CONESTOGA-ROVERS
& ASSOCIATES

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112
Telephone: (651) 639-0913 Fax: (651) 639-0923
www.CRAworld.com

May 1, 2014

Reference No. 003978-10

Ms. Sheri Bianchin
United States Environmental
Protection Agency
77 West Jackson Blvd. (SR-6J)
Chicago, Illinois 60604

Ms. Erin Endsley
Wisconsin Department of
Natural Resources
DNR Service Center
1701 North 4th St.
Superior, Wisconsin 54880

Dear Ms. Bianchin and Ms. Endsley:

Re: EW1 Shutdown Pilot Study
1st Quarter 2014 Results
Wausau Water Supply NPL Site

In accordance with the EW1 Shutdown Pilot Study Work Plan[1], this letter presents the results of groundwater monitoring conducted in the first quarter of 2014. The first quarter 2014 monitoring event was conducted on March 24 and 25 and represents the second monitoring event of the five quarterly events proposed for the EW1 Shutdown Pilot Study. Implementation of the EW1 Shutdown Pilot Study Work Plan was approved by USEPA in an e-mail to CRA dated November 5, 2013.

EW1 Shutdown Pilot Study Monitoring

As proposed in the Pilot Study Work Plan, the first quarter 2014 monitoring event was intended to complete of the following tasks:

- Collect groundwater samples from East Bank wells CW3, E21 and IWD for analysis of volatile organic compounds (VOCs)
- Collect groundwater samples from West Bank wells CW6, R2D, R3D, W53A and W55 for VOC analysis
- Collect water samples from West Well Field water supply wells CW10 and CW11

[1] EW1 Shutdown Pilot Study Work Plan, Wausau Water Supply NPL Site, Wausau, Wisconsin, CRA, September 2013.

- Measure water levels at all East Bank and West Bank monitoring wells
- Obtain copies of City Treatment Plant analytical data for post-treatment VOC samples
- Obtain City well pumping rate summaries

Due to an unusually harsh winter, the monitoring event was postponed until late March, but a portion of the proposed scope of work still could not be accomplished because many wells were buried beneath large snow banks. Water levels could not be measured at 7 of the 25 East Bank wells and at 16 of the 38 West Bank wells. Also, groundwater samples could not be collected from IWD, W53A, and W55. Well locations are presented on the Site Plan, which is provided as Figure 1.

Water Level Monitoring

Table 1 presents the first quarter 2014 water level data. Water table contours based on these measurements are presented on Figure 1. Field staff measured water levels on the East Bank on March 24 while CW-3, the East Bank remediation well, was pumping. West Bank water levels were measured on March 25 while CW-6, the West Bank remediation well, was operating. Water levels in the City production wells were measured with the assistance of City staff.

The East Bank contours are consistent with flow patterns observed in previous years. The East Bank flow patterns are controlled by the operation of CW3. The West Bank contours depict a large cone of influence created by CW6 and CW10, the two wells that were pumping on March 25. Under natural, non-pumping, conditions groundwater would flow toward and discharge to the Wisconsin River. Under existing conditions however, groundwater flows toward the City production wells.

Groundwater Sampling

Groundwater sampling was conducted on March 24 and 25, 2014. Monitoring well samples were analyzed for the Site specific VOC list by EPA Method 8260. A summary of the groundwater sampling event, including field parameter measurements, is presented in Table 2.

Groundwater sampling was conducted in accordance with the Pilot Study Work Plan, with the exceptions noted above due to deep snow. Groundwater samples were analyzed by TestAmerica Laboratories Inc., of North Canton, Ohio. Laboratory results will be submitted electronically in the Region V Electronic Data Deliverable (EDD) format for inclusion in the Region V EPA database. A copy of the laboratory report is presented in Attachment 1.

Evaluation of Groundwater Data

The objectives of the first quarter monitoring at the Site are to detect potential changes in the contaminant plume configuration due to the shut-down of EW1, and confirm that the plume is contained by the other remediation system extraction wells, CW3 and CW6.

Table 3 presents the laboratory results for monitoring well samples collected in March 2014. November 2013 data are included in Table 3 for comparison purposes.

West Bank VOC Results

West Bank wells that were sampled in March included monitoring wells R2D and R3D, and City production wells CW6, CW9, CW10, and CW11. The primary chlorinated VOC found in the West Bank groundwater is trichloroethene (TCE), which was detected at R2D, R3D, and CW6. The degradation product, cis-1,2-dichloroethene (C12DCE), was also detected at R2D and R3D. The TCE concentration at CW6 (3.7 µg/L) was below the MCL. No VOCs were detected in the samples from City wells CW9, CW10 and CW11.

The only significant change from the November 2013 results was an increase in the total chlorinated VOC concentration at R3D from 4.8 µg/L to 73.7 µg/L. This increase may be due to a higher concentration remnant that was south of R3D that is now migrating north to CW6 and the West Wellfield. The historical data for R2D and R3D are presented below.

Total CVOCs (µg/L)			
Year	***R2D***	***R3D***	***R4D***
1996	1600	2	540
1997	720	5	65
1998	320	580	55
1999	110	1200	33
2000	45	1800	58
2001	17	1500	13
2002	15	1200	36
2003	10	980	38
2004	11	899	51
2005	7.5	400	56.5
2006	8.2	490	42
2007	9.9	280	1.3
2008	6.5	180	13
2009	7.3	92	22.9
2010	6.2	195.7	25.7
2011	11	203.1	27.6
2012	6.4	20.7	4.9
Nov-2013	20	4.8	16.6
March-2014	18.2	73.7	NA

Charts showing total CVOC concentrations for select West Bank wells are presented in Attachment 2.

East Bank VOC Results

East Bank wells that were sampled in March included monitoring well E21 and City production well CW3. The primary chlorinated VOC found in the East Bank groundwater is tetrachloroethene (PCE), which was detected at CW3 with a concentration of 1.4 µg/L. The total CVOC trend at CW3 is depicted in the chart presented in Attachment 2. No VOCs were detected in the E21 sample, which is consistent with the November 2013 result and indicates that the West Bank plume does not currently extend all the way across the river. There were no significant changes in VOC concentrations in the East Bank wells.

City Production Wells Pumping Volumes

CW3 and CW6 operated as required in the first quarter of 2014. Table 4 presents pumping data for the six City wells during January, February, and March 2014. While only CW3 and CW6 are part of the remediation system, data for all City wells are presented, consistent with previous reports. The table shows, by month, the number of hours each well was operated, the number of gallons pumped from each well, and the average pumping rate while the pump was operating.

CW3 and CW6 operated on alternate schedules at rates that exceeded the operating requirements established by the USEPA approval letter dated August 4, 1995. CW3 operated for an average of 77.6 hours per week with an average pumping rate of 1,493 gpm, exceeding the requirements of 65 hours per week at 1,200 gpm.

CW6 operated for an average of 89.1 hours per week with an average pumping rate of 1,408 gpm, exceeding the requirement of 85 hours per week at 1,400 gpm.

Hydraulic Capture

Hydraulic capture of the contaminant plume is demonstrated by the water table contours illustrated on Figure 2. Due to the reduced number of data points, interpretation of the groundwater contours was partially based on historical contours. The water table contours indicate that groundwater flow at the Site was toward CW3 on the East Bank, and to CW6 and CW10 on the West Bank. At nested well locations the water table elevations for shallow and deep wells were similar, indicating horizontal flow and hydraulic containment of the shallow and deeper portions of the aquifer.

City Treatment Plant Analytical Data

The Wausau City Treatment Plant collects samples of the City water supply on a quarterly basis. The samples are collected at two exit points where the treated water leaves the plant. The results for samples collected in December 2013 and March 2014 are presented in Attachment 3. The only VOCs detected were chloroform, bromodichloromethane, dibromochloromethane, and chlorobenzene. The reported concentrations for chlorobenzene

and dibromochloromethane were above the detection limit but below the quantitation limit. None of these compounds are associated with the Site groundwater contamination and they are common drinking water disinfection byproducts.

Conclusions and Recommendations

Conclusions

- The City production wells, CW3 and CW6, operated within the requirements established by EPA and continue to capture the CVOC plume as demonstrated by the hydraulic data.
- Based on the non-detect result at E21, the West Bank plume does not extend all the way to CW3 on the East Bank.
- R3D exhibited increased VOC concentrations, suggesting plume migration to the north toward CW6.

Recommendations

Groundwater monitoring should continue as proposed in the Pilot Study Work Plan. The next monitoring event is scheduled for the second quarter of 2014 and will be conducted in late May or early June.

Please contact me if you have any questions.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Charles Ahrens

CA/ma/30
Encl.

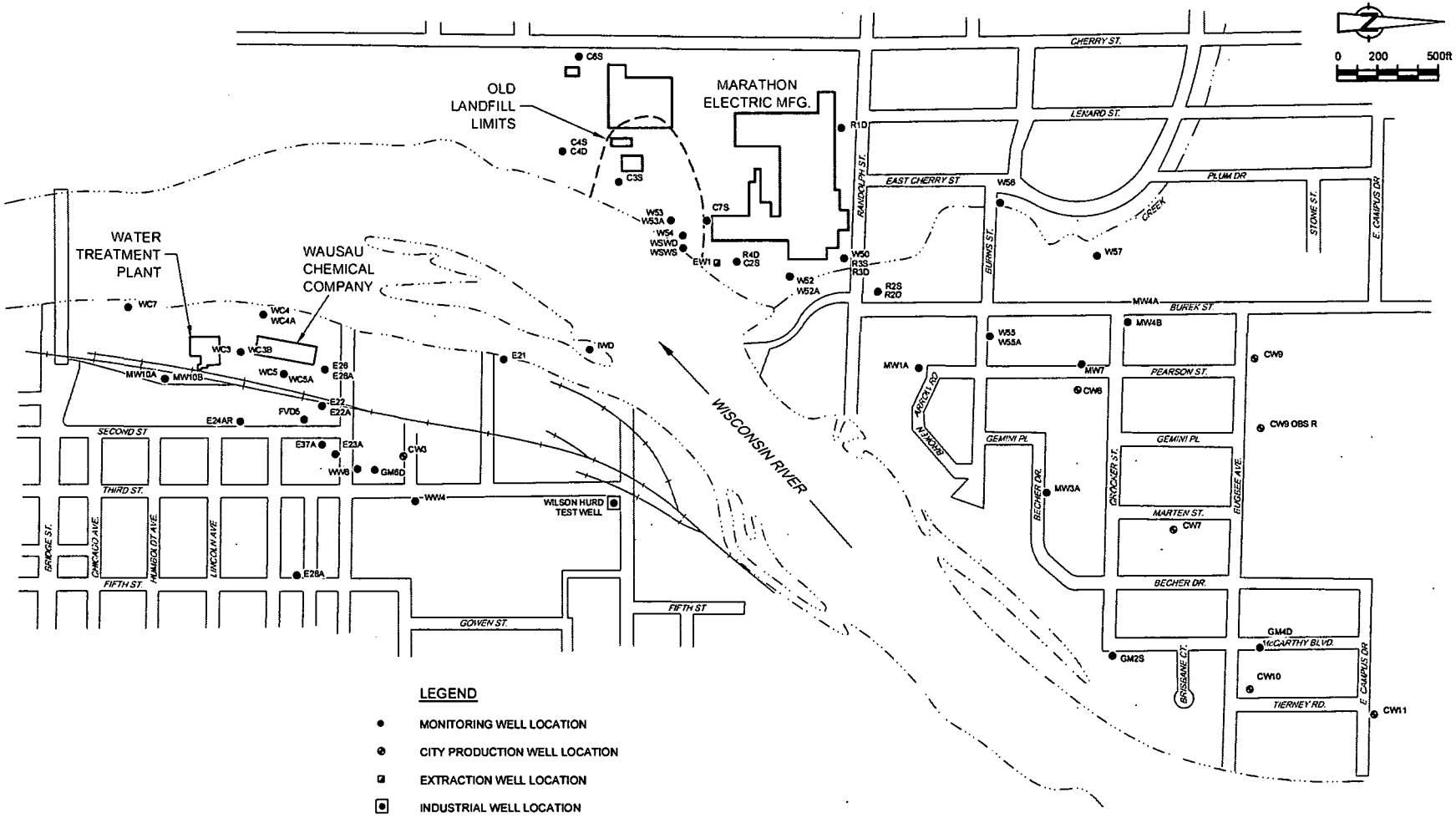


figure 1

SITE PLAN
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN030)GN-WA001 APR 10/2014

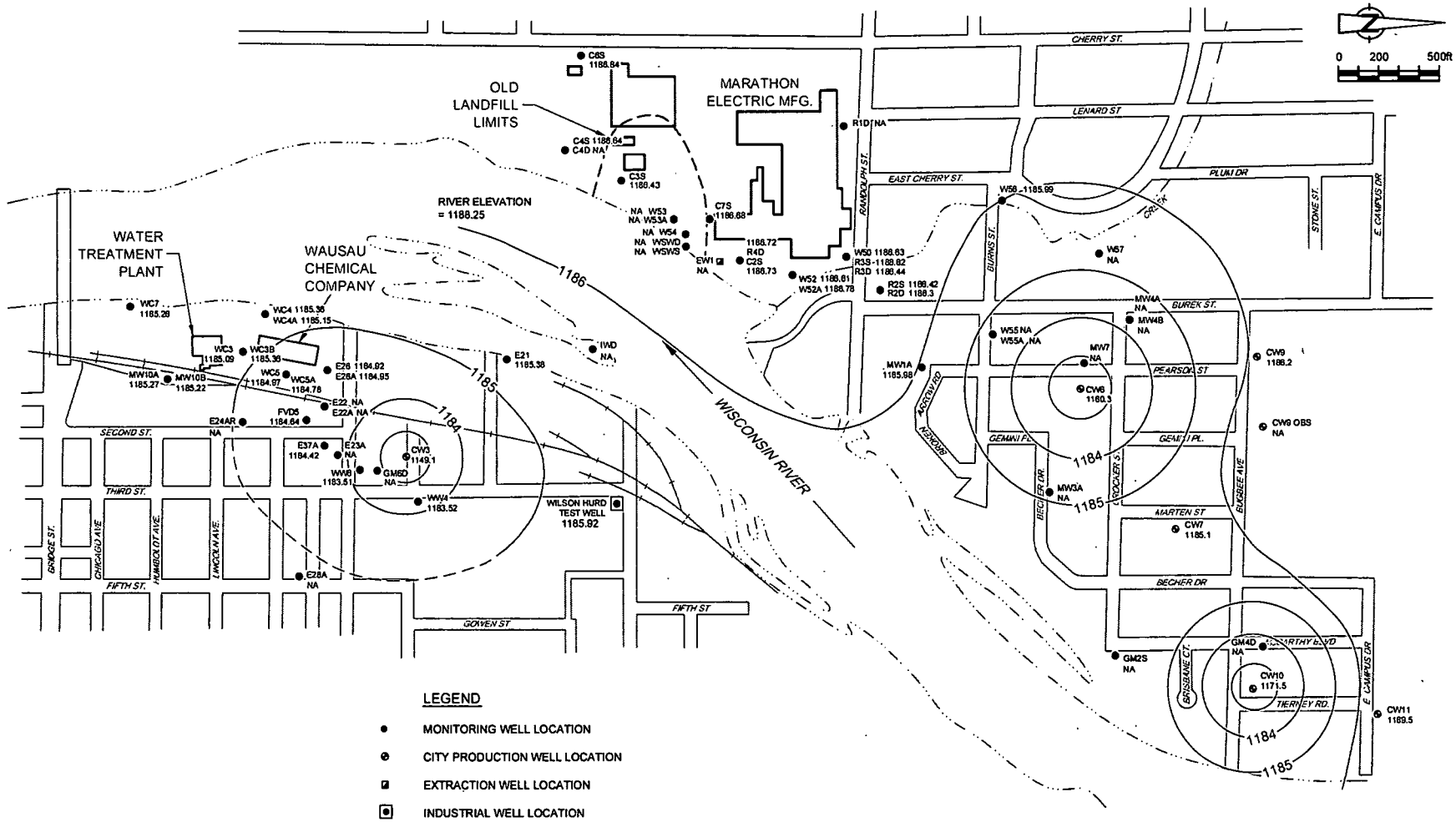


figure 2

GROUNDWATER ELEVATIONS
MARCH 24, 25, 2014
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN030)GN-WA002 APR 10/2014

TABLE 1

GROUNDWATER ELEVATIONS - NOVEMBER 2013
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*	*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*
East Bank			***11/11/2013***	***11/11/2013***	***3/25/2014***	***3/25/2014***
CW3	1202.15	*	54.00	1148.15	53.00	1149.15
E21	1197.51		11.62	1185.89	12.13	1185.38
E22	1195.47		10.40	1185.07	NA	NA
E22A	1195.88		10.80	1185.08	NA	NA
E23A	1197.61		12.93	1184.68	NA	NA
E24AR	1209.33	(1),(2)	23.82	1185.51	NA	NA
E26	1199.02		13.59	1185.43	14.10	1184.92
E26A	1199.13		13.66	1185.47	14.18	1184.95
E28A	1211.60		25.40	1186.20	NA	NA
E37A	1197.84		12.95	1184.89	13.42	1184.42
FVD5	1198.89		13.75	1185.14	14.25	1184.64
GM6D	1198.57		14.68	1183.89	NA	NA
W. HURD	1200.23		14.41	1185.82	14.31	1185.92
IWD	1192.10		4.90	1187.20	NA	NA
MW10A	1210.67		24.90	1185.77	25.40	1185.27
MW10B	1210.37		24.65	1185.72	25.15	1185.22
WC3	1198.26		12.48	1185.78	13.17	1185.09
WC3B	1196.11	(2)	10.25	1185.86	10.75	1185.36
WC4	1196.74		10.87	1185.87	11.38	1185.36
WC4A	1196.57		10.66	1185.91	11.42	1185.15
WC5	1196.62		11.11	1185.51	11.65	1184.97
WC5A	1196.66		11.08	1185.58	11.88	1184.78
WC7	1196.77		10.85	1185.92	11.51	1185.26
WW4	1200.34	(2)	16.36	1183.98	16.82	1183.52
WW6	1200.53		16.55	1183.98	17.02	1183.51
West Bank			***11/12/2013***	***11/12/2013***		
EW1	NA		30.80	NA	33.32	NA
CW6	1220.33	*	60.00	1160.33	60.00	1160.33
CW7	1224.14		38.00	1186.14	39.00	1185.14
CW9	1226.16		38.00	1188.16	40.00	1186.16
CW9 OBS R	(3)		38.11	NA	41.00	-44.00
CW10	1218.49		31.00	1187.49	47.00	1171.49
CW11	1216.51		26.00	1190.51	27.00	1189.51
C2S	1219.05		31.71	1187.34	32.32	1186.73
C3S	1220.58		33.62	1186.96	34.15	1186.43
C4S	1216.70		29.60	1187.10	30.06	1186.64
C4D	1216.16		29.12	1187.04	NA	NA
C6S	1221.58		34.11	1187.47	34.74	1186.84
C7S	1220.87		32.60	1188.27	34.19	1186.68
GM2S	1211.78		24.50	1187.28	NA	NA
GM4D	1216.35		29.30	1187.05	NA	NA
MW1A	1215.69		28.80	1186.89	29.71	1185.98

TABLE 1

GROUNDWATER ELEVATIONS - NOVEMBER 2013
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*	*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*
West Bank Cont.						
MW3A	1220.87		34.20	1186.67	NA	NA
MW4A	1215.48		29.48	1186.00	NA	NA
MW4B	1215.10		29.08	1186.02	NA	NA
MW7	1218.53		34.22	1184.31	NA	NA
R1D	1222.24		35.59	1186.65	NA	NA
R2S	1209.70		22.11	1187.59	23.28	1186.42
R2D	1209.42		22.33	1187.09	23.12	1186.30
R3S	1215.17		Dry	Dry	26.35	1188.82
R3D	1215.42		28.20	1187.22	28.98	1186.44
R4D	1218.90		31.59	1187.31	32.18	1186.72
W50	1215.54		28.12	1187.42	28.91	1186.63
W52	1219.16		31.81	1187.35	32.55	1186.61
W52A	1218.95		31.46	1187.49	32.17	1186.78
W53	1216.67		29.46	1187.21	NA	NA
W53A	1216.90		29.76	1187.14	NA	NA
W54	1216.19		28.95	1187.24	NA	NA
W55	1217.04		30.02	1187.02	NA	NA
W55A	1217.31		30.55	1186.76	NA	NA
W56	1200.01		12.91	1187.10	14.02	1185.99
W57	1201.76	[2]	16.03	1185.73	NA	NA
WSWS	1193.04		5.58	1187.46	NA	NA
WSWD	1193.02		5.80	1187.22	NA	NA

Notes:

Elevations relative to National Geodetic Vertical Datum
ft BTOC - Feet below top of casing.
ft AMSL - Feet above mean sea level.
* - Well was pumping.
NA - Not Applicable.
[1] Wells E24 and E24A were abandoned in 2012, replaced by E24AR in 2012.
[2] Reference elevation resurveyed in 2012.
[3] Replacement observation well. Reference elevation to be surveyed.

