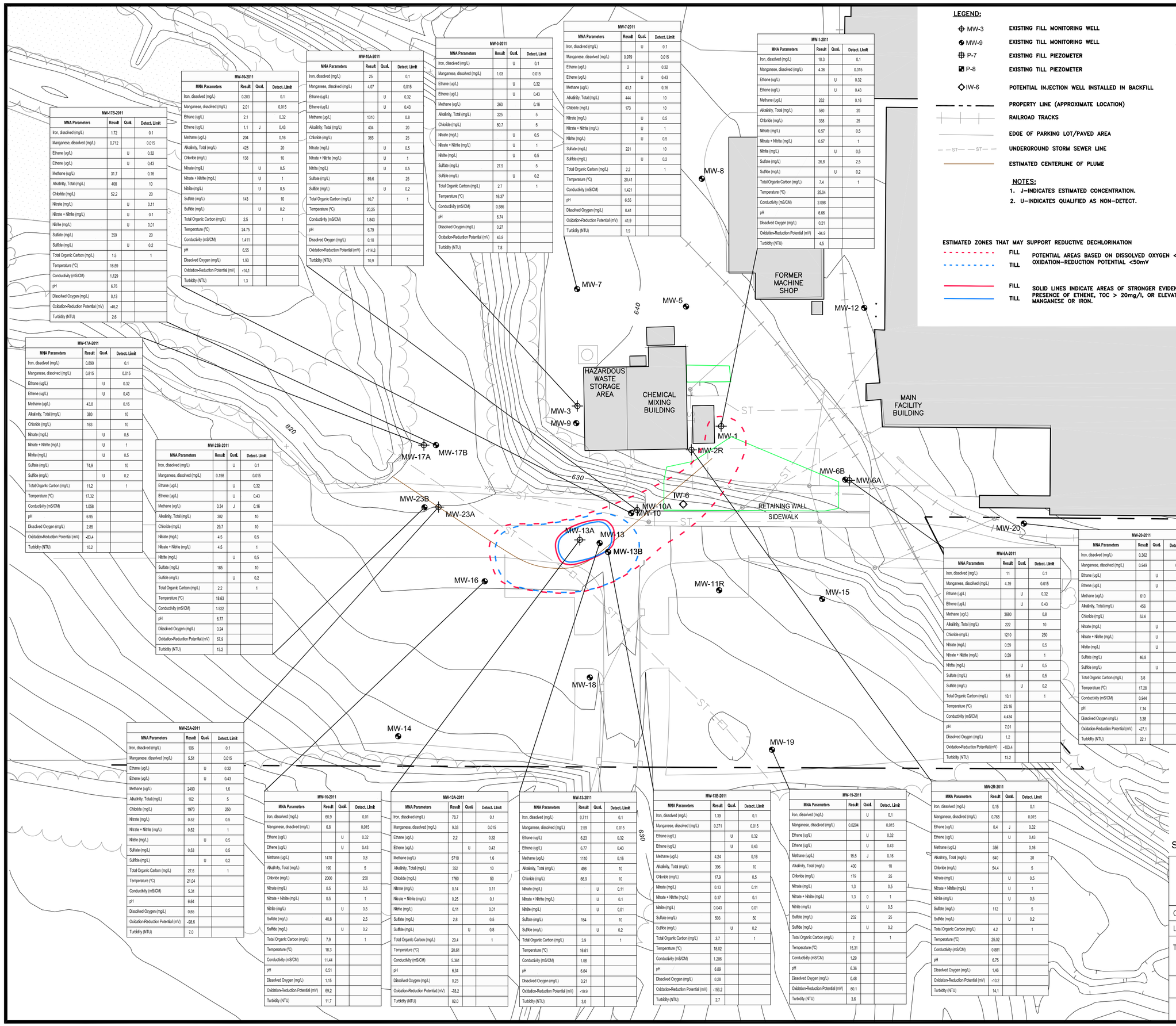

LEGEND:

