

2016 ANNUAL GROUNDWATER MONITORING REPORT

FOR

**CAMP RIPLEY CLOSED
MIXED MUNICIPAL LANDFILL
Little Falls, Minnesota**

Prepared for:

**Mr. Mark Erickson
Minnesota Department of Military Affairs
Minnesota Army National Guard Facilities Management Office
Little Falls, MN 56345**

January 23, 2017

WSN No. 0283B0009.016

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January 23, 2017

Mr. Neal Wilson, P.G.
MPCA
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Camp Ripley Closed Mixed Municipal Landfill
2016 Annual Groundwater Monitoring Report
WSN No. 0283B0009.016

Dear Mr. Wilson:

This report has been prepared in accordance with Minnesota Rule 7035.2585, item H and Minnesota Rule part 7035.2815, subpart 14, item Q. Item Q requires to report to identify recent and long term trends in water elevations and concentrations of monitored constituents. The report should also evaluate the effect the Camp Ripley Closed Mixed Municipal Landfill (landfill) is having on groundwater and surface water quality, and any recommendations for changes to the system. This report summarizes the sampling events and results for 2016.

The closed landfill occupies approximately 11 acres and is located within the Camp Ripley Training Center (CRTC). More specifically, the landfill is located in the Northeast $\frac{1}{4}$ of the Northwest $\frac{1}{4}$ of Section 5, Township 130 North, Range 29 West, Green Prairie Township, Morrison County, Minnesota. The location of the closed landfill is shown on the attached Figure 1.

The Minnesota Pollution Control Agency (MPCA) issued a Letter of Closure to the CRTC Closed Mixed Municipal Landfill on January 29, 1988. Since closure, the landfill's groundwater monitoring network has been sampled and monitored as required. In 2009, the MPCA requested the installation of two new monitoring wells, one along the east border of the landfill and the other on the southeast border. Consequently, monitoring wells MMLF-7 and MMLF-8 were installed during the fall of 2009.

The site is located within the central glacial drift region of Minnesota. The topography of the surrounding area consists of rolling hills and lowlands generally ranging in elevation from 1,140 ft above mean sea level (MSL) to 1,275 ft MSL. Original ground elevation across the landfill varies from approximately 1,160 ft MSL to 1,155 ft MSL from west to east.

In December 2006, J.J. Quinn of the Environmental Science Division of the Argonne National Laboratory published a paper titled Delineation of a Wellhead Protection Zone and Determination of Flow Paths from Potential Groundwater Contaminant Source Areas at the CRTC, Little Falls, Minnesota. The following glacial geological summary for the region is an excerpt from this paper:

“The geology and topography of the CRTC property and its vicinity are the result of a complex glacial depositional history involving three ice lobes that deposited drifts of various characters and colors. These lobes were thought to have been concurrently active in central Minnesota; however, a detailed geologic characterization of the site by UMD (2002) suggests new, previously unrecognized possibilities for the juxtapositioning of the ice lobes and for the nature of



the St. Croix moraine at CRTC. The lobes appear to have been present in the vicinity of the CRTC concurrently, depositing well-sorted sands into an ice-bounded lacustrine basin. Occasional ice advances deposited discontinuous till units in the basin at various elevations.”

On site geological information has been collected during the installation of the various landfill monitoring wells. Well installation field logs indicate the soil profile consists primarily of fine sand. Previous reports documents depth of bedrock varies from 20 feet below ground surface (BGS) to over 100 feet BGS in the area of the closed landfill. Monitoring wells on the west side of the landfill were installed up to 53 feet BGS and did not encounter bedrock; however, monitoring well installations on the east side of the landfill encountered bedrock as shallow as 28 feet BGS.

The site is located within the Mississippi River watershed. Area waterways include the Mississippi River located approximately 2,000 feet east of the landfill, the Crow Wing River located approximately 13 miles north of the landfill, and the Little Elk River located approximately four miles southwest of the landfill. Green Prairie Fish Lake lies approximately three miles southwest of the landfill.

The groundwater table beneath the landfill is approximately 30 feet BGS. A regional groundwater model reported by Quinn (2006) describes the regional groundwater flow direction as southeast. Historically, groundwater elevation measurements from the landfill monitoring wells and the related flow maps document the local groundwater flow direction is also to the southeast.

Included in this report are the analytical results of the 2016 fall quarter sampling events for the closed landfill’s groundwater-monitoring network. The groundwater monitoring network consists of monitoring wells MW-3(MMLF-3), MW-7(MMLF-7), and MW-8(MMLF-8). Their respective locations are displayed on the groundwater contour map included as Figure 2. The fall sampling event was conducted on October 31, 2016, by Widseth Smith Nolting’s (WSN) environmental technician, Mike Bogart.

In 2016, the analytical schedule required samples from the three wells be analyzed for the Minnesota Department of Health method 468 volatile organic compounds (VOCs), a group of dissolved metals, and a list of general chemistry parameters. A complete list of the VOCs and the inorganics (metals and general chemistry parameters) is included in Table 1. The analytical results for the 2016 fall sampling event are summarized in Table 2 through Table 7. The tables include analytical data back to the October 2009 sampling event. As shown, the tables include results to the laboratory’s reporting limits (RLs) and to their method detection limits (MDLs). In addition, copies of the 2016 analytical reports with test results to the RLs and to the MDLs are included in Appendix A.

The inorganic results for the up gradient sample from monitoring well MW-3, are summarized in Table 2. The table shows the concentrations detected in 2016 are mostly similar to what was identified the last time a sample from MW-3 was required to be analyzed for inorganics, which was in 2014. The results indicate the only analyte exceeding an intervention limit (IL) is manganese. The dissolved metal was detected at a concentration of 62.9 micrograms per liter (ug/L), which is equivalent to parts per billion. This is a slight decrease comparing the results from 2010 to the present. The IL for manganese has been set by the MPCA at 25 ug/L. No other metals exceeded their respective IL. It should be noted, as indicated in the tables, not all of the metals tested for have an IL.

The inorganic results for samples collected from the two down gradient monitoring wells, MW-7 and MW-8, are listed in Table 3 and Table 4, respectively. Comparing the 2016 results to previous results, some of the analytes are higher and the concentrations for others are lower. There is not an identifiable trend for any one analyte except for manganese. Manganese is the only dissolved metal that has exceeded



the established IL in the samples from MW-7. In 2016, manganese was detected in MW-7 at a concentration of 593 ug/L; however, the dissolved metal has steadily been decreasing since its historical high of 3,400 ug/L identified in the sample collected on October 26, 2009. Manganese was not detected above the IL in MW-8.

Similar to the results for 2015, the data in Tables 5 and 7 indicate VOCs were not identified in the 2016 samples from MW-3 or MW-8 at or above the laboratory's RLs. Table 6 shows two VOCs were found in the groundwater sample from MW-7 above the laboratory's RLs. Cis-1,2-dichloroethene and ethyl ether were quantified in the sample at concentrations of 3.8 ug/L and 6.9 ug/L, respectively. Both compounds have been quantified in previous samples analyzed from MW-7; however, neither VOC exceeded their individual IL.

The well stabilization parameters were measured and recorded prior to sample collection. A HydroLab Data Sonde 4A water quality multi-probe and a flow through cell were used to measure the stabilization parameters. The well stabilization forms are attached as Appendix B.

The three monitoring wells depths to water measurements were recorded prior to sample collection. The fall groundwater elevations are listed in Table 8 and the associated groundwater flow map is attached as Figure 2. As illustrated on the flow map, MW-7 and MW-8 are downgradient of the closed landfill and MW-3 is in the up gradient position. The 2016 elevations in Table 8, when compared to the fall of 2015, indicate a water table elevation increase of approximately 1.5 feet in MW-3, an increase of about 1 foot in MW-7, and an increase of almost 1.3 feet in MW-8. As shown on the flow map, the groundwater flow direction continues to be consistent with the historical flow direction, which is to the southeast.

Only one compound was identified in the 2016 groundwater samples above its respective IL. Manganese was again identified in the samples from MW-3 and MW-7 above the IL of 25 ug/L. The dissolved metal has exceeded the IL in the samples from MW-3 since 2010 and in the samples from MW-7 as far back as 2009.

The CRTIC is in the process of completing the Checklist for Post Closure Care Summary Report Requirements for a Solid Waste Landfill. Included in the checklist is discussion of any past or current exceedances of groundwater performance standards. It should be noted, manganese continues to exceed its respective health risk limit (HRL) in the samples from monitoring wells MW-3 and MW-7; however, the detected concentrations continue to decrease over time. Furthermore, cis-1,2-dichloroethene and ethyl ether were quantified in the 2016 sample from MW-7 at concentrations of 3.8 ug/L and 6.9 ug/L, respectively. Both compounds have been quantified in previous samples analyzed from MW-7; however, neither VOC have ever exceeded their IL.

As shown on Figure 2, the groundwater flow direction beneath the landfill is to the southeast. The closest surface water downgradient of the landfill is the Mississippi River, which is located more than one mile from the landfill. The land between the landfill and the Mississippi River is military reservation controlled by the CRTIC. Any groundwater development within miles of the landfill will strictly be for the use of the CRTIC. In addition, the drinking water wells for the CRTIC are almost two miles south of the landfill.

Considering the analytical results for 2016 and the monitoring well samples historical results, we do not believe it is necessary to make any changes to the landfill's current monitoring system. Also, considering the location of the landfill, we believe it is reasonable to request suspension of future sampling events of the landfill's monitoring system.

2016 Annual Groundwater Monitoring Report
Camp Ripley Closed Mixed Municipal Landfill
January 23, 2017



Please let me know if there is any additional information that you might need. My direct telephone number is 218.316.3623 or you can send an email to Greg.Smith@wsn.us.com.

Sincerely,

WIDSETH SMITH NOLTING

A handwritten signature in blue ink that reads "Gregory W. Smith".

Gregory W. Smith, P.G.

Cc: Mr. Mark Erickson, Facilities Management Office, Minnesota Army National Guard

FIGURES

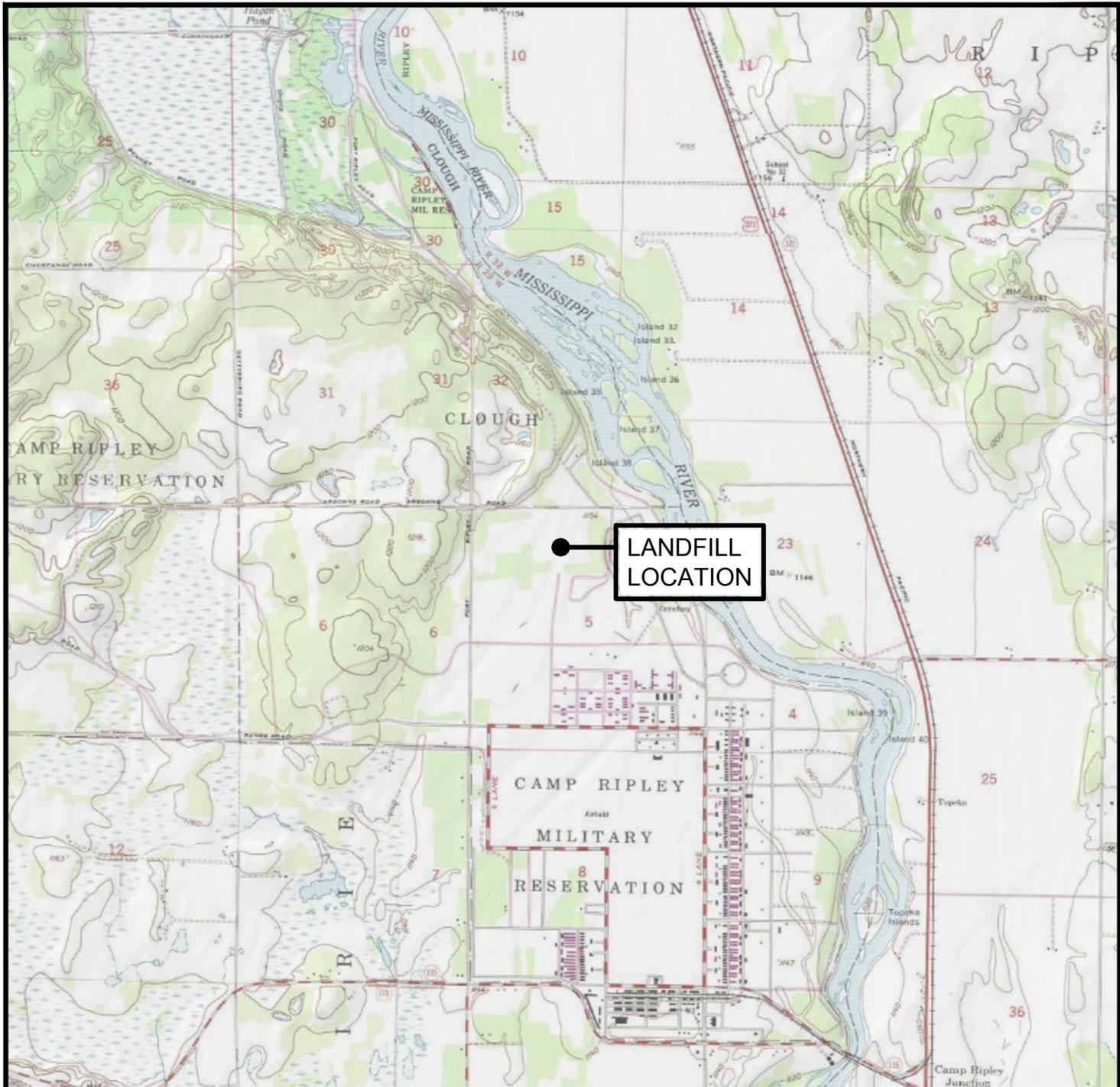
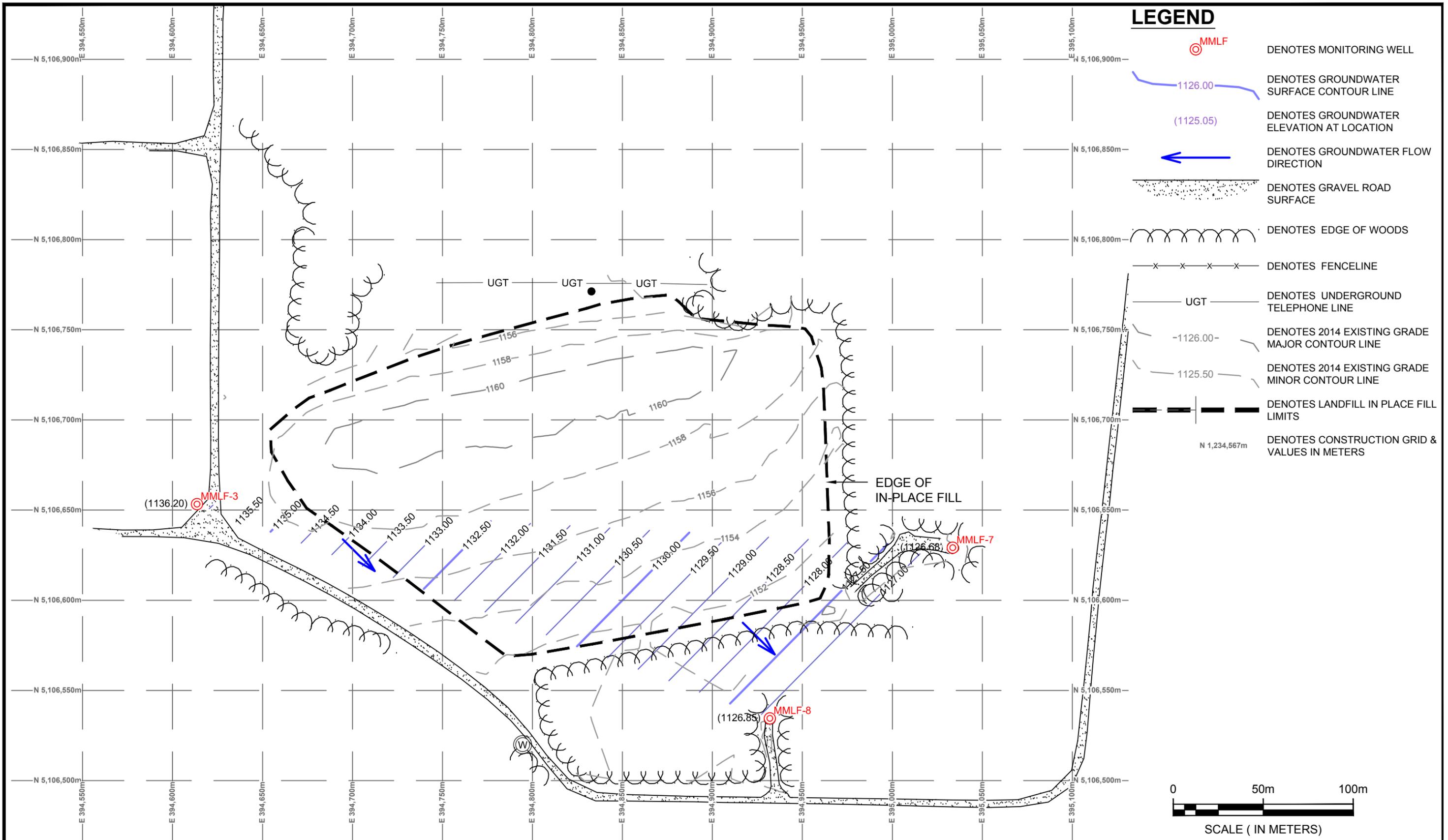


IMAGE: UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY

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<p>AREA LOCATION</p>	 <p>0 1000m 2000m</p> <p>SCALE (IN METERS)</p>								
 <p>Engineering Architecture Surveying Environmental</p>	<p>U.S.G.S. QUADRANGLE MAPS: BELLE PRAIRIE, BELL PRAIRIE NW, FORT RIPLEY, RANDALL EAST PUBLISHED: 1956, 1956, 1956, 1956 PHOTOREVISED: 1979, 1979, NA, 1979</p> <p>CLOSED MMSW LANDFILL - 2016 G.W. MONITORING MN DEPARTMENT OF MILITARY AFFAIRS LITTLE FALLS, MN</p> <p>SITE LOCATION MAP</p> <table border="1" data-bbox="1299 1869 1526 2037"> <tr> <td colspan="2">DATE:</td> </tr> <tr> <td colspan="2">JANUARY 2017</td> </tr> <tr> <td>JOB No.</td> <td>FIGURE</td> </tr> <tr> <td>0283B0009.016</td> <td>01</td> </tr> </table>	DATE:		JANUARY 2017		JOB No.	FIGURE	0283B0009.016	01
DATE:									
JANUARY 2017									
JOB No.	FIGURE								
0283B0009.016	01								



REFERENCE NOTE:

HORIZONTAL COORDINATES ARE SHOWN IN GRID METERS BASED ON UTM COORDINATES, ZONE 15 NORTH, NAD83 DATUM. VERTICAL CONTOURS AND ELEVATIONS ARE SHOWN IN FEET BASED ON NAVD.

BASE CONTROL POINT COORDINATES AND ELEVATIONS PROVIDED BY MN DEPT. OF MILITARY AFFAIRS.