TABLE 2

GROUNDWATER SAMPLING SUMMARY - MARCH 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Well	*Date*	*pH*	*Conductivity (us)*	*Temperature (ºC)*	*Water Clarity*	*Gallons Removed*	*Sample ID Number*	*QA/QC*
CW3	3/24/2014	6.12	390	10.5	Clear	Grab	W-140324-RA-01	
E21	3/24/2014	6.64	133	8.7	Clear	60.0	W-140324-RA-02	
R3D	3/24/2014	6.48	379	6.1	Clear	60.0	W-140324-RA-03	
R2D	3/24/2014	7.13	109	8.8	Clear	75.0	W-140324-RA-04	
							W-140324-RA-05	Duplicate
CW6	3/25/2014	6.30	246	9.5	Clear	Grab	W-140325-RA-06	
CW-10	3/25/2014	6.55	140	12.1	Clear	Grab	W-140325-RA-07	MS/MSD
CW9	3/25/2014	6.58	303	9.5	Clear	Grab	W-140325-RA-08	
CW11	3/25/2014	6.52	151	9.6	Clear	Grab	W-140325-RA-09	
							W-140325-RA-10	Field Blank

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*CW3*	*CW3*	*E21*	*E21*	*R2D*	*R2D*	*R2D*	*R3D*	*R3D*
Sample Date:			*11/11/2013*	*3/24/2014*	*11/11/2013*	*3/24/2014*	*11/12/2013*	*3/24/2014*	*3/24/2014 Duplicate*	*11/13/2013*	*3/24/2014*
VOAs		*MCL*									
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	33 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
cis-1,2-Dichloroethene	ug/L	70	**0.50 J**	**0.74 J**	1.0 U	1.0 U	**1.0**	**0.61 J**	**0.62 J**	1.0 U	**5.7**
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Tetrachloroethene	ug/L	5	**1.40**	**1.40**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Trichloroethene	ug/L	5	**0.72 J**	**0.78 J**	1.0 U	1.0 U	**19**	**18**	**17**	**4.8**	**68**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U
Total Chlorinated VOC			2.62	2.92	0.0	0.0	20.0	18.61	17.62	4.8	73.7

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*CW6*	*CW6*	*CW9*	*CW10*	*CW10*	*CW11*	*CW11*
Sample Date:			*11/12/2013*	*3/25/2014*	*3/25/2014*	*11/12/2013*	*3/25/2014*	*11/12/2013*	*3/25/2014*
VOAs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**3.9**	**3.7**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			3.9	3.7	0.0	0.0	0.0	0.0	0.0

Notes:

U - not detected
J - reported value is estimated
MCL - EPA maximum contaminant level for drinking water
* - the MCL for chloroform is for total trihalomethanes

TABLE 4

CITY WATER SUPPLY WELL PUMPING AVERAGES -FIRST QUARTER 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

		Well #3	Well #6	Well #7	Well #9	Well #10	Well #11
January	Hours	356.6	383.1	235.1	82.7	99.8	96.9
	Gallons	33.051	30.469	24.37	4.479	19.925	16.943
	gpm	1545	1326	1728	903	3327	2914
February	Hours	308.7	359.5	275.4	185.4	169.5	208.8
	Gallons	27.344	29.992	28.45	10.097	31.838	36.443
	gpm	1476	1390	1722	908	3131	2909
March	Hours	387.8	353.9	200	124	269.6	399
	Gallons	33.915	32.04	19.445	6.713	50.23	69.454
	gpm	1458	1509	1620	902	3105	2901
Average hours/week:		77.6	89.1	49.2	15.8	27.6	25.6
Average gpm:		1493	1408	1690	904	3188	2908

Note:
"Hours" indicates total hours pumped per month - "Gallons" indicates millions of gallons pumped per month

Attachment 1

Laboratory Report

Endsley, Erin A - DNR

From: Ahrens, Chuck <cahrens@craworld.com>
Sent: Monday, July 28, 2014 2:50 PM
To: Bianchin, Sheri; Endsley, Erin A - DNR; Amy Gahala (agahala@usgs.gov); Amy Gahala (Gahala.Amy@epa.gov)
Cc: Kevin Fabel; Lee.Bergmann@RegalBeloit.com; Project Email Filing
Subject: Wausau Water Supply Quarterly Report ~COR-003978~
Attachments: 003978Bianchin-31-EW1 Shutdown Pilot Study.pdf

Sheri, Erin, and Amy,
Groundwater monitoring results for the second quarter of 2014 at the Wausau Water Supply NPL Site are attached. This monitoring event was conducted in accordance with the EW1 Shutdown Pilot Study Work Plan. Please contact me if you have any questions or comments.
Regards,
Chuck

Charles Ahrens

Conestoga-Rovers & Associates (CRA)
1801 Old Highway 8 NW, Suite 114
St Paul, MN 55112

Direct: 651.639.0439 ext. 310
Main: 651.639.0913
Fax: 651.639.0923
Email: cahrens@craworld.com
www.craworld.com

Perform every task the safe way, the right way, every time!

CONESTOGA-ROVERS
& ASSOCIATES

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112
Telephone: (651) 639-0913 Fax: (651) 639-0923
www.CRAworld.com

July 28, 2014

Reference No. 003978-10

Ms. Sheri Bianchin
United States Environmental
Protection Agency
77 West Jackson Blvd. (SR-6J)
Chicago, Illinois 60604

Ms. Erin Endsley
Wisconsin Department of
Natural Resources
DNR Service Center
1701 North 4th St.
Superior, Wisconsin 54880

Dear Ms. Bianchin and Ms. Endsley:

Re: EW1 Shutdown Pilot Study
2nd Quarter 2014 Results
Wausau Water Supply NPL Site

In accordance with the EW1 Shutdown Pilot Study Work Plan[1], this letter presents the results of groundwater monitoring conducted in the second quarter of 2014. The second quarter 2014 monitoring event was conducted on May 19 and 20 and represents the third monitoring event of the five quarterly events proposed for the EW1 Shutdown Pilot Study. Implementation of the EW1 Shutdown Pilot Study Work Plan was approved by USEPA in an e-mail to CRA dated November 5, 2013.

EW1 Shutdown Pilot Study Monitoring

As proposed in the Pilot Study Work Plan, the second quarter 2014 monitoring event was intended to complete of the following tasks:

- Collect groundwater samples from East Bank wells CW3, E21 and IWD for analysis of volatile organic compounds (VOCs)
- Collect groundwater samples from West Bank wells CW6, EW1, C2S, C4S, MW1A, R2D, R3D, R4D, WSWD, W52, W53A, W54, W55, and W56 for VOC analysis

[1] EW1 Shutdown Pilot Study Work Plan, Wausau Water Supply NPL Site, Wausau, Wisconsin, CRA, September 2013.

- Collect water samples from operating West Well Field water supply wells other than CW6. At the time of sampling, this included CW10 only
- Measure water levels at all East Bank and West Bank monitoring wells
- Obtain copies of City Treatment Plant analytical data for post-treatment VOC samples
- Obtain City well pumping rate summaries

Well locations are presented on the Site Plan, which is provided as Figure 1.

Water Level Monitoring

Table 1 presents the second quarter 2014 water level data. Water table contours based on these measurements are presented on Figure 2. Field staff measured water levels on the East Bank on May 19 while CW3, the East Bank remediation well, was pumping. West Bank water levels were measured on May 20 while CW6, the West Bank remediation well, was operating. West Bank well CW10 was also operating on May 20. Water levels in the City production wells were measured with the assistance of City staff.

The East Bank contours are consistent with flow patterns observed in previous years. The East Bank flow patterns are controlled by the operation of CW3. The West Bank contours depict a large cone of influence created by CW6 and CW10, the two wells that were pumping on May 20. Under natural, non-pumping, conditions groundwater would flow toward and discharge to the Wisconsin River. Under existing conditions however, groundwater flows toward the City production wells.

Groundwater Sampling

Groundwater sampling was conducted on March 19 and 20, 2014. Monitoring well samples were analyzed for the Site specific VOC list by EPA Method 8260. A summary of the groundwater sampling event, including field parameter measurements, is presented in Table 2.

Groundwater sampling was conducted in accordance with the Pilot Study Work Plan. Groundwater samples were analyzed by TestAmerica Laboratories Inc., of North Canton, Ohio.

Laboratory results will be submitted electronically in the Region V Electronic Data Deliverable (EDD) format for inclusion in the Region V EPA database. A copy of the laboratory report is presented in Attachment 1.

Evaluation of Groundwater Data

The objectives of the second quarter monitoring at the Site are to detect potential changes in the contaminant plume configuration due to the shut-down of EW1, and confirm that the plume is contained by the other remediation system extraction wells, CW3 and CW6.

Table 3 presents the laboratory results for monitoring well samples collected in May 2014. November 2013 and March 2014 data are included in Table 3 for comparison purposes.

West Bank VOC Results

Twelve monitoring wells, EW1, and two City production wells were sampled in May. The primary chlorinated VOC found in the West Bank groundwater is trichloroethene (TCE), which was detected at eleven monitoring wells and CW6. The degradation product, cis-1,2-dichloroethene (C12DCE), was also detected at five of the eleven monitoring wells that had TCE detections. The TCE concentration at C2S, R2D, R4D, W53A, and W54 exceeded the MCL of 5.0 µg/L. The TCE concentration at CW6 (3.7 µg/L) was below the MCL. No VOCs were detected in the sample from City well CW10.

After a large increase at R3D from November 2013 to March 2014, the May 2014 result returned to a low concentration (4.7 µg/L). This variation is likely due to a higher concentration plume remnant, previously south of R3D, that is now migrating north to CW6 and the West Wellfield. The historical data for R2D and R3D are presented below.

Total Chlorinated VOCs (µg/L)			
Year	***R2D***	***R3D***	***R4D***
1996	1600	2	540
1997	720	5	65
1998	320	580	55
1999	110	1200	33
2000	45	1800	58
2001	17	1500	13
2002	15	1200	36
2003	10	980	38
2004	11	899	51
2005	7.5	400	56.5
2006	8.2	490	42
2007	9.9	280	1.3
2008	6.5	180	13
2009	7.3	92	22.9
2010	6.2	195.7	25.7
2011	11	203.1	27.6
2012	6.4	20.7	4.9
Nov-2013	20	4.8	16.6
March-2014	18.2	73.7	NA
May 2014	18.1	4.7	7.89

Increasing concentrations were exhibited at W53A and W54. These wells are in the source area of the former landfill. The increase at W53A continues a trend that started in 2011. The more recent increase at W54 is likely related to the same source contaminants that are affecting W53A. W54 is approximately 100 feet from W53A and groundwater contours indicate that W54 is generally downgradient from the W53A area.

Charts showing total chlorinated VOC concentrations for select West Bank wells are presented in Attachment 2.

East Bank VOC Results

East Bank wells that were sampled in May included monitoring wells IWD and E21, and City production well CW3. The primary chlorinated VOC found in the East Bank groundwater is tetrachloroethene (PCE), which was detected at CW3 with a concentration of 1.4 µg/L. The total chlorinated VOC trend at CW3 is depicted in the chart presented in Attachment 2. Low concentrations of TCE and C12DCE were detected at IWD and are remnants of the West Bank plume that had historically migrated beneath the river to CW3. No VOCs were detected in the E21 sample, which is consistent with the November 2013 and March 2014 results and indicates that the West Bank plume does not currently extend all the way across the river. There were no significant changes in VOC concentrations in the East Bank wells.

City Production Wells Pumping Volumes

CW3 and CW6 operated as required in the second quarter of 2014. Table 4 presents pumping data for the six City wells during April, May, and June 2014. While only CW3 and CW6 are part of the remediation system, data for all City wells are presented, consistent with previous reports. The table shows, by month, the number of hours each well was operated, the number of gallons pumped from each well, and the average pumping rate while the pump was operating.

CW3 and CW6 operated on alternate schedules at rates that exceeded the operating requirements established by the USEPA approval letter dated August 4, 1995. CW3 operated for an average of 74.5 hours per week with an average pumping rate of 1,399 gpm, exceeding the requirements of 65 hours per week at 1,200 gpm.

CW6 operated for an average of 92.9 hours per week with an average pumping rate of 1,345 gpm. While the average pumping rate was less than the requirement of 1,400 gpm, the total gallons pumped during the second quarter (97,535,000 gallons) exceeded the requirement of 92,820,000 gallons (85 hours per week at 1,400 gpm for 13 weeks). Thus, the hydraulic containment provided by CW6 during the second quarter met the substantive requirements of USEPA's August 4, 1995 letter.

Hydraulic Capture

Hydraulic capture of the contaminant plume is demonstrated by the water table contours illustrated on Figure 2. The water table contours indicate that groundwater flow at the Site was toward CW3 on the East Bank, and to CW6 and CW10 on the West Bank. At nested well locations the water table elevations for shallow and deep wells were similar, indicating horizontal flow and hydraulic containment of the shallow and deeper portions of the aquifer.

City Treatment Plant Analytical Data

The Wausau City Treatment Plant collects samples of the City water supply on a quarterly basis. The samples are collected at two exit points where the treated water leaves the plant. The results for samples collected in May 2014 are presented in Attachment 3. The only VOCs detected were chloroform and bromodichloromethane. Neither of these compounds are associated with the Site groundwater contamination and they are common drinking water disinfection byproducts.

Conclusions and Recommendations

Conclusions

- The City production wells, CW3 and CW6, operated within the requirements established by EPA and continue to capture the chlorinated VOC plume as demonstrated by the hydraulic data.
- Based on the non-detect result at E21, the West Bank plume does not extend all the way to CW3 on the East Bank.
- The trend of increasing TCE concentrations at source area well W53A continued in May and the recent detections of TCE at W54 indicate plume migration from the W53A area to the east.

CONESTOGA-ROVERS
& ASSOCIATES

July 28, 2014 Reference No. 003978-10

Recommendations

Groundwater monitoring should continue as proposed in the Pilot Study Work Plan. The next monitoring event is scheduled for the third quarter of 2014 and will be conducted in late August or early September.

Please contact me if you have any questions.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Charles Ahrens

CA/sb/31
Encl.

cc: Kevin Fabel, City of Wausau
Lee Bergmann, Regal Beloit

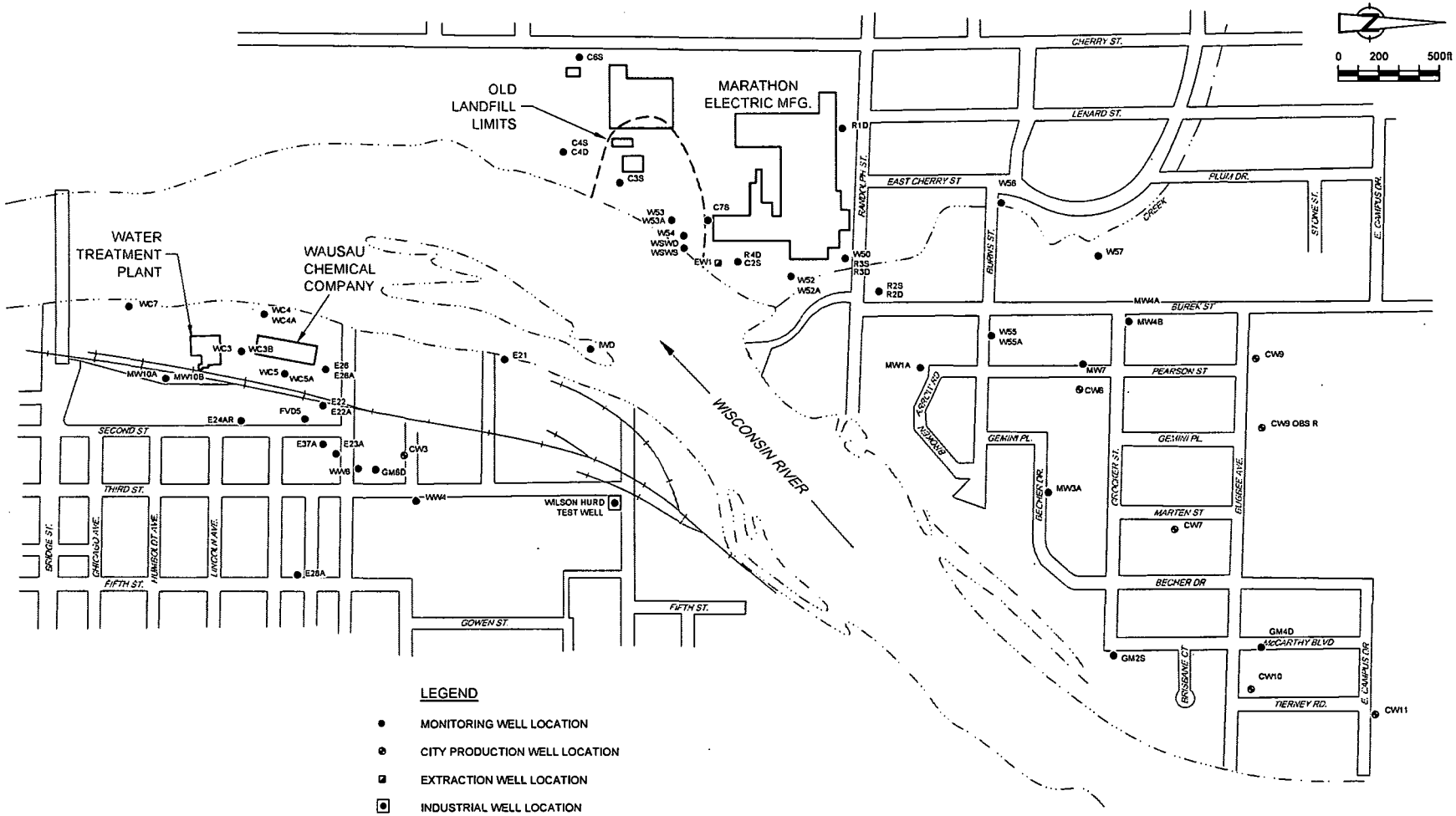


figure 1

SITE PLAN
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN031)GN-WA001 JUL 11/2014