- MW-3 — EXISTING FILL MONITORING WELL
- MW-9 — EXISTING TILL MONITORING WELL
- P-7 — EXISTING FILL PIEZOMETER
- P-8 — EXISTING TILL PIEZOMETER
- IW-6 — POTENTIAL INJECTION WELL INSTALLED IN BACKFILL
- PROPERTY LINE (APPROXIMATE LOCATION)
- RAILROAD TRACKS
- EDGE OF PARKING LOT/PAVED AREA
- ST — ST — UNDERGROUND STORM SEWER LINE
- ESTIMATED CENTERLINE OF PLUME
- 630 — GROUND SURFACE TOPOGRAPHIC CONTOUR LINE CONTOUR INTERVAL IS 2 FEET
- FENCE LINE
- TREE LINE
- EXISTING ON-SITE BUILDINGS
- 2007 EXCAVATION AREA

NOTES:

1. J–INDICATES ESTIMATED CONCENTRATION.
2. U–INDICATES QUALIFIED AS NON–DETECT.

ESTIMATED ZONES THAT MAY SUPPORT REDUCTIVE DECHLORINATION

- FILL / TILL — POTENTIAL AREAS BASED ON DISSOLVED OXYGEN <0.5mg/l, AND OXIDATION–REDUCTION POTENTIAL <50mV
- FILL / TILL — SOLID LINES INDICATE AREAS OF STRONGER EVIDENCE BASED ON THE PRESENCE OF ETHENE, TOC > 20mg/l, OR ELEVATED DISSOLVED MANGANESE OR IRON.

MW-17B-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	1.72		0.1
Manganese, dissolved (mg/L)	0.712		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	31.7		0.16
Alkalinity, Total (mg/L)	408		10
Chloride (mg/L)	52.2		20
Nitrate (mg/L)		U	0.11
Nitrate + Nitrite (mg/L)		U	0.1
Nitrite (mg/L)		U	0.01
Sulfate (mg/L)	359		20
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	1.5		1
Temperature (ºC)	16.59		
Conductivity (mS/CM)	1.129		
pH	6.76		
Dissolved Oxygen (mg/L)	0.13		
Oxidation-Reduction Potential (mV)	-46.2		
Turbidity (NTU)	2.6		

MW-10-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	0.203		0.1
Manganese, dissolved (mg/L)	2.01		0.015
Ethane (ug/L)	2.1		0.32
Ethene (ug/L)	1.1	J	0.43
Methane (ug/L)	204		0.16
Alkalinity, Total (mg/L)	428		20
Chloride (mg/L)	138		10
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	143		10
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	2.5		1
Temperature (ºC)	24.75		
Conductivity (mS/CM)	1.411		
pH	6.55		
Dissolved Oxygen (mg/L)	1.93		
Oxidation-Reduction Potential (mV)	-14.1		
Turbidity (NTU)	1.3		

MW-10A-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	25		0.1
Manganese, dissolved (mg/L)	4.07		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	1310		0.8
Alkalinity, Total (mg/L)	404		20
Chloride (mg/L)	365		25
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	89.6		25
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	10.7		1
Temperature (ºC)	20.25		
Conductivity (mS/CM)	1.843		
pH	6.79		
Dissolved Oxygen (mg/L)	0.18		
Oxidation-Reduction Potential (mV)	-114.3		
Turbidity (NTU)	10.9		

MW-3-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)		U	0.1
Manganese, dissolved (mg/L)	1.03		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	263		0.16
Alkalinity, Total (mg/L)	225		5
Chloride (mg/L)	80.7		5
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	27.9		5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	2.7		1
Temperature (ºC)	16.37		
Conductivity (mS/CM)	0.586		
pH	6.74		
Dissolved Oxygen (mg/L)	0.27		
Oxidation-Reduction Potential (mV)	43.9		
Turbidity (NTU)	7.8		

MW-7-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)		U	0.1
Manganese, dissolved (mg/L)	0.979		0.015
Ethane (ug/L)	2		0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	43.1		0.16
Alkalinity, Total (mg/L)	444		10
Chloride (mg/L)	173		10
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	221		10
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	2.2		1
Temperature (ºC)	20.41		
Conductivity (mS/CM)	1.421		
pH	6.55		
Dissolved Oxygen (mg/L)	0.41		
Oxidation-Reduction Potential (mV)	41.9		
Turbidity (NTU)	1.9		