WIDSETH SMITH NOLTING
 Engineering
 Architecture
 Surveying
 Environmental

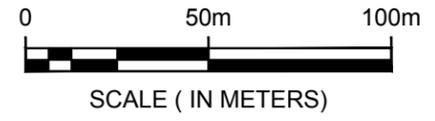


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CLOSED MMSW LANDFILL - 2016 G.W. MONITORING
 MN DEPARTMENT OF MILITARY AFFAIRS
 LITTLE FALLS, MN

DATE: JANUARY 2017
 JOB No. 0283B0009.016
 FIGURE 02

GROUNDWATER ELEVATIONS ON 10-31-16



TABLES

Table 1

Parameters for Analysis

Inorganics
Alkalinity , total as calcium carbonate
Ammonia Nitrogen
Arsenic , dissolved
Barium , dissolved
Boron , dissolved
Cadmium , dissolved
Chloride
Chromium , total dissolved
Copper , dissolved
Iron , dissolved
Lead , dissolved
Manganese , dissolved
Mercury , dissolved
Nitrate+Nitrite as Nitrogen
Sodium , dissolved
Sulfate
Suspended Solids , total
Appearance (field and lab)
Dissolved Oxygen (field)
pH (field and lab)
Specific Conductance (field and lab)
Temperature (field and lab)
Turbidity (field)
Static Water Elevation

468 List

1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2-Trichlorotrifluoroethane
1,1-Dichloroethane
1,1-Dichloroethylene (Vinylidene chloride)
1,2-Dichloropropane
trans-1,2-Dichloroethylene
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,2-Bromomethane; (Ethylene dibromide); EDB
1,2-Dichlorobenzene (ortho)
1,2-Dichloroethane
1,2-Dichloroethylene (cis)
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichlorobenzene (meta-)
1,3-Dichloropropane
1,3-Dichloropropane (cis + trans)
1,4-Dichlorobenzene (para)
2,2-Dichloropropane
2-Chlorotoluene (ortho-)
4-Chlorotoluene (para-)
Acetone
Allyl chloride; (3-Chloropropene)
Benzene
Bromobenzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dichlorobromomethane)
Bromoform
Bromomethane (Methyl chloride)
Carbon tetrachloride
Chlorobenzene (monochlorobenzene)
Chlorodibromomethane; (Dibromochloromethane)
Chloroethane
Chloroform
Chloromethane; (Methyl chloride)
Cumene; (Isopropylbenzene)
Dibromochloropropane; (DBCP)
Dibromomethane; Methylene bromide)

Dichlorodifluoromethane
Dichlorofluoromethane
Dichloromethane (methylene chloride)
Ethyl benzene
Ethyl ether
Hexachlorobutadiene
Methyl ethyl ketone (MEK)
Methyl isobutyl ketone; (4-Methyl-2-pentanone)
Methyl tertiary-butyl ether (MTBE)
Naphthalene
n-Butyl benzene
n-Propyl benzene
p-Isopropyltoluene
sec-Butyl benzene
Styrene
tert-Butyl benzene
Tetrachloroethylene; (Perchloroethylene)
Tetrahydrofuran
Toluene
Trichloroethylene; (TCE)
Trichlorofluoromethane
Vinyl Chloride
Xylenes (mixture of o, m, p)

Table 2

**Summary of Inorganic Groundwater Quality - MMLF-3
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-3* 10/26/2009	MMLF-3* 11/11/2009	MMLF-3* 12/10/2009	MMLF-3* 11/8/2010	MMLF-3* 11/1/2012	MMLF-3 10/25/2013	MMLF-3 11/12/2014	MMLF-3 11/5/2015	MMLF-3 10/31/2016	MMLF-3** 10/31/2016
Alkalinity	mg/L	NL	NA	NA	NA	120	128	NA	330	NA	104	104
Ammonia Nitrogen	mg/L	NL	NA	NA	NA	<0.01	<0.1	NA	<0.10	NA	<0.10	<0.044
Arsenic (dissolved)	ug/L	2.5	NA	NA	NA	<1.6	<2.5	NA	<2.0	NA	1.8	1.8
Barium (dissolved)	mg/L	0.5	NA	NA	NA	0.027	0.0343	NA	0.0303	NA	0.0236	0.0236
Boron (dissolved)	ug/L	250	NA	0.23	0.39	0.17	0.26	NA	<100	NA	<100	22.8J
Cadmium (dissolved)	ug/L	1.0	NA	NA	NA	18	<1	NA	<0.80	NA	<0.40	<0.14
Calcium (dissolved)	mg/L	NL	NA	NA	NA	39	46.1	NA	NA	NA	NA	NA
Cation/Anion Balance	%	NL	NA	NA	NA	NA	1.6	NA	NA	NA	NA	NA
Chloride	mg/L	NL	NA	NA	NA	2	19.8	NA	2.1	NA	<1.0	0.72J
Chromium	ug/L	25.0	NA	NA	NA	<5	<5	NA	<5.0	NA	<10.0	<1.3
Chromium, Trivalent	ug/L	NL	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA
Chromium, Hexavalent	ug/L	NL	NA	NA	NA	<4	<10	NA	NA	NA	NA	NA
Conductance (Field)	umhos/cm	NL	NA	NA	NA	239	266.5	260	224	263	208	208
Conductance (Lab)	umhos/cm	NL	NA	NA	NA	260	360	NA	276	NA	227	227
Copper (dissolved)	ug/L	250	NA	NA	NA	<10	<5	NA	<5.0	NA	<10.0	2.0J
Dissolved Oxygen (Field)	mg/L	NL	NA	NA	NA	NA	3.39	0.68	3.37	2.05	1.85	1.85
Eh (Lab)	mV	NL	NA	NA	NA	150	159	NA	NA	NA	NA	NA
Eh (Field)	mV	NL	NA	NA	NA	NA	532	61	243	109	167	167
Iron (dissolved)	mg/L	NL	NA	NA	NA	0.048	<0.05	NA	<50.0	NA	<0.05	28.9J
Lead (dissolved)	ug/L	1.25	NA	NA	NA	<0.4	<2.5	NA	<2.0	NA	<1.0	0.051J
Magnesium (dissolved)	mg/L	NL	NA	NA	NA	11	12.6	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.025	NA	NA	NA	0.098	0.0825	NA	0.0808	NA	0.0629	0.0629
Mercury (dissolved)	ug/L	0.5	NA	NA	NA	<0.1	<0.20	NA	<0.20	NA	<0.20	<0.025
Nitrate/Nitrite as N	mg/L	2.5	NA	NA	NA	NA	NA	NA	0.12	NA	0.24	0.24
Nitrate as N	mg/L	NL	NA	NA	NA	<0.05	0.15	NA	NA	NA	NA	NA
Nitrite as N	mg/L	NL	NA	NA	NA	<0.05	<0.1	NA	NA	NA	NA	NA
pH (Field)	Standard Units	NL	NA	NA	NA	7.91	8.17	9.2	7.82	7.98	8.09	8.09
pH (Lab)	Standard Units	NL	NA	NA	NA	8	7.7	NA	8.0	NA	8.0	8.0
Potassium (dissolved)	mg/L	NL	NA	NA	NA	1	1	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	NL	NA	NA	NA	3.4	NA	NA	3.2	NA	2.8	2.8
Sulfate	mg/L	NL	NA	NA	NA	13	15.9	NA	15.3	NA	9.0	9.0
Temp (Field)	oC	NL	NA	NA	NA	9.3	8.95	9.62	8.6	9.56	9.9	9.9
Total Dissolved Solids (TDS)	mg/L	NL	NA	NA	NA	160	195	NA	NA	NA	NA	NA
Total Suspended Solids (TSS)	mg/L	NL	NA	NA	NA	30	404	NA	9.2	NA	34.6	34.6
Turbidity	NTU	NL	NA	NA	NA	24	38	83	29.4	70.3	30.4	30.4
Zinc (dissolved)	ug/L	500	NA	NA	NA	<5	<10	NA	NA	NA	NA	NA

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

mg/L = milligrams per liter = parts per million

ug/L = micrograms per liter = parts per billion

NL = Not listed

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

Table 3

**Summary of Inorganic Groundwater Quality - MMLF-7
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-7* 10/26/2009	MMLF-7* 11/11/2009	MMLF-7* 12/10/2009	MMLF-7* 11/8/2010	MMLF-7* 11/1/2012	MMLF-7 10/25/2013	MMLF-7 11/12/2014	MMLF-7 11/5/2015	MMLF-7 10/31/2016	MMLF-7** 10/31/2016
Alkalinity	mg/L	NL	360	280	330	340	416	NA	121	NA	389	389
Ammonia Nitrogen	mg/L	NL	0.83	0.52	0.33	0.42	1.1	NA	0.19	NA	0.78	0.78
Arsenic (dissolved)	ug/L	2.5	<1	<1	<1	<1.6	<2.5	NA	<2.0	NA	<1.0	<0.48
Barium (dissolved)	mg/L	0.5	0.23	0.39	0.17	0.26	0.44	NA	0.335	NA	0.309	0.309
Boron (dissolved)	ug/L	250	72	<40	64	NA	NA	NA	<100	NA	<100	66.2J
Cadmium (dissolved)	ug/L	1.0	<0.2	<0.2	<0.2	<2	<1	NA	<0.80	NA	<0.40	<0.14
Calcium (dissolved)	mg/L	NL	120	86	100	98	128	NA	NA	NA	NA	NA
Cation/Anion Balance	%	NL	NA	NA	NA	NA	1.3	NA	NA	NA	NA	NA
Chloride	mg/L	NL	19	19	20	24	21	NA	3.4	NA	21.1	21.1
Chromium	ug/L	25.0	<5	4	<5	<5	<5	NA	<5.0	NA	<10.0	<1.3
Chromium, Trivalent	ug/L	NL	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA
Chromium, Hexavalent	ug/L	NL	<3	<3	<3	<4	<10	NA	NA	NA	NA	NA
Conductance (Field)	umhos/cm	NL	624	490	574	599	802	850	630	813	777	777
Conductance (Lab)	umhos/cm	NL	750	580	690	690	900	NA	656	NA	817	817
Copper (dissolved)	ug/L	250	<10	<10	<10	<10	<5	NA	<5.0	NA	<10.0	2.4J
Dissolved Oxygen (Field)	mg/L	NL	140	130	130	140	0.88	3.72	4.35	0.98	2.2	2.2
Eh (Lab)	mV	NL	NA	NA	NA	NA	165	NA	NA	NA	NA	NA
Eh (Field)	mV	NL	NA	NA	NA	NA	584	144	257	223	275	275
Iron (dissolved)	mg/L	NL	0.02	<0.01	0.04	0.038	0.051	NA	<0.050	NA	<50.0	13.6J
Lead (dissolved)	ug/L	1.25	<0.4	<0.4	<0.4	<0.4	<2.5	NA	<2.0	NA	<1.0	0.034J
Magnesium (dissolved)	mg/L	NL	28	23	24	25	28.7	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.025	3.4	2.6	2.2	2.3	2.24	NA	0.593	NA	0.593	0.593
Mercury (dissolved)	ug/L	0.5	<0.1	<0.1	<0.1	<0.1	<0.20	NA	<0.20	NA	<0.20	<0.025
Nitrate/Nitrite as N	mg/L	2.5	NA	0.64	NA	NA	NA	NA	1.5	NA	1.3	1.3
Nitrate as N	mg/L	NL	0.76	NA	0.43	0.38	<0.1	NA	NA	NA	NA	NA
Nitrite as N	mg/L	NL	<0.05	NA	<0.05	<0.05	<0.1	NA	NA	NA	NA	NA
pH (Field)	Standard Units	NL	6.83	6.83	6.9	7.07	7.19	8.16	7.14	6.36	7.07	7.07
pH (Lab)	Standard Units	NL	7.2	7.1	7.2	7.1	7	NA	7.4	NA	7.5	7.5
Potassium (dissolved)	mg/L	NL	2.1	1.6	1.8	2.2	2.9	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	NL	16	11	15	13	NA	NA	4.5	NA	6.1	6.1
Sulfate	mg/L	NL	12	7.8	9.6	9.7	6.3	NA	5.2	NA	4	4.0
Temp (Field)	oC	NL	8.3	8.7	7.1	10.6	9.27	8.28	9.5	9.8	10.3	10.3
Total Dissolved Solids (TDS)	mg/L	NL	440	340	400	400	501	NA	NA	NA	NA	NA
Total Suspended Solids (TSS)	mg/L	NL	6	8	2	16	4	NA	3.2	NA	5.2	5.2
Turbidity	NTU	NL	8.2	4	2	2	0.8	40.1	12.5	14.7	10.4	10.4
Zinc (dissolved)	ug/L	500	8	<5	<5	8	<10	NA	NA	NA	NA	NA

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

mg/L = milligrams per liter = parts per million

ug/L = micrograms per liter = parts per billion

NL = Not listed

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

Table 4

**Summary of Inorganic Groundwater Quality - MMLF-8
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-8* 10/26/2009	MMLF-8* 11/11/2009	MMLF-8* 12/10/2009	MMLF-8* 11/8/2010	MMLF-8* 11/1/2012	MMLF-8 10/25/2013	MMLF-8 11/12/2014	MMLF-8 11/5/2015	MMLF-8 10/31/2016	MMLF-8** 10/31/2016
Alkalinity	mg/L	NL	160	150	170	170	163	NA	337	NA	240	240
Ammonia Nitrogen	mg/L	NL	<0.01	<0.01	<0.01	<0.01	<0.1	NA	<0.10	NA	<0.10	<0.044
Arsenic (dissolved)	ug/L	2.5	<1	<1	<1	<1.6	<2.5	NA	<2.0	NA	<1.0	<0.48
Barium (dissolved)	mg/L	0.5	0.044	0.035	0.029	0.023	0.03	NA	0.0339	NA	0.0501	0.0501
Boron (dissolved)	ug/L	250	72	<40	64	NA	NA	NA	<100	NA	<100	23.9J
Cadmium (dissolved)	ug/L	1.0	<0.2	<0.2	<0.2	<2	<1	NA	<0.80	NA	<0.40	<0.14
Calcium (dissolved)	mg/L	NL	54	53	49	52	55.3	NA	NA	NA	NA	NA
Cation/Anion Balance	%	NL	NA	NA	NA	NA	0.58	NA	NA	NA	NA	NA
Chloride	mg/L	NL	13	21	17	17	20.6	NA	14.4	NA	25.9	25.9
Chromium	ug/L	25.0	<5	5.2	<5	<5	<5	NA	<5.0	NA	<10.0	1.3J
Chromium, Trivalent	ug/L	NL	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA
Chromium, Hexavalent	ug/L	NL	<3	<3	<3	<4	<10	NA	NA	NA	NA	NA
Conductance (Field)	umhos/cm	NL	308	326	316	339	384	310	407	499	552	552
Conductance (Lab)	umhos/cm	NL	350	370	380	370	410	NA	420	NA	591	591
Copper (dissolved)	ug/L	250	<10	<10	<10	<10	<5	NA	<5.0	NA	<10.0	<0.86
Dissolved Oxygen (Field)	mg/L	NL	NA	NA	NA	NA	8.75	NA	9.31	7.76	6.83	6.83
Eh (Lab)	mV	NL	150	140	190	140	154	NA	NA	NA	NA	NA
Eh (Field)	mV	NL	NA	NA	NA	NA	514	155	307	224	301	301
Iron (dissolved)	mg/L	NL	<0.01	<0.01	<0.01	<0.01	<0.05	NA	<0.050	NA	<0.050	<2.9
Lead (dissolved)	ug/L	1.25	<0.4	<0.4	<0.4	<0.4	<2.5	NA	<2.0	NA	<1.0	0.023J
Magnesium (dissolved)	mg/L	NL	13	14	12	13	14.2	NA	NA	NA	NA	NA
Manganese (dissolved)	mg/L	0.025	0.081	0.03	0.006	<0.005	<0.01	NA	<0.010	NA	<0.010	0.0053J
Mercury (dissolved)	ug/L	0.5	<0.1	<0.1	<0.1	<0.1	<0.20	NA	<0.20	NA	<0.20	<0.025
Nitrate/Nitrite as N	mg/L	2.5	NA	1.1	NA	NA	NA	NA	0.55	NA	1.8	1.8
Nitrate as N	mg/L	NL	0.65	NA	0.73	0.67	0.48	NA	NA	NA	NA	NA
Nitrite as N	mg/L	NL	<0.05	NA	<0.05	<0.05	<0.1	NA	NA	NA	NA	NA
pH (Field)	Standard Units	NL	7.51	7.05	7.08	7.84	8.44	9.09	7.63	7.5	7.9	7.9
pH (Lab)	Standard Units	NL	7.9	7.8	7.9	7.8	7.7	NA	8	NA	7.59	7.59
Potassium (dissolved)	mg/L	NL	0.6	0.8	0.4	0.75	0.64	NA	NA	NA	NA	NA
Sodium (dissolved)	mg/L	NL	2.6	3.1	2.5	2.8	NA	NA	2.8	NA	3.0	3.0
Sulfate	mg/L	NL	7.4	7.6	7.4	7.4	6.9	NA	5.3	NA	5.7	5.7
Temp (Field)	oC	NL	8.3	8.7	7.1	10.6	7.97	8.34	8	8.2	8.7	8.7
Total Dissolved Solids (TDS)	mg/L	NL	200	200	220	390	235	NA	NA	NA	NA	NA
Total Suspended Solids (TSS)	mg/L	NL	4	4	8	6	5.5	NA	6.4	NA	<2.0	<2.0
Turbidity	NTU	NL	6.8	2.7	10	3.8	1.4	46.7	14.9	14	21	21
Zinc (dissolved)	ug/L	500	<5	<5	<5	<5	10.1	NA	NA	NA	NA	NA

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

mg/L = milligrams per liter = parts per million

ug/L = micrograms per liter = parts per billion

NL = Not listed

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

Table 5

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-3
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-3* 10/26/2009	MMLF-3* 11/11/2009	MMLF-3* 12/10/2009	MMLF-3* 11/8/2010	MMLF-3* 11/1/2012	MMLF-3 10/25/2013	MMLF-3 11/12/2014	MMLF-3 11/5/2015	MMLF-3 10/31/2016	MMLF-3** 10/31/2016
Acetone	ug/L	175	NA	NA	NA	<4	<25.0	<20.0	<20.0	<20.0	<20.0	<0.64
Allylchloride	ug/L	7.5	NA	NA	NA	<0.16	<4.0	<4.0	<4.0	<5.0	<4.0	<0.25
Benzene	ug/L	2.5	NA	NA	NA	<0.2	<1.0	<1.0	<1.0	<0.50	<0.50	<0.042
Bromobenzene	ug/L	NL	NA	NA	NA	<0.12	<1.0	<1.0	<1.0	<1.0	<0.50	<0.087
Bromochloromethane	ug/L	NL	NA	NA	NA	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<0.082
Bromodichloromethane	ug/L	2	NA	NA	NA	<0.12	<1.0	<1.0	<1.0	<1.0	<1.0	<0.068
Bromoform	ug/L	10	NA	NA	NA	<0.13	<4.0	<4.0	<4.0	<5.0	<4.0	<0.11
Bromomethane	ug/L	3	NA	NA	NA	<0.16	<4.0	<4.0	<4.0	<2.5	<4.0	<0.20
Methyl Ethyl Ketone (MEK)/2-Butanone	ug/L	1000	NA	NA	NA	<1.0	<4.0	<5.0	<5.0	<20.0	<5.0	<1.1
n-Butylbenzene	ug/L	NL	NA	NA	NA	<0.18	<1.0	<1.0	<1.0	<2.5	<0.50	<0.16
sec-Butylbenzene	ug/L	NL	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.094
tert-Butylbenzene	ug/L	NL	NA	NA	NA	<0.16	<1.0	<1.0	<1.0	<1.0	<0.50	<0.051
Carbon tetrachloride	ug/L	0.75	NA	NA	NA	<0.28	<1.0	<1.0	<1.0	<0.50	<1.0	<0.079
Chlorobenzene	ug/L	25	NA	NA	NA	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.066
Chloroethane	ug/L	NL	NA	NA	NA	<0.24	<1.0	<4.0	<1.0	<2.5	<1.0	<0.12
Chloroform	ug/L	15	NA	NA	NA	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.21
Chloromethane	ug/L	NL	NA	NA	NA	<0.20	<4.0	<4.0	<4.0	<2.5	<4.0	<0.080
2-Chlorotoluene	ug/L	NL	NA	NA	NA	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.084
4-Chlorotoluene	ug/L	NL	NA	NA	NA	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.048
1,2-Dibromo-3-chloropropane	ug/L	NL	NA	NA	NA	<0.23	<4.0	<4.0	<4.0	<5.0	<10.0	<0.60
Dibromochloromethane	ug/L	13	NA	NA	NA	<0.13	<1.0	<1.0	<1.0	<0.50	<4.0	<0.048
1,2-Dibromoethane (EDB)	ug/L	0.001	NA	NA	NA	<0.11	<1.0	<1.0	<1.0	<0.50	<1.0	<0.092
Dibromomethane	ug/L	--	NA	NA	NA	<0.10	<4.0	<4.0	<4.0	<2.5	<1.0	<0.14
1,2-Dichlorobenzene	ug/L	150	NA	NA	NA	<0.096	<1.0	<1.0	<1.0	<0.50	<0.50	<0.078
1,3-Dichlorobenzene	ug/L	150	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.085
1,4-Dichlorobenzene	ug/L	2.5	NA	NA	NA	<0.084	<1.0	<1.0	<1.0	<1.0	<0.50	<0.081
Dichlorodifluoromethane	ug/L	250	NA	NA	NA	<0.23	<1.0	<1.0	<1.0	<5.0	<1.0	<0.075
1,1-Dichloroethane	ug/L	17.5	NA	NA	NA	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2-Dichloroethane	ug/L	1	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<0.25	<0.50	<0.072
1,1-Dichloroethene	ug/L	1.5	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.069
cis-1,2-Dichloroethene	ug/L	17.5	NA	NA	NA	<0.10	<1.0	<1.0	<1.0	<1.0	<0.50	<0.12
trans-1,2-Dichloroethene	ug/L	1.5	NA	NA	NA	<0.23	<1.0	<1.0	<1.0	<1.0	<0.50	<0.15
Dichlorofluoromethane	ug/L	NL	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<1.0	<0.054
1,2-Dichloropropane	ug/L	1.25	NA	NA	NA	<0.19	<4.0	<4.0	<4.0	<1.0	<4.0	<0.066
1,3-Dichloropropane	ug/L	NL	NA	NA	NA	<0.14	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
2,2-Dichloropropane	ug/L	NL	NA	NA	NA	<0.36	<4.0	<4.0	<4.0	<5.0	<1.0	<0.096
1,1-Dichloropropene	ug/L	NL	NA	NA	NA	<0.21	<1.0	<1.0	<1.0	<1.0	<0.50	<0.082