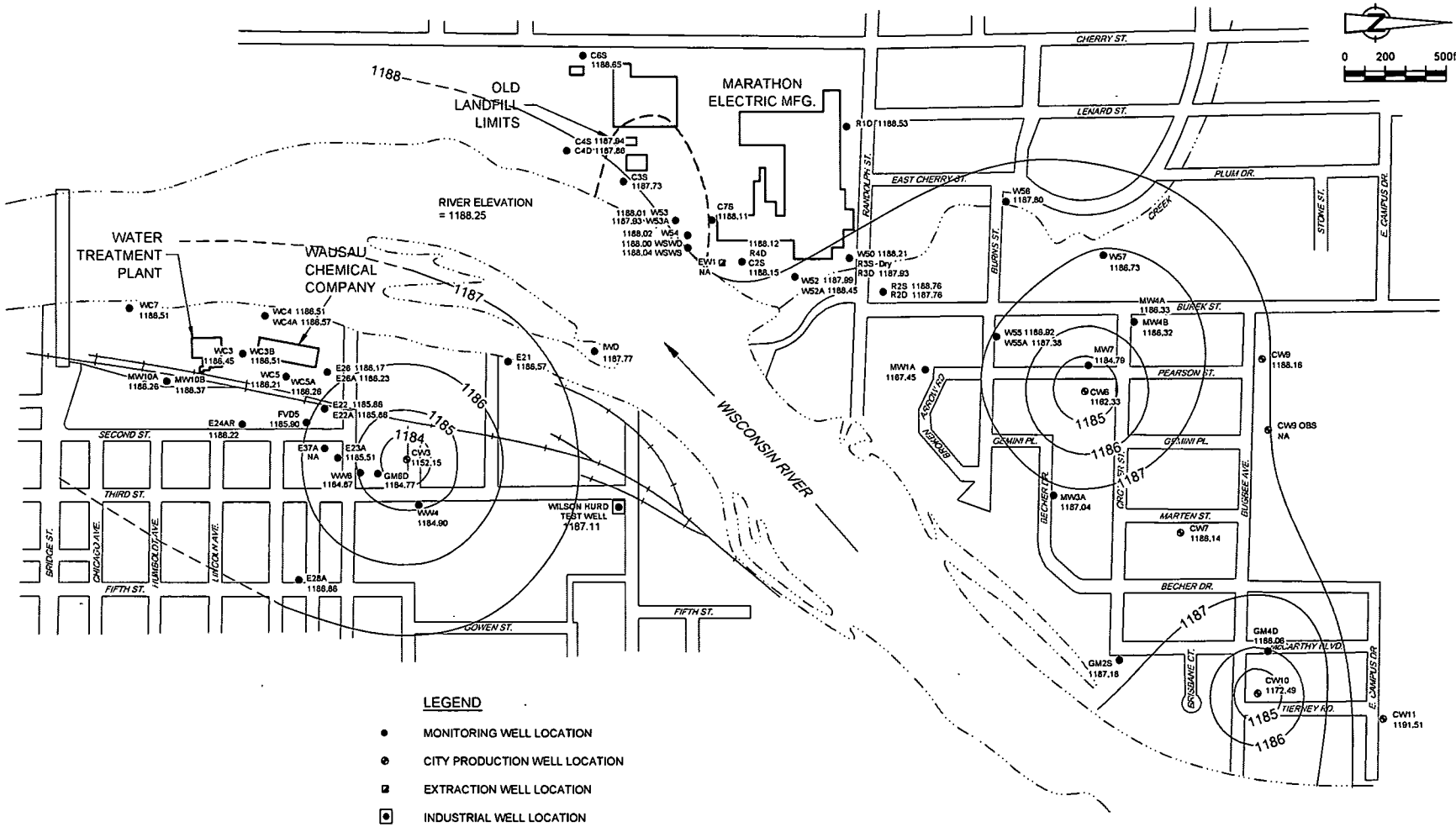


figure 2

GROUNDWATER ELEVATIONS
MAY 19, 2014
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN031)GN-WA002 JUL 11/2014

TABLE 1

GROUNDWATER ELEVATIONS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*
East Bank			***11/11/2013***	***3/24/2014***	***5/19/2014***	***5/19/2014***
CW3	1202.15	*	1148.15	1149.15	50.00	1152.15
E21	1197.51		1185.89	1185.38	10.94	1186.57
E22	1195.47		1185.07	NA	9.61	1185.86
E22A	1195.88		1185.08	NA	10.02	1185.86
E23A	1197.61		1184.68	NA	12.10	1185.51
E24AR	1209.33	(1),(2)	1185.51	NA	23.11	1186.22
E26	1199.02		1185.43	1184.92	12.85	1186.17
E26A	1199.13		1185.47	1184.95	12.90	1186.23
E28A	1211.60		1186.20	NA	24.74	1186.86
E37A	1197.84		1184.89	1184.42	NA	NA
FVD5	1198.89		1185.14	1184.64	12.99	1185.90
GM6D	1198.57		1183.89	NA	13.80	1184.77
W. HURD	1200.23		1185.82	1185.92	13.12	1187.11
IWD	1192.10		1187.20	NA	4.33	1187.77
MW10A	1210.67		1185.77	1185.27	24.41	1186.26
MW10B	1210.37		1185.72	1185.22	24.00	1186.37
WC3	1198.26		1185.78	1185.09	11.81	1186.45
WC3B	1196.11	(2)	1185.86	1185.36	9.60	1186.51
WC4	1196.74		1185.87	1185.36	10.23	1186.51
WC4A	1196.57		1185.91	1185.15	10.00	1186.57
WC5	1196.62		1185.51	1184.97	10.41	1186.21
WC5A	1196.66		1185.58	1184.78	10.40	1186.26
WC7	1196.77		1185.92	1185.26	10.26	1186.51
WW4	1200.34	(2)	1183.98	1183.52	15.44	1184.90
WW6	1200.53		1183.98	1183.51	15.66	1184.87
West Bank			***11/12/2013***	***3/25/2014***	***5/20/2014***	***5/20/2014***
EW1	NA		NA	NA	29.95	NA
CW6	1220.33	*	1160.33	1160.33	58.00	1162.33
CW7	1224.14		1186.14	1185.14	38.00	1186.14
CW9	1226.16		1188.16	1186.16	38.00	1188.16
CW9 OBS R	(3)		NA	NA	37.90	NA
CW10	1218.49		1187.49	1171.49	46.00	1172.49
CW11	1216.51		1190.51	1189.51	25.00	1191.51
C2S	1219.05		1187.34	1186.73	30.90	1188.15
C3S	1220.58		1186.96	1186.43	32.85	1187.73
C4S	1216.70		1187.10	1186.64	28.76	1187.94
C4D	1216.16		1187.04	NA	28.30	1187.86
C6S	1221.58		1187.47	1186.84	32.93	1188.65
C7S	1220.87		1188.27	1186.68	32.76	1188.11
GM2S	1211.78		1187.28	NA	24.60	1187.18
GM4D	1216.35		1187.05	NA	30.29	1186.06
MW1A	1215.69		1186.89	1185.98	28.24	1187.45

TABLE 1

GROUNDWATER ELEVATIONS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Level (ft BTOC)*	*Water Table Elevation (ft AMSL)*
West Bank Cont.						
MW3A	1220.87		1186.67	NA	33.83	1187.04
MW4A	1215.48		1186.00	NA	29.15	1186.33
MW4B	1215.10		1186.02	NA	28.78	1186.32
MW7	1218.53		1184.31	NA	33.74	1184.79
R1D	1222.24		1186.65	NA	33.71	1188.53
R2S	1209.70		1187.59	1186.42	20.94	1188.76
R2D	1209.42		1187.09	1186.30	21.66	1187.76
R3S	1215.17		Dry	1188.82	Dry	Dry
R3D	1215.42		1187.22	1186.44	27.49	1187.93
R4D	1218.90		1187.31	1186.72	30.78	1188.12
W50	1215.54		1187.42	1186.63	27.33	1188.21
W52	1219.16		1187.35	1186.61	31.17	1187.99
W52A	1218.95		1187.49	1186.78	30.50	1188.45
W53	1216.67		1187.21	NA	28.66	1188.01
W53A	1216.90		1187.14	NA	28.97	1187.93
W54	1216.19		1187.24	NA	28.17	1188.02
W55	1217.04		1187.02	NA	30.12	1186.92
W55A	1217.31		1186.76	NA	29.93	1187.38
W56	1200.01		1187.10	1185.99	12.21	1187.80
W57	1201.76	[2]	1185.73	NA	15.03	1186.73
WSWS	1193.04		1187.46	NA	5.00	1188.04
WSWD	1193.02		1187.22	NA	5.02	1188.00

Notes:

Elevations relative to National Geodetic Vertical Datum
ft BTOC - Feet below top of casing
ft AMSL - Feet above mean sea level
* - Well was pumping
NA - Not Applicable
[1] Wells E24 and E24A were abandoned in 2012, replaced by E24AR in 2012.
[2] Reference elevation resurveyed in 2012.
[3] Replacement observation well. Reference elevation to be surveyed.

TABLE 2

GROUNDWATER SAMPLING SUMMARY - MAY 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Well	*Date*	*pH*	*Conductivity (uS/cm)*	*Temperature (°C)*	*Sample ID Number*	*QA/QC*
E21	5/19/2014	7.76	181	11.6	W-140519-RA-01	
CW-3	5/19/2014	6.02	143	12.1	W-140519-RA-02	
CW-3	5/19/2014	--	--	--	W-140519-RA-03	Duplicate
R2D	5/19/2014	6.18	152.2	10.5	W-140519-RA-04	
W56	5/19/2014	6.6	672	10.7	W-140519-RA-05	
W56	5/19/2014	--	--	--	W-140519-RA-06	Duplicate
C4S	5/20/2014	6.47	1430	11.8	W-140520-RA-07	
W53A	5/20/2014	6.64	3070	12.8	W-140520-RA-08	
W54	5/20/2014	--	--	--	W-140520-RA-09	Field Blank
W54	5/20/2014	6.76	560	12.7	W-140520-RA-10	
CW6	5/20/2014	6.86	260	12.6	W-140520-RA-11	
CW10	5/20/2014	6.92	155.1	12.9	W-140520-RA-12	
W55	5/20/2014	7.12	657	12.9	W-140520-RA-13	
MW1A	5/20/2014	8.61	130.9	13.7	W-140520-RA-14	
W52	5/20/2014	8.01	109.1	13.3	W-140520-RA-15	
EW1	5/20/2014	8.57	277	16	W-140520-RA-16	
C2S	5/20/2014	5.76	3940	13.5	W-140520-RA-17	
R4D	5/20/2014	6.59	861	13.6	W-140520-RA-18	
IWD	5/20/2014	6.63	142.1	10.2	W-140520-RA-19	
WSWD	5/20/2014	6.58	140.9	10.7	W-140520-RA-20	
R3D	5/20/2014	6.04	367	10.7	W-140520-RA-21	
R3D	5/20/2014	--	--	--	W-140520-RA-22	Equipment Blank

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***CW3***	***CW3***	***CW3***	***CW3***	***E21***	***E21***	***E21***
Sample Date:			***11/11/2013***	***3/24/2014***	***5/19/2014***	***5/19/2014 Duplicate***	***11/11/2013***	***3/24/2014***	***5/19/2014***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.50 J**	**0.74 J**	**0.90 J**	**0.82 J**	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	**1.40**	**1.40**	**1.4**	**1.4**	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**0.72 J**	**0.78 J**	**0.78 J**	**0.79 J**	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			2.62	2.92	3.08	3.01	0.0	0.0	0.0

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***IWD***	***IWD***	***C2S***	***C2S***	***C4S***	***C4S***	***MW1A***	***MW1A***
Sample Date:			***11/13/2013***	***5/20/2014***	***11/13/2013***	***5/20/2014***	***11/13/2013***	***5/20/2014***	***11/13/2013***	***5/20/2014***
VOCs		***MCL***								
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	1.3 J	10 U	1.6 J
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**1.1**	**1.8**	**1.0**	**0.67 J**	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**2.2**	**3.3**	**7.9**	**5.5**	**1.1**	**1.4**	1.0 U	**0.42**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.25 J
Total Chlorinated VOC			3.3	5.1	8.9	6.17	1.1	1.4	0.0	0.42

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***R2D***	***R2D***	***R2D***	***R2D***	***R3D***	***R3D***	***R3D***
Sample Date:			***11/12/2013***	***3/24/2014***	***3/24/2014 Duplicate***	***5/19/2014***	***11/13/2013***	***3/24/2014***	***5/20/2014***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	1.4 J	10 U	33 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**1.0**	**0.61 J**	**0.62 J**	**1.1**	1.0 U	**5.7**	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Trichloroethene	ug/L	5	**19**	**18**	**17**	**18**	**4.8**	**68**	**4.7**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U
Total Chlorinated VOC			20.0	18.61	17.62	19.1	4.8	73.7	4.7

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*R4D*	*R4D*	*W52*	*W52*	*W53A*	*W53A*	*W54*	*W54*
Sample Date:			*11/12/2013*	*5/20/2014*	*11/13/2013*	*5/20/2014*	*11/13/2013*	*5/20/2014*	*11/13/2013*	*5/20/2014*
VOCs		*MCL*								
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	**0.22 J**	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	11 U	33 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.58 J**	**0.49 J**	**0.32 J**	1.0 U	1.0 U	3.3 U	**0.74 J**	**1.5**
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**16**	**7.4**	**2.6**	**3.4**	**54**	**88**	**23**	**39.0**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Total Chlorinated VOC			16.58	7.89	2.92	3.4	54	88.0	23.96	40.5

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***W55***	***W55***	***W56***	***W56***	***W56***	***WSWD***	***WSWD***
Sample Date:			***11/12/2013***	***5/20/2014***	***11/12/2013***	***5/19/2014***	***5/19/2014 Duplicate***	***11/13/2013***	***5/20/2014***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.47 J**	**0.39 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**4.7**	**4.6**	1.0 U	1.0 U	1.0 U	**0.45 J**	**0.48 J**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			5.17	4.99	0.0	0.0	0.0	0.45	0.48

TABLE 3

GROUNDWATER MONITORING LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*EW1*	*EW1*	*CW6*	*CW6*	*CW6*	*CW10*	*CW10*	*CW10*
Sample Date:			*11/12/2013*	*5/20/2014*	*11/12/2013*	*3/25/2014*	*5/20/2014*	*11/12/2013*	*3/25/2014*	*5/20/2014*
VOCs		***MCL***								
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	2.4 J	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.20 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**0.59 J**	1.0 U	**3.9**	**3.7**	**3.4**	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			0.79	0.0	3.9	3.7	3.4	0.0	0.0	0.0

Notes:

U - Not detected
J - Reported value is estimated
MCL - EPA maximum contaminant level for drinking water
* - The MCL for chloroform is for total trihalomethanes
indicates May 2014 results

TABLE 4

CITY WATER SUPPLY WELL PUMPING AVERAGES - SECOND QUARTER 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

		Well #3	*Well #6*	*Well #7*	*Well #9*	*Well #10*	*Well #11*
	Hours	240.3	476.3	190.3	76.2	221.3	281.9
April	Gallons	20.477	38.436	18.002	3.851	46.201	49.107
	gpm	1420	1345	1577	842	3480	2903
	Hours	394.5	350.8	304.7	112.8	133.2	141.8
May	Gallons	29.449	28.034	31.826	6.061	26.162	24.63
	gpm	1244	1332	1741	896	3274	2895
	Hours	333.1	380.8	267.4	111.9	157.1	149.12
June	Gallons	30.637	31.065	27.356	6.256	30.027	26.889
	gpm	1533	1360	1705	932	3186	3005
Average hours/week:		74.5	92.9	58.6	23.1	39.4	44.1
Average gpm:		1399	1345	1674	890	3313	2935

Note:

"Hours" indicates total hours pumped per month
"Gallons" indicates millions of gallons pumped per month

Attachment 1

Laboratory Report

didn't print

CONESTOGA-ROVERS
& ASSOCIATES

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112
Telephone: (651) 639-0913 Fax: (651) 639-0923
www.CRAworld.com

October 24, 2014

Reference No. 003978-10

Ms. Sheri Bianchin
United States Environmental
Protection Agency
77 West Jackson Blvd. (SR-6J)
Chicago, Illinois 60604

Ms. Mae Willkom
Wisconsin Department of
Natural Resources
1300 W. Clairemont Avenue
Eau Claire, Wisconsin 54701

Dear Ms. Bianchin and Ms. Willkom:

Re: EW1 Shutdown Pilot Study
3rd Quarter 2014 Monitoring Results
Wausau Water Supply NPL Site

In accordance with the EW1 Shutdown Pilot Study Work Plan[1], this letter presents the results of groundwater monitoring conducted in the third quarter of 2014. The third quarter 2014 monitoring event was conducted on August 11 and 12 and represents the fourth monitoring event of the five quarterly events proposed for the EW1 Shutdown Pilot Study. Implementation of the EW1 Shutdown Pilot Study Work Plan was approved by USEPA in an e-mail to CRA dated November 5, 2013.

EW1 Shutdown Pilot Study Monitoring

As proposed in the Pilot Study Work Plan, the third quarter 2014 monitoring event was intended to complete of the following tasks:

- Collect groundwater samples from East Bank wells CW3, E21 and IWD for analysis of volatile organic compounds (VOCs)
- Collect groundwater samples from West Bank wells CW6, EW1, R2D, R3D, W53A, and W55 for VOC analysis
- Collect water samples from operating West Well Field water supply wells other than CW6. At the time of sampling, this included CW10 and CW11
- Measure water levels at all East Bank and West Bank monitoring wells

[1] EW1 Shutdown Pilot Study Work Plan, Wausau Water Supply NPL Site, Wausau, Wisconsin, CRA, September 2013.

- Obtain copies of City Treatment Plant analytical data for post-treatment VOC samples
- Obtain City well pumping rate summaries

Well locations are presented on the Site Plan, which is provided as Figure 1.

Water Level Monitoring

Table 1 presents the third quarter 2014 water level data. Water table contours based on these measurements are presented on Figure 2. Field staff measured water levels on the East Bank on August 11' while CW3, the East Bank remediation well, was pumping. West Bank water levels were measured on August 12 while CW6, the West Bank remediation well, was operating. West Bank wells CW10 and CW11 were also operating on August 12. Water levels in the City production wells were measured with the assistance of City staff.

The East Bank contours are consistent with flow patterns observed in previous years. The East Bank flow patterns are controlled by the operation of CW3. The West Bank contours depict a large cone of influence created by CW6, CW10, and CW11. Under natural, non-pumping, conditions groundwater would flow toward and discharge to the Wisconsin River. Under existing conditions however, groundwater flows toward the City production wells.

Groundwater Sampling

Groundwater sampling was conducted on August 11 and 12, 2014. Monitoring well samples were analyzed for the Site specific VOC list by EPA Method 8260. A summary of the groundwater sampling event, including field parameter measurements, is presented in Table 2.

Groundwater sampling was conducted in accordance with the Pilot Study Work Plan. Groundwater samples were analyzed by TestAmerica Laboratories Inc., of North Canton, Ohio. Laboratory results will be submitted electronically in the Region V Electronic Data Deliverable (EDD) format for inclusion in the Region V EPA database. A copy of the laboratory report is presented in Attachment 1.