MW-1-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	10.3		0.1
Manganese, dissolved (mg/L)	4.36		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	232		0.16
Alkalinity, Total (mg/L)	580		20
Chloride (mg/L)	338		25
Nitrate (mg/L)	0.57		0.5
Nitrate + Nitrite (mg/L)	0.57		1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	26.8		2.5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	7.4		1
Temperature (ºC)	25.04		
Conductivity (mS/CM)	2.098		
pH	6.66		
Dissolved Oxygen (mg/L)	0.21		
Oxidation-Reduction Potential (mV)	-94.9		
Turbidity (NTU)	4.5		

MW-17A-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	0.899		0.1
Manganese, dissolved (mg/L)	0.815		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	43.8		0.16
Alkalinity, Total (mg/L)	380		10
Chloride (mg/L)	163		10
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	74.9		10
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	11.2		1
Temperature (ºC)	17.32		
Conductivity (mS/CM)	1.058		
pH	6.95		
Dissolved Oxygen (mg/L)	2.85		
Oxidation-Reduction Potential (mV)	-83.4		
Turbidity (NTU)	10.2		

MW-23B-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)		U	0.1
Manganese, dissolved (mg/L)	0.198		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	0.34	J	0.16
Alkalinity, Total (mg/L)	382		10
Chloride (mg/L)	29.7		10
Nitrate (mg/L)	4.5		0.5
Nitrate + Nitrite (mg/L)	4.5		1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	185		10
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	2.2		1
Temperature (ºC)	18.63		
Conductivity (mS/CM)	1.922		
pH	6.77		
Dissolved Oxygen (mg/L)	0.24		
Oxidation-Reduction Potential (mV)	57.9		
Turbidity (NTU)	13.2		

MW-6A-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	11		0.1
Manganese, dissolved (mg/L)	4.19		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	3680		0.8
Alkalinity, Total (mg/L)	222		10
Chloride (mg/L)	1210		250
Nitrate (mg/L)	0.59		0.5
Nitrate + Nitrite (mg/L)	0.59		1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	5.5		0.5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	10.1		1
Temperature (ºC)	23.16		
Conductivity (mS/CM)	4.434		
pH	7.01		
Dissolved Oxygen (mg/L)	1.2		
Oxidation-Reduction Potential (mV)	-103.4		
Turbidity (NTU)	13.2		

MW-20-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	0.362		0.1
Manganese, dissolved (mg/L)	0.949		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	610		0.16
Alkalinity, Total (mg/L)	456		20
Chloride (mg/L)	52.6		5
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	46.8		5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	3.8		1
Temperature (ºC)	17.28		
Conductivity (mS/CM)	0.944		
pH	7.14		
Dissolved Oxygen (mg/L)	3.38		
Oxidation-Reduction Potential (mV)	-27.1		
Turbidity (NTU)	22.1		

MW-23A-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	106		0.1
Manganese, dissolved (mg/L)	5.51		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	2490		1.6
Alkalinity, Total (mg/L)	162		5
Chloride (mg/L)	1970		250
Nitrate (mg/L)	0.52		0.5
Nitrate + Nitrite (mg/L)	0.52		1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	0.53		0.5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	27.6		1
Temperature (ºC)	21.04		
Conductivity (mS/CM)	5.31		
pH	6.64		
Dissolved Oxygen (mg/L)	0.65		
Oxidation-Reduction Potential (mV)	-98.6		
Turbidity (NTU)	7.0		

MW-16-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	60.9		0.01
Manganese, dissolved (mg/L)	6.8		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	1470		0.8
Alkalinity, Total (mg/L)	190		5
Chloride (mg/L)	2000		250
Nitrate (mg/L)	0.5		0.5
Nitrate + Nitrite (mg/L)	0.5		1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	40.8		2.5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	7.9		1
Temperature (ºC)	18.3		
Conductivity (mS/CM)	11.44		
pH	6.51		
Dissolved Oxygen (mg/L)	1.15		
Oxidation-Reduction Potential (mV)	69.2		
Turbidity (NTU)	11.7		