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

NL = Not listed

Table 5 (con't)

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-3
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-3*	MMLF-3*	MMLF-3*	MMLF-3*	MMLF-3*	MMLF-3	MMLF-3	MMLF-3	MMLF-3	MMLF-3**	
			10/26/2009	11/11/2009	12/10/2009	11/8/2010	11/1/2012	10/25/2013	11/12/2014	11/5/2015	10/31/2016	10/31/2016	
cis-1,3-Dichloropopene	ug/L	0.5	NA	NA	NA	<0.21	<4.0	<4.0	<4.0	<4.0	<0.50	<0.50	<0.12
trans-1,3-Dichloropropene	ug/L	0.5	NA	NA	NA	<0.16	<4.0	<4.0	<4.0	<4.0	<0.50	<1.0	<0.15
Diethyl Ether (Ethyl Ether)	ug/L	250	NA	NA	NA	<0.14	<4.0	<4.0	<4.0	<4.0	<5.0	<4.0	<0.090
Ethylbenzene	ug/L	175	NA	NA	NA	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.075
Hexachlorobutadiene	ug/L	NL	NA	NA	NA	<0.20	<5.0	<1.0	<1.0	<1.0	<2.5	<4.0	<0.13
Isopropylbenzene (Cumene)	ug/L	NL	NA	NA	NA	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.064
p-Isopropyltoluene	ug/L	NL	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<2.5	<0.50	<0.064
Methylene Chloride	ug/L	0.25	NA	NA	NA	<0.20	<4.0	<4.0	<4.0	<4.0	<2.5	<4.0	<0.097
Methyl isobutyl ketone	ug/L	75	NA	NA	NA	<0.18	<4.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.80
Methyl tert-butyl ether	ug/L	NL	NA	NA	NA	<0.13	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.047
Naphthalene	ug/L	75	NA	NA	NA	<0.20	<4.0	<4.0	<4.0	<4.0	<5.0	<1.0	<0.064
n-Propylbenzene	ug/L	NL	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.049
Styrene	ug/L	25	NA	NA	NA	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.056
1,1,1,2-Tetrachloroethane	ug/L	17.5	NA	NA	NA	<0.13	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.064
1,1,2,2-Tetrachloroethane	ug/L	0.5	NA	NA	NA	<0.10	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.055
Tetrachloroethene	ug/L	7	NA	NA	NA	<0.29	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.13
Tetrahydrofuran	ug/L	25	NA	NA	NA	<1.0	<10.0	<10.0	<10.0	<10.0	<20.0	<10.0	<1.5
Toluene	ug/L	250	NA	NA	NA	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
1,2,3-Trichlorobenzene	ug/L	NL	NA	NA	NA	<0.12	<1.0	<1.0	<1.0	<1.0	<5.0	<0.50	<0.17
1,2,4-Trichlorobenzene	ug/L	10	NA	NA	NA	<0.15	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.14
1,1,1-Trichloroethane	ug/L	150	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.057
1,1,2-Trichloroethane	ug/L	0.75	NA	NA	NA	<0.11	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.064
Trichloroethene	ug/L	NL	NA	NA	NA	<0.19	<1.0	<0.40	<0.40	<0.40	<0.50	<0.40	<0.044
Trichlorofluoromethane	ug/L	500	NA	NA	NA	<0.19	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2,3-Trichloropropane	ug/L	10	NA	NA	NA	<0.17	<4.0	<4.0	<4.0	<4.0	<0.20	<4.0	<0.19
1,1,2-Trichlorotrifluoroethane	ug/L	50	NA	NA	NA	<0.27	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.13
1,2,4-Trimethylbenzene	ug/L	NL	NA	NA	NA	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.068
1,3,5-Trimethylbenzene	ug/L	NL	NA	NA	NA	<0.17	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.042
Vinyl Chloride	ug/L	0.05	NA	NA	NA	<0.20	<0.40	<0.40	<0.40	<0.40	<0.050	<0.20	<0.098
m,p&o-Xylene (Xylene Total)	ug/L	75	NA	NA	NA	<0.32	<3.0	<3.0	<3.0	<3.0	NA	<1.5	<0.15
m&p-Xylene	ug/L	NL	NA	NA	NA	NA	<2.0	<2.0	<2.0	NA	<2.0	<1.0	<0.11
o-Xylene	ug/L	NL	NA	NA	NA	NA	<1.0	<1.0	<1.0	NA	<1.0	<0.50	<0.044

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

NL = Not listed

Table 6

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-7
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-7* 10/26/2009	MMLF-7* 11/11/2009	MMLF-7* 12/10/2009	MMLF-7* 11/8/2010	MMLF-7* 11/1/2012	MMLF-7 10/25/2013	MMLF-7 11/12/2014	MMLF-7 11/5/2015	MMLF-7 10/31/2016	MMLF-7** 10/31/2016
Acetone	ug/L	175	<4	<4	<4	<4	<25.0	<20.0	<20.0	<20.0	<20.0	<0.64
Allylchloride	ug/L	7.5	<0.042	<0.042	<0.042	<0.16	<4.0	<4.0	<4.0	<5.0	<4.0	<0.25
Benzene	ug/L	2.5	0.36	0.43	0.47	0.33	<1.0	<1.0	<1.0	<0.50	<0.50	<0.042
Bromobenzene	ug/L	NL	<0.17	<0.17	<0.17	<0.12	<1.0	<1.0	<1.0	<1.0	<0.50	<0.087
Bromochloromethane	ug/L	NL	<0.082	<0.082	<0.082	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<0.082
Bromodichloromethane	ug/L	2	<0.086	<0.086	<0.086	<0.12	<1.0	<1.0	<1.0	<1.0	<1.0	<0.068
Bromoform	ug/L	10	<0.16	<0.16	<0.16	<0.13	<4.0	<4.0	<4.0	<5.0	<4.0	<0.11
Bromomethane	ug/L	3	<0.060	<0.060	<0.060	<0.16	<4.0	<4.0	<4.0	<2.5	<4.0	<0.20
Methyl Ethyl Ketone (MEK)/2-Butanone	ug/L	1000	<1.0	<1.0	<1.0	<1.0	<4.0	<5.0	<5.0	<20.0	<5.0	<1.1
n-Butylbenzene	ug/L	NL	<0.10	<0.10	<0.10	<0.18	<1.0	<1.0	<1.0	<2.5	<0.50	<0.16
sec-Butylbenzene	ug/L	NL	<0.087	<0.087	<0.087	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.094
tert-Butylbenzene	ug/L	NL	<0.15	<0.15	<0.15	<0.16	<1.0	<1.0	<1.0	<1.0	<0.50	<0.051
Carbon tetrachloride	ug/L	0.75	<0.074	<0.074	<0.074	<0.28	<1.0	<1.0	<1.0	<0.50	<1.0	<0.079
Chlorobenzene	ug/L	25	0.58	<0.14	0.56	0.63	<1.0	<1.0	<1.0	<1.0	<0.50	<0.066
Chloroethane	ug/L	NL	<0.089	<0.089	<0.089	<0.24	<1.0	<4.0	<1.0	<2.5	<1.0	<0.12
Chloroform	ug/L	15	<0.20	<0.20	<0.20	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.21
Chloromethane	ug/L	NL	<0.068	<0.068	<0.068	<0.20	<4.0	<4.0	<4.0	<2.5	<4.0	<0.080
2-Chlorotoluene	ug/L	NL	<0.080	<0.080	<0.080	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.084
4-Chlorotoluene	ug/L	NL	<0.11	<0.11	<0.11	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.048
1,2-Dibromo-3-chloropropane	ug/L	NL	<0.12	<0.12	<0.12	<0.23	<4.0	<4.0	<4.0	<5.0	<10.0	<0.60
Dibromochloromethane	ug/L	13	<0.12	<0.12	<0.12	<0.13	<1.0	<1.0	<1.0	<0.50	<4.0	<0.048
1,2-Dibromoethane (EDB)	ug/L	0.001	<0.12	<0.12	<0.12	<0.11	<1.0	<1.0	<1.0	<0.50	<1.0	<0.092
Dibromomethane	ug/L	--	<0.15	<0.15	<0.15	<0.10	<4.0	<4.0	<4.0	<2.5	<1.0	<0.14
1,2-Dichlorobenzene	ug/L	150	<0.10	<0.10	<0.10	<0.096	<1.0	<1.0	<1.0	<0.50	<0.50	<0.078
1,3-Dichlorobenzene	ug/L	150	<0.13	<0.13	<0.13	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.085
1,4-Dichlorobenzene	ug/L	2.5	0.61	<0.10	0.53	0.54	<1.0	<1.0	<1.0	<1.0	<0.50	<0.081
Dichlorodifluoromethane	ug/L	250	2	0.56	2.6	2	<1.0	<1.0	<1.0	<5.0	<1.0	<0.075
1,1-Dichloroethane	ug/L	17.5	0.12	0.2	0.19	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2-Dichloroethane	ug/L	1	<0.10	<0.10	<0.10	<0.17	<1.0	<1.0	<1.0	<0.25	<0.50	<0.072
1,1-Dichloroethene	ug/L	1.5	<0.12	<0.12	<0.12	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.069
cis-1,2-Dichloroethene	ug/L	17.5	6.1	7	8.1	7.2	6.2	8.7	<1.0	4.5	3.8	3.8
trans-1,2-Dichloroethene	ug/L	1.5	<0.053	0.068	<0.053	<0.23	<1.0	<1.0	<1.0	<1.0	<0.50	<0.15
Dichlorofluoromethane	ug/L	NL	1.3	1.4	2.1	1.1	2.5	2.0	<1.0	1.4	<1.0	<0.054
1,2-Dichloropropane	ug/L	1.25	<0.055	<0.055	<0.055	<0.19	<4.0	<4.0	<4.0	<1.0	<4.0	<0.066
1,3-Dichloropropane	ug/L	NL	<0.091	<0.091	<0.091	<0.14	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
2,2-Dichloropropane	ug/L	NL	<0.063	<0.063	<0.063	<0.36	<4.0	<4.0	<4.0	<5.0	<1.0	<0.096
1,1-Dichloropropene	ug/L	NL	<0.081	<0.081	<0.081	<0.081	<1.0	<1.0	<1.0	<1.0	<0.50	<0.082

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

NL = Not listed

Table 6 (con't)

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-7
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-7* 10/26/2009	MMLF-7* 11/11/2009	MMLF-7* 12/10/2009	MMLF-7* 11/8/2010	MMLF-7* 11/1/2012	MMLF-7 10/25/2013	MMLF-7 11/12/2014	MMLF-7 11/5/2015	MMLF-7 10/31/2016	MMLF-7** 10/31/2016
cis-1,3-Dichloropropene	ug/L	0.5	<0.089	<0.089	<0.089	<0.21	<4.0	<4.0	<4.0	<0.50	<0.50	<0.12
trans-1,3-Dichloropropene	ug/L	0.5	<0.098	<0.098	<0.098	<0.16	<4.0	<4.0	<4.0	<0.50	<1.0	<0.15
Diethyl Ether (Ethyl Ether)	ug/L	250	12	15	17	18	14.7	14.8	<4.0	12	6.9	6.9
Ethylbenzene	ug/L	175	<0.079	<0.079	<0.079	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.075
Hexachlorobutadiene	ug/L	NL	<0.12	<0.12	<0.12	<0.20	<5.0	<1.0	<1.0	<2.5	<4.0	<0.13
Isopropylbenzene (Cumene)	ug/L	NL	<0.096	<0.096	<0.096	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.064
p-Isopropyltoluene	ug/L	NL	<0.055	<0.055	<0.055	<0.17	<1.0	<1.0	<1.0	<2.5	<0.50	<0.064
Methylene Chloride	ug/L	0.25	<0.20	<0.20	<0.20	<0.20	<4.0	<4.0	<4.0	<2.5	<4.0	<0.097
Methyl isobutyl ketone	ug/L	75	<0.13	<0.13	<0.13	<0.18	<4.0	<5.0	<5.0	<5.0	<5.0	<0.80
Methyl tert-butyl ether	ug/L	NL	0.11	0.12	0.15	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.047
Naphthalene	ug/L	75	<0.13	<0.13	<0.13	<0.20	<4.0	<4.0	<4.0	<5.0	<1.0	<0.064
n-Propylbenzene	ug/L	NL	<0.13	<0.13	<0.13	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.049
Styrene	ug/L	25	<0.079	<0.079	<0.079	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.056
1,1,1,2-Tetrachloroethane	ug/L	17.5	<0.099	<0.099	<0.099	<0.13	<1.0	<1.0	<1.0	<1.0	<1.0	<0.064
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.094	<0.094	<0.094	<0.10	<1.0	<1.0	<1.0	<0.50	<0.50	<0.055
Tetrachloroethene	ug/L	7	<0.12	<0.12	<0.12	<0.29	<1.0	<1.0	<1.0	<1.0	<0.50	<0.13
Tetrahydrofuran	ug/L	25	<1.0	<1.0	<1.0	<1.0	<10.0	<10.0	<10.0	<20.0	<10.0	<1.5
Toluene	ug/L	250	<0.20	<0.20	<0.20	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
1,2,3-Trichlorobenzene	ug/L	NL	<0.12	<0.12	<0.12	<0.12	<1.0	<1.0	<1.0	<5.0	<0.50	<0.17
1,2,4-Trichlorobenzene	ug/L	10	<0.073	<0.073	<0.073	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.14
1,1,1-Trichloroethane	ug/L	150	<0.076	<0.076	<0.076	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.057
1,1,2-Trichloroethane	ug/L	0.75	<0.11	<0.11	<0.11	<0.11	<1.0	<1.0	<1.0	<0.50	<0.50	<0.064
Trichloroethene	ug/L	NL	<0.16	<0.16	<0.16	<0.19	<1.0	<0.40	<0.40	<0.50	<0.40	<0.044
Trichlorofluoromethane	ug/L	500	<0.095	<0.095	<0.095	<0.19	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2,3-Trichloropropane	ug/L	10	<0.092	<0.092	<0.092	<0.17	<4.0	<4.0	<4.0	<0.20	<4.0	<0.19
1,1,2-Trichlorotrifluoroethane	ug/L	50	<0.074	<0.074	<0.074	<0.27	<1.0	<1.0	<1.0	<1.0	<1.0	<0.13
1,2,4-Trimethylbenzene	ug/L	NL	<0.042	<0.042	<0.042	<0.18	<1.0	<1.0	<1.0	<1.0	<0.50	<0.068
1,3,5-Trimethylbenzene	ug/L	NL	<0.10	<0.10	<0.10	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.042
Vinyl Chloride	ug/L	0.05	0.18	0.27	0.59	<0.20	<0.40	<0.40	<0.40	0.12	<0.20	<0.098
m,p&o-Xylene (Xylene Total)	ug/L	75	<0.20	<0.20	<0.20	<0.32	<3.0	<3.0	<3.0	NA	<1.5	<0.15
m&p-Xylene	ug/L	NL	NA	NA	NA	NA	<2.0	<2.0	NA	<2.0	<1.0	<0.11
o-Xylene	ug/L	NL	NA	NA	NA	NA	<1.0	<1.0	NA	<1.0	<0.50	<0.044

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

NL = Not listed

Table 7

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-8
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-8* 10/26/2009	MMLF-8* 11/11/2009	MMLF-8* 12/10/2009	MMLF-8* 11/8/2010	MMLF-8* 11/1/2012	MMLF-8 10/25/2013	MMLF-8 11/12/2014	MMLF-8 11/5/2015	MMLF-8 10/31/2016	MMLF-8** 10/31/2016
Acetone	ug/L	175	<4	<4	<4	<4	<25.0	<20.0	<20.0	<20.0	<20.0	<0.64
Allylchloride	ug/L	7.5	<0.042	<0.042	<0.042	<0.16	<4.0	<4.0	<4.0	<5.0	<4.0	<0.25
Benzene	ug/L	2.5	<0.069	<0.069	<0.069	<0.2	<1.0	<1.0	<1.0	<0.50	<0.50	<0.042
Bromobenzene	ug/L	NL	<0.17	<0.17	<0.17	<0.12	<1.0	<1.0	<1.0	<1.0	<0.50	<0.087
Bromochloromethane	ug/L	NL	<0.082	<0.082	<0.082	<0.18	<1.0	<1.0	<1.0	<1.0	<1.0	<0.082
Bromodichloromethane	ug/L	2	<0.086	<0.086	<0.086	<0.12	<1.0	<1.0	<1.0	<1.0	<1.0	<0.068
Bromoform	ug/L	10	<0.16	<0.16	<0.16	<0.13	<4.0	<4.0	<4.0	<5.0	<4.0	<0.11
Bromomethane	ug/L	3	<0.060	<0.060	<0.060	<0.16	<4.0	<4.0	<4.0	<2.5	<4.0	<0.20
Methyl Ethyl Ketone (MEK)/2-Butanone	ug/L	1000	<1.0	<1.0	<1.0	<1.0	<4.0	<5.0	<5.0	<20.0	<5.0	<1.1
n-Butylbenzene	ug/L	NL	<0.10	<0.10	<0.10	<0.18	<1.0	<1.0	<1.0	<2.5	<0.50	<0.16
sec-Butylbenzene	ug/L	NL	<0.087	<0.087	<0.087	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.094
tert-Butylbenzene	ug/L	NL	<0.15	<0.15	<0.15	<0.16	<1.0	<1.0	<1.0	<1.0	<0.50	<0.051
Carbon tetrachloride	ug/L	0.75	<0.074	<0.074	<0.074	<0.28	<1.0	<1.0	<1.0	<0.50	<1.0	<0.079
Chlorobenzene	ug/L	25	<0.14	<0.14	<0.14	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.066
Chloroethane	ug/L	NL	<0.089	<0.089	<0.089	<0.24	<1.0	<4.0	<1.0	<2.5	<1.0	<0.12
Chloroform	ug/L	15	<0.20	<0.20	<0.20	<0.20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.21
Chloromethane	ug/L	NL	<0.068	<0.068	<0.068	<0.20	<4.0	<4.0	<4.0	<2.5	<4.0	<0.080
2-Chlorotoluene	ug/L	NL	<0.080	<0.080	<0.080	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.084
4-Chlorotoluene	ug/L	NL	<0.11	<0.11	<0.11	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.048
1,2-Dibromo-3-chloropropane	ug/L	NL	<0.12	<0.12	<0.12	<0.23	<4.0	<4.0	<4.0	<5.0	<10.0	<0.60
Dibromochloromethane	ug/L	13	<0.12	<0.12	<0.12	<0.13	<1.0	<1.0	<1.0	<0.50	<4.0	<0.048
1,2-Dibromoethane (EDB)	ug/L	0.001	<0.12	<0.12	<0.12	<0.11	<1.0	<1.0	<1.0	<0.50	<1.0	<0.092
Dibromomethane	ug/L	--	<0.15	<0.15	<0.15	<0.10	<4.0	<4.0	<4.0	<2.5	<1.0	<0.14
1,2-Dichlorobenzene	ug/L	150	<0.10	<0.10	<0.10	<0.096	<1.0	<1.0	<1.0	<0.50	<0.50	<0.078
1,3-Dichlorobenzene	ug/L	150	<0.13	<0.13	<0.13	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.085
1,4-Dichlorobenzene	ug/L	2.5	<0.10	<0.10	<0.10	<0.084	<1.0	<1.0	<1.0	<1.0	<0.50	<0.081
Dichlorodifluoromethane	ug/L	250	<0.084	<0.084	<0.084	<0.23	<1.0	<1.0	<1.0	<5.0	<1.0	<0.075
1,1-Dichloroethane	ug/L	17.5	<0.077	<0.077	<0.077	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2-Dichloroethane	ug/L	1	<0.10	<0.10	<0.10	<0.17	<1.0	<1.0	<1.0	<0.25	<0.50	<0.072
1,1-Dichloroethene	ug/L	1.5	<0.12	<0.12	<0.12	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.069
cis-1,2-Dichloroethene	ug/L	17.5	<0.081	<0.081	<0.081	<0.10	<1.0	<1.0	<1.0	<1.0	<0.50	<0.12
trans-1,2-Dichloroethene	ug/L	1.5	<0.053	<0.053	<0.053	<0.23	<1.0	<1.0	<1.0	<1.0	<0.50	<0.15
Dichlorofluoromethane	ug/L	NL	<0.097	<0.097	<0.097	<0.17	<1.0	<1.0	<1.0	<1.0	<1.0	<0.054
1,2-Dichloropropane	ug/L	1.25	<0.055	<0.055	<0.055	<0.19	<4.0	<4.0	<4.0	<1.0	<4.0	<0.066
1,3-Dichloropropane	ug/L	NL	<0.091	<0.091	<0.091	<0.14	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
2,2-Dichloropropane	ug/L	NL	<0.063	<0.063	<0.063	<0.36	<4.0	<4.0	<4.0	<5.0	<1.0	<0.096
1,1-Dichloropropene	ug/L	NL	<0.081	<0.081	<0.081	<0.081	<1.0	<1.0	<1.0	<1.0	<0.50	<0.082