Evaluation of Groundwater Data

The objectives of the third quarter monitoring at the Site are to detect potential changes in the contaminant plume configuration due to the shut-down of EW1, and confirm that the plume is contained by the other remediation system extraction wells, CW3 and CW6.

Table 3 presents the laboratory results for monitoring well samples collected in August 2014. Lab data for samples collected in November 2013, March 2014, and May 2014 are included in Table 3 for comparison purposes.

West Bank VOC Results

Four monitoring wells, EW1, and three West Wellfield City supply wells were sampled in August. The primary chlorinated VOC found in the West Bank groundwater is trichloroethene (TCE), which was detected at all four monitoring wells and CW6. The degradation product, cis-1,2-dichloroethene (C12DCE), was also detected at the four monitoring wells that had TCE detections. The TCE concentration at R2D, W53A, and W55 exceeded the MCL of 5.0 µg/L. The TCE concentration at CW6 (4.0 µg/L) and R3D (2.9 µg/L) were below the MCL. No VOCs were detected in the samples from EW1 and City wells CW10 and CW11.

After a large increase at R3D from November 2013 to March 2014, the May and August 2014 results returned to low concentrations (4.7 µg/L and 2.9 µg/L respectively). This variation is likely due to a higher concentration plume remnant, previously south of R3D, that is now migrating north to CW6 and the West Wellfield. This plume migration pattern is supported by the increasing concentration at R2D, which is between R3D and CW6. Historical VOC data for R2D and R3D are presented below.

Total Chlorinated VOCs (µg/L)			
Year	***R2D***	***R3D***	***R4D***
1996	1600	2	540
1997	720	5	65
1998	320	580	55
1999	110	1200	33
2000	45	1800	58

Total Chlorinated VOCs (µg/L)			
Year	**R2D**	**R3D**	**R4D**
2001	17	1500	13
2002	15	1200	36
2003	10	980	38
2004	11	899	51
2005	7.5	400	56.5
2006	8.2	490	42
2007	9.9	280	1.3
2008	6.5	180	13
2009	7.3	92	22.9
2010	6.2	195.7	25.7
2011	11	203.1	27.6
2012	6.4	20.7	4.9
Nov 2013	20	4.8	16.6
March 2014	18.2	73.7	NA
May 2014	19.1	4.7	7.89
August 2014	33.2	2.9	NA

The TCE concentration at W53A showed a slight decline after trending upward over the last few sampling events. W53A is in the former landfill source area where groundwater concentrations may fluctuate seasonally depending on changes in precipitation and infiltration.

Charts showing total chlorinated VOC concentrations for select West Bank wells are presented in Attachment 2.

East Bank VOC Results

East Bank wells that were sampled in August included monitoring wells IWD and E21, and City production well CW3. The primary chlorinated VOC found in the East Bank groundwater is tetrachloroethene (PCE), which was detected at CW3 with a concentration of 1.6 µg/L. The total chlorinated VOC trend at CW3 is depicted in the chart presented in Attachment 2. Low concentrations of TCE and C12DCE were detected at IWD and are remnants of the West Bank plume that had historically migrated beneath the river to CW3. No VOCs were detected in the E21 sample, which is consistent with previous results and indicates that the West Bank plume

does not currently extend all the way across the river. There were no significant changes in VOC concentrations in the East Bank wells.

City Production Wells Pumping Volumes

CW3 and CW6 operated as required in the third quarter of 2014. Table 4 presents pumping data for the six City wells during July, August, and September 2014. While only CW3 and CW6 are part of the remediation system, data for all City wells are presented, consistent with previous reports. The table shows, by month, the number of hours each well was operated, the number of gallons pumped from each well, and the average pumping rate while the pump was operating.

CW3 and CW6 operated on alternate schedules at rates that exceeded the operating requirements established by the USEPA approval letter dated August 4, 1995. CW3 operated for an average of 77.5 hours per week with an average pumping rate of 1,616 gpm, exceeding the requirements of 65 hours per week at 1,200 gpm.

CW6 operated for an average of 86.8 hours per week with an average pumping rate of 1,313 gpm. The average pumping rate was less than the requirement of 1,400 gpm, however the total gallons pumped during the second quarter (89,000,000 gallons) was only slightly below the requirement of 92,820,000 gallons (85 hours per week at 1,400 gpm for 13 weeks). Thus, the hydraulic containment provided by CW6 during the third quarter was very close to the requirements of USEPA's August 4, 1995 letter. CW6 is scheduled for routine maintenance in 2015, which should increase the pumping rate and the total weekly discharge.

Hydraulic Capture

Hydraulic capture of the contaminant plume is demonstrated by the water table contours illustrated on Figure 2. The water table contours indicate that groundwater flow at the Site was toward CW3 on the East Bank, and to CW6, CW10 and CW11 on the West Bank. At nested well locations the water table elevations for shallow and deep wells were similar, indicating horizontal flow and hydraulic containment of the shallow and deeper portions of the aquifer.

City Treatment Plant Analytical Data

The Wausau City Treatment Plant collects samples of the City water supply on a quarterly basis. The samples are collected at two exit points where the treated water leaves the plant. The results for samples collected in September 2014 are presented in Attachment 3. The only VOCs detected were chloroform and bromodichloromethane. Neither of these compounds are associated with the Site groundwater contamination and they are common drinking water disinfection byproducts.

Conclusions and Recommendations

Conclusions

- City production well CW3 operated within the requirements established by EPA.
- Total gallons pumped by City production well CW6 was slightly below the EPA requirement. CW6 is scheduled for maintenance during 2015 and pumping volumes are anticipated to increase.
- CW3 and CW6 continue to contain and remove the chlorinated VOC plume as demonstrated by the hydraulic data and groundwater contours.
- Based on the non-detect result at E21, the West Bank plume does not extend all the way to CW3 on the East Bank.
- Elevated TCE concentrations at source area well W53A continued in the third quarter, although the concentration was slightly lower than the second quarter result.

Recommendations

Groundwater monitoring should continue as proposed in the Pilot Study Work Plan. The next monitoring event is the annual round, which includes the full monitoring well sampling network and is scheduled for early November 2014.

CONESTOGA-ROVERS
& ASSOCIATES

October 24, 2014 Reference No. 003978-10

Please contact me if you have any questions.

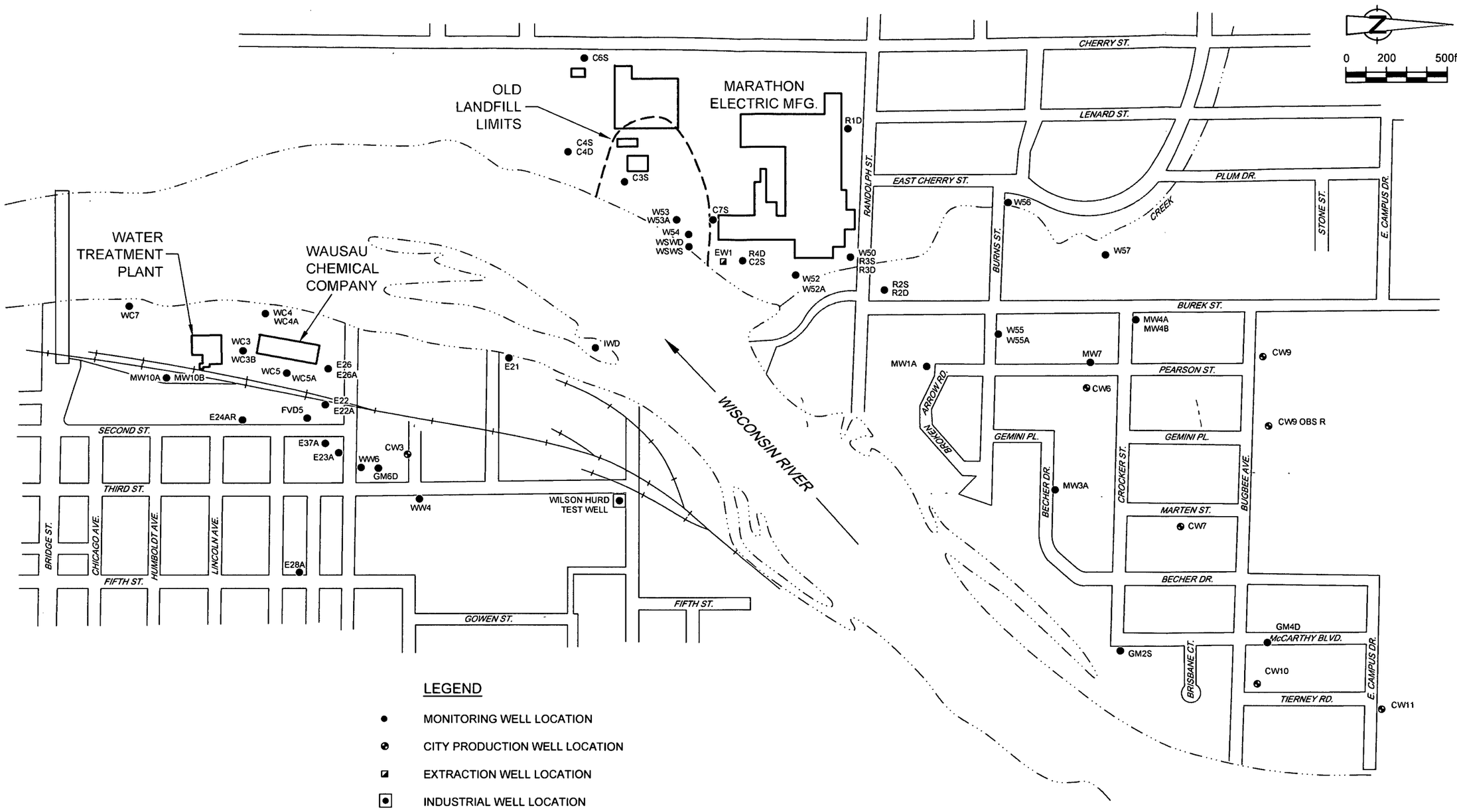
Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Charles Ahrens

CA/sb/34
Encl.

cc: Kevin Fabel, City of Wausau
Lee Bergmann, Regal Beloit



LEGEND

- MONITORING WELL LOCATION
- CITY PRODUCTION WELL LOCATION
- EXTRACTION WELL LOCATION
- INDUSTRIAL WELL LOCATION

figure 1

SITE PLAN
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN033)GN-WA001 SEP 17/2014

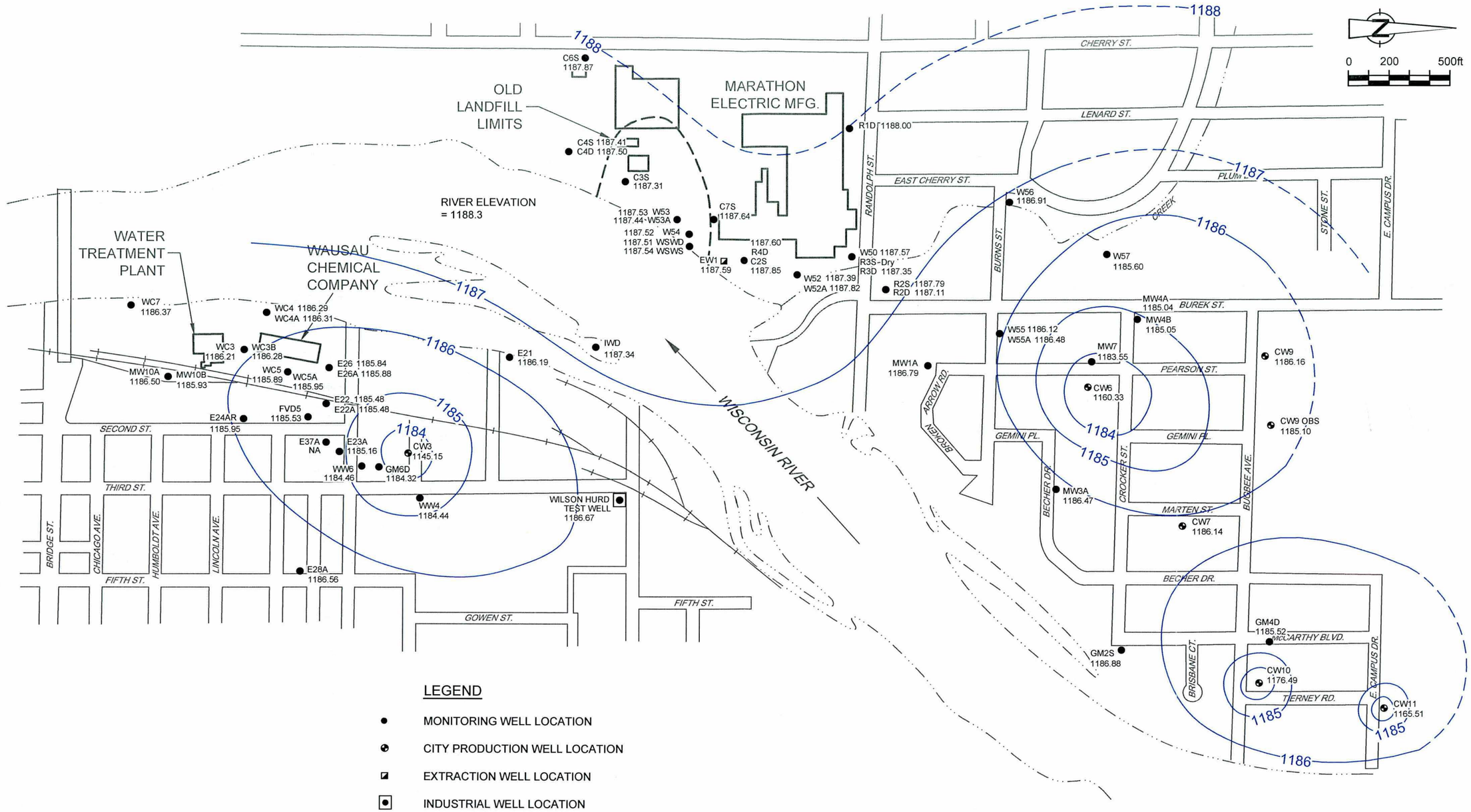


figure 2

GROUNDWATER ELEVATIONS
AUGUST 12, 2014
WAUSAU WATER SUPPLY NPL SITE
Wausau, Wisconsin

SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-10(BIAN033)GN-WA002 SEP 17/2014

TABLE 1

GROUNDWATER ELEVATIONS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*
East Bank			***11/11/2013***	***3/24/2014***	***5/19/2014***	***8/11/2014***
CW3	1202.15	*	1148.15	1149.15	1152.15	1145
E21	1197.51		1185.89	1185.38	1186.57	1186.19
E22	1195.47		1185.07	NA	1185.86	1185.48
E22A	1195.88		1185.08	NA	1185.86	1185.48
E23A	1197.61		1184.68	NA	1185.51	1185.16
E24AR	1209.33	(1),(2)	1185.51	NA	1186.22	1185.95
E26	1199.02		1185.43	1184.92	1186.17	1185.84
E26A	1199.13		1185.47	1184.95	1186.23	1185.88
E28A	1211.60		1186.20	NA	1186.86	1186.56
E37A	1197.84		1184.89	1184.42	NA	NA
FVD5	1198.89		1185.14	1184.64	1185.90	1185.53
GM6D	1198.57		1183.89	NA	1184.77	1184.32
W. HURD	1200.23		1185.82	1185.92	1187.11	1186.67
IWD	1192.10		1187.20	NA	1187.77	1187.34
MW10A	1210.67		1185.77	1185.27	1186.26	1186.50
MW10B	1210.37		1185.72	1185.22	1186.37	1185.93
WC3	1198.26		1185.78	1185.09	1186.45	1186.21
WC3B	1196.11	(2)	1185.86	1185.36	1186.51	1186.28
WC4	1196.74		1185.87	1185.36	1186.51	1186.29
WC4A	1196.57		1185.91	1185.15	1186.57	1186.31
WC5	1196.62		1185.51	1184.97	1186.21	1185.89
WC5A	1196.66		1185.58	1184.78	1186.26	1185.95
WC7	1196.77		1185.92	1185.26	1186.51	1186.37
WW4	1200.34	(2)	1183.98	1183.52	1184.90	1184.44
WW6	1200.53		1183.98	1183.51	1184.87	1184.46
West Bank			***11/12/2013***	***3/25/2014***	***5/20/2014***	***8/12/2014***
EW1	1218.04		1187.24	1184.72	1188.09	1187.59
CW6	1220.33	*	1160	1160	1162	1160
CW7	1224.14		1186	1185	1186	1186
CW9	1226.16		1188	1186	1188	1186
CW9 OBS R	1224.51		1186.40	1183.51	1186.61	1185.10
CW10	1218.49	*	1187	1171	1172	1176
CW11	1216.51	*	1191	1190	1192	1166
C2S	1219.05		1187.34	1186.73	1188.15	1187.85
C3S	1220.58		1186.96	1186.43	1187.73	1187.31
C4S	1216.70		1187.10	1186.64	1187.94	1187.50
C4D	1216.16		1187.04	NA	1187.86	1187.41
C6S	1221.58		1187.47	1186.84	1188.65	1187.87
C7S	1220.87		1188.27	1186.68	1188.11	1187.64
GM2S	1211.78		1187.28	NA	1187.18	1186.88
GM4D	1216.35		1187.05	NA	1186.06	1185.52
MW1A	1215.69		1186.89	1185.98	1187.45	1186.79

TABLE 1

GROUNDWATER ELEVATIONS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

	Reference Elevation		*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*	*Water Table Elevation (ft AMSL)*
West Bank Cont.						
MW3A	1220.87		1186.67	NA	1187.04	1186.47
MW4A	1215.48		1186.00	NA	1186.33	1185.04
MW4B	1215.10		1186.02	NA	1186.32	1185.05
MW7	1218.53		1184.31	NA	1184.79	1183.55
R1D	1222.24		1186.65	NA	1188.53	1188.00
R2S	1209.70		1187.59	1186.42	1188.76	1187.79
R2D	1209.42		1187.09	1186.30	1187.76	1187.11
R3S	1215.17		Dry	1188.82	Dry	Dry
R3D	1215.42		1187.22	1186.44	1187.93	1187.35
R4D	1218.90		1187.31	1186.72	1188.12	1187.60
W50	1215.54		1187.42	1186.63	1188.21	1187.57
W52	1219.16		1187.35	1186.61	1187.99	1187.39
W52A	1218.95		1187.49	1186.78	1188.45	1187.82
W53	1216.67		1187.21	NA	1188.01	1187.53
W53A	1216.90		1187.14	NA	1187.93	1187.44
W54	1216.19		1187.24	NA	1188.02	1187.52
W55	1217.04		1187.02	NA	1186.92	1186.12
W55A	1217.31		1186.76	NA	1187.38	1186.48
W56	1200.01		1187.10	1185.99	1187.80	1186.91
W57	1201.76	[2]	1185.73	NA	1186.73	1185.60
WSWS	1193.04		1187.46	NA	1188.04	1187.54
WSWD	1193.02		1187.22	NA	1188.00	1187.51

Notes:

Elevations relative to National Geodetic Vertical Datum
ft BTOC - Feet below top of casing
ft AMSL - Feet above mean sea level
* - Well was pumping
NA - Not Applicable
[1] Wells E24 and E24A were abandoned in 2012, replaced by E24AR in 2012.
[2] Reference elevation resurveyed in 2012.