MW-13A-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	78.7		0.1
Manganese, dissolved (mg/L)	9.33		0.015
Ethane (ug/L)	2.2		0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	5710		1.6
Alkalinity, Total (mg/L)	352		10
Chloride (mg/L)	1760		50
Nitrate (mg/L)	0.14		0.11
Nitrate + Nitrite (mg/L)	0.25		0.1
Nitrite (mg/L)	0.11		0.01
Sulfate (mg/L)	2.8		0.5
Sulfide (mg/L)		U	0.8
Total Organic Carbon (mg/L)	29.4		1
Temperature (ºC)	20.61		
Conductivity (mS/CM)	5.361		
pH	6.34		
Dissolved Oxygen (mg/L)	0.23		
Oxidation-Reduction Potential (mV)	-78.2		
Turbidity (NTU)	82.0		

MW-13-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	0.711		0.1
Manganese, dissolved (mg/L)	2.59		0.015
Ethane (ug/L)	6.23		0.32
Ethene (ug/L)	6.77		0.43
Methane (ug/L)	1110		0.16
Alkalinity, Total (mg/L)	498		10
Chloride (mg/L)	66.9		10
Nitrate (mg/L)		U	0.11
Nitrate + Nitrite (mg/L)		U	0.1
Nitrite (mg/L)		U	0.01
Sulfate (mg/L)	164		10
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	3.9		1
Temperature (ºC)	16.61		
Conductivity (mS/CM)	1.08		
pH	6.64		
Dissolved Oxygen (mg/L)	0.21		
Oxidation-Reduction Potential (mV)	-19.9		
Turbidity (NTU)	3.0		

MW-13B-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	1.39		0.1
Manganese, dissolved (mg/L)	0.371		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	4.24		0.16
Alkalinity, Total (mg/L)	396		10
Chloride (mg/L)	17.9		0.5
Nitrate (mg/L)	0.13		0.11
Nitrate + Nitrite (mg/L)	0.17		0.1
Nitrite (mg/L)	0.043		0.01
Sulfate (mg/L)	503		50
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	3.7		1
Temperature (ºC)	18.02		
Conductivity (mS/CM)	1.286		
pH	6.89		
Dissolved Oxygen (mg/L)	0.28		
Oxidation-Reduction Potential (mV)	-153.2		
Turbidity (NTU)	2.7		

MW-19-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)		U	0.1
Manganese, dissolved (mg/L)	0.0294		0.015
Ethane (ug/L)		U	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	15.5	J	0.16
Alkalinity, Total (mg/L)	400		10
Chloride (mg/L)	179		25
Nitrate (mg/L)	1.3		0.5
Nitrate + Nitrite (mg/L)	1.3	0	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	232		25
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	2		1
Temperature (ºC)	15.31		
Conductivity (mS/CM)	1.29		
pH	6.36		
Dissolved Oxygen (mg/L)	0.48		
Oxidation-Reduction Potential (mV)	80.1		
Turbidity (NTU)	3.6		

MW-2R-2011

MNA Parameters	Result	Qual.	Detect. Limit
Iron, dissolved (mg/L)	0.15		0.1
Manganese, dissolved (mg/L)	0.768		0.015
Ethane (ug/L)	0.4	J	0.32
Ethene (ug/L)		U	0.43
Methane (ug/L)	356		0.16
Alkalinity, Total (mg/L)	640		20
Chloride (mg/L)	54.4		5
Nitrate (mg/L)		U	0.5
Nitrate + Nitrite (mg/L)		U	1
Nitrite (mg/L)		U	0.5
Sulfate (mg/L)	112		5
Sulfide (mg/L)		U	0.2
Total Organic Carbon (mg/L)	4.2		1
Temperature (ºC)	25.02		
Conductivity (mS/CM)	0.881		
pH	6.75		
Dissolved Oxygen (mg/L)	1.46		
Oxidation-Reduction Potential (mV)	-10.2		
Turbidity (NTU)	14.1		

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CLIENT: UNITED TECHNOLOGIES CORPORATION

LOCATION: 3200 MAIN STREET, KEOKUK, IOWA

TITLE: MONITORED NATURAL ATTENUATION PARAMETERS JUNE 2011

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