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

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Table 7 (con't)

**Summary of Volatile Organic Compounds Groundwater Quality Data - MMLF-8
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

Parameter	Units	IL	MMLF-8* 10/26/2009	MMLF-8* 11/11/2009	MMLF-8* 12/10/2009	MMLF-8* 11/8/2010	MMLF-8* 11/1/2012	MMLF-8 10/25/2013	MMLF-8 11/12/2014	MMLF-8 11/5/2015	MMLF-8 10/31/2016	MMLF-8** 10/31/2016
cis-1,3-Dichloropropene	ug/L	0.5	<0.089	<0.089	<0.089	<0.21	<4.0	<4.0	<4.0	<0.50	<0.50	<0.12
trans-1,3-Dichloropropene	ug/L	0.5	<0.098	<0.098	<0.098	<0.16	<4.0	<4.0	<4.0	<0.50	<1.0	<0.15
Diethyl Ether (Ethyl Ether)	ug/L	250	<0.041	<0.041	<0.041	<0.14	<4.0	<4.0	<4.0	<5.0	<4.0	<0.090
Ethylbenzene	ug/L	175	<0.079	<0.079	<0.079	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.075
Hexachlorobutadiene	ug/L	NL	<0.12	<0.12	<0.12	<0.20	<5.0	<1.0	<1.0	<2.5	<4.0	<0.13
Isopropylbenzene (Cumene)	ug/L	NL	<0.096	<0.096	<0.096	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.064
p-Isopropyltoluene	ug/L	NL	<0.055	<0.055	<0.055	<0.17	<1.0	<1.0	<1.0	<2.5	<0.50	<0.064
Methylene Chloride	ug/L	0.25	<0.20	<0.20	<0.20	<0.20	<4.0	<4.0	<4.0	<2.5	<4.0	<0.097
Methyl isobutyl ketone	ug/L	75	<0.13	<0.13	<0.13	<0.18	<4.0	<5.0	<5.0	<5.0	<5.0	<0.80
Methyl tert-butyl ether	ug/L	NL	<0.044	<0.044	<0.044	<0.13	<1.0	<1.0	<1.0	<1.0	<0.50	<0.047
Naphthalene	ug/L	75	<0.13	<0.13	<0.13	<0.20	<4.0	<4.0	<4.0	<5.0	<1.0	<0.064
n-Propylbenzene	ug/L	NL	<0.13	<0.13	<0.13	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.049
Styrene	ug/L	25	<0.079	<0.079	<0.079	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.056
1,1,1,2-Tetrachloroethane	ug/L	17.5	<0.099	<0.099	<0.099	<0.13	<1.0	<1.0	<1.0	<1.0	<1.0	<0.064
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.094	<0.094	<0.094	<0.10	<1.0	<1.0	<1.0	<0.50	<0.50	<0.055
Tetrachloroethene	ug/L	7	<0.12	<0.12	<0.12	<0.29	<1.0	<1.0	<1.0	<1.0	<0.50	<0.13
Tetrahydrofuran	ug/L	25	<1.0	<1.0	<1.0	<1.0	<10.0	<10.0	<10.0	<20.0	<10.0	<1.5
Toluene	ug/L	250	<0.20	<0.20	<0.20	<0.20	<1.0	<1.0	<1.0	<1.0	<0.50	<0.059
1,2,3-Trichlorobenzene	ug/L	NL	<0.12	<0.12	<0.12	<0.12	<1.0	<1.0	<1.0	<5.0	<0.50	<0.17
1,2,4-Trichlorobenzene	ug/L	10	<0.073	<0.073	<0.073	<0.15	<1.0	<1.0	<1.0	<1.0	<0.50	<0.14
1,1,1-Trichloroethane	ug/L	150	<0.076	<0.076	<0.076	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.057
1,1,2-Trichloroethane	ug/L	0.75	<0.11	<0.11	<0.11	<0.11	<1.0	<1.0	<1.0	<0.50	<0.50	<0.064
Trichloroethene	ug/L	NL	<0.16	<0.16	<0.16	<0.19	<1.0	<0.40	<0.40	<0.50	<0.40	<0.044
Trichlorofluoromethane	ug/L	500	<0.095	<0.095	<0.095	<0.19	<1.0	<1.0	<1.0	<1.0	<0.50	<0.055
1,2,3-Trichloropropane	ug/L	10	<0.092	<0.092	<0.092	<0.17	<4.0	<4.0	<4.0	<0.20	<4.0	<0.19
1,1,2-Trichlorotrifluoroethane	ug/L	50	<0.074	<0.074	<0.074	<0.27	<1.0	<1.0	<1.0	<1.0	<1.0	<0.13
1,2,4-Trimethylbenzene	ug/L	NL	<0.042	<0.042	<0.042	<0.18	<1.0	<1.0	<1.0	<1.0	<0.50	<0.068
1,3,5-Trimethylbenzene	ug/L	NL	<0.10	<0.10	<0.10	<0.17	<1.0	<1.0	<1.0	<1.0	<0.50	<0.042
Vinyl Chloride	ug/L	0.05	<0.10	<0.10	<0.10	<0.20	<0.40	<0.40	<0.40	<0.050	<0.20	<0.098
m,p&o-Xylene (Xylene Total)	ug/L	75	<0.20	<0.20	<0.20	<0.32	<3.0	<3.0	<3.0	NA	<1.5	<0.15
m&p-Xylene	ug/L	NL	NA	NA	NA	NA	<2.0	<2.0	NA	<2.0	<1.0	<0.11
o-Xylene	ug/L	NL	NA	NA	NA	NA	<1.0	<1.0	NA	<1.0	<0.50	<0.044

NA = Not Analyzed

*Data obtained from previous reports

** = Results reported to the labs method detection limits

IL = Intervention Limit

ug/L = micrograms per liter = parts per billion

NL = Not listed

Table 8

**Groundwater Elevations
Camp Ripley Closed Mixed Municipal Landfill
State of Minnesota Department of Military Affairs**

	MMLF-3	MMLF-7	MMLF-8
Unique Well Number	250125	774333	773250
Top of Casing Elevation (ft MSL)*	1158.24	1153.51	1156.39
Well Depth (ft)	47	37	40

Date of Data Collection	MMLF-3	MMLF-7	MMLF-8
1982-2007*	1127.96-1136.65	NA	NA
11/1/2012	1133.08 ft.	1122.9 ft.	1122.86 ft.
10/25/2013	1135.06 ft.	1125.07 ft.	1125.88 ft.
11/12/2014	1137.61 ft.	1127.37 ft.	1127.63 ft.
11/5/2015	1134.66 ft.	1125.78 ft.	1125.57 ft.
10/31/2016	1136.20 ft.	1126.68 ft.	1126.85 ft.

*Data from Camp Ripley

NA = Not Available

APPENDIX A
ANALYTICAL REPORTS

November 16, 2016

Greg Smith
Widseth, Smith & Nolting
7804 Industrial Park Road
PO Box 2720
Baxter, MN 56425

RE: Project: Camp Ripley MMLF
Pace Project No.: 1278223

Dear Greg Smith:

Enclosed are the analytical results for sample(s) received by the laboratory on November 02, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Melisa M Woods
melisa.woods@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Camp Ripley MMLF
Pace Project No.: 1278223

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
Alaska Certification UST-107
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322

Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Alaska Certification UST-107
Alaska Certification #MN01084
Arizona Department of Health Certification #AZ0785
Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007
Nevada DNR #MN010842015-1
Oklahoma Department of Environmental Quality

Duluth Minnesota Certification ID's

4730 Oneota St., Duluth, MN 55807
Minnesota Dept of Health Certification #: 027-137-152

Wisconsin DNR Certification # : 999446800
North Dakota Certification #: R-105

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SAMPLE SUMMARY

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1278223001	MW-3	Water	10/31/16 13:35	11/02/16 10:30
1278223002	MW-7	Water	10/31/16 14:30	11/02/16 10:30
1278223003	MW-8	Water	10/31/16 15:20	11/02/16 10:30
1278223004	FLD DUP	Water	10/31/16 00:00	11/02/16 10:30
1278223005	Equip Blank	Water	10/31/16 13:40	11/02/16 10:30
1278223006	Trip Blank	Water	10/31/16 00:00	11/02/16 10:30

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SAMPLE ANALYTE COUNT

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1278223001	MW-3	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
	EPA 300.0	DMB	2	PASI-V	
1278223002	MW-7	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
	EPA 300.0	DMB	2	PASI-V	
1278223003	MW-8	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
	EPA 300.0	DMB	2	PASI-V	
1278223004	FLD DUP	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V

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SAMPLE ANALYTE COUNT

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
1278223005	Equip Blank	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
1278223006	Trip Blank	EPA 8260B	DJB	72	PASI-M

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF
Pace Project No.: 1278223

Sample: MW-3 **Lab ID: 1278223001** Collected: 10/31/16 13:35 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1									
Nitrogen, Ammonia	<0.044	mg/L	0.10	0.044	1	11/10/16 10:28	11/10/16 14:00	7664-41-7	
353.2 Nitrate + Nitrite pres. Analytical Method: EPA 353.2 rev. 2 (1993)									
Nitrogen, NO ₂ plus NO ₃	0.24	mg/L	0.020	0.0035	1		11/11/16 14:47		
200.7 MET ICP, Dissolved Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Barium, Dissolved	23.6	ug/L	10.0	0.65	1	11/07/16 16:01	11/08/16 11:26	7440-39-3	
Boron, Dissolved	22.8J	ug/L	100	5.9	1	11/07/16 16:01	11/08/16 11:26	7440-42-8	
Chromium, Dissolved	<1.3	ug/L	10.0	1.3	1	11/07/16 16:01	11/08/16 11:26	7440-47-3	
Copper, Dissolved	2.0J	ug/L	10.0	0.86	1	11/07/16 16:01	11/08/16 11:26	7440-50-8	
Iron, Dissolved	28.9J	ug/L	50.0	2.9	1	11/07/16 16:01	11/08/16 11:26	7439-89-6	
Manganese, Dissolved	62.9	ug/L	10.0	0.23	1	11/07/16 16:01	11/08/16 11:26	7439-96-5	
Sodium, Dissolved	2.8	mg/L	0.50	0.13	1	11/07/16 16:01	11/08/16 11:26	7440-23-5	
200.8 MET ICPMS, Dissolved Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic, Dissolved	1.8	ug/L	1.0	0.48	2	11/07/16 16:01	11/09/16 13:17	7440-38-2	
Cadmium, Dissolved	<0.14	ug/L	0.40	0.14	2	11/07/16 16:01	11/08/16 18:47	7440-43-9	
Lead, Dissolved	0.051J	ug/L	1.0	0.016	2	11/07/16 16:01	11/08/16 18:47	7439-92-1	
7470 Mercury, Dissolved Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury, Dissolved	<0.025	ug/L	0.20	0.025	1	11/10/16 15:50	11/14/16 09:48	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B									
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 20:03	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 20:03	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 20:03	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 20:03	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 20:03	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 20:03	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 20:03	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 20:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 20:03	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 20:03	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 20:03	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 20:03	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 20:03	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 20:03	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 20:03	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 20:03	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 20:03	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 20:03	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 20:03	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 20:03	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 20:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 20:03	106-93-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-3 **Lab ID: 1278223001** Collected: 10/31/16 13:35 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 20:03	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 20:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 20:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 20:03	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 20:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 20:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 20:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.12	1		11/11/16 20:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 20:03	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 20:03	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 20:03	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 20:03	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 20:03	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 20:03	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 20:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 20:03	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	0.090	1		11/11/16 20:03	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 20:03	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 20:03	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 20:03	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 20:03	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 20:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 20:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 20:03	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 20:03	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 20:03	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 20:03	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 20:03	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:03	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 20:03	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 20:03	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 20:03	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 20:03	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 20:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 20:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 20:03	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 20:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 20:03	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 20:03	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 20:03	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 20:03	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 20:03	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 20:03	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 20:03	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 20:03	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-3 Lab ID: 1278223001 Collected: 10/31/16 13:35 Received: 11/02/16 10:30 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 20:03	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	75-125		1		11/11/16 20:03	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1		11/11/16 20:03	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125		1		11/11/16 20:03	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	104	mg/L	5.0	1.2	1		11/07/16 17:32		
2510B Specific Conductance Analytical Method: SM 2510B									
Specific Conductance	227	umhos/cm	10.0	5.0	1		11/04/16 09:46		
2540D Total Suspended Solids Analytical Method: SM 2540D (1997)									
Total Suspended Solids	34.6	mg/L	2.0	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B									
pH at 25 Degrees C	8.0	Std. Units	0.10	0.10	1		11/02/16 14:57		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	0.72J	mg/L	1.0	0.50	1		11/08/16 16:50	16887-00-6	
Sulfate	9.0	mg/L	2.0	1.0	1		11/08/16 16:50	14808-79-8	

Sample: MW-7 Lab ID: 1278223002 Collected: 10/31/16 14:30 Received: 11/02/16 10:30 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1									
Nitrogen, Ammonia	0.78	mg/L	0.10	0.044	1	11/10/16 10:28	11/10/16 14:01	7664-41-7	
353.2 Nitrate + Nitrite pres. Analytical Method: EPA 353.2 rev. 2 (1993)									
Nitrogen, NO2 plus NO3	1.3	mg/L	0.040	0.0070	2		11/11/16 15:27		
200.7 MET ICP, Dissolved Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Barium, Dissolved	309	ug/L	10.0	0.65	1	11/07/16 16:01	11/08/16 11:36	7440-39-3	
Boron, Dissolved	66.2J	ug/L	100	5.9	1	11/07/16 16:01	11/08/16 11:36	7440-42-8	
Chromium, Dissolved	<1.3	ug/L	10.0	1.3	1	11/07/16 16:01	11/08/16 11:36	7440-47-3	
Copper, Dissolved	2.4J	ug/L	10.0	0.86	1	11/07/16 16:01	11/08/16 11:36	7440-50-8	
Iron, Dissolved	13.6J	ug/L	50.0	2.9	1	11/07/16 16:01	11/08/16 11:36	7439-89-6	
Manganese, Dissolved	593	ug/L	10.0	0.23	1	11/07/16 16:01	11/08/16 11:36	7439-96-5	
Sodium, Dissolved	6.1	mg/L	0.50	0.13	1	11/07/16 16:01	11/08/16 11:36	7440-23-5	
200.8 MET ICPMS, Dissolved Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic, Dissolved	<0.48	ug/L	1.0	0.48	2	11/07/16 16:01	11/08/16 18:58	7440-38-2	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-7 **Lab ID: 1278223002** Collected: 10/31/16 14:30 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Cadmium, Dissolved	<0.14	ug/L	0.40	0.14	2	11/07/16 16:01	11/08/16 18:58	7440-43-9	
Lead, Dissolved	0.034J	ug/L	1.0	0.016	2	11/07/16 16:01	11/08/16 18:58	7439-92-1	
7470 Mercury, Dissolved		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury, Dissolved	<0.025	ug/L	0.20	0.025	1	11/10/16 15:50	11/14/16 09:50	7439-97-6	
8260B MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 20:25	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 20:25	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 20:25	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 20:25	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 20:25	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 20:25	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 20:25	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 20:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 20:25	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 20:25	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 20:25	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 20:25	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 20:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 20:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 20:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 20:25	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 20:25	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 20:25	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 20:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 20:25	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 20:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 20:25	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 20:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 20:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 20:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 20:25	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 20:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 20:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 20:25	75-35-4	
cis-1,2-Dichloroethene	3.8	ug/L	0.50	0.12	1		11/11/16 20:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 20:25	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 20:25	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 20:25	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 20:25	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 20:25	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 20:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 20:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 20:25	10061-02-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-7 **Lab ID: 1278223002** Collected: 10/31/16 14:30 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
Diethyl ether (Ethyl ether)	6.9	ug/L	4.0	0.090	1		11/11/16 20:25	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 20:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 20:25	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 20:25	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 20:25	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 20:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 20:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 20:25	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 20:25	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 20:25	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 20:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 20:25	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:25	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 20:25	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 20:25	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 20:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 20:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 20:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 20:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 20:25	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 20:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 20:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 20:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 20:25	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 20:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 20:25	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 20:25	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 20:25	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 20:25	179601-23-1	
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 20:25	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	75-125		1		11/11/16 20:25	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1		11/11/16 20:25	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125		1		11/11/16 20:25	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	389	mg/L	5.0	1.2	1		11/07/16 17:40		
2510B Specific Conductance		Analytical Method: SM 2510B							
Specific Conductance	817	umhos/cm	10.0	5.0	1		11/04/16 09:54		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)							
Total Suspended Solids	5.2	mg/L	2.0	2.0	1		11/04/16 10:49		

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-7 **Lab ID: 1278223002** Collected: 10/31/16 14:30 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.10	1		11/02/16 15:00		H6
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	21.1	mg/L	1.0	0.50	1		11/08/16 17:12	16887-00-6	
Sulfate	4.0	mg/L	2.0	1.0	1		11/08/16 17:12	14808-79-8	