TABLE 2

GROUNDWATER SAMPLING SUMMARY - AUGUST 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Well	*Date*	*pH*	*Conductivity (uS/cm)*	*Temperature (°C)*	*Sample ID Number*	*QA/QC*
CW3	8/12/2018	6.43	366	11.4	W-140811-RA-01	
E21	8/12/2018	6.81	176	12.4	W-140811-RA-02	
R2D	8/12/2018	6.95	130	12.6	W-140811-RA-03	
W55	8/13/2018	7.52	192	11.1	W-140812-RA-04	
W55	8/13/2018	7.52	192	11.1	W-140812-RA-05	Duplicate
CW6	8/13/2018	7.39	277	11.5	W-140812-RA-06	
CW11	8/13/2018	7.48	158	11.1	W-140812-RA-07	
CW10	8/13/2018	7.27	168	12.4	W-140812-RA-08	
W53A	8/13/2018	7.00	5100	12.3	W-140812-RA-09	MS/MSD
IWD	8/13/2018	7.90	199	11.4	W-140812-RA-10	
R3D	8/13/2018	--	--	--	W-140812-RA-11	Equipment Blank
R3D	8/13/2018	6.86	390	10.2	W-140812-RA-12	
EW1	8/13/2018	9.72	284	13.6	W-140812-RA-13	

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***CW3***	***CW3***	***CW3***	***CW3***	***CW3***	***E21***	***E21***
Sample Date:			***11/11/2013***	***3/24/2014***	***5/19/2014***	***5/19/2014 Duplicate***	***8/11/2014***	***11/11/2013***	***3/24/2014***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.50 J**	**0.74 J**	**0.90 J**	**0.82 J**	**0.59 J**	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	**1.40**	**1.40**	**1.4**	**1.4**	**1.6**	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**0.72 J**	**0.78 J**	**0.78 J**	**0.79 J**	**0.75 J**	1.0 U	1.0 U
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			2.62	2.92	3.08	3.01	2.94	0.0	0.0

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*E21*	*E21*	*IWD*	*IWD*	*IWD*	*R2D*	*R2D*
Sample Date:			*5/19/2014*	*8/11/2014*	*11/13/2013*	*5/20/2014*	*8/12/2014*	*11/12/2013*	*3/24/2014*
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	**1.1**	**1.8**	**0.87 J**	**1.0**	**0.61 J**
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	1.0 U	1.0 U	**2.2**	**3.3**	**2.70**	**19**	**18**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			0.0	0.0	3.3	5.1	3.57	20.0	18.61

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***R2D***	***R2D***	***R2D***	***R3D***	***R3D***	***R3D***	***R3D***
Sample Date:			***3/24/2014 Duplicate***	***5/19/2014***	***8/11/2014***	***11/13/2013***	***3/24/2014***	***5/20/2014***	***8/12/2014***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	1.4 J	10 U	10 U	33 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.62 J**	**1.1**	**1.2**	1.0 U	**5.7**	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	**0.14 J**
Trichloroethene	ug/L	5	**17**	**18**	**32**	**4.8**	**68**	**4.7**	**2.9**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	3.3 U	1.0 U	1.0 U
Total Chlorinated VOC			17.62	19.1	33.2	4.8	73.7	4.7	2.9

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			***W53A***	***W53A***	***W53A***	***W55***	***W55***	***W55***	***W55***
Sample Date:			***11/13/2013***	***5/20/2014***	***8/12/2014***	***11/12/2013***	***5/20/2014***	***8/12/2014***	***8/12/2014 Duplicate***
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	11 U	33 U	1.3 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	3.3 U	**0.31 J**	**0.47 J**	**0.39 J**	**0.38 J**	**0.38 J**
Ethylbenzene	ug/L	700	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**54**	**88**	**77**	**4.7**	**4.6**	**5.0**	**5.0**
Vinyl chloride	ug/L	2	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	3.3 U	1.3 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			54	88.0	77.31	5.17	4.99	5.38	5.38

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*EW1*	*EW1*	*EW1*	*CW6*	*CW6*	*CW6*	*CW6*
Sample Date:			*11/12/2013*	*5/20/2014*	*8/12/2014*	*11/12/2013*	*3/25/2014*	*5/20/2014*	*8/12/2014*
VOCs		***MCL***							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	2.4 J	2.4 J	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	70	**0.20 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.19 J**
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	**0.59 J**	1.0 U	1.0 U	**3.9**	**3.7**	**3.4**	**4.0**
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			0.79	0.0	0.0	3.9	3.7	3.4	4.19

TABLE 3

GROUNDWATER LABORATORY RESULTS
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Sample Location:			*CW10*	*CW10*	*CW10*	*CW10*	*CW11*	*CW11*	*CW11*
Sample Date:			*11/12/2013*	*3/25/2014*	*5/20/2014*	*8/12/2014*	*11/12/2013*	*3/25/2014*	*8/12/2014*
VOCs		*MCL*							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	80*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.63 J**
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	10000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Chlorinated VOC			0.0	0.0	0.0	0.0	0.0	0.0	0.63

Notes:

U - Not detected
J - Reported value is estimated
MCL - EPA maximum contaminant level for drinking water
* - The MCL for chloroform is for total trihalomethanes
indicates August 2014 results

TABLE 4

CITY WATER SUPPLY WELL PUMPING AVERAGES - THIRD QUARTER 2014
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

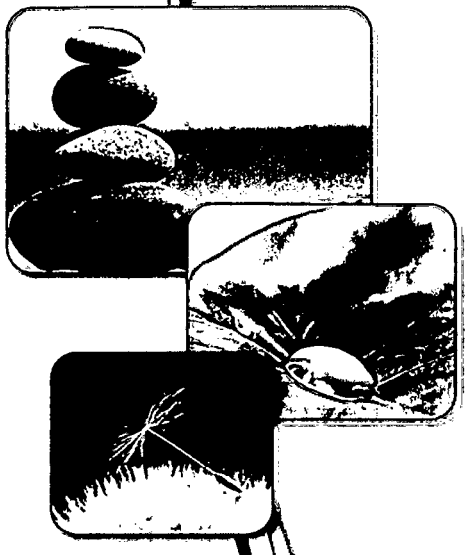
		Well #3	*Well #6*	*Well #7*	*Well #9*	*Well #10*	*Well #11*
	Hours	313.9	423.8	240	120.5	333.7	6.3
July	Gallons	29.927	34.03	26.158	6.541	77.64	1.058
	gpm	1589	1338	1817	905	3878	2799
	Hours	406.3	310	279.3	183.6	191.8	97.4
August	Gallons	36.399	24.2	30.38	9.929	36.525	16.979
	gpm	1493	1301	1813	901	3174	2905
	Hours	287.3	394.3	204.7	39.9	84.4	152.7
September	Gallons	30.434	30.78	22.18	2.152	15.999	26.622
	gpm	1766	1301	1806	899	3159	2906
Average hours/week:		77.5	86.8	55.7	26.5	46.9	19.7
Average gpm:		1616	1313	1812	902	3404	2870

Note:

Hours - Indicates total hours pumped per month
Gallons - Indicates millions of gallons pumped per month
gpm - Gallons per minute

Attachment 1

Laboratory Report



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-40749-1
Client Project/Site: 3978, Wausau

For:
Conestoga-Rovers & Associates, Inc.
1801 Old Highway 8 NW
Suite 114
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Denise D Heckler

Authorized for release by:
8/20/2014 1:44:01 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

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.

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

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
CFL	Contains Free Liquid
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)

Job ID: 240-40749-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Conestoga-Rovers & Associates, Inc.

Project: 3978, Wausau

Report Number: 240-40749-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 08/14/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.6 C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples W-140811-RA-01 (240-40749-1), W-140811-RA-02 (240-40749-2), W-140811-RA-03 (240-40749-3), W-140812-RA-04 (240-40749-4), W-140812-RA-05 (240-40749-5), W-140812-RA-06 (240-40749-6), W-140812-RA-07 (240-40749-7), W-140812-RA-08 (240-40749-8), W-140812-RA-09 (240-40749-9), W-140812-RA-10 (240-40749-10), W-140812-RA-11 (240-40749-11), W-140812-RA-12 (240-40749-12), W-140812-RA-13 (240-40749-13) and TRIP BLANK (240-40749-14) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2014.

Acetone was detected in method blank MB 240-143238/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Sample W-140812-RA-09 (240-40749-9)[1.25X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-40749-1	W-140811-RA-01	Water	08/11/14 12:05	08/14/14 09:30
240-40749-2	W-140811-RA-02	Water	08/11/14 14:25	08/14/14 09:30
240-40749-3	W-140811-RA-03	Water	08/11/14 16:00	08/14/14 09:30
240-40749-4	W-140812-RA-04	Water	08/12/14 08:10	08/14/14 09:30
240-40749-5	W-140812-RA-05	Water	08/12/14 08:10	08/14/14 09:30
240-40749-6	W-140812-RA-06	Water	08/12/14 08:20	08/14/14 09:30
240-40749-7	W-140812-RA-07	Water	08/12/14 08:25	08/14/14 09:30
240-40749-8	W-140812-RA-08	Water	08/12/14 08:30	08/14/14 09:30
240-40749-9	W-140812-RA-09	Water	08/12/14 09:10	08/14/14 09:30
240-40749-10	W-140812-RA-10	Water	08/12/14 10:15	08/14/14 09:30
240-40749-11	W-140812-RA-11	Water	08/12/14 11:50	08/14/14 09:30
240-40749-12	W-140812-RA-12	Water	08/12/14 12:30	08/14/14 09:30
240-40749-13	W-140812-RA-13	Water	08/12/14 12:45	08/14/14 09:30
240-40749-14	TRIP BLANK	Water	08/12/14 00:00	08/14/14 09:30

Detection Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140811-RA-01 — Lab Sample ID: 240-40749-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.59	J	1.0	0.17	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.6		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	0.75	J	1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140811-RA-02 — Lab Sample ID: 240-40749-2

No Detections.

Client Sample ID: W-140811-RA-03 — Lab Sample ID: 240-40749-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.2		1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	32		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-04 — Lab Sample ID: 240-40749-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.38	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	5.0		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-05 — Lab Sample ID: 240-40749-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.38	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	5.0		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-06 — Lab Sample ID: 240-40749-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.19	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	4.0		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-07 — Lab Sample ID: 240-40749-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.63	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-08 — Lab Sample ID: 240-40749-8

No Detections.

Client Sample ID: W-140812-RA-09 — Lab Sample ID: 240-40749-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.31	J	1.3	0.21	ug/L	1.25		8260B	Total/NA
Trichloroethene	77		1.3	0.21	ug/L	1.25		8260B	Total/NA

Client Sample ID: W-140812-RA-10 — Lab Sample ID: 240-40749-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.87	J	1.0	0.17	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-140812-RA-10 (Continued) — Lab Sample ID: 240-40749-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	2.7		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-11 — Lab Sample ID: 240-40749-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.3	J B	10	1.1	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-12 — Lab Sample ID: 240-40749-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.14	J	1.0	0.13	ug/L	1		8260B	Total/NA
Trichloroethene	2.9		1.0	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: W-140812-RA-13 — Lab Sample ID: 240-40749-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.4	J B	10	1.1	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-40749-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	9.2	J B	10	1.1	ug/L	1		8260B	Total/NA
Methylene Chloride	1.5		1.0	0.33	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140811-RA-01
Date Collected: 08/11/14 12:05
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 17:47	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 17:47	1
Acetone	10	U	10	1.1	ug/L			08/18/14 17:47	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 17:47	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 17:47	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 17:47	1
cis-1,2-Dichloroethene	**0.59**	**J**	1.0	0.17	ug/L			08/18/14 17:47	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 17:47	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 17:47	1
Tetrachloroethene	**1.6**		1.0	0.29	ug/L			08/18/14 17:47	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 17:47	1
Trichloroethene	**0.75**	**J**	1.0	0.17	ug/L			08/18/14 17:47	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 17:47	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 17:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*63 - 129*		*08/18/14 17:47*	*1*
4-Bromofluorobenzene (Surr)	*84*		*66 - 120*		*08/18/14 17:47*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 17:47*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 121*		*08/18/14 17:47*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140811-RA-02
Date Collected: 08/11/14 14:25
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 18:11	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 18:11	1
Acetone	10	U	10	1.1	ug/L			08/18/14 18:11	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 18:11	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 18:11	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 18:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 18:11	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 18:11	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 18:11	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 18:11	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 18:11	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 18:11	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 18:11	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 18:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*63 - 129*		*08/18/14 18:11*	*1*
4-Bromofluorobenzene (Surr)	*86*		*66 - 120*		*08/18/14 18:11*	*1*
Toluene-d8 (Surr)	*98*		*74 - 120*		*08/18/14 18:11*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 121*		*08/18/14 18:11*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140811-RA-03
Date Collected: 08/11/14 16:00
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 18:36	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 18:36	1
Acetone	10	U	10	1.1	ug/L			08/18/14 18:36	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 18:36	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 18:36	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 18:36	1
cis-1,2-Dichloroethene	**1.2**		1.0	0.17	ug/L			08/18/14 18:36	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 18:36	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 18:36	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 18:36	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 18:36	1
Trichloroethene	**32**		1.0	0.17	ug/L			08/18/14 18:36	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 18:36	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*63 - 129*		*08/18/14 18:36*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 18:36*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 18:36*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 121*		*08/18/14 18:36*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-04
Date Collected: 08/12/14 08:10
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 19:00	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 19:00	1
Acetone	10	U	10	1.1	ug/L			08/18/14 19:00	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 19:00	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 19:00	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 19:00	1
cis-1,2-Dichloroethene	**0.38**	**J**	1.0	0.17	ug/L			08/18/14 19:00	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 19:00	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 19:00	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 19:00	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 19:00	1
Trichloroethene	**5.0**		1.0	0.17	ug/L			08/18/14 19:00	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 19:00	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*63 - 129*		*08/18/14 19:00*	*1*
4-Bromofluorobenzene (Surr)	*86*		*66 - 120*		*08/18/14 19:00*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 19:00*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 121*		*08/18/14 19:00*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-05
Date Collected: 08/12/14 08:10
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 19:24	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 19:24	1
Acetone	10	U	10	1.1	ug/L			08/18/14 19:24	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 19:24	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 19:24	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 19:24	1
cis-1,2-Dichloroethene	**0.38**	**J**	1.0	0.17	ug/L			08/18/14 19:24	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 19:24	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 19:24	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 19:24	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 19:24	1
Trichloroethene	**5.0**		1.0	0.17	ug/L			08/18/14 19:24	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 19:24	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*63 - 129*		*08/18/14 19:24*	*1*
4-Bromofluorobenzene (Surr)	*84*		*66 - 120*		*08/18/14 19:24*	*1*
Toluene-d8 (Surr)	*100*		*74 - 120*		*08/18/14 19:24*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 19:24*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-06
Date Collected: 08/12/14 08:20
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 19:48	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 19:48	1
Acetone	10	U	10	1.1	ug/L			08/18/14 19:48	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 19:48	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 19:48	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 19:48	1
cis-1,2-Dichloroethene	**0.19**	**J**	1.0	0.17	ug/L			08/18/14 19:48	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 19:48	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 19:48	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 19:48	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 19:48	1
Trichloroethene	**4.0**		1.0	0.17	ug/L			08/18/14 19:48	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 19:48	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 19:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*63 - 129*		*08/18/14 19:48*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 19:48*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 19:48*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 19:48*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-07
Date Collected: 08/12/14 08:25
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 20:13	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 20:13	1
Acetone	10	U	10	1.1	ug/L			08/18/14 20:13	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 20:13	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 20:13	1
Chloroform	**0.63**	**J**	1.0	0.16	ug/L			08/18/14 20:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 20:13	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 20:13	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 20:13	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 20:13	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 20:13	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 20:13	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 20:13	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*63 - 129*		*08/18/14 20:13*	*1*
4-Bromofluorobenzene (Surr)	*86*		*66 - 120*		*08/18/14 20:13*	*1*
Toluene-d8 (Surr)	*98*		*74 - 120*		*08/18/14 20:13*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 121*		*08/18/14 20:13*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-08
Date Collected: 08/12/14 08:30
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 20:37	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 20:37	1
Acetone	10	U	10	1.1	ug/L			08/18/14 20:37	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 20:37	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 20:37	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 20:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 20:37	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 20:37	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 20:37	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 20:37	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 20:37	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 20:37	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 20:37	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*63 - 129*		*08/18/14 20:37*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 20:37*	*1*
Toluene-d8 (Surr)	*97*		*74 - 120*		*08/18/14 20:37*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 20:37*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-09
Date Collected: 08/12/14 09:10
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.3	U	1.3	0.34	ug/L			08/18/14 14:55	1.25
1,1-Dichloroethene	1.3	U	1.3	0.24	ug/L			08/18/14 14:55	1.25
Acetone	13	U	13	1.4	ug/L			08/18/14 14:55	1.25
Benzene	1.3	U	1.3	0.16	ug/L			08/18/14 14:55	1.25
Carbon tetrachloride	1.3	U	1.3	0.16	ug/L			08/18/14 14:55	1.25
Chloroform	1.3	U	1.3	0.20	ug/L			08/18/14 14:55	1.25
cis-1,2-Dichloroethene	**0.31**	**J**	1.3	0.21	ug/L			08/18/14 14:55	1.25
Ethylbenzene	1.3	U	1.3	0.21	ug/L			08/18/14 14:55	1.25
Methylene Chloride	1.3	U	1.3	0.41	ug/L			08/18/14 14:55	1.25
Tetrachloroethene	1.3	U	1.3	0.36	ug/L			08/18/14 14:55	1.25
Toluene	1.3	U	1.3	0.16	ug/L			08/18/14 14:55	1.25
Trichloroethene	**77**		1.3	0.21	ug/L			08/18/14 14:55	1.25
Vinyl chloride	1.3	U	1.3	0.28	ug/L			08/18/14 14:55	1.25
Xylenes, Total	1.3	U	1.3	0.18	ug/L			08/18/14 14:55	1.25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*63 - 129*		*08/18/14 14:55*	*1.25*
4-Bromofluorobenzene (Surr)	*84*		*66 - 120*		*08/18/14 14:55*	*1.25*
Toluene-d8 (Surr)	*100*		*74 - 120*		*08/18/14 14:55*	*1.25*
Dibromofluoromethane (Surr)	*97*		*75 - 121*		*08/18/14 14:55*	*1.25*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-10
Date Collected: 08/12/14 10:15
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 21:01	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 21:01	1
Acetone	10	U	10	1.1	ug/L			08/18/14 21:01	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 21:01	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 21:01	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 21:01	1
cis-1,2-Dichloroethene	**0.87**	**J**	1.0	0.17	ug/L			08/18/14 21:01	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 21:01	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 21:01	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 21:01	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 21:01	1
Trichloroethene	**2.7**		1.0	0.17	ug/L			08/18/14 21:01	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 21:01	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*63 - 129*		*08/18/14 21:01*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 21:01*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 21:01*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 21:01*	*1*

