GW															5. NaOH/Zn, Cool to 4°
2		MW-3D2	11/18/13	16:15	2	GW	X	X													6. NaHSO4
3		MW-3D3	11/18/13	12:25	2	GW	X	X													7. Cool to 4°
																					8. None
																					9. Other
																					Comments

Turnaround Time Required (Business Days)

___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days ___ Other

Requested Due Date _____

Sample Disposal

Return to Client

Disposal by Lab

Archive for _____ Months

(A fee may be assessed if samples are retained longer than 1 month)

Relinquished By <u>Alma...</u>	Company <u>MKC</u>	Date <u>11/12/13</u>	Time <u>18:00</u>	Received By <u>Sherrill...</u>	Company <u>TA-CHT</u>	Date <u>11/19/13</u>	Time <u>10:10</u>
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier: J
Shipped: FedEx
Hand Delivered: _____

Matrix Key

- WW - Wastewater
- W - Water
- S - Soil
- SL - Sludge
- MS - Miscellaneous
- OL - Oil
- A - Air
- SE - Sediment
- SO - Soil
- L - Leachate
- WI - Wipe
- DW - Drinking Water
- O - Other

Client Comments

Rushed TAT

Lab Comments:

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-67091-1

Login Number: 67091

List Number: 1

Creator: Scott, Sherri L

List Source: TestAmerica Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Client: ARCADIS Inc (Milw)
 Attn: Bruce Evans
 126 North Jefferson Street #400
 Milwaukee, WI 53202 6120

NLS Project: 209228

NLS Customer: 12668

Fax: 414 276 7603 **Phone:** 414 276 7742

Project: Madison Kipp

MW-3D NLS ID: 759014

COC: 152731:1 Matrix: GW
 Collected: 11/18/13 14:30 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

MW-3D Filtered NLS ID: 759015

COC: 152731:2 Matrix: GW
 Collected: 11/18/13 14:30 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

MW-3D2 NLS ID: 759016

COC: 152731:3 Matrix: GW
 Collected: 11/18/13 16:15 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

MW-3D2 Filtered NLS ID: 759017

COC: 152731:4 Matrix: GW
 Collected: 11/18/13 16:15 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

MW-3D3 NLS ID: 759018

COC: 152731:5 Matrix: GW
 Collected: 11/18/13 12:25 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

MW-3D3 Filtered NLS ID: 759019

COC: 152731:6 Matrix: GW
 Collected: 11/18/13 12:25 Received: 11/19/13

Parameter	Result	Units	Dilution	LOD	LOQ	Analyzed	Method	Lab
PCBs (water) by EPA 8082	see attached					11/25/13	SW846 8082	721026460
Organics Extraction (Water) for Organochlorine Pesticides/PCBs	yes					11/25/13	SW846 3510C	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution.

LOD = Limit of Detection LOQ = Limit of Quantitation ND = Not Detected (< LOD) 1000 ug/L = 1 mg/L
 DWB = Dry Weight Basis NA = Not Applicable %DWB = (mg/kg DWB) / 10000
 MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:



Authorized by:
 R. T. Krueger
 President

ANALYTICAL RESULTS: PCBs by Method EPA 8082

Customer: ARCADIS Inc (Milw) NLS Project: 209228

Project Description: Madison Kipp

Project Title: Template: PCBW Printed: 11/26/2013 10:01

Sample: 759014 MW-3D Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	81%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 759015 MW-3D Filtered Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	80%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 759016 MW-3D2 Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	83%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

ANALYTICAL RESULTS: PCBs by Method EPA 8082

Customer: ARCADIS Inc (Milw) NLS Project: 209228

Project Description: Madison Kipp

Project Title: Template: PCBW Printed: 11/26/2013 10:01

Sample: 759017 MW-3D2 Filtered Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	79%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 759018 MW-3D3 Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	88%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

Sample: 759019 MW-3D3 Filtered Collected: 11/18/13 Analyzed: 11/25/13 - Analytes: 7

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
PCB-1016	ND	ug/L	1	0.023	0.077	
PCB-1221	ND	ug/L	1	0.060	0.20	
PCB-1232	ND	ug/L	1	0.037	0.12	
PCB-1242	ND	ug/L	1	0.040	0.13	
PCB-1248	ND	ug/L	1	0.045	0.15	
PCB-1254	ND	ug/L	1	0.026	0.086	
PCB-1260	ND	ug/L	1	0.034	0.11	
TCMX (SURR)	92%					S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

NORTHERN LAKE SERVICE, INC.

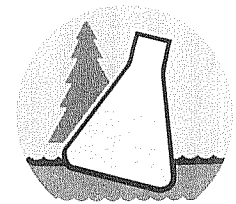
CLIENT Madison Kipp / ARCADIS	
ADDRESS 201 Waubesa St.	
CITY Madison	STATE WI
ZIP 53708	
PROJECT DESCRIPTION / NO. Madison Kipp	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT	PHONE
PURCHASE ORDER NO.	FAX

Wisconsin Lab Cert. No. 721026460
WI DATCP 105-000330

Analytical Laboratory and Environmental Services
400 North Lake Avenue • Crandon, WI 54520-1298
Tel: (715) 478-2777 • Fax: (715) 478-3060

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

ANALYZE PER ORDER OF ANALYSIS	USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered. Indicate G or C if WW Sample is Grab or Composite.										
	N	Y									
	PCBS	PCBS									



No. 152731

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS										COLLECTION REMARKS (i.e. DNR Well ID #)			
			DATE	TIME															
1.	759014	MW-3D	11/18/13	14:30	GW	X													
2.	015	MW-3D Filtered	11/18/13	14:30	GW		X												
3.	016	MW-3D2	11/18/13	16:15	GW	X													
4.	017	MW-3D2 Filtered	11/18/13	16:15	GW		X												
5.	018	MW-3D3	11/18/13	1225	GW	X													
6.	019	MW-3D3 Filtered	11/18/13	1225	GW		X												
7.																			
8.																			
9.																			
10.																			

COLLECTED BY (signature) Alma Walcek	CUSTODY SEAL NO. (IF ANY)	DATE/TIME 11/18/13 18:08
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

REPORT TO
ARCADIS

RECEIVED AT NLS BY (signature) Annemarie Combs	DATE/TIME 11/19/13 8:45	CONDITION once	TEMP.
COOLER #	REMARKS & OTHER INFORMATION		
PRESERVATIVE: NP = no preservative S = sulfuric acid	N = nitric acid Z = zinc acetate M = methanol	OH = sodium hydroxide HA = hydrochloric & ascorbic acid H = hydrochloric acid	WDNR FACILITY NUMBER E-MAIL ADDRESS

INVOICE TO
ARCADIS
Highlands
Ranch, CO

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS **REPORT TO** AND LISTED AS **INVOICE TO** AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.