Sample: MW-8 **Lab ID: 1278223003** Collected: 10/31/16 15:20 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1									
Nitrogen, Ammonia	<0.044	mg/L	0.10	0.044	1	11/10/16 10:28	11/10/16 14:02	7664-41-7	
353.2 Nitrate + Nitrite pres.									
Analytical Method: EPA 353.2 rev. 2 (1993)									
Nitrogen, NO2 plus NO3	1.8	mg/L	0.10	0.018	5		11/11/16 15:28		
200.7 MET ICP, Dissolved									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Barium, Dissolved	50.1	ug/L	10.0	0.65	1	11/07/16 16:01	11/08/16 11:40	7440-39-3	
Boron, Dissolved	23.9J	ug/L	100	5.9	1	11/07/16 16:01	11/08/16 11:40	7440-42-8	
Chromium, Dissolved	1.3J	ug/L	10.0	1.3	1	11/07/16 16:01	11/08/16 11:40	7440-47-3	
Copper, Dissolved	<0.86	ug/L	10.0	0.86	1	11/07/16 16:01	11/08/16 11:40	7440-50-8	
Iron, Dissolved	<2.9	ug/L	50.0	2.9	1	11/07/16 16:01	11/08/16 11:40	7439-89-6	
Manganese, Dissolved	5.3J	ug/L	10.0	0.23	1	11/07/16 16:01	11/08/16 11:40	7439-96-5	
Sodium, Dissolved	3.0	mg/L	0.50	0.13	1	11/07/16 16:01	11/08/16 11:40	7440-23-5	
200.8 MET ICPMS, Dissolved									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic, Dissolved	<0.48	ug/L	1.0	0.48	2	11/07/16 16:01	11/08/16 19:01	7440-38-2	
Cadmium, Dissolved	<0.14	ug/L	0.40	0.14	2	11/07/16 16:01	11/08/16 19:01	7440-43-9	
Lead, Dissolved	0.023J	ug/L	1.0	0.016	2	11/07/16 16:01	11/08/16 19:01	7439-92-1	
7470 Mercury, Dissolved									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury, Dissolved	<0.025	ug/L	0.20	0.025	1	11/10/16 15:50	11/14/16 09:52	7439-97-6	
8260B MSV Low Level									
Analytical Method: EPA 8260B									
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 20:47	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 20:47	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 20:47	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 20:47	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 20:47	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 20:47	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 20:47	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 20:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 20:47	78-93-3	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-8 **Lab ID: 1278223003** Collected: 10/31/16 15:20 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 20:47	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 20:47	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 20:47	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 20:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 20:47	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 20:47	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 20:47	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 20:47	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 20:47	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 20:47	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 20:47	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 20:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 20:47	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 20:47	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 20:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 20:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 20:47	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 20:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 20:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 20:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.12	1		11/11/16 20:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 20:47	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 20:47	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 20:47	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 20:47	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 20:47	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 20:47	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 20:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 20:47	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	0.090	1		11/11/16 20:47	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 20:47	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 20:47	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 20:47	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 20:47	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 20:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 20:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 20:47	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 20:47	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 20:47	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 20:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 20:47	630-20-6	
1,1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 20:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 20:47	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 20:47	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 20:47	108-88-3	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-8 **Lab ID: 1278223003** Collected: 10/31/16 15:20 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level Analytical Method: EPA 8260B									
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 20:47	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 20:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 20:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 20:47	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 20:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 20:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 20:47	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 20:47	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 20:47	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 20:47	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 20:47	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 20:47	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 20:47	179601-23-1	
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 20:47	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	104	%	75-125		1		11/11/16 20:47	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1		11/11/16 20:47	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125		1		11/11/16 20:47	460-00-4	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	240	mg/L	5.0	1.2	1		11/07/16 17:48		
2510B Specific Conductance Analytical Method: SM 2510B									
Specific Conductance	591	umhos/cm	10.0	5.0	1		11/04/16 09:47		
2540D Total Suspended Solids Analytical Method: SM 2540D (1997)									
Total Suspended Solids	<2.0	mg/L	2.0	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric Analytical Method: SM 4500-H+B									
pH at 25 Degrees C	7.9	Std. Units	0.10	0.10	1		11/02/16 15:03		H6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	25.9	mg/L	1.0	0.50	1		11/08/16 17:35	16887-00-6	
Sulfate	5.7	mg/L	2.0	1.0	1		11/08/16 17:35	14808-79-8	

Sample: FLD DUP **Lab ID: 1278223004** Collected: 10/31/16 00:00 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1									
Nitrogen, Ammonia	0.76	mg/L	0.10	0.044	1	11/10/16 10:28	11/10/16 14:17	7664-41-7	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: FLD DUP **Lab ID: 1278223004** Collected: 10/31/16 00:00 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrate + Nitrite pres.									
Analytical Method: EPA 353.2 rev. 2 (1993)									
Nitrogen, NO2 plus NO3	1.2	mg/L	0.040	0.0070	2		11/11/16 15:30		
200.7 MET ICP, Dissolved									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Barium, Dissolved	307	ug/L	10.0	0.65	1	11/07/16 16:01	11/08/16 11:43	7440-39-3	
Boron, Dissolved	55.9J	ug/L	100	5.9	1	11/07/16 16:01	11/08/16 11:43	7440-42-8	
Chromium, Dissolved	<1.3	ug/L	10.0	1.3	1	11/07/16 16:01	11/08/16 11:43	7440-47-3	
Copper, Dissolved	1.7J	ug/L	10.0	0.86	1	11/07/16 16:01	11/08/16 11:43	7440-50-8	
Iron, Dissolved	13.0J	ug/L	50.0	2.9	1	11/07/16 16:01	11/08/16 11:43	7439-89-6	
Manganese, Dissolved	590	ug/L	10.0	0.23	1	11/07/16 16:01	11/08/16 11:43	7439-96-5	
Sodium, Dissolved	6.2	mg/L	0.50	0.13	1	11/07/16 16:01	11/08/16 11:43	7440-23-5	
200.8 MET ICPMS, Dissolved									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic, Dissolved	<0.48	ug/L	1.0	0.48	2	11/07/16 16:01	11/08/16 19:05	7440-38-2	
Cadmium, Dissolved	<0.14	ug/L	0.40	0.14	2	11/07/16 16:01	11/08/16 19:05	7440-43-9	
Lead, Dissolved	<0.016	ug/L	1.0	0.016	2	11/07/16 16:01	11/08/16 19:05	7439-92-1	
7470 Mercury, Dissolved									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury, Dissolved	<0.025	ug/L	0.20	0.025	1	11/10/16 15:50	11/14/16 09:54	7439-97-6	
8260B MSV Low Level									
Analytical Method: EPA 8260B									
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 21:09	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 21:09	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 21:09	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 21:09	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 21:09	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 21:09	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 21:09	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 21:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 21:09	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 21:09	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 21:09	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 21:09	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 21:09	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 21:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 21:09	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 21:09	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 21:09	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 21:09	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 21:09	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 21:09	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 21:09	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 21:09	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 21:09	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 21:09	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 21:09	541-73-1	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: FLD DUP **Lab ID: 1278223004** Collected: 10/31/16 00:00 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 21:09	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 21:09	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 21:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 21:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 21:09	75-35-4	
cis-1,2-Dichloroethene	3.6	ug/L	0.50	0.12	1		11/11/16 21:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 21:09	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 21:09	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 21:09	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 21:09	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 21:09	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 21:09	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 21:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 21:09	10061-02-6	
Diethyl ether (Ethyl ether)	6.5	ug/L	4.0	0.090	1		11/11/16 21:09	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 21:09	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 21:09	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 21:09	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 21:09	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 21:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 21:09	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 21:09	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 21:09	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 21:09	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 21:09	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 21:09	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 21:09	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 21:09	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 21:09	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 21:09	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 21:09	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 21:09	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 21:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 21:09	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 21:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 21:09	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 21:09	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 21:09	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 21:09	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 21:09	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 21:09	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 21:09	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 21:09	179601-23-1	
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 21:09	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	75-125		1		11/11/16 21:09	17060-07-0	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: FLD DUP									
Lab ID: 1278223004									
Collected: 10/31/16 00:00									
Received: 11/02/16 10:30									
Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level									
Analytical Method: EPA 8260B									
Surrogates									
Toluene-d8 (S)	98	%	75-125		1		11/11/16 21:09	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125		1		11/11/16 21:09	460-00-4	
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	377	mg/L	5.0	1.2	1		11/08/16 16:05		
2510B Specific Conductance									
Analytical Method: SM 2510B									
Specific Conductance	817	umhos/cm	10.0	5.0	1		11/04/16 09:48		
2540D Total Suspended Solids									
Analytical Method: SM 2540D (1997)									
Total Suspended Solids	2.0	mg/L	2.0	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
pH at 25 Degrees C	7.6	Std. Units	0.10	0.10	1		11/02/16 15:06		H6
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	21.2	mg/L	1.0	0.50	1		11/08/16 17:57	16887-00-6	
Sulfate	4.0	mg/L	2.0	1.0	1		11/08/16 17:57	14808-79-8	

Sample: Equip Blank									
Lab ID: 1278223005									
Collected: 10/31/16 13:40									
Received: 11/02/16 10:30									
Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1									
Nitrogen, Ammonia	<0.044	mg/L	0.10	0.044	1	11/10/16 10:28	11/10/16 14:06	7664-41-7	
353.2 Nitrate + Nitrite pres.									
Analytical Method: EPA 353.2 rev. 2 (1993)									
Nitrogen, NO2 plus NO3	<0.0035	mg/L	0.020	0.0035	1		11/11/16 14:53		
200.7 MET ICP, Dissolved									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Barium, Dissolved	<0.65	ug/L	10.0	0.65	1	11/07/16 16:01	11/08/16 11:46	7440-39-3	
Boron, Dissolved	9.1J	ug/L	100	5.9	1	11/07/16 16:01	11/08/16 11:46	7440-42-8	
Chromium, Dissolved	<1.3	ug/L	10.0	1.3	1	11/07/16 16:01	11/08/16 11:46	7440-47-3	
Copper, Dissolved	<0.86	ug/L	10.0	0.86	1	11/07/16 16:01	11/08/16 11:46	7440-50-8	
Iron, Dissolved	<2.9	ug/L	50.0	2.9	1	11/07/16 16:01	11/08/16 11:46	7439-89-6	
Manganese, Dissolved	<0.23	ug/L	10.0	0.23	1	11/07/16 16:01	11/08/16 11:46	7439-96-5	
Sodium, Dissolved	<0.13	mg/L	0.50	0.13	1	11/07/16 16:01	11/08/16 11:46	7440-23-5	
200.8 MET ICPMS, Dissolved									
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8									
Arsenic, Dissolved	<0.24	ug/L	0.50	0.24	1	11/07/16 16:01	11/08/16 19:09	7440-38-2	
Cadmium, Dissolved	<0.068	ug/L	0.20	0.068	1	11/07/16 16:01	11/08/16 19:09	7440-43-9	
Lead, Dissolved	0.027J	ug/L	0.50	0.0082	1	11/07/16 16:01	11/08/16 19:09	7439-92-1	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Equip Blank **Lab ID: 1278223005** Collected: 10/31/16 13:40 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
7470 Mercury, Dissolved		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury, Dissolved	<0.025	ug/L	0.20	0.025	1	11/10/16 15:50	11/14/16 09:57	7439-97-6	
8260B MSV Low Level		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 15:39	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 15:39	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 15:39	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 15:39	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 15:39	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 15:39	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 15:39	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 15:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 15:39	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 15:39	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 15:39	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 15:39	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 15:39	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 15:39	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 15:39	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 15:39	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 15:39	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 15:39	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 15:39	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 15:39	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 15:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 15:39	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 15:39	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 15:39	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 15:39	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 15:39	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 15:39	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 15:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 15:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 15:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.12	1		11/11/16 15:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 15:39	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 15:39	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 15:39	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 15:39	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 15:39	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 15:39	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 15:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 15:39	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	0.090	1		11/11/16 15:39	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 15:39	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 15:39	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 15:39	98-82-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Sample Project No.: 1278223

Sample: Equip Blank **Lab ID: 1278223005** Collected: 10/31/16 13:40 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 15:39	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 15:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 15:39	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 15:39	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 15:39	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 15:39	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 15:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 15:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 15:39	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 15:39	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 15:39	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 15:39	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 15:39	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 15:39	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 15:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 15:39	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 15:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 15:39	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 15:39	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 15:39	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 15:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 15:39	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 15:39	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 15:39	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 15:39	179601-23-1	
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 15:39	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	75-125		1		11/11/16 15:39	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1		11/11/16 15:39	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		11/11/16 15:39	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	<1.2	mg/L	5.0	1.2	1		11/08/16 16:09		
2510B Specific Conductance		Analytical Method: SM 2510B							
Specific Conductance	<5.0	umhos/cm	10.0	5.0	1		11/04/16 09:45		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)							
Total Suspended Solids	<2.0	mg/L	2.0	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	5.9	Std. Units	0.10	0.10	1		11/02/16 15:08		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	1.0	0.50	1		11/08/16 18:19	16887-00-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Equip Blank Lab ID: 1278223005 Collected: 10/31/16 13:40 Received: 11/02/16 10:30 Matrix: Water									
Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	2.0	1.0	1		11/08/16 18:19	14808-79-8	

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Trip Blank Lab ID: 1278223006 Collected: 10/31/16 00:00 Received: 11/02/16 10:30 Matrix: Water									
Analytical Method: EPA 8260B									
Acetone	ND	ug/L	20.0	0.64	1		11/11/16 15:17	67-64-1	
Allyl chloride	ND	ug/L	4.0	0.25	1		11/11/16 15:17	107-05-1	
Benzene	ND	ug/L	0.50	0.042	1		11/11/16 15:17	71-43-2	
Bromobenzene	ND	ug/L	0.50	0.087	1		11/11/16 15:17	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.082	1		11/11/16 15:17	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.068	1		11/11/16 15:17	75-27-4	
Bromoform	ND	ug/L	4.0	0.11	1		11/11/16 15:17	75-25-2	
Bromomethane	ND	ug/L	4.0	0.20	1		11/11/16 15:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1.1	1		11/11/16 15:17	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	0.16	1		11/11/16 15:17	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	0.094	1		11/11/16 15:17	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	0.051	1		11/11/16 15:17	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	0.079	1		11/11/16 15:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	0.066	1		11/11/16 15:17	108-90-7	
Chloroethane	ND	ug/L	1.0	0.12	1		11/11/16 15:17	75-00-3	
Chloroform	ND	ug/L	1.0	0.21	1		11/11/16 15:17	67-66-3	
Chloromethane	ND	ug/L	4.0	0.080	1		11/11/16 15:17	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	0.084	1		11/11/16 15:17	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	0.048	1		11/11/16 15:17	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	0.60	1		11/11/16 15:17	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	0.048	1		11/11/16 15:17	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.092	1		11/11/16 15:17	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.14	1		11/11/16 15:17	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	0.078	1		11/11/16 15:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	0.085	1		11/11/16 15:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	0.081	1		11/11/16 15:17	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.075	1		11/11/16 15:17	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	0.055	1		11/11/16 15:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	0.072	1		11/11/16 15:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	0.069	1		11/11/16 15:17	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.12	1		11/11/16 15:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.15	1		11/11/16 15:17	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	0.054	1		11/11/16 15:17	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	0.066	1		11/11/16 15:17	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	0.059	1		11/11/16 15:17	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.096	1		11/11/16 15:17	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	0.082	1		11/11/16 15:17	563-58-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Trip Blank **Lab ID: 1278223006** Collected: 10/31/16 00:00 Received: 11/02/16 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B							
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.069	1		11/11/16 15:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.044	1		11/11/16 15:17	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	0.090	1		11/11/16 15:17	60-29-7	
Ethylbenzene	ND	ug/L	0.50	0.075	1		11/11/16 15:17	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	0.13	1		11/11/16 15:17	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	0.064	1		11/11/16 15:17	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	0.064	1		11/11/16 15:17	99-87-6	
Methylene Chloride	ND	ug/L	4.0	0.097	1		11/11/16 15:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.80	1		11/11/16 15:17	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	0.047	1		11/11/16 15:17	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.064	1		11/11/16 15:17	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	0.049	1		11/11/16 15:17	103-65-1	
Styrene	ND	ug/L	0.50	0.056	1		11/11/16 15:17	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.064	1		11/11/16 15:17	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.055	1		11/11/16 15:17	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	0.13	1		11/11/16 15:17	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1.5	1		11/11/16 15:17	109-99-9	
Toluene	ND	ug/L	0.50	0.059	1		11/11/16 15:17	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.17	1		11/11/16 15:17	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.14	1		11/11/16 15:17	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	0.057	1		11/11/16 15:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	0.064	1		11/11/16 15:17	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.044	1		11/11/16 15:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	0.055	1		11/11/16 15:17	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	0.19	1		11/11/16 15:17	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.13	1		11/11/16 15:17	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.068	1		11/11/16 15:17	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.042	1		11/11/16 15:17	108-67-8	
Vinyl chloride	ND	ug/L	0.20	0.098	1		11/11/16 15:17	75-01-4	
Xylene (Total)	ND	ug/L	1.5	0.15	1		11/11/16 15:17	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	0.11	1		11/11/16 15:17	179601-23-1	
o-Xylene	ND	ug/L	0.50	0.044	1		11/11/16 15:17	95-47-6	
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	75-125		1		11/11/16 15:17	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1		11/11/16 15:17	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1		11/11/16 15:17	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99747 Analysis Method: EPA 350.1 rev. 2 (1993)

QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia

Associated Lab Samples: 1278223001, 1278223002, 1278223003

METHOD BLANK: 396028 Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.044	0.10	0.044	11/10/16 13:26	

LABORATORY CONTROL SAMPLE: 396027

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	1.1	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396029 396030

Parameter	Units	1277946001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.43	1	1	1.4	1.4	101	98	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396031 396032

Parameter	Units	1278192003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.90	1	1	1.9	2.0	99	106	90-110	4	10	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch:	99748	Analysis Method:	EPA 350.1 rev. 2 (1993)
QC Batch Method:	EPA 350.1	Analysis Description:	350.1 Ammonia
Associated Lab Samples:	1278223004, 1278223005		

METHOD BLANK: 396035 Matrix: Water

Associated Lab Samples: 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.044	0.10	0.044	11/10/16 14:04	

LABORATORY CONTROL SAMPLE: 396034

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396036 396037

Parameter	Units	1278223004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.76	1	1	1.7	1.7	97	98	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396038 396039

Parameter	Units	1278568004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	1.4	1	1	2.4	2.3	98	88	90-110	4	10	M1

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99840

Analysis Method: EPA 353.2 rev. 2 (1993)

QC Batch Method: EPA 353.2 rev. 2 (1993)

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 396392

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.0035	0.020	0.0035	11/11/16 14:36	

LABORATORY CONTROL SAMPLE: 396391

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	.5	0.52	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396393 396394

Parameter	Units	1278207001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.028	.5	.5	0.52	0.50	98	94	90-110	3	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396395 396396

Parameter	Units	1278246001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	ND	.5	.5	0.53	0.53	107	105	90-110	2	10	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99825

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury Dissolved

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 396314

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	<0.025	0.20	0.025	11/14/16 09:31	

LABORATORY CONTROL SAMPLE: 396315

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	2	2.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396316 396317

Parameter	Units	1278220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	<0.025	2	2	2.0	2.0	100	100	75-125	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396319 396320

Parameter	Units	1278641001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	ND	2	2	2.0	2.1	102	102	75-125	1	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99412 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET Dissolved
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394640 Matrix: Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium, Dissolved	ug/L	<0.65	10.0	0.65	11/08/16 11:20	
Boron, Dissolved	ug/L	8.2J	100	5.9	11/08/16 11:20	
Chromium, Dissolved	ug/L	<1.3	10.0	1.3	11/08/16 11:20	
Copper, Dissolved	ug/L	<0.86	10.0	0.86	11/08/16 11:20	
Iron, Dissolved	ug/L	<2.9	50.0	2.9	11/08/16 11:20	
Manganese, Dissolved	ug/L	<0.23	10.0	0.23	11/08/16 11:20	
Sodium, Dissolved	mg/L	<0.13	0.50	0.13	11/08/16 11:20	