Client Sample ID: W-140812-RA-11
Date Collected: 08/12/14 11:50
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 21:25	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 21:25	1
Acetone	3.3	J B	10	1.1	ug/L			08/18/14 21:25	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 21:25	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 21:25	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 21:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 21:25	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 21:25	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 21:25	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 21:25	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 21:25	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 21:25	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 21:25	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*63 - 129*		*08/18/14 21:25*	*1*
4-Bromofluorobenzene (Surr)	*86*		*66 - 120*		*08/18/14 21:25*	*1*
Toluene-d8 (Surr)	*98*		*74 - 120*		*08/18/14 21:25*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 121*		*08/18/14 21:25*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-12
Date Collected: 08/12/14 12:30
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 21:49	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 21:49	1
Acetone	10	U	10	1.1	ug/L			08/18/14 21:49	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 21:49	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 21:49	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 21:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 21:49	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 21:49	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 21:49	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 21:49	1
Toluene	**0.14**	**J**	1.0	0.13	ug/L			08/18/14 21:49	1
Trichloroethene	**2.9**		1.0	0.17	ug/L			08/18/14 21:49	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 21:49	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*63 - 129*		*08/18/14 21:49*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 21:49*	*1*
Toluene-d8 (Surr)	*100*		*74 - 120*		*08/18/14 21:49*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 21:49*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-13
Date Collected: 08/12/14 12:45
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 22:13	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 22:13	1
Acetone	1.4	J B	10	1.1	ug/L			08/18/14 22:13	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 22:13	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 22:13	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 22:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 22:13	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 22:13	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 22:13	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 22:13	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 22:13	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 22:13	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 22:13	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 22:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*63 - 129*		*08/18/14 22:13*	*1*
4-Bromofluorobenzene (Surr)	*85*		*66 - 120*		*08/18/14 22:13*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 22:13*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 121*		*08/18/14 22:13*	*1*

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: TRIP BLANK
Date Collected: 08/12/14 00:00
Date Received: 08/14/14 09:30

Lab Sample ID: 240-40749-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 22:37	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 22:37	1
Acetone	**9.2**	**J B**	10	1.1	ug/L			08/18/14 22:37	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 22:37	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 22:37	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 22:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 22:37	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 22:37	1
Methylene Chloride	**1.5**		1.0	0.33	ug/L			08/18/14 22:37	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 22:37	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 22:37	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 22:37	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 22:37	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*63 - 129*		*08/18/14 22:37*	*1*
4-Bromofluorobenzene (Surr)	*87*		*66 - 120*		*08/18/14 22:37*	*1*
Toluene-d8 (Surr)	*99*		*74 - 120*		*08/18/14 22:37*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 121*		*08/18/14 22:37*	*1*

Surrogate Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	12DCE (63-129)	BFB (66-120)	TOL (74-120)	DBFM (75-121)
240-40749-1	W-140811-RA-01	107	84	99	97
240-40749-2	W-140811-RA-02	106	86	98	96
240-40749-3	W-140811-RA-03	109	85	99	97
240-40749-4	W-140812-RA-04	105	86	99	97
240-40749-5	W-140812-RA-05	102	84	100	98
240-40749-6	W-140812-RA-06	103	85	99	98
240-40749-7	W-140812-RA-07	107	86	98	97
240-40749-8	W-140812-RA-08	106	85	97	98
240-40749-9	W-140812-RA-09	101	84	100	97
240-40749-9 MS	W-140812-RA-09	105	89	98	102
240-40749-9 MSD	W-140812-RA-09	112	91	99	103
240-40749-10	W-140812-RA-10	109	85	99	98
240-40749-11	W-140812-RA-11	108	86	98	96
240-40749-12	W-140812-RA-12	106	85	100	98
240-40749-13	W-140812-RA-13	101	85	99	93
240-40749-14	TRIP BLANK	110	87	99	98
LCS 240-143238/4	Lab Control Sample	104	88	96	100
MB 240-143238/6	Method Blank	101	83	97	94

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-143238/6
Matrix: Water
Analysis Batch: 143238

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			08/18/14 14:31	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/14 14:31	1
Acetone	1.20	J	10	1.1	ug/L			08/18/14 14:31	1
Benzene	1.0	U	1.0	0.13	ug/L			08/18/14 14:31	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			08/18/14 14:31	1
Chloroform	1.0	U	1.0	0.16	ug/L			08/18/14 14:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 14:31	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			08/18/14 14:31	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			08/18/14 14:31	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			08/18/14 14:31	1
Toluene	1.0	U	1.0	0.13	ug/L			08/18/14 14:31	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			08/18/14 14:31	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			08/18/14 14:31	1
Xylenes, Total	1.0	U	1.0	0.14	ug/L			08/18/14 14:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*63 - 129*		*08/18/14 14:31*	*1*
4-Bromofluorobenzene (Surr)	*83*		*66 - 120*		*08/18/14 14:31*	*1*
Toluene-d8 (Surr)	*97*		*74 - 120*		*08/18/14 14:31*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 121*		*08/18/14 14:31*	*1*

Lab Sample ID: LCS 240-143238/4
Matrix: Water
Analysis Batch: 143238

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	25.0	25.4		ug/L		102	80 - 120
1,1-Dichloroethene	25.0	24.5		ug/L		98	78 - 131
Acetone	50.0	44.1		ug/L		88	43 - 136
Benzene	25.0	25.3		ug/L		101	80 - 120
Carbon tetrachloride	25.0	27.0		ug/L		108	66 - 128
Chloroform	25.0	27.9		ug/L		111	79 - 120
cis-1,2-Dichloroethene	25.0	26.0		ug/L		104	80 - 120
Ethylbenzene	25.0	25.6		ug/L		102	80 - 120
m-Xylene & p-Xylene	25.0	25.6		ug/L		102	80 - 120
Methylene Chloride	25.0	23.4		ug/L		94	66 - 131
o-Xylene	25.0	25.2		ug/L		101	80 - 120
Tetrachloroethene	25.0	27.3		ug/L		109	79 - 120
Toluene	25.0	25.2		ug/L		101	80 - 120
Trichloroethene	25.0	26.1		ug/L		104	76 - 120
Vinyl chloride	25.0	21.4		ug/L		85	53 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*63 - 129*
4-Bromofluorobenzene (Surr)	*88*		*66 - 120*
Toluene-d8 (Surr)	*96*		*74 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 121*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-40749-9 MS
Matrix: Water
Analysis Batch: 143238

Client Sample ID: W-140812-RA-09
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	1.3	U	31.3	30.2		ug/L		97	75 - 120
1,1-Dichloroethene	1.3	U	31.3	28.9		ug/L		93	74 - 135
Acetone	13	U	62.5	49.9		ug/L		80	33 - 145
Benzene	1.3	U	31.3	30.5		ug/L		98	72 - 121
Carbon tetrachloride	1.3	U	31.3	31.0		ug/L		99	59 - 129
Chloroform	1.3	U	31.3	35.4		ug/L		113	76 - 120
cis-1,2-Dichloroethene	0.31	J	31.3	32.4		ug/L		103	70 - 120
Ethylbenzene	1.3	U	31.3	30.0		ug/L		96	75 - 120
m-Xylene & p-Xylene	1.3		31.3	29.6		ug/L		95	75 - 120
Methylene Chloride	1.3	U	31.3	28.0		ug/L		90	63 - 128
o-Xylene	1.3		31.3	30.5		ug/L		98	76 - 120
Tetrachloroethene	1.3	U	31.3	30.6		ug/L		98	70 - 120
Toluene	1.3	U	31.3	30.7		ug/L		98	78 - 120
Trichloroethene	77		31.3	106		ug/L		95	66 - 120
Vinyl chloride	1.3	U	31.3	24.7		ug/L		79	49 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*63 - 129*
4-Bromofluorobenzene (Surr)	*89*		*66 - 120*
Toluene-d8 (Surr)	*98*		*74 - 120*
Dibromofluoromethane (Surr)	*102*		*75 - 121*

Lab Sample ID: 240-40749-9 MSD
Matrix: Water
Analysis Batch: 143238

Client Sample ID: W-140812-RA-09
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	1.3	U	31.3	31.7		ug/L		101	75 - 120	5	30
1,1-Dichloroethene	1.3	U	31.3	29.3		ug/L		94	74 - 135	1	30
Acetone	13	U	62.5	54.8		ug/L		88	33 - 145	9	30
Benzene	1.3	U	31.3	31.2		ug/L		100	72 - 121	2	30
Carbon tetrachloride	1.3	U	31.3	33.4		ug/L		107	59 - 129	8	30
Chloroform	1.3	U	31.3	35.5		ug/L		114	76 - 120	0	30
cis-1,2-Dichloroethene	0.31	J	31.3	32.8		ug/L		104	70 - 120	1	30
Ethylbenzene	1.3	U	31.3	31.5		ug/L		101	75 - 120	5	30
m-Xylene & p-Xylene	1.3		31.3	30.7		ug/L		98	75 - 120	4	30
Methylene Chloride	1.3	U	31.3	29.1		ug/L		93	63 - 128	4	30
o-Xylene	1.3		31.3	31.2		ug/L		100	76 - 120	2	30
Tetrachloroethene	1.3	U	31.3	32.4		ug/L		104	70 - 120	6	30
Toluene	1.3	U	31.3	31.4		ug/L		100	78 - 120	2	30
Trichloroethene	77		31.3	105		ug/L		91	66 - 120	1	30
Vinyl chloride	1.3	U	31.3	25.7		ug/L		82	49 - 130	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*112*		*63 - 129*
4-Bromofluorobenzene (Surr)	*91*		*66 - 120*
Toluene-d8 (Surr)	*99*		*74 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-40749-9 MSD
Matrix: Water
Analysis Batch: 143238

Client Sample ID: W-140812-RA-09
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	*103*		*75 - 121*

QC Association Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

GC/MS VOA

Analysis Batch: 143238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-40749-1	W-140811-RA-01	Total/NA	Water	8260B	
240-40749-2	W-140811-RA-02	Total/NA	Water	8260B	
240-40749-3	W-140811-RA-03	Total/NA	Water	8260B	
240-40749-4	W-140812-RA-04	Total/NA	Water	8260B	
240-40749-5	W-140812-RA-05	Total/NA	Water	8260B	
240-40749-6	W-140812-RA-06	Total/NA	Water	8260B	
240-40749-7	W-140812-RA-07	Total/NA	Water	8260B	
240-40749-8	W-140812-RA-08	Total/NA	Water	8260B	
240-40749-9	W-140812-RA-09	Total/NA	Water	8260B	
240-40749-9 MS	W-140812-RA-09	Total/NA	Water	8260B	
240-40749-9 MSD	W-140812-RA-09	Total/NA	Water	8260B	
240-40749-10	W-140812-RA-10	Total/NA	Water	8260B	
240-40749-11	W-140812-RA-11	Total/NA	Water	8260B	
240-40749-12	W-140812-RA-12	Total/NA	Water	8260B	
240-40749-13	W-140812-RA-13	Total/NA	Water	8260B	
240-40749-14	TRIP BLANK	Total/NA	Water	8260B	
LCS 240-143238/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-143238/6	Method Blank	Total/NA	Water	8260B	

Client Sample ID: W-140811-RA-01 — **Lab Sample ID: 240-40749-1**
Date Collected: 08/11/14 12:05 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 17:47	RJQ	TAL CAN

Client Sample ID: W-140811-RA-02 — **Lab Sample ID: 240-40749-2**
Date Collected: 08/11/14 14:25 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 18:11	RJQ	TAL CAN

Client Sample ID: W-140811-RA-03 — **Lab Sample ID: 240-40749-3**
Date Collected: 08/11/14 16:00 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 18:36	RJQ	TAL CAN

Client Sample ID: W-140812-RA-04 — **Lab Sample ID: 240-40749-4**
Date Collected: 08/12/14 08:10 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 19:00	RJQ	TAL CAN

Client Sample ID: W-140812-RA-05 — **Lab Sample ID: 240-40749-5**
Date Collected: 08/12/14 08:10 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 19:24	RJQ	TAL CAN

Client Sample ID: W-140812-RA-06 — **Lab Sample ID: 240-40749-6**
Date Collected: 08/12/14 08:20 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 19:48	RJQ	TAL CAN

Client Sample ID: W-140812-RA-07 — **Lab Sample ID: 240-40749-7**
Date Collected: 08/12/14 08:25 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 20:13	RJQ	TAL CAN

Client Sample ID: W-140812-RA-08 — **Lab Sample ID: 240-40749-8**
Date Collected: 08/12/14 08:30 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 20:37	RJQ	TAL CAN

Client Sample ID: W-140812-RA-09 — **Lab Sample ID: 240-40749-9**
Date Collected: 08/12/14 09:10 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1.25	143238	08/18/14 14:55	RJQ	TAL CAN

Client Sample ID: W-140812-RA-10 — **Lab Sample ID: 240-40749-10**
Date Collected: 08/12/14 10:15 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 21:01	RJQ	TAL CAN

Client Sample ID: W-140812-RA-11 — **Lab Sample ID: 240-40749-11**
Date Collected: 08/12/14 11:50 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 21:25	RJQ	TAL CAN

Client Sample ID: W-140812-RA-12 — **Lab Sample ID: 240-40749-12**
Date Collected: 08/12/14 12:30 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 21:49	RJQ	TAL CAN

Lab Chronicle

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Client Sample ID: W-140812-RA-13 — **Lab Sample ID: 240-40749-13**
Date Collected: 08/12/14 12:45 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 22:13	RJQ	TAL CAN

Client Sample ID: TRIP BLANK — **Lab Sample ID: 240-40749-14**
Date Collected: 08/12/14 00:00 — **Matrix: Water**
Date Received: 08/14/14 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	143238	08/18/14 22:37	RJQ	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-40749-1

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-15
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-15
Georgia	State Program	4	N/A	06-30-15
Illinois	NELAP	5	200004	07-31-15
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-15
New Jersey	NELAP	2	OH001	06-30-15
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-14 *
Texas	NELAP	6		08-31-14 *
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-14 *
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-14 *

* Certification renewal pending - certification considered valid.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

240-40749 Chain of Custody

4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

CONESTOGA-ROVERS & ASSOCIATES

CHAIN OF CUSTODY RECORD

1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

3, 6

COC NO.: SP-01320
PAGE ___ OF ___
(See Reverse Side for Instructions)

Project No/ Phase/Task Code: 003978	Laboratory Name: Test America	Lab Location:	SSOW ID:
Project Name: Wausau	Lab Contact:	Lab Quote No:	Cooler No:
Project Location: Wausau WI			Carrier:
Chemistry Contact: G. Anderson			Airbill No:
Sampler(s): RAmat / M. Barnes			Date Shipped:

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Container Quantity & Preservation: Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	Analysis Requested: VOCs	MS/MSD Request	Comments/ Special Instructions:
1	W-140811-RA-01	8/11/14	1205	W	G		3							3	✓		
2	W-140811-RA-02	8/11/14	1425				3							3	✓		
3	W-140811-RA-03	8/11/14	1600				3							3	✓		
4	W-140812-RA-04	8/12/14	810				3							3	✓		
5	W-140812-RA-05		810				3							3	✓		
6	W-140812-RA-06		820				3							3	✓		
7	W-140812-RA-07		825				3							3	✓		
8	W-140812-RA-08		830				3							3	✓		
9	W-140812-RA-09		910				9							9	✓		MS/MSD
10	W-140812-RA-10		1015				3							3	✓		
11	W-140812-RA-11		1150				3							3	✓		
12	W-140812-RA-12		1230				3							3	✓		
13	W-140812-RA-13	↓	1245	↓	↓		3							3	✓		
14	trip Blank						1							1	X		
15																	

TAT Required in business days (use separate COCs for different TATs):
☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☒ 2 Week ☐ Other:

Total Number of Containers:

All Samples in Cooler must be on COC

Notes/ Special Requirements:

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	CRA	8/13/14	1600	1. Dakota Turner	TA-Canton	8/14/14	9:30
2.				2.			
3.				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

8/20/2014

TestAmerica Canton Sample Receipt Form/Narrative Login # : 40749
Canton Facility

Client Conestoga-Rovers Site Name _____ Cooler unpacked by: Dakota Turner

Cooler Received on 8/14/14 Opened on 8/14/14

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

TestAmerica Cooler # _____ Foam Box (Client Cooler) Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A	(CF +2 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	☐ See Multiple Cooler Form
IR GUN# 4	(CF -2 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 5	(CF 0 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 8	(CF 0 °C)	Observed Cooler Temp. 3.6 °C	Corrected Cooler Temp. 3.6 °C	

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were custody seals on the bottle(s)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Did all bottles arrive in good condition (Unbroken)? (Yes) No
7. Could all bottle labels be reconciled with the COC? (Yes) No
8. Were correct bottle(s) used for the test(s) indicated? (Yes) No
9. Sufficient quantity received to perform indicated analyses? (Yes) No
10. Were sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC412469
11. Were VOAs on the COC? (Yes) No
12. Were air bubbles >6 mm in any VOA vials? Yes (No) NA
13. Was a trip blank present in the cooler(s)? (Yes) No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [signature]