LABORATORY CONTROL SAMPLE: 394641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	500	493	99	85-115	
Boron, Dissolved	ug/L	500	500	100	85-115	
Chromium, Dissolved	ug/L	500	508	102	85-115	
Copper, Dissolved	ug/L	500	483	97	85-115	
Iron, Dissolved	ug/L	10000	10000	100	85-115	
Manganese, Dissolved	ug/L	1000	996	100	85-115	
Sodium, Dissolved	mg/L	20	19.5	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394642 394643

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1278223001 Result	Spike Conc.	Spike Conc.	MS Result						
Barium, Dissolved	ug/L	23.6	500	500	517	511	99	98	70-130	1	20
Boron, Dissolved	ug/L	22.8J	500	500	516	518	99	99	70-130	1	20
Chromium, Dissolved	ug/L	<1.3	500	500	511	506	102	101	70-130	1	20
Copper, Dissolved	ug/L	2.0J	500	500	488	483	97	96	70-130	1	20
Iron, Dissolved	ug/L	28.9J	10000	10000	10100	9990	101	100	70-130	1	20
Manganese, Dissolved	ug/L	62.9	1000	1000	1060	1050	100	99	70-130	1	20
Sodium, Dissolved	mg/L	2.8	20	20	22.4	22.1	98	97	70-130	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394644 394645

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1278422001 Result	Spike Conc.	Spike Conc.	MS Result						
Barium, Dissolved	ug/L	79.1	500	500	558	564	96	97	70-130	1	20
Boron, Dissolved	ug/L	ND	500	500	505	518	98	100	70-130	3	20

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Parameter	Units	394644		394645		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1278422001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chromium, Dissolved	ug/L	ND	500	500	498	508	99	101	70-130	2	20	
Copper, Dissolved	ug/L	ND	500	500	482	486	96	97	70-130	1	20	
Iron, Dissolved	ug/L	ND	10000	10000	9850	9950	98	99	70-130	1	20	
Manganese, Dissolved	ug/L	11.1	1000	1000	988	998	98	99	70-130	1	20	
Sodium, Dissolved	mg/L	2.5	20	20	21.6	22.0	95	98	70-130	2	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99411 Analysis Method: EPA 200.8
 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394634 Matrix: Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.24	0.50	0.24	11/08/16 18:35	
Cadmium, Dissolved	ug/L	<0.068	0.20	0.068	11/08/16 18:35	
Lead, Dissolved	ug/L	0.046J	0.50	0.0082	11/08/16 18:35	

LABORATORY CONTROL SAMPLE: 394635

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	510	102	85-115	
Cadmium, Dissolved	ug/L	500	488	98	85-115	
Lead, Dissolved	ug/L	500	491	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394636 394637

Parameter	Units	1278223001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	1.8	500	500	520	510	104	102	70-130	2	20	
Cadmium, Dissolved	ug/L	<0.14	500	500	496	483	99	96	70-130	3	20	
Lead, Dissolved	ug/L	0.051J	500	500	503	485	101	97	70-130	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394638 394639

Parameter	Units	1278422001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	ND	500	500	500	506	100	101	70-130	1	20	
Cadmium, Dissolved	ug/L	ND	500	500	491	497	98	99	70-130	1	20	
Lead, Dissolved	ug/L	ND	500	500	489	493	98	99	70-130	1	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 446601 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV LL Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

METHOD BLANK: 2441169 Matrix: Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	0.064	11/11/16 14:33	
1,1,1-Trichloroethane	ug/L	ND	0.50	0.057	11/11/16 14:33	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	0.055	11/11/16 14:33	
1,1,2-Trichloroethane	ug/L	ND	0.50	0.064	11/11/16 14:33	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	0.13	11/11/16 14:33	
1,1-Dichloroethane	ug/L	ND	0.50	0.055	11/11/16 14:33	
1,1-Dichloroethene	ug/L	ND	0.50	0.069	11/11/16 14:33	
1,1-Dichloropropene	ug/L	ND	0.50	0.082	11/11/16 14:33	
1,2,3-Trichlorobenzene	ug/L	ND	0.50	0.17	11/11/16 14:33	
1,2,3-Trichloropropane	ug/L	ND	4.0	0.19	11/11/16 14:33	
1,2,4-Trichlorobenzene	ug/L	ND	0.50	0.14	11/11/16 14:33	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	0.068	11/11/16 14:33	
1,2-Dibromo-3-chloropropane	ug/L	ND	10.0	0.60	11/11/16 14:33	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	0.092	11/11/16 14:33	
1,2-Dichlorobenzene	ug/L	ND	0.50	0.078	11/11/16 14:33	
1,2-Dichloroethane	ug/L	ND	0.50	0.072	11/11/16 14:33	
1,2-Dichloropropane	ug/L	ND	4.0	0.066	11/11/16 14:33	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	0.042	11/11/16 14:33	
1,3-Dichlorobenzene	ug/L	ND	0.50	0.085	11/11/16 14:33	
1,3-Dichloropropane	ug/L	ND	0.50	0.059	11/11/16 14:33	
1,4-Dichlorobenzene	ug/L	ND	0.50	0.081	11/11/16 14:33	
2,2-Dichloropropane	ug/L	ND	1.0	0.096	11/11/16 14:33	
2-Butanone (MEK)	ug/L	ND	5.0	1.1	11/11/16 14:33	
2-Chlorotoluene	ug/L	ND	0.50	0.084	11/11/16 14:33	
4-Chlorotoluene	ug/L	ND	0.50	0.048	11/11/16 14:33	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	0.80	11/11/16 14:33	
Acetone	ug/L	ND	20.0	0.64	11/11/16 14:33	
Allyl chloride	ug/L	ND	4.0	0.25	11/11/16 14:33	
Benzene	ug/L	ND	0.50	0.042	11/11/16 14:33	
Bromobenzene	ug/L	ND	0.50	0.087	11/11/16 14:33	
Bromochloromethane	ug/L	ND	1.0	0.082	11/11/16 14:33	
Bromodichloromethane	ug/L	ND	1.0	0.068	11/11/16 14:33	
Bromoform	ug/L	ND	4.0	0.11	11/11/16 14:33	
Bromomethane	ug/L	ND	4.0	0.20	11/11/16 14:33	
Carbon tetrachloride	ug/L	ND	1.0	0.079	11/11/16 14:33	
Chlorobenzene	ug/L	ND	0.50	0.066	11/11/16 14:33	
Chloroethane	ug/L	ND	1.0	0.12	11/11/16 14:33	
Chloroform	ug/L	ND	1.0	0.21	11/11/16 14:33	
Chloromethane	ug/L	ND	4.0	0.080	11/11/16 14:33	
cis-1,2-Dichloroethene	ug/L	ND	0.50	0.12	11/11/16 14:33	
cis-1,3-Dichloropropene	ug/L	ND	0.50	0.069	11/11/16 14:33	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

METHOD BLANK: 2441169

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	4.0	0.048	11/11/16 14:33	
Dibromomethane	ug/L	ND	1.0	0.14	11/11/16 14:33	
Dichlorodifluoromethane	ug/L	ND	1.0	0.075	11/11/16 14:33	
Dichlorofluoromethane	ug/L	ND	1.0	0.054	11/11/16 14:33	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	0.090	11/11/16 14:33	
Ethylbenzene	ug/L	ND	0.50	0.075	11/11/16 14:33	
Hexachloro-1,3-butadiene	ug/L	ND	4.0	0.13	11/11/16 14:33	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	0.064	11/11/16 14:33	
m&p-Xylene	ug/L	ND	1.0	0.11	11/11/16 14:33	
Methyl-tert-butyl ether	ug/L	ND	0.50	0.047	11/11/16 14:33	
Methylene Chloride	ug/L	ND	4.0	0.097	11/11/16 14:33	
n-Butylbenzene	ug/L	ND	0.50	0.16	11/11/16 14:33	
n-Propylbenzene	ug/L	ND	0.50	0.049	11/11/16 14:33	
Naphthalene	ug/L	ND	1.0	0.064	11/11/16 14:33	
o-Xylene	ug/L	ND	0.50	0.044	11/11/16 14:33	
p-Isopropyltoluene	ug/L	ND	0.50	0.064	11/11/16 14:33	
sec-Butylbenzene	ug/L	ND	0.50	0.094	11/11/16 14:33	
Styrene	ug/L	ND	0.50	0.056	11/11/16 14:33	
tert-Butylbenzene	ug/L	ND	0.50	0.051	11/11/16 14:33	
Tetrachloroethene	ug/L	ND	0.50	0.13	11/11/16 14:33	
Tetrahydrofuran	ug/L	ND	10.0	1.5	11/11/16 14:33	
Toluene	ug/L	ND	0.50	0.059	11/11/16 14:33	
trans-1,2-Dichloroethene	ug/L	ND	0.50	0.15	11/11/16 14:33	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.044	11/11/16 14:33	
Trichloroethene	ug/L	ND	0.40	0.044	11/11/16 14:33	
Trichlorofluoromethane	ug/L	ND	0.50	0.055	11/11/16 14:33	
Vinyl chloride	ug/L	ND	0.20	0.098	11/11/16 14:33	
Xylene (Total)	ug/L	ND	1.5	0.15	11/11/16 14:33	
1,2-Dichloroethane-d4 (S)	%	105	75-125		11/11/16 14:33	
4-Bromofluorobenzene (S)	%	103	75-125		11/11/16 14:33	
Toluene-d8 (S)	%	98	75-125		11/11/16 14:33	

LABORATORY CONTROL SAMPLE & LCSD: 2441170

2441171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	22.4	109	112	75-125	3	30	
1,1,1-Trichloroethane	ug/L	20	20.2	20.1	101	100	74-125	1	30	
1,1,2,2-Tetrachloroethane	ug/L	20	23.0	22.7	115	113	67-131	1	30	
1,1,2-Trichloroethane	ug/L	20	22.1	22.4	111	112	75-125	1	30	
1,1,2-Trichlorotrifluoroethane	ug/L	20	20.2	20.2	101	101	75-125	0	30	
1,1-Dichloroethane	ug/L	20	20.0	19.9	100	99	74-125	0	30	
1,1-Dichloroethene	ug/L	20	20.1	20.3	101	102	74-125	1	30	
1,1-Dichloropropene	ug/L	20	19.0	19.1	95	95	74-125	0	30	
1,2,3-Trichlorobenzene	ug/L	20	21.2	22.8	106	114	63-131	7	30	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

LABORATORY CONTROL SAMPLE & LCSD: 2441170

2441171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,3-Trichloropropane	ug/L	20	22.5	22.4	113	112	73-125	1	30	
1,2,4-Trichlorobenzene	ug/L	20	22.3	22.8	111	114	66-126	2	30	
1,2,4-Trimethylbenzene	ug/L	20	21.5	21.8	107	109	74-129	2	30	
1,2-Dibromo-3-chloropropane	ug/L	50	56.8	54.7	114	109	54-129	4	30	
1,2-Dibromoethane (EDB)	ug/L	20	21.3	21.7	107	109	75-125	2	30	
1,2-Dichlorobenzene	ug/L	20	21.5	22.0	107	110	75-125	2	30	
1,2-Dichloroethane	ug/L	20	19.3	19.8	96	99	75-125	3	30	
1,2-Dichloropropane	ug/L	20	20.0	20.4	100	102	75-125	2	30	
1,3,5-Trimethylbenzene	ug/L	20	21.7	21.8	109	109	73-127	0	30	
1,3-Dichlorobenzene	ug/L	20	21.2	21.5	106	107	75-125	1	30	
1,3-Dichloropropane	ug/L	20	20.7	21.4	104	107	69-125	3	30	
1,4-Dichlorobenzene	ug/L	20	20.9	21.3	105	106	75-125	2	30	
2,2-Dichloropropane	ug/L	20	22.5	22.1	113	111	69-125	2	30	
2-Butanone (MEK)	ug/L	100	106	99.6	106	100	48-145	6	30	
2-Chlorotoluene	ug/L	20	21.3	21.1	106	105	74-125	1	30	
4-Chlorotoluene	ug/L	20	21.1	21.2	105	106	73-125	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	100	112	105	112	105	53-138	7	30	
Acetone	ug/L	100	92.6	94.0	93	94	70-142	2	30	
Allyl chloride	ug/L	20	18.4	18.7	92	93	61-127	1	30	
Benzene	ug/L	20	18.1	18.2	90	91	65-125	0	30	
Bromobenzene	ug/L	20	22.1	22.3	110	112	75-125	1	30	
Bromochloromethane	ug/L	20	19.7	20.6	99	103	75-125	4	30	
Bromodichloromethane	ug/L	20	21.5	22.4	107	112	73-125	4	30	
Bromoform	ug/L	20	21.7	22.7	109	113	69-125	4	30	
Bromomethane	ug/L	20	15.0	18.3	75	92	40-136	20	30	
Carbon tetrachloride	ug/L	20	21.5	21.5	108	107	70-125	0	30	
Chlorobenzene	ug/L	20	20.4	20.6	102	103	75-125	1	30	
Chloroethane	ug/L	20	18.6	19.3	93	97	67-141	4	30	
Chloroform	ug/L	20	20.2	20.4	101	102	75-125	1	30	
Chloromethane	ug/L	20	20.0	20.1	100	100	50-150	0	30	
cis-1,2-Dichloroethene	ug/L	20	20.1	19.9	100	99	75-125	1	30	
cis-1,3-Dichloropropene	ug/L	20	20.7	21.6	104	108	75-125	4	30	
Dibromochloromethane	ug/L	20	20.7	22.1	104	110	75-125	6	30	
Dibromomethane	ug/L	20	22.7	22.2	113	111	75-129	2	30	
Dichlorodifluoromethane	ug/L	20	22.2	21.9	111	110	59-135	1	30	
Dichlorofluoromethane	ug/L	20	20.5	20.7	103	104	74-130	1	30	
Diethyl ether (Ethyl ether)	ug/L	20	19.6	20.7	98	104	66-132	6	30	
Ethylbenzene	ug/L	20	20.2	20.1	101	101	75-125	0	30	
Hexachloro-1,3-butadiene	ug/L	20	24.4	25.1	122	126	72-126	3	30	
Isopropylbenzene (Cumene)	ug/L	20	21.1	21.2	105	106	71-136	1	30	
m&p-Xylene	ug/L	40	41.6	41.9	104	105	75-125	1	30	
Methyl-tert-butyl ether	ug/L	20	20.9	21.0	105	105	73-127	0	30	
Methylene Chloride	ug/L	20	17.4	17.9	87	89	68-128	3	30	
n-Butylbenzene	ug/L	20	21.5	22.2	107	111	70-126	3	30	
n-Propylbenzene	ug/L	20	21.0	21.0	105	105	67-131	0	30	
Naphthalene	ug/L	20	21.6	21.7	108	108	52-134	0	30	
o-Xylene	ug/L	20	21.1	21.7	105	108	75-125	3	30	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

LABORATORY CONTROL SAMPLE & LCSD: 2441170

Parameter	Units	2441171		LCS Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCSD Result							
p-Isopropyltoluene	ug/L	20	22.0	22.4	110	112	74-125	2	30	
sec-Butylbenzene	ug/L	20	21.2	21.5	106	107	69-134	1	30	
Styrene	ug/L	20	20.9	21.1	105	105	75-125	1	30	
tert-Butylbenzene	ug/L	20	21.8	21.4	109	107	71-128	2	30	
Tetrachloroethene	ug/L	20	21.2	20.9	106	105	74-125	1	30	
Tetrahydrofuran	ug/L	200	195	197	97	99	64-142	1	30	
Toluene	ug/L	20	19.1	19.3	95	97	75-125	1	30	
trans-1,2-Dichloroethene	ug/L	20	20.0	20.4	100	102	73-125	2	30	
trans-1,3-Dichloropropene	ug/L	20	21.0	21.6	105	108	75-125	3	30	
Trichloroethene	ug/L	20	20.9	21.0	104	105	75-125	0	30	
Trichlorofluoromethane	ug/L	20	23.4	23.5	117	117	75-126	0	30	
Vinyl chloride	ug/L	20	21.1	21.7	106	108	72-125	3	30	
Xylene (Total)	ug/L	60	62.6	63.6	104	106	75-125	2	30	
1,2-Dichloroethane-d4 (S)	%				101	100	75-125			
4-Bromofluorobenzene (S)	%				101	101	75-125			
Toluene-d8 (S)	%				100	100	75-125			

MATRIX SPIKE SAMPLE: 2441172

Parameter	Units	1278374001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	21.2	106	66-142	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.5	103	70-131	
1,1,2-Trichloroethane	ug/L	ND	20	20.1	101	75-128	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	24.1	120	54-150	
1,1-Dichloroethane	ug/L	ND	20	20.5	103	58-147	
1,1-Dichloroethene	ug/L	ND	20	21.9	109	49-150	
1,1-Dichloropropene	ug/L	ND	20	20.3	101	58-147	
1,2,3-Trichlorobenzene	ug/L	ND	20	20.7	103	57-139	
1,2,3-Trichloropropane	ug/L	ND	20	20.5	102	71-127	
1,2,4-Trichlorobenzene	ug/L	ND	20	21.5	108	55-136	
1,2,4-Trimethylbenzene	ug/L	ND	20	21.1	106	67-138	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	49.8	100	63-136	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20.0	100	74-125	
1,2-Dichlorobenzene	ug/L	ND	20	21.0	105	75-125	
1,2-Dichloroethane	ug/L	ND	20	19.0	95	63-133	
1,2-Dichloropropane	ug/L	ND	20	19.9	99	63-138	
1,3,5-Trimethylbenzene	ug/L	ND	20	21.4	107	69-136	
1,3-Dichlorobenzene	ug/L	ND	20	20.9	104	75-125	
1,3-Dichloropropane	ug/L	ND	20	19.7	99	65-135	
1,4-Dichlorobenzene	ug/L	ND	20	20.6	103	70-126	
2,2-Dichloropropane	ug/L	ND	20	23.1	116	39-148	
2-Butanone (MEK)	ug/L	ND	100	88.2	88	50-144	
2-Chlorotoluene	ug/L	ND	20	21.1	106	71-135	
4-Chlorotoluene	ug/L	ND	20	20.9	105	71-131	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

MATRIX SPIKE SAMPLE: 2441172		1278374001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	94.4	94	60-147	
Acetone	ug/L	ND	100	84.0	84	59-150	
Allyl chloride	ug/L	ND	20	19.2	96	38-149	
Benzene	ug/L	ND	20	18.5	92	61-138	
Bromobenzene	ug/L	ND	20	21.2	106	74-130	
Bromochloromethane	ug/L	ND	20	19.7	99	65-137	
Bromodichloromethane	ug/L	ND	20	21.6	108	66-136	
Bromoform	ug/L	ND	20	20.5	103	71-125	
Bromomethane	ug/L	ND	20	21.5	107	30-150	
Carbon tetrachloride	ug/L	ND	20	23.3	116	68-140	
Chlorobenzene	ug/L	ND	20	20.1	100	75-132	
Chloroethane	ug/L	ND	20	21.9	109	55-150	
Chloroform	ug/L	ND	20	20.4	102	64-139	
Chloromethane	ug/L	ND	20	22.9	115	73-150	
cis-1,2-Dichloroethene	ug/L	ND	20	20.1	101	62-138	
cis-1,3-Dichloropropene	ug/L	ND	20	19.9	99	70-125	
Dibromochloromethane	ug/L	ND	20	20.4	102	74-125	
Dibromomethane	ug/L	ND	20	21.1	105	66-138	
Dichlorodifluoromethane	ug/L	ND	20	28.5	143	53-150	
Dichlorofluoromethane	ug/L	ND	20	23.2	116	58-150	
Diethyl ether (Ethyl ether)	ug/L	ND	20	19.2	96	47-145	
Ethylbenzene	ug/L	ND	20	20.2	101	66-141	
Hexachloro-1,3-butadiene	ug/L	ND	20	26.5	133	63-139	
Isopropylbenzene (Cumene)	ug/L	ND	20	21.2	106	65-146	
m&p-Xylene	ug/L	ND	40	40.7	102	72-142	
Methyl-tert-butyl ether	ug/L	ND	20	19.6	98	63-134	
Methylene Chloride	ug/L	ND	20	17.4	87	49-143	
n-Butylbenzene	ug/L	ND	20	22.0	110	67-134	
n-Propylbenzene	ug/L	ND	20	20.9	105	62-142	
Naphthalene	ug/L	ND	20	19.8	99	41-150	
o-Xylene	ug/L	ND	20	20.8	104	66-138	
p-Isopropyltoluene	ug/L	ND	20	22.1	111	64-137	
sec-Butylbenzene	ug/L	ND	20	21.5	108	65-142	
Styrene	ug/L	ND	20	20.3	102	61-142	
tert-Butylbenzene	ug/L	ND	20	21.3	106	69-135	
Tetrachloroethene	ug/L	ND	20	20.9	104	62-142	
Tetrahydrofuran	ug/L	ND	200	177	88	55-150	
Toluene	ug/L	ND	20	19.0	95	66-132	
trans-1,2-Dichloroethene	ug/L	ND	20	21.3	107	48-150	
trans-1,3-Dichloropropene	ug/L	ND	20	20.3	102	65-130	
Trichloroethene	ug/L	ND	20	20.7	103	64-142	
Trichlorofluoromethane	ug/L	ND	20	29.2	146	63-150	
Vinyl chloride	ug/L	ND	20	25.7	128	58-150	
Xylene (Total)	ug/L	ND	60	61.5	103	70-140	
1,2-Dichloroethane-d4 (S)	%				101	75-125	
4-Bromofluorobenzene (S)	%				100	75-125	
Toluene-d8 (S)	%				99	75-125	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