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

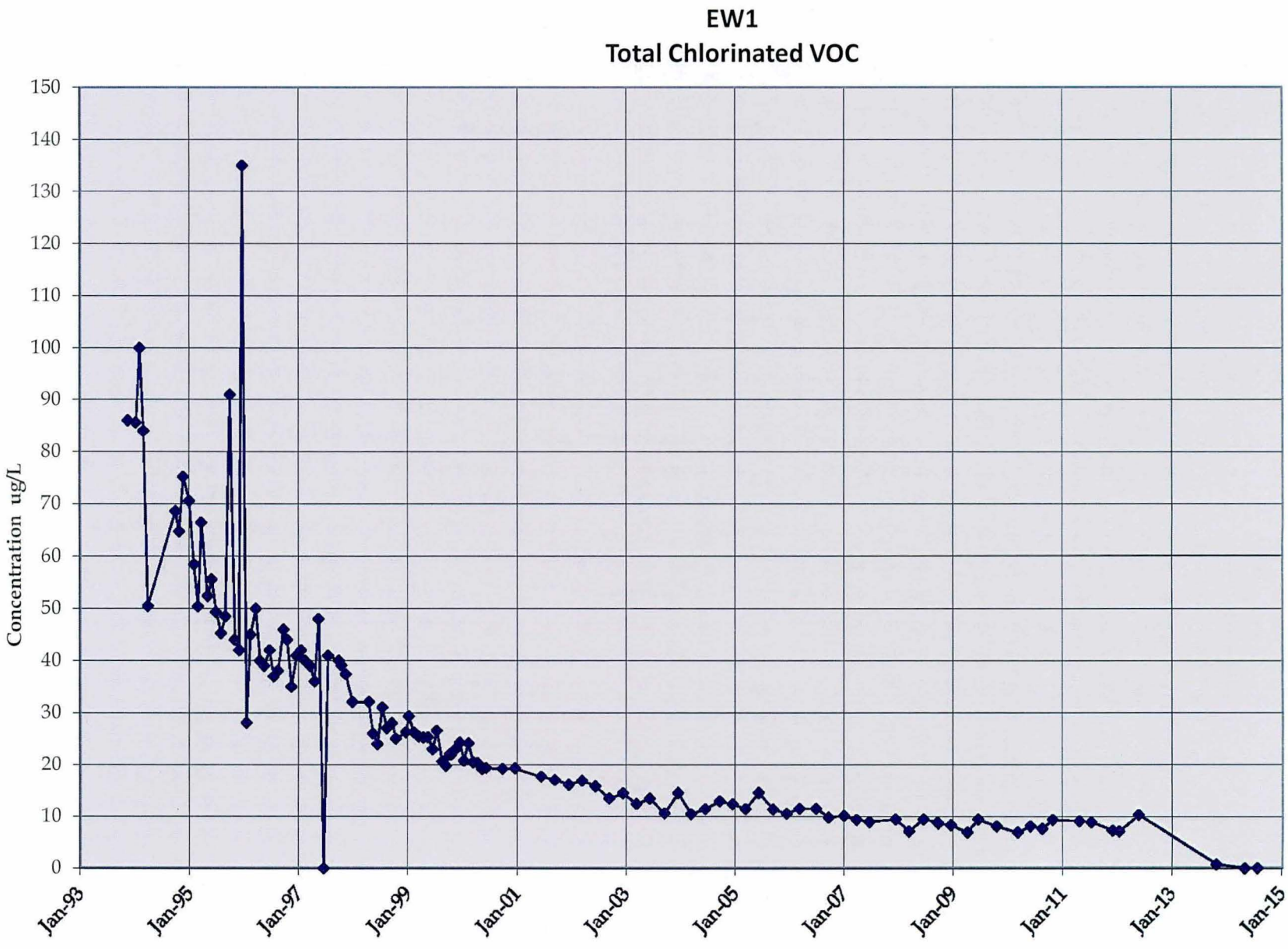
16. SAMPLE PRESERVATION

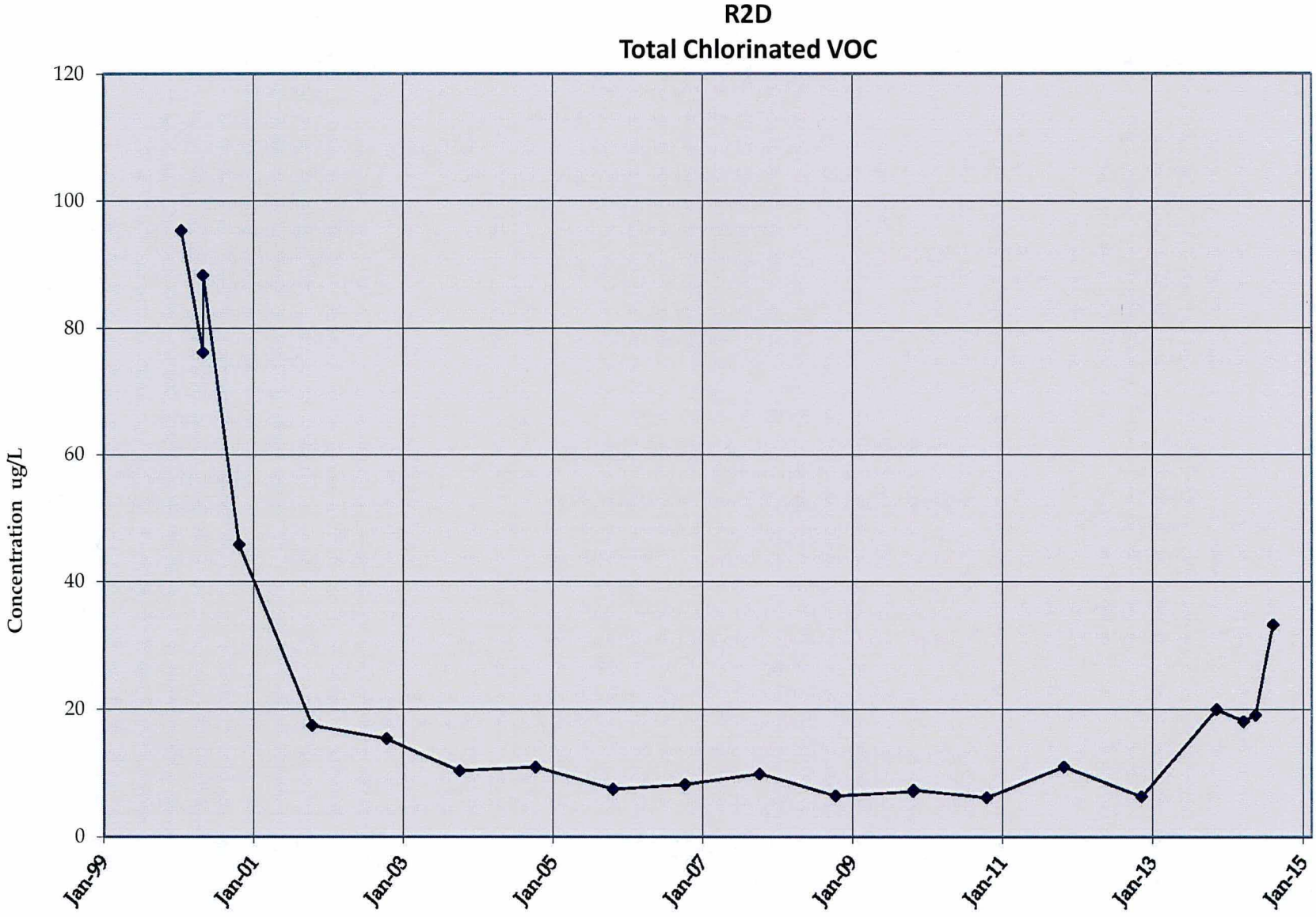
Sample(s) _____ were further preserved in the laboratory.

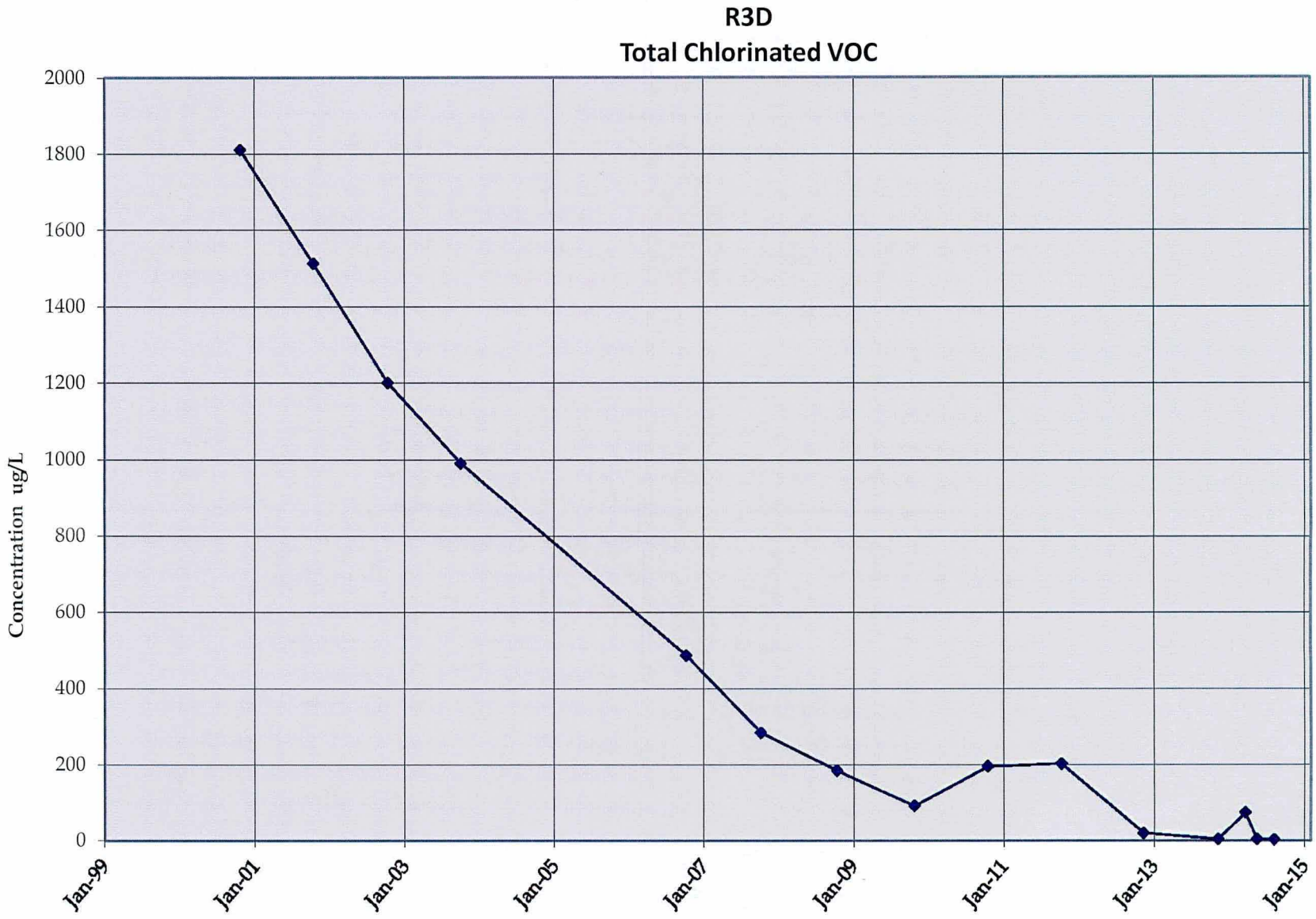
Time preserved: _____ Preservative(s) added/Lot number(s): _____

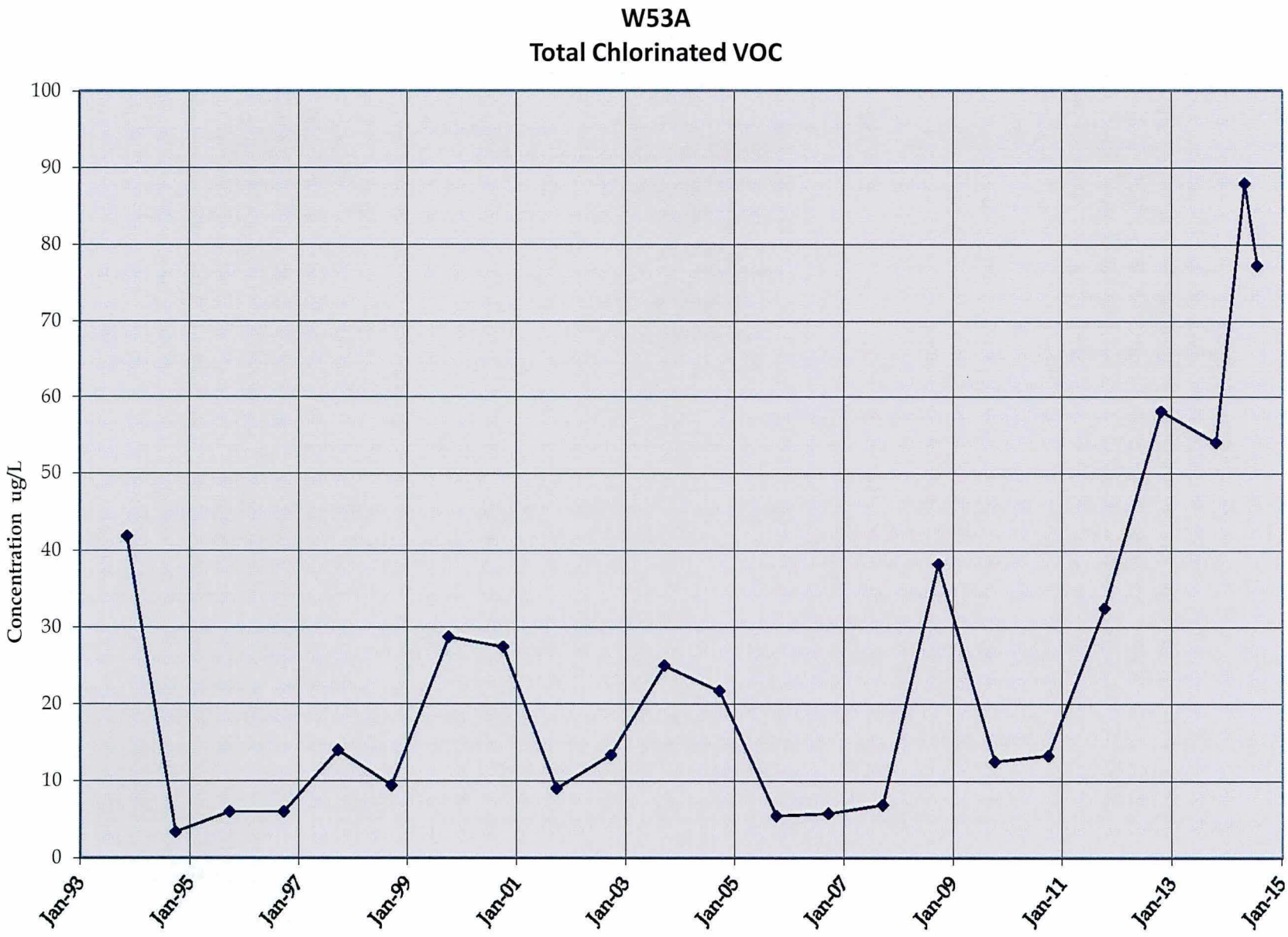
Attachment 2

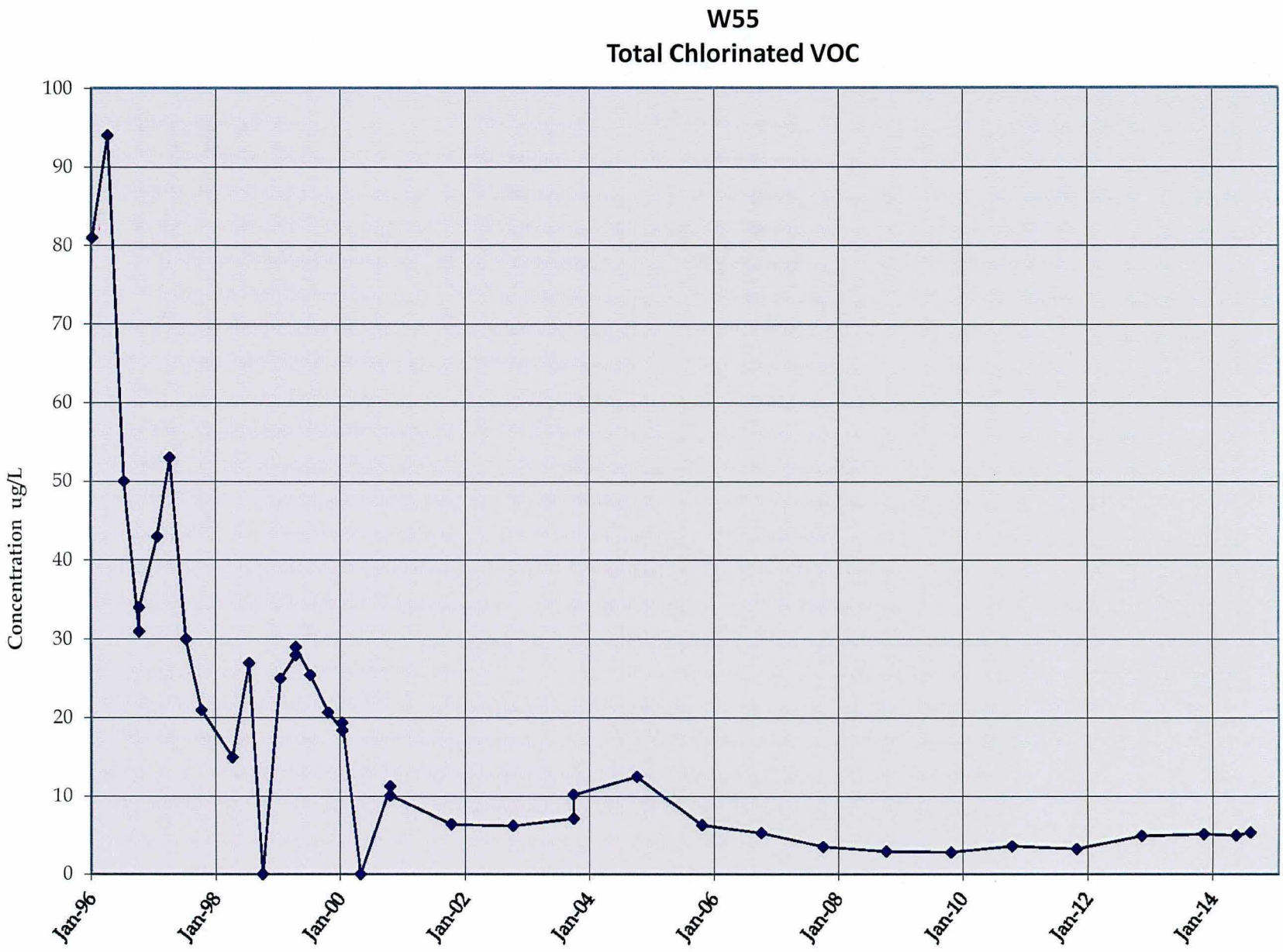
Charts

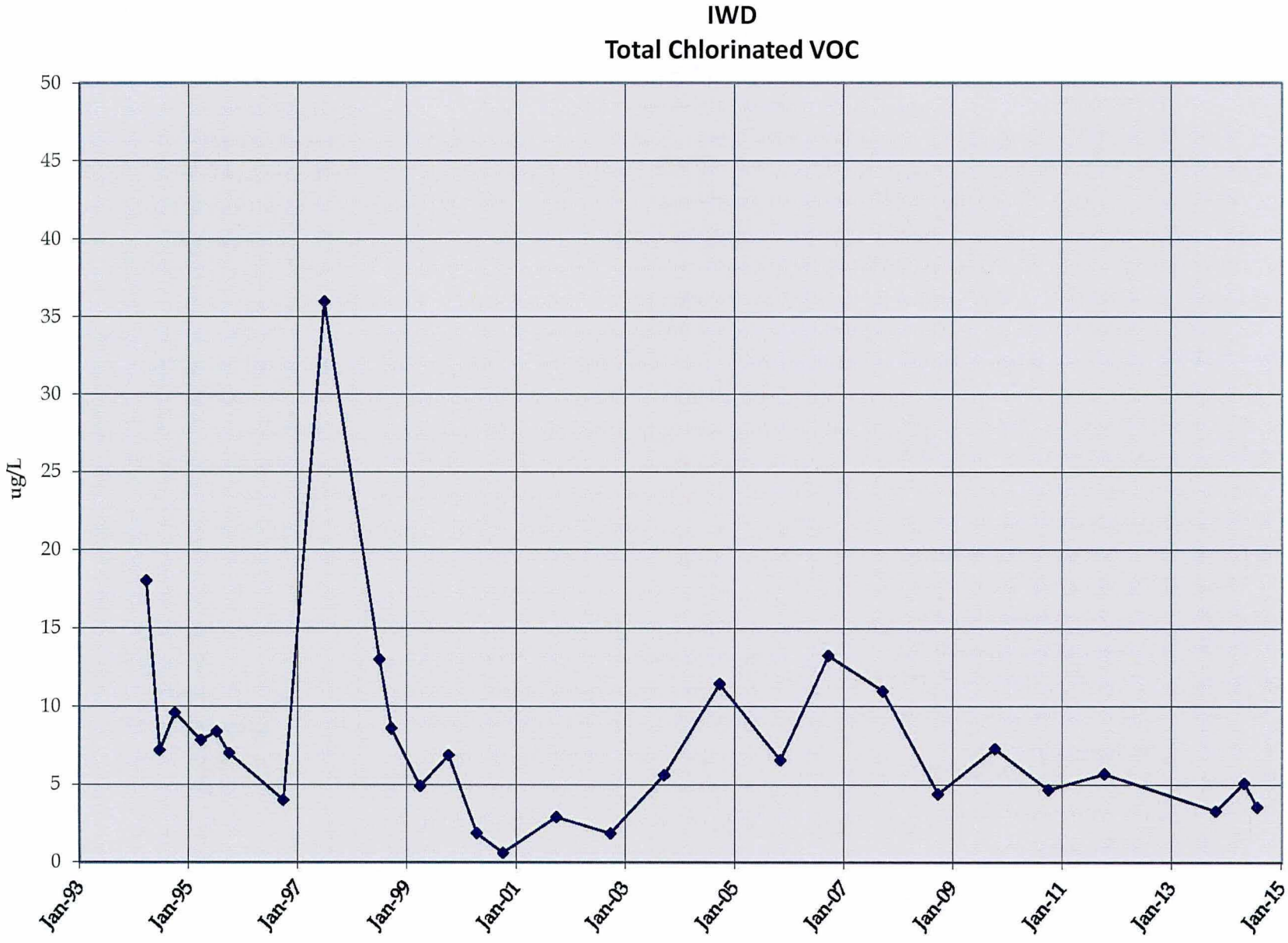

EW1
Total Chlorinated VOC
Concentration ug/L
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15