SAMPLE DUPLICATE: 2441173

Parameter	Units	1278374002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

SAMPLE DUPLICATE: 2441173

Parameter	Units	1278374002 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	105	106	1		
4-Bromofluorobenzene (S)	%	102	101	1		
Toluene-d8 (S)	%	99	97	1		

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99424 Analysis Method: SM 2320B
 QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
 Associated Lab Samples: 1278223001, 1278223002, 1278223003

METHOD BLANK: 394698 Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<1.2	5.0	1.2	11/07/16 16:40	

LABORATORY CONTROL SAMPLE: 394699

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	101	101	90-110	

SAMPLE DUPLICATE: 394700

Parameter	Units	1278355001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	306	309	1	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99505

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 1278223004, 1278223005

METHOD BLANK: 394981

Matrix: Water

Associated Lab Samples: 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<1.2	5.0	1.2	11/08/16 13:44	

LABORATORY CONTROL SAMPLE: 394982

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	98.0	98	90-110	

SAMPLE DUPLICATE: 394983

Parameter	Units	1278380001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	35.0	30.9	12	20	

SAMPLE DUPLICATE: 394984

Parameter	Units	1278319001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	351	362	3	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99258

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394057

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Specific Conductance	umhos/cm	<5.0	10.0	5.0	11/04/16 09:37	

LABORATORY CONTROL SAMPLE: 394058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1413	1372	97	90-110	

SAMPLE DUPLICATE: 394059

Parameter	Units	1278287001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	131	131	0	20	

SAMPLE DUPLICATE: 394060

Parameter	Units	1278377002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	873	872	0	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99019 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

LABORATORY CONTROL SAMPLE: 392989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 392990

Parameter	Units	1278220001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	10	H6

SAMPLE DUPLICATE: 392991

Parameter	Units	1278201001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	0	10	H6

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF
Pace Project No.: 1278223

QC Batch: 99527 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 395054 Matrix: Water
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.50	1.0	0.50	11/08/16 14:58	
Sulfate	mg/L	<1.0	2.0	1.0	11/08/16 14:58	

LABORATORY CONTROL SAMPLE: 395055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.4	101	90-110	
Sulfate	mg/L	50	49.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 395056 395057

Parameter	Units	1278220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	0.59J	50	50	50.9	51.0	101	101	90-110	0	20	
Sulfate	mg/L	3.9	50	50	54.1	54.5	101	101	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 395058 395059

Parameter	Units	1278263001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.1	50	50	70.6	70.7	101	101	90-110	0	20	
Sulfate	mg/L	157	50	50	206	206	97	98	90-110	0	20 E	

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QUALIFIERS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DUL Pace Analytical Services - Duluth

PASI-M Pace Analytical Services - Minneapolis

PASI-V Pace Analytical Services - Virginia

BATCH QUALIFIERS

Batch: 446601

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1278223001	MW-3	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223002	MW-7	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223003	MW-8	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223004	FLD DUP	EPA 350.1	99748	EPA 350.1 rev. 2 (1993)	99828
1278223005	Equip Blank	EPA 350.1	99748	EPA 350.1 rev. 2 (1993)	99828
1278223001	MW-3	EPA 353.2 rev. 2 (1993)	99840		
1278223002	MW-7	EPA 353.2 rev. 2 (1993)	99840		
1278223003	MW-8	EPA 353.2 rev. 2 (1993)	99840		
1278223004	FLD DUP	EPA 353.2 rev. 2 (1993)	99840		
1278223005	Equip Blank	EPA 353.2 rev. 2 (1993)	99840		
1278223001	MW-3	EPA 200.7	99412	EPA 200.7	99477
1278223002	MW-7	EPA 200.7	99412	EPA 200.7	99477
1278223003	MW-8	EPA 200.7	99412	EPA 200.7	99477
1278223004	FLD DUP	EPA 200.7	99412	EPA 200.7	99477
1278223005	Equip Blank	EPA 200.7	99412	EPA 200.7	99477
1278223001	MW-3	EPA 200.8	99411	EPA 200.8	99476
1278223002	MW-7	EPA 200.8	99411	EPA 200.8	99476
1278223003	MW-8	EPA 200.8	99411	EPA 200.8	99476
1278223004	FLD DUP	EPA 200.8	99411	EPA 200.8	99476
1278223005	Equip Blank	EPA 200.8	99411	EPA 200.8	99476
1278223001	MW-3	EPA 7470	99825	EPA 7470	99849
1278223002	MW-7	EPA 7470	99825	EPA 7470	99849
1278223003	MW-8	EPA 7470	99825	EPA 7470	99849
1278223004	FLD DUP	EPA 7470	99825	EPA 7470	99849
1278223005	Equip Blank	EPA 7470	99825	EPA 7470	99849
1278223001	MW-3	EPA 8260B	446601		
1278223002	MW-7	EPA 8260B	446601		
1278223003	MW-8	EPA 8260B	446601		
1278223004	FLD DUP	EPA 8260B	446601		
1278223005	Equip Blank	EPA 8260B	446601		
1278223006	Trip Blank	EPA 8260B	446601		
1278223001	MW-3	SM 2320B	99424		
1278223002	MW-7	SM 2320B	99424		
1278223003	MW-8	SM 2320B	99424		
1278223004	FLD DUP	SM 2320B	99505		
1278223005	Equip Blank	SM 2320B	99505		
1278223001	MW-3	SM 2510B	99258		
1278223002	MW-7	SM 2510B	99258		
1278223003	MW-8	SM 2510B	99258		
1278223004	FLD DUP	SM 2510B	99258		
1278223005	Equip Blank	SM 2510B	99258		
1278223001	MW-3	SM 2540D (1997)	99273		
1278223002	MW-7	SM 2540D (1997)	99273		
1278223003	MW-8	SM 2540D (1997)	99273		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1278223004	FLD DUP	SM 2540D (1997)	99273		
1278223005	Equip Blank	SM 2540D (1997)	99273		
1278223001	MW-3	SM 4500-H+B	99019		
1278223002	MW-7	SM 4500-H+B	99019		
1278223003	MW-8	SM 4500-H+B	99019		
1278223004	FLD DUP	SM 4500-H+B	99019		
1278223005	Equip Blank	SM 4500-H+B	99019		
1278223001	MW-3	EPA 300.0	99527		
1278223002	MW-7	EPA 300.0	99527		
1278223003	MW-8	EPA 300.0	99527		
1278223004	FLD DUP	EPA 300.0	99527		
1278223005	Equip Blank	EPA 300.0	99527		

REPORT OF LABORATORY ANALYSIS

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1,1,2-Trichloroethane
1,1,2-Trichlorotrifluoroethane
1,1-Dichloroethane
1,1-Dichloroethylene (Vinylidene chloride)
1,1-Dichloropropene
1,2-Dichloroethylene (trans)
Organics (con't.)
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichlorobenzene (meta-)
1,3-Dichloropropane
1,3-Dichloropropene (cis + trans)
1,4-Dichlorobenzene (para-)
2,2-Dichloropropane
2-Chlorotoluene (ortho-)
4-Chlorotoluene (para-)
Acetone
Allyl chloride (3 chloropropene)
Benzene
Bromobenzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dichlorobromomethane)
Bromoform
Bromomethane (Methyl bromide)
Carbon tetrachloride
Chlorobenzene (monochlorobenzene)
Chlorodibromomethane (Dibromochloromethane)
Chloroethane
Chloroform
Chloromethane (Methyl chloride)
Cumene (Isopropylbenzene)
Dibromochloropropane (DBCP)
Dibromomethane (Methylene bromide)
Dichlorodifluoromethane
Dichlorofluoromethane
Dichloromethane (Methylene chloride)
Ethyl benzene
Ethyl ether
Hexachlorobutadiene
Methyl ethyl ketone (MEK)
Methyl isobutyl ketone (4-Methyl-2-pentanone)
Methyl tertiary-butyl ether (MTBE)
Naphthalene

1,2,4-Trimethylbenzene
1,2-Dibromoethane (Ethylene dibromide or EDB)
1,2-Dichlorobenzene (ortho-)
1,2-Dichloroethane
1,2-Dichloroethylene (cis-)
n-Butyl benzene
n-Propyl benzene
p-Isopropyltoluene
sec-Butyl benzene
Styrene
tert-Butyl benzene
Tetrachloroethylene (Perchloroethylene)
Tetrahydrofuran
Toluene
Trichloroethylene (TCE)
Trichlorofluoromethane
Vinyl chloride (chloroethene)
Xylenes (mixture of o, m, p)

Inorganics

Alkalinity, total as calcium carbonate
Ammonia Nitrogen
Arsenic, dissolved
Barium, dissolved
Boron, dissolved
Cadmium, dissolved
Chloride
Chromium, total dissolved
Copper, dissolved
Iron, dissolved
Lead, dissolved
Manganese, dissolved
Mercury, dissolved
Nitrate + Nitrite, as N
Sodium, dissolved
Sulfate
Suspended Solids, total
Appearance (b);
Dissolved Oxygen, field
pH (a)
Specific Conductance (a)
Temperature (a)
Turbidity, field
Water Elevation

**Parameter Lists for Sampling
of Ground Water Monitoring Network**

MDH 468 List (Organics)

Analytes

1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane

1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene

Project No. 13134
410-01XA

EXHIBIT A
Page 5 of 8

Contract No. 68852

Sample Condition Upon Receipt

Client Name: Widseth Smith Nolting Project #: _____

WO#: 1278223



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: SD

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.9 Cooler Temp Corrected °C: 1.2 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: 40.3 Date and Initials of Person Examining Contents: T. J. Dell 11-2-16

Comments: _____

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>PH</u>
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>SAMPLES DON'T HAVE ANALYSIS ON THEM AND BOTTLES AREN'T MARKED</u>
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: [Signature] Date: 11/2/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Intra-Regional Chain of Custody



Workorder: 1278223 Workorder Name: Camp Ripley MMLF Owner Received Date: 11/2/2016 Due Date: 11/16/2016

Received at: Pace Analytical Virginia
 315 Chestnut Street
 Virginia, MN 55792
 Phone (218) 742-1042

Send To Lab: Pace Analytical Duluth
 4730 Oneota Street
 Duluth, MN 55807
 Phone (218) 727-6380

Report To:
 Melisa M Woods

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	EPA 350.1 rev. 2 (1993)	EPA 353.2 rev. 2 (1993)	Requested Analysis	Comments
1	MM-3	PS	10/31/2016 13:35	1278223001	Water	1	X	X		
2	MM-7	PS	10/31/2016 14:30	1278223002	Water	1	X	X		
3	MM-8	PS	10/31/2016 15:20	1278223003	Water	1	X	X		
4	FLD DUP	PS	10/31/2016 00:00	1278223004	Water	1	X	X		
5	Equip Blank	PS	10/31/2016 13:40	1278223005	Water	1	X	X		
Transfers										
1	Released By	Date/Time	Received By	Date/Time						
2	Released By	Date/Time	Received By	Date/Time						
3	Released By	Date/Time	Received By	Date/Time						
4	Released By	Date/Time	Received By	Date/Time						
Cooler Temperature on Receipt		0.4 °C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	Y or N		

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upon Receipt

Client Name: IR COC VIRG. Project #: _____

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Packing Number: _____

Study Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: B00051 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.0 Cooler Temp Corrected °C: 0.4 Biological Tissue Frozen? Yes No N/A
Temp should be above freezing to 6°C Correction Factor: -0.6 °C Date and Initials of Person Examining Contents: PK 11/3/16

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>wt.</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

REGULATORY WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: AP for LMP Date: 11-3-16
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of date, incorrect preservative, out of temp, incorrect containers)

November 15, 2016

Greg Smith
Widseth, Smith & Nolting
7804 Industrial Park Road
PO Box 2720
Baxter, MN 56425

RE: Project: Camp Ripley MMLF
Pace Project No.: 1278223

Dear Greg Smith:

Enclosed are the analytical results for sample(s) received by the laboratory on November 02, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Melisa M Woods
melisa.woods@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

525 N 8th Street, Salina, KS 67401

Alaska Certification UST-107

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Saipan (CNMI) #:MP0003

South Carolina #:74003001

Texas Certification #: T104704192

Tennessee Certification #: 02818

Utah Certification #: MN000642013-4

Virginia DGS Certification #: 251

Virginia/VELAP Certification #: Pace

Washington Certification #: C486

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792

Alaska Certification UST-107

Alaska Certification UST-107

Alaska Certification #MN01084

Arizona Department of Health Certification #AZ0785

Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203

Wisconsin DNR Certification # : 998027470

WA Department of Ecology Lab ID# C1007

Nevada DNR #MN010842015-1

Oklahoma Department of Environmental Quality

Duluth Minnesota Certification ID's

4730 Oneota St., Duluth, MN 55807

Minnesota Dept of Health Certification #: 027-137-152

Wisconsin DNR Certification # : 999446800

North Dakota Certification #: R-105

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1278223001	MW-3	Water	10/31/16 13:35	11/02/16 10:30
1278223002	MW-7	Water	10/31/16 14:30	11/02/16 10:30
1278223003	MW-8	Water	10/31/16 15:20	11/02/16 10:30
1278223004	FLD DUP	Water	10/31/16 00:00	11/02/16 10:30
1278223005	Equip Blank	Water	10/31/16 13:40	11/02/16 10:30
1278223006	Trip Blank	Water	10/31/16 00:00	11/02/16 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1278223001	MW-3	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
1278223002	MW-7	EPA 300.0	DMB	2	PASI-V
		EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
1278223003	MW-8	SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
		EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
1278223004	FLD DUP	SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
		EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V

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SAMPLE ANALYTE COUNT

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
1278223005	Equip Blank	EPA 350.1 rev. 2 (1993)	KJD	1	PASI-DUL
		EPA 353.2 rev. 2 (1993)	TMW	1	PASI-DUL
		EPA 200.7	CSD	7	PASI-V
		EPA 200.8	KRV	3	PASI-V
		EPA 7470	MAR	1	PASI-V
		EPA 8260B	DJB	72	PASI-M
		SM 2320B	BEM	1	PASI-V
		SM 2510B	JJH	1	PASI-V
		SM 2540D (1997)	BEM	1	PASI-V
		SM 4500-H+B	JJH	1	PASI-V
		EPA 300.0	DMB	2	PASI-V
1278223006	Trip Blank	EPA 8260B	DJB	72	PASI-M

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-3	Lab ID: 1278223001	Collected: 10/31/16 13:35	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	1	11/10/16 10:28	11/10/16 14:00	7664-41-7	
353.2 Nitrate + Nitrite pres. Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrogen, NO2 plus NO3	0.24	mg/L	0.020	1		11/11/16 14:47		
200.7 MET ICP, Dissolved Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Dissolved	23.6	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:26	7440-39-3	
Boron, Dissolved	ND	ug/L	100	1	11/07/16 16:01	11/08/16 11:26	7440-42-8	
Chromium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:26	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:26	7440-50-8	
Iron, Dissolved	ND	ug/L	50.0	1	11/07/16 16:01	11/08/16 11:26	7439-89-6	
Manganese, Dissolved	62.9	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:26	7439-96-5	
Sodium, Dissolved	2.8	mg/L	0.50	1	11/07/16 16:01	11/08/16 11:26	7440-23-5	
200.8 MET ICPMS, Dissolved Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic, Dissolved	1.8	ug/L	1.0	2	11/07/16 16:01	11/09/16 13:17	7440-38-2	
Cadmium, Dissolved	ND	ug/L	0.40	2	11/07/16 16:01	11/08/16 18:47	7440-43-9	
Lead, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 18:47	7439-92-1	
7470 Mercury, Dissolved Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	0.20	1	11/10/16 15:50	11/14/16 09:48	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B								
Acetone	ND	ug/L	20.0	1		11/11/16 20:03	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 20:03	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 20:03	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 20:03	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 20:03	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 20:03	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 20:03	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 20:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 20:03	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 20:03	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 20:03	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 20:03	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 20:03	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:03	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:03	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 20:03	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 20:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 20:03	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 20:03	74-95-3	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-3	Lab ID: 1278223001	Collected: 10/31/16 13:35	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 20:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:03	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 20:03	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 20:03	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 20:03	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 20:03	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:03	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 20:03	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/11/16 20:03	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 20:03	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 20:03	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 20:03	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 20:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 20:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 20:03	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 20:03	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 20:03	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 20:03	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 20:03	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 20:03	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 20:03	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 20:03	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:03	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:03	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 20:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 20:03	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 20:03	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 20:03	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:03	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 20:03	75-01-4	
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 20:03	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 20:03	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 20:03	95-47-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-3		Lab ID: 1278223001		Collected: 10/31/16 13:35		Received: 11/02/16 10:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV Low Level		Analytical Method: EPA 8260B							
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%	75-125	1		11/11/16 20:03	17060-07-0		
Toluene-d8 (S)	98	%	75-125	1		11/11/16 20:03	2037-26-5		
4-Bromofluorobenzene (S)	100	%	75-125	1		11/11/16 20:03	460-00-4		
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	104	mg/L	5.0	1		11/07/16 17:32			
2510B Specific Conductance		Analytical Method: SM 2510B							
Specific Conductance	227	umhos/cm	10.0	1		11/04/16 09:46			
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)							
Total Suspended Solids	34.6	mg/L	2.0	1		11/04/16 10:49			
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	8.0	Std. Units	0.10	1		11/02/16 14:57		H6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	ND	mg/L	1.0	1		11/08/16 16:50	16887-00-6		
Sulfate	9.0	mg/L	2.0	1		11/08/16 16:50	14808-79-8		

Sample: MW-7		Lab ID: 1278223002		Collected: 10/31/16 14:30		Received: 11/02/16 10:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
350.1 Ammonia		Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1							
Nitrogen, Ammonia	0.78	mg/L	0.10	1	11/10/16 10:28	11/10/16 14:01	7664-41-7		
353.2 Nitrate + Nitrite pres.		Analytical Method: EPA 353.2 rev. 2 (1993)							
Nitrogen, NO2 plus NO3	1.3	mg/L	0.040	2		11/11/16 15:27			
200.7 MET ICP, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Dissolved	309	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:36	7440-39-3		
Boron, Dissolved	ND	ug/L	100	1	11/07/16 16:01	11/08/16 11:36	7440-42-8		
Chromium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:36	7440-47-3		
Copper, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:36	7440-50-8		
Iron, Dissolved	ND	ug/L	50.0	1	11/07/16 16:01	11/08/16 11:36	7439-89-6		
Manganese, Dissolved	593	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:36	7439-96-5		
Sodium, Dissolved	6.1	mg/L	0.50	1	11/07/16 16:01	11/08/16 11:36	7440-23-5		
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Arsenic, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 18:58	7440-38-2		
Cadmium, Dissolved	ND	ug/L	0.40	2	11/07/16 16:01	11/08/16 18:58	7440-43-9		
Lead, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 18:58	7439-92-1		