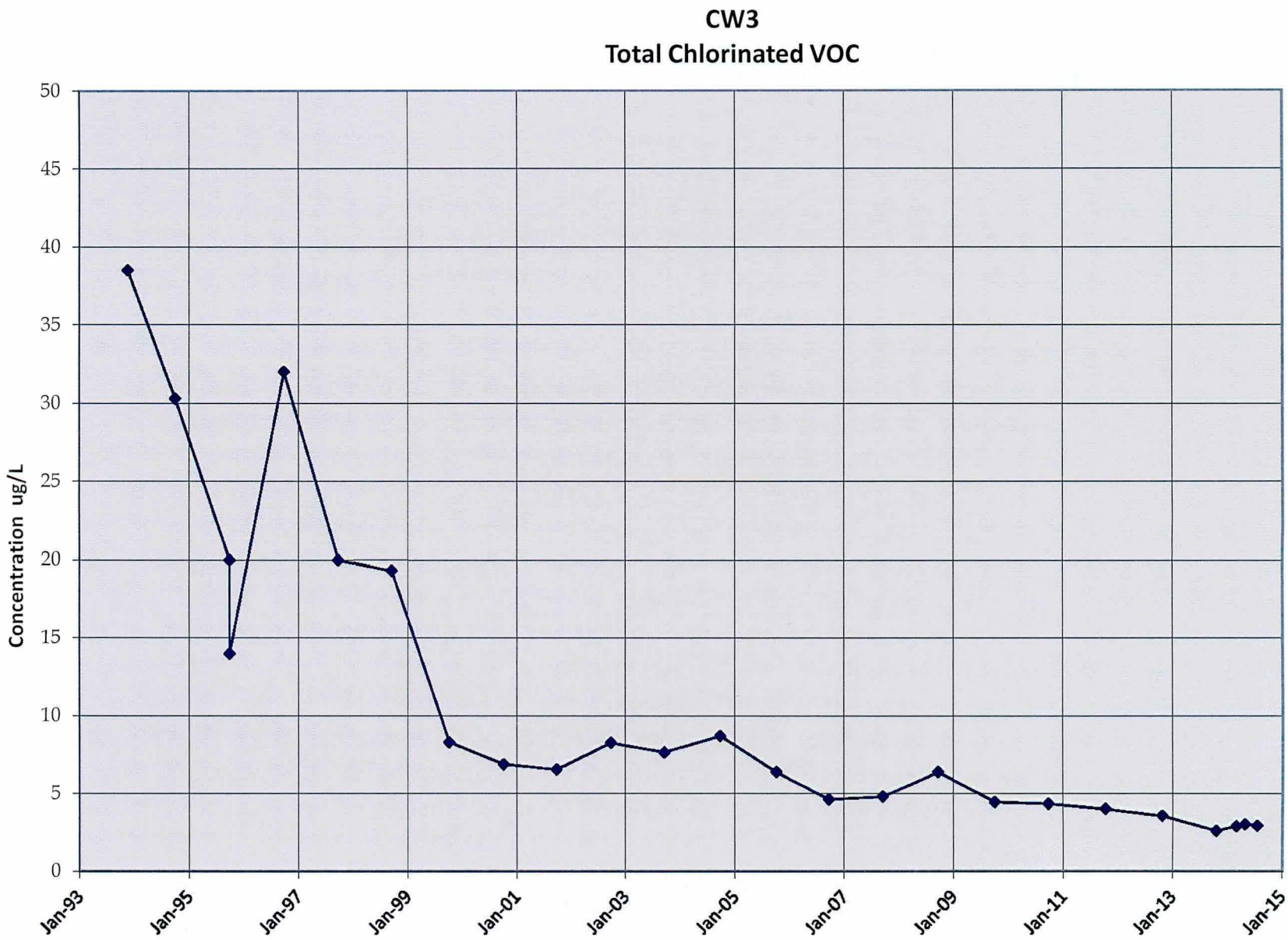

R2D
Total Chlorinated VOC
Concentration ug/L
120
100
80
60
40
20
0
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15

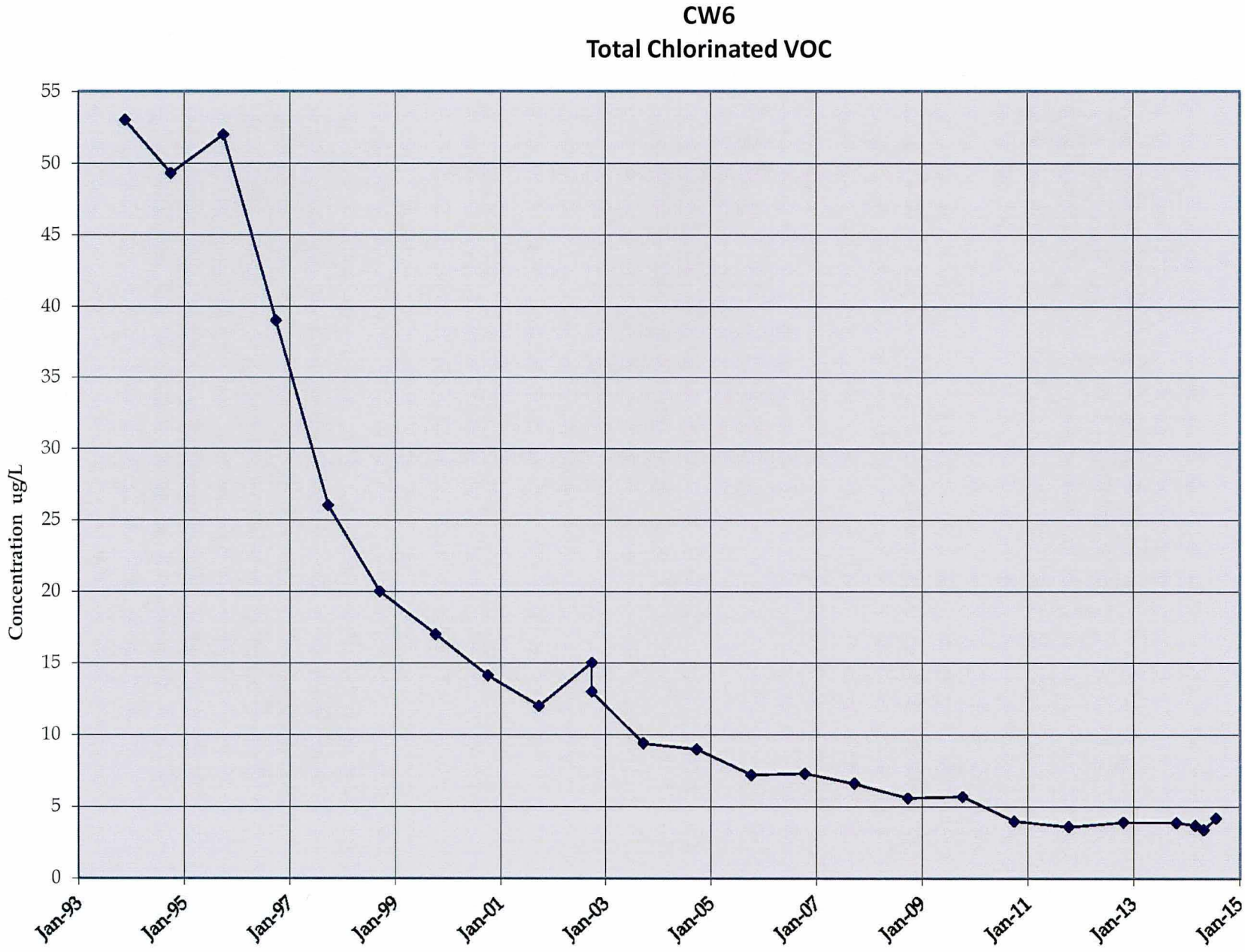

R3D
Total Chlorinated VOC
Concentration ug/L
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15


W53A
Total Chlorinated VOC
Concentration ug/L
100
90
80
70
60
50
40
30
20
10
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15


W55
Total Chlorinated VOC
Concentration ug/L
100
90
80
70
60
50
40
30
20
10
0
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14


IWD
Total Chlorinated VOC
ug/L
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15


CW3
Total Chlorinated VOC
Concentration ug/L
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15


CW6
Total Chlorinated VOC
Concentration ug/L
55
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15

Attachment 3

Sample Results

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis - DNR Form

Customer: Wausau Waterworks **NLS Project: 227065**

Project Description: 2014 Drinking Water

Project Title: PWS#73701023 **Template: AGIDNRL** **Printed: 10/08/2014 09:41**

Sample: 817478 200 - VOC Collected: 09/11/14 Analyzed: 09/22/14 - Analytes: 41

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Benzene	ND	ug/L	1	0.22	0.72	5	
Bromobenzene	ND	ug/L	1	0.17	0.57		
Bromodichloromethane	[0.21]	ug/L	1	0.15	0.49	80	
Bromoform	ND	ug/L	1	0.16	0.53	80	
Bromomethane	ND	ug/L	1	0.26	0.85		
Carbon Tetrachloride	ND	ug/L	1	0.20	0.66	5	
Chloroethane	ND	ug/L	1	0.94	3.1		
Chloroform	6.9	ug/L	1	0.19	0.62	80	
Chloromethane	ND	ug/L	1	0.16	0.53		
o-Chlorotoluene	ND	ug/L	1	0.18	0.59		
p-Chlorotoluene	ND	ug/L	1	0.19	0.63		
Dibromochloromethane	ND	ug/L	1	0.15	0.49	80	
Dibromomethane	ND	ug/L	1	0.22	0.74		
1,3-Dichlorobenzene (m)	ND	ug/L	1	0.21	0.69		
1,2-Dichlorobenzene (o)	ND	ug/L	1	0.17	0.57	600	
1,4-Dichlorobenzene (p)	ND	ug/L	1	0.17	0.56	75	
1,1-Dichloroethane	ND	ug/L	1	0.20	0.65		
1,2-Dichloroethane	ND	ug/L	1	0.16	0.54	5	
1,1-Dichloroethene	ND	ug/L	1	0.21	0.68	7	
cis-1,2-Dichloroethene	ND	ug/L	1	0.19	0.65	70	
trans-1,2-Dichloroethene	ND	ug/L	1	0.14	0.45	100	
Dichloromethane	ND	ug/L	1	0.19	0.63	5	
1,2-Dichloropropane	ND	ug/L	1	0.24	0.78	5	
1,3-Dichloropropane	ND	ug/L	1	0.19	0.63		
2,2-Dichloropropane	ND	ug/L	1	0.14	0.46		
1,1-Dichloropropene	ND	ug/L	1	0.10	0.32		
1,3-Dichloropropene	ND	ug/L	1	0.36	1.2		
Ethylbenzene	ND	ug/L	1	0.19	0.64	700	
Chlorobenzene	ND	ug/L	1	0.19	0.63	100	
Styrene	ND	ug/L	1	0.17	0.56	100	
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.18	0.59		
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.15	0.49		
Tetrachloroethene	ND	ug/L	1	0.18	0.61	5	
Toluene	ND	ug/L	1	0.18	0.59	1000	
1,2,4-Trichlorobenzene	ND	ug/L	1	0.19	0.62	70	
1,1,1-Trichloroethane	ND	ug/L	1	0.15	0.51	200	
1,1,2-Trichloroethane	ND	ug/L	1	0.20	0.65	5	
Trichloroethene	ND	ug/L	1	0.11	0.36	5	
1,2,3-Trichloropropane	ND	ug/L	1	0.19	0.62		
Vinyl chloride	ND	ug/L	1	0.18	0.61	.2	
Xylene total	ND	ug/L	1	0.53	1.8	10000	
4-Bromofluorobenzene (SURR)	96%						S
1,2-Dichlorobenzene-d4 (SURR)	103%						S

NOTES APPLICABLE TO THIS ANALYSIS:

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

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis - DNR Form

Customer: Wausau Waterworks **NLS Project: 227065**

Project Description: 2014 Drinking Water

Project Title: PWS#73701023 **Template: AGIDNRL** **Printed: 10/08/2014 09:41**

Sample: 817483 300 - VOC Collected: 09/11/14 Analyzed: 09/22/14 - Analytes: 41

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Benzene	ND	ug/L	1	0.22	0.72	5	
Bromobenzene	ND	ug/L	1	0.17	0.57		
Bromodichloromethane	[0.19]	ug/L	1	0.15	0.49	80	
Bromoform	ND	ug/L	1	0.16	0.53	80	
Bromomethane	ND	ug/L	1	0.26	0.85		
Carbon Tetrachloride	ND	ug/L	1	0.20	0.66	5	
Chloroethane	ND	ug/L	1	0.94	3.1		
Chloroform	6.2	ug/L	1	0.19	0.62	80	
Chloromethane	ND	ug/L	1	0.16	0.53		
o-Chlorotoluene	ND	ug/L	1	0.18	0.59		
p-Chlorotoluene	ND	ug/L	1	0.19	0.63		
Dibromochloromethane	ND	ug/L	1	0.15	0.49	80	
Dibromomethane	ND	ug/L	1	0.22	0.74		
1,3-Dichlorobenzene (m)	ND	ug/L	1	0.21	0.69		
1,2-Dichlorobenzene (o)	ND	ug/L	1	0.17	0.57	600	
1,4-Dichlorobenzene (p)	ND	ug/L	1	0.17	0.56	75	
1,1-Dichloroethane	ND	ug/L	1	0.20	0.65		
1,2-Dichloroethane	ND	ug/L	1	0.16	0.54	5	
1,1-Dichloroethene	ND	ug/L	1	0.21	0.68	7	
cis-1,2-Dichloroethene	ND	ug/L	1	0.19	0.65	70	
trans-1,2-Dichloroethene	ND	ug/L	1	0.14	0.45	100	
Dichloromethane	ND	ug/L	1	0.19	0.63	5	
1,2-Dichloropropane	ND	ug/L	1	0.24	0.78	5	
1,3-Dichloropropane	ND	ug/L	1	0.19	0.63		
2,2-Dichloropropane	ND	ug/L	1	0.14	0.46		
1,1-Dichloropropene	ND	ug/L	1	0.10	0.32		
1,3-Dichloropropene	ND	ug/L	1	0.36	1.2		
Ethylbenzene	ND	ug/L	1	0.19	0.64	700	
Chlorobenzene	ND	ug/L	1	0.19	0.63	100	
Styrene	ND	ug/L	1	0.17	0.56	100	
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.18	0.59		
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.15	0.49		
Tetrachloroethene	ND	ug/L	1	0.18	0.61	5	
Toluene	ND	ug/L	1	0.18	0.59	1000	
1,2,4-Trichlorobenzene	ND	ug/L	1	0.19	0.62	70	
1,1,1-Trichloroethane	ND	ug/L	1	0.15	0.51	200	
1,1,2-Trichloroethane	ND	ug/L	1	0.20	0.65	5	
Trichloroethene	ND	ug/L	1	0.11	0.36	5	
1,2,3-Trichloropropane	ND	ug/L	1	0.19	0.62		
Vinyl chloride	ND	ug/L	1	0.18	0.61	2	
Xylene total	ND	ug/L	1	0.53	1.8	10000	
4-Bromofluorobenzene (SURR)	91%						S
1,2-Dichlorobenzene-d4 (SURR)	108%						S

NOTES APPLICABLE TO THIS ANALYSIS:

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

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis - DNR Form
Customer: Wausau Waterworks NLS Project: 227065
Project Description: 2014 Drinking Water
Project Title: PWS#73701023 Template: AGIDNRL Printed: 10/08/2014 09:41

Sample: 817484 Trip Blank Collected: 09/11/14 Analyzed: 09/22/14 - Analytes: 41

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
Benzene	ND	ug/L	1	0.22	0.72	
Bromobenzene	ND	ug/L	1	0.17	0.57	
Bromodichloromethane	ND	ug/L	1	0.15	0.49	
Bromoform	ND	ug/L	1	0.16	0.53	
Bromomethane	ND	ug/L	1	0.26	0.85	
Carbon Tetrachloride	ND	ug/L	1	0.20	0.66	
Chloroethane	ND	ug/L	1	0.94	3.1	
Chloroform	ND	ug/L	1	0.19	0.62	
Chloromethane	ND	ug/L	1	0.16	0.53	
o-Chlorotoluene	ND	ug/L	1	0.18	0.59	
p-Chlorotoluene	ND	ug/L	1	0.19	0.63	
Dibromochloromethane	ND	ug/L	1	0.15	0.49	
Dibromomethane	ND	ug/L	1	0.22	0.74	
1,3-Dichlorobenzene (m)	ND	ug/L	1	0.21	0.69	
1,2-Dichlorobenzene (o)	ND	ug/L	1	0.17	0.57	
1,4-Dichlorobenzene (p)	ND	ug/L	1	0.17	0.56	
1,1-Dichloroethane	ND	ug/L	1	0.20	0.65	
1,2-Dichloroethane	ND	ug/L	1	0.16	0.54	
1,1-Dichloroethene	ND	ug/L	1	0.21	0.68	
cis-1,2-Dichloroethene	ND	ug/L	1	0.19	0.65	
trans-1,2-Dichloroethene	ND	ug/L	1	0.14	0.45	
Dichloromethane	ND	ug/L	1	0.19	0.63	
1,2-Dichloropropane	ND	ug/L	1	0.24	0.78	
1,3-Dichloropropane	ND	ug/L	1	0.19	0.63	
2,2-Dichloropropane	ND	ug/L	1	0.14	0.46	
1,1-Dichloropropene	ND	ug/L	1	0.10	0.32	
1,3-Dichloropropene	ND	ug/L	1	0.36	1.2	
Ethylbenzene	ND	ug/L	1	0.19	0.64	
Chlorobenzene	ND	ug/L	1	0.19	0.63	
Styrene	ND	ug/L	1	0.17	0.56	
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.18	0.59	
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.15	0.49	
Tetrachloroethene	ND	ug/L	1	0.18	0.61	
Toluene	ND	ug/L	1	0.18	0.59	
1,2,4-Trichlorobenzene	ND	ug/L	1	0.19	0.62	
1,1,1-Trichloroethane	ND	ug/L	1	0.15	0.51	
1,1,2-Trichloroethane	ND	ug/L	1	0.20	0.65	
Trichloroethene	ND	ug/L	1	0.11	0.36	
1,2,3-Trichloropropane	ND	ug/L	1	0.19	0.62	
Vinyl chloride	ND	ug/L	1	0.18	0.61	
Xylene total	ND	ug/L	1	0.53	1.8	
4-Bromofluorobenzene (SURR)	89%					S
1,2-Dichlorobenzene-d4 (SURR)	103%					S

NOTES APPLICABLE TO THIS ANALYSIS:
S = This compound is a surrogate used to evaluate the quality control of a method.