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-7	Lab ID: 1278223002	Collected: 10/31/16 14:30	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	0.20	1	11/10/16 15:50	11/14/16 09:50	7439-97-6	
8260B MSV Low Level								
Analytical Method: EPA 8260B								
Acetone	ND	ug/L	20.0	1		11/11/16 20:25	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 20:25	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 20:25	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 20:25	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 20:25	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 20:25	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 20:25	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 20:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 20:25	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 20:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 20:25	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 20:25	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 20:25	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:25	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 20:25	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 20:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 20:25	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 20:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 20:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:25	75-35-4	
cis-1,2-Dichloroethene	3.8	ug/L	0.50	1		11/11/16 20:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:25	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 20:25	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 20:25	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 20:25	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 20:25	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 20:25	10061-02-6	
Diethyl ether (Ethyl ether)	6.9	ug/L	4.0	1		11/11/16 20:25	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 20:25	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 20:25	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 20:25	99-87-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-7	Lab ID: 1278223002	Collected: 10/31/16 14:30	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 20:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 20:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 20:25	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 20:25	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 20:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 20:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 20:25	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 20:25	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 20:25	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 20:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:25	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 20:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 20:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 20:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 20:25	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:25	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 20:25	75-01-4	
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 20:25	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 20:25	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 20:25	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	75-125	1		11/11/16 20:25	17060-07-0	
Toluene-d8 (S)	100	%	75-125	1		11/11/16 20:25	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		11/11/16 20:25	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	389	mg/L	5.0	1		11/07/16 17:40		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	817	umhos/cm	10.0	1		11/04/16 09:54		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)						
Total Suspended Solids	5.2	mg/L	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.5	Std. Units	0.10	1		11/02/16 15:00		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	21.1	mg/L	1.0	1		11/08/16 17:12	16887-00-6	
Sulfate	4.0	mg/L	2.0	1		11/08/16 17:12	14808-79-8	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-8	Lab ID: 1278223003	Collected: 10/31/16 15:20	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia								
Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	1	11/10/16 10:28	11/10/16 14:02	7664-41-7	
353.2 Nitrate + Nitrite pres.								
Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrogen, NO2 plus NO3	1.8	mg/L	0.10	5		11/11/16 15:28		
200.7 MET ICP, Dissolved								
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Dissolved	50.1	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:40	7440-39-3	
Boron, Dissolved	ND	ug/L	100	1	11/07/16 16:01	11/08/16 11:40	7440-42-8	
Chromium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:40	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:40	7440-50-8	
Iron, Dissolved	ND	ug/L	50.0	1	11/07/16 16:01	11/08/16 11:40	7439-89-6	
Manganese, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:40	7439-96-5	
Sodium, Dissolved	3.0	mg/L	0.50	1	11/07/16 16:01	11/08/16 11:40	7440-23-5	
200.8 MET ICPMS, Dissolved								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 19:01	7440-38-2	
Cadmium, Dissolved	ND	ug/L	0.40	2	11/07/16 16:01	11/08/16 19:01	7440-43-9	
Lead, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 19:01	7439-92-1	
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	0.20	1	11/10/16 15:50	11/14/16 09:52	7439-97-6	
8260B MSV Low Level								
Analytical Method: EPA 8260B								
Acetone	ND	ug/L	20.0	1		11/11/16 20:47	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 20:47	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 20:47	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 20:47	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 20:47	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 20:47	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 20:47	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 20:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 20:47	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 20:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 20:47	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 20:47	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 20:47	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:47	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 20:47	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 20:47	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 20:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 20:47	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 20:47	74-95-3	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-8	Lab ID: 1278223003	Collected: 10/31/16 15:20	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 20:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 20:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 20:47	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 20:47	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 20:47	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 20:47	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 20:47	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:47	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 20:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 20:47	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/11/16 20:47	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 20:47	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 20:47	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 20:47	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 20:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 20:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 20:47	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 20:47	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 20:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 20:47	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 20:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 20:47	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 20:47	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 20:47	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 20:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 20:47	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 20:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 20:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 20:47	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 20:47	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 20:47	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 20:47	75-01-4	
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 20:47	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 20:47	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 20:47	95-47-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: MW-8		Lab ID: 1278223003		Collected: 10/31/16 15:20	Received: 11/02/16 10:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	75-125	1		11/11/16 20:47	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		11/11/16 20:47	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		11/11/16 20:47	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	240	mg/L	5.0	1		11/07/16 17:48		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	591	umhos/cm	10.0	1		11/04/16 09:47		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)						
Total Suspended Solids	ND	mg/L	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.9	Std. Units	0.10	1		11/02/16 15:03		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	25.9	mg/L	1.0	1		11/08/16 17:35	16887-00-6	
Sulfate	5.7	mg/L	2.0	1		11/08/16 17:35	14808-79-8	

Sample: FLD DUP		Lab ID: 1278223004		Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia		Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1						
Nitrogen, Ammonia	0.76	mg/L	0.10	1	11/10/16 10:28	11/10/16 14:17	7664-41-7	
353.2 Nitrate + Nitrite pres.		Analytical Method: EPA 353.2 rev. 2 (1993)						
Nitrogen, NO2 plus NO3	1.2	mg/L	0.040	2		11/11/16 15:30		
200.7 MET ICP, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	307	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:43	7440-39-3	
Boron, Dissolved	ND	ug/L	100	1	11/07/16 16:01	11/08/16 11:43	7440-42-8	
Chromium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:43	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:43	7440-50-8	
Iron, Dissolved	ND	ug/L	50.0	1	11/07/16 16:01	11/08/16 11:43	7439-89-6	
Manganese, Dissolved	590	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:43	7439-96-5	
Sodium, Dissolved	6.2	mg/L	0.50	1	11/07/16 16:01	11/08/16 11:43	7440-23-5	
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 19:05	7440-38-2	
Cadmium, Dissolved	ND	ug/L	0.40	2	11/07/16 16:01	11/08/16 19:05	7440-43-9	
Lead, Dissolved	ND	ug/L	1.0	2	11/07/16 16:01	11/08/16 19:05	7439-92-1	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: FLD DUP	Lab ID: 1278223004	Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
7470 Mercury, Dissolved								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	0.20	1	11/10/16 15:50	11/14/16 09:54	7439-97-6	
8260B MSV Low Level								
Analytical Method: EPA 8260B								
Acetone	ND	ug/L	20.0	1		11/11/16 21:09	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 21:09	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 21:09	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 21:09	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 21:09	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 21:09	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 21:09	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 21:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 21:09	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 21:09	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 21:09	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 21:09	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 21:09	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 21:09	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 21:09	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 21:09	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 21:09	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 21:09	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 21:09	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 21:09	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 21:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 21:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 21:09	75-35-4	
cis-1,2-Dichloroethene	3.6	ug/L	0.50	1		11/11/16 21:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 21:09	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 21:09	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 21:09	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 21:09	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 21:09	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 21:09	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 21:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 21:09	10061-02-6	
Diethyl ether (Ethyl ether)	6.5	ug/L	4.0	1		11/11/16 21:09	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 21:09	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 21:09	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 21:09	99-87-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: FLD DUP		Lab ID: 1278223004	Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 21:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 21:09	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 21:09	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 21:09	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 21:09	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 21:09	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 21:09	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 21:09	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 21:09	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 21:09	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 21:09	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 21:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 21:09	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 21:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 21:09	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 21:09	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 21:09	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 21:09	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 21:09	75-01-4	
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 21:09	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 21:09	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 21:09	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	75-125	1		11/11/16 21:09	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		11/11/16 21:09	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		11/11/16 21:09	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	377	mg/L	5.0	1		11/08/16 16:05		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	817	umhos/cm	10.0	1		11/04/16 09:48		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)						
Total Suspended Solids	2.0	mg/L	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.6	Std. Units	0.10	1		11/02/16 15:06		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	21.2	mg/L	1.0	1		11/08/16 17:57	16887-00-6	
Sulfate	4.0	mg/L	2.0	1		11/08/16 17:57	14808-79-8	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Equip Blank	Lab ID: 1278223005	Collected: 10/31/16 13:40	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia Analytical Method: EPA 350.1 rev. 2 (1993) Preparation Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	1	11/10/16 10:28	11/10/16 14:06	7664-41-7	
353.2 Nitrate + Nitrite pres. Analytical Method: EPA 353.2 rev. 2 (1993)								
Nitrogen, NO2 plus NO3	ND	mg/L	0.020	1		11/11/16 14:53		
200.7 MET ICP, Dissolved Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Barium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:46	7440-39-3	
Boron, Dissolved	ND	ug/L	100	1	11/07/16 16:01	11/08/16 11:46	7440-42-8	
Chromium, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:46	7440-47-3	
Copper, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:46	7440-50-8	
Iron, Dissolved	ND	ug/L	50.0	1	11/07/16 16:01	11/08/16 11:46	7439-89-6	
Manganese, Dissolved	ND	ug/L	10.0	1	11/07/16 16:01	11/08/16 11:46	7439-96-5	
Sodium, Dissolved	ND	mg/L	0.50	1	11/07/16 16:01	11/08/16 11:46	7440-23-5	
200.8 MET ICPMS, Dissolved Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic, Dissolved	ND	ug/L	0.50	1	11/07/16 16:01	11/08/16 19:09	7440-38-2	
Cadmium, Dissolved	ND	ug/L	0.20	1	11/07/16 16:01	11/08/16 19:09	7440-43-9	
Lead, Dissolved	ND	ug/L	0.50	1	11/07/16 16:01	11/08/16 19:09	7439-92-1	
7470 Mercury, Dissolved Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury, Dissolved	ND	ug/L	0.20	1	11/10/16 15:50	11/14/16 09:57	7439-97-6	
8260B MSV Low Level Analytical Method: EPA 8260B								
Acetone	ND	ug/L	20.0	1		11/11/16 15:39	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 15:39	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 15:39	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 15:39	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 15:39	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 15:39	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 15:39	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 15:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 15:39	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 15:39	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 15:39	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 15:39	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 15:39	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 15:39	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 15:39	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 15:39	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 15:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 15:39	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 15:39	74-95-3	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Equip Blank	Lab ID: 1278223005	Collected: 10/31/16 13:40	Received: 11/02/16 10:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 15:39	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 15:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 15:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:39	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 15:39	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 15:39	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 15:39	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 15:39	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 15:39	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 15:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 15:39	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/11/16 15:39	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 15:39	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 15:39	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 15:39	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 15:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 15:39	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 15:39	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 15:39	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 15:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 15:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 15:39	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 15:39	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 15:39	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 15:39	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:39	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 15:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 15:39	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 15:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 15:39	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 15:39	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 15:39	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 15:39	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 15:39	75-01-4	
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 15:39	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 15:39	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 15:39	95-47-6	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Equip Blank		Lab ID: 1278223005		Collected: 10/31/16 13:40	Received: 11/02/16 10:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	75-125	1		11/11/16 15:39	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		11/11/16 15:39	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125	1		11/11/16 15:39	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	ND	mg/L	5.0	1		11/08/16 16:09		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	ND	umhos/cm	10.0	1		11/04/16 09:45		
2540D Total Suspended Solids		Analytical Method: SM 2540D (1997)						
Total Suspended Solids	ND	mg/L	2.0	1		11/04/16 10:49		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	5.9	Std. Units	0.10	1		11/02/16 15:08		H6
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	ND	mg/L	1.0	1		11/08/16 18:19	16887-00-6	
Sulfate	ND	mg/L	2.0	1		11/08/16 18:19	14808-79-8	

Sample: Trip Blank		Lab ID: 1278223006		Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	20.0	1		11/11/16 15:17	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/11/16 15:17	107-05-1	
Benzene	ND	ug/L	0.50	1		11/11/16 15:17	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		11/11/16 15:17	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/11/16 15:17	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/11/16 15:17	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/11/16 15:17	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/11/16 15:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/11/16 15:17	78-93-3	
n-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/11/16 15:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/11/16 15:17	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/11/16 15:17	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/11/16 15:17	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 15:17	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		11/11/16 15:17	106-43-4	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Trip Blank		Lab ID: 1278223006	Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
1,2-Dibromo-3-chloropropane	ND	ug/L	10.0	1		11/11/16 15:17	96-12-8	
Dibromochloromethane	ND	ug/L	4.0	1		11/11/16 15:17	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/11/16 15:17	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/11/16 15:17	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/11/16 15:17	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		11/11/16 15:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		11/11/16 15:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:17	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		11/11/16 15:17	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		11/11/16 15:17	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/11/16 15:17	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		11/11/16 15:17	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/11/16 15:17	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		11/11/16 15:17	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		11/11/16 15:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/11/16 15:17	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/11/16 15:17	60-29-7	
Ethylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	4.0	1		11/11/16 15:17	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/11/16 15:17	98-82-8	
p-Isopropyltoluene	ND	ug/L	0.50	1		11/11/16 15:17	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/11/16 15:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/11/16 15:17	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/11/16 15:17	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/11/16 15:17	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	103-65-1	
Styrene	ND	ug/L	0.50	1		11/11/16 15:17	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/11/16 15:17	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		11/11/16 15:17	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		11/11/16 15:17	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/11/16 15:17	109-99-9	
Toluene	ND	ug/L	0.50	1		11/11/16 15:17	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	0.50	1		11/11/16 15:17	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		11/11/16 15:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		11/11/16 15:17	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/11/16 15:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		11/11/16 15:17	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/11/16 15:17	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/11/16 15:17	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/11/16 15:17	108-67-8	
Vinyl chloride	ND	ug/L	0.20	1		11/11/16 15:17	75-01-4	

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ANALYTICAL RESULTS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Sample: Trip Blank		Lab ID: 1278223006		Collected: 10/31/16 00:00	Received: 11/02/16 10:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Low Level		Analytical Method: EPA 8260B						
Xylene (Total)	ND	ug/L	1.5	1		11/11/16 15:17	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		11/11/16 15:17	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		11/11/16 15:17	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%.	75-125	1		11/11/16 15:17	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		11/11/16 15:17	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		11/11/16 15:17	460-00-4	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99747 Analysis Method: EPA 350.1 rev. 2 (1993)

QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia

Associated Lab Samples: 1278223001, 1278223002, 1278223003

METHOD BLANK: 396028 Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/10/16 13:26	

LABORATORY CONTROL SAMPLE: 396027

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	1.1	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396029 396030

Parameter	Units	1277946001		396030		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Ammonia	mg/L	0.43	1	1.4	1.4	101	98	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396031 396032

Parameter	Units	1278192003		396032		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, Ammonia	mg/L	0.90	1	1.9	2.0	99	106	90-110	4	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99748

Analysis Method: EPA 350.1 rev. 2 (1993)

QC Batch Method: EPA 350.1

Analysis Description: 350.1 Ammonia

Associated Lab Samples: 1278223004, 1278223005

METHOD BLANK: 396035

Matrix: Water

Associated Lab Samples: 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	11/10/16 14:04	

LABORATORY CONTROL SAMPLE: 396034

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1	0.96	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396036 396037

Parameter	Units	1278223004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	0.76	1	1	1.7	1.7	97	98	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396038 396039

Parameter	Units	1278568004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	1.4	1	1	2.4	2.3	98	88	90-110	4	10	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF
Pace Project No.: 1278223

QC Batch: 99840 Analysis Method: EPA 353.2 rev. 2 (1993)
QC Batch Method: EPA 353.2 rev. 2 (1993) Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 396392 Matrix: Water
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.020	11/11/16 14:36	

LABORATORY CONTROL SAMPLE: 396391

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	.5	0.52	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396393 396394

Parameter	Units	1278207001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.028	.5	.5	0.52	0.50	98	94	90-110	3	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396395 396396

Parameter	Units	1278246001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	ND	.5	.5	0.53	0.53	107	105	90-110	2	10	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99825 Analysis Method: EPA 7470
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury Dissolved
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 396314 Matrix: Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	0.20	11/14/16 09:31	

LABORATORY CONTROL SAMPLE: 396315

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	2	2.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396316 396317

Parameter	Units	1278220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	ND	2	2	2.0	2.0	100	100	75-125	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 396319 396320

Parameter	Units	1278641001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury, Dissolved	ug/L	ND	2	2	2.0	2.1	102	102	75-125	1	15	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF
Pace Project No.: 1278223

QC Batch: 99412 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET Dissolved
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394640 Matrix: Water
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	11/08/16 11:20	
Boron, Dissolved	ug/L	ND	100	11/08/16 11:20	
Chromium, Dissolved	ug/L	ND	10.0	11/08/16 11:20	
Copper, Dissolved	ug/L	ND	10.0	11/08/16 11:20	
Iron, Dissolved	ug/L	ND	50.0	11/08/16 11:20	
Manganese, Dissolved	ug/L	ND	10.0	11/08/16 11:20	
Sodium, Dissolved	mg/L	ND	0.50	11/08/16 11:20	

LABORATORY CONTROL SAMPLE: 394641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	500	493	99	85-115	
Boron, Dissolved	ug/L	500	500	100	85-115	
Chromium, Dissolved	ug/L	500	508	102	85-115	
Copper, Dissolved	ug/L	500	483	97	85-115	
Iron, Dissolved	ug/L	10000	10000	100	85-115	
Manganese, Dissolved	ug/L	1000	996	100	85-115	
Sodium, Dissolved	mg/L	20	19.5	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394642 394643

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1278223001 Result	Spike Conc.	Spike Conc.	Conc.								
Barium, Dissolved	ug/L	23.6	500	500	517	511	99	98	70-130	1	20		
Boron, Dissolved	ug/L	ND	500	500	516	518	99	99	70-130	1	20		
Chromium, Dissolved	ug/L	ND	500	500	511	506	102	101	70-130	1	20		
Copper, Dissolved	ug/L	ND	500	500	488	483	97	96	70-130	1	20		
Iron, Dissolved	ug/L	ND	10000	10000	10100	9990	101	100	70-130	1	20		
Manganese, Dissolved	ug/L	62.9	1000	1000	1060	1050	100	99	70-130	1	20		
Sodium, Dissolved	mg/L	2.8	20	20	22.4	22.1	98	97	70-130	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394644 394645

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1278422001 Result	Spike Conc.	Spike Conc.	Conc.								
Barium, Dissolved	ug/L	79.1	500	500	558	564	96	97	70-130	1	20		
Boron, Dissolved	ug/L	ND	500	500	505	518	98	100	70-130	3	20		

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Parameter	Units	394644		394645		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1278422001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chromium, Dissolved	ug/L	ND	500	500	498	508	99	101	70-130	2	20	
Copper, Dissolved	ug/L	ND	500	500	482	486	96	97	70-130	1	20	
Iron, Dissolved	ug/L	ND	10000	10000	9850	9950	98	99	70-130	1	20	
Manganese, Dissolved	ug/L	11.1	1000	1000	988	998	98	99	70-130	1	20	
Sodium, Dissolved	mg/L	2.5	20	20	21.6	22.0	95	98	70-130	2	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF
Pace Project No.: 1278223

QC Batch: 99411 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET Dissolved
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394634 Matrix: Water
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/08/16 18:35	
Cadmium, Dissolved	ug/L	ND	0.20	11/08/16 18:35	
Lead, Dissolved	ug/L	ND	0.50	11/08/16 18:35	

LABORATORY CONTROL SAMPLE: 394635

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	510	102	85-115	
Cadmium, Dissolved	ug/L	500	488	98	85-115	
Lead, Dissolved	ug/L	500	491	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394636 394637

Parameter	Units	1278223001		394637		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Arsenic, Dissolved	ug/L	1.8	500	500	520	510	104	102	70-130	2	20	
Cadmium, Dissolved	ug/L	ND	500	500	496	483	99	96	70-130	3	20	
Lead, Dissolved	ug/L	ND	500	500	503	485	101	97	70-130	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 394638 394639

Parameter	Units	1278422001		394639		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Arsenic, Dissolved	ug/L	ND	500	500	500	506	100	101	70-130	1	20	
Cadmium, Dissolved	ug/L	ND	500	500	491	497	98	99	70-130	1	20	
Lead, Dissolved	ug/L	ND	500	500	489	493	98	99	70-130	1	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 446601

Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B

Analysis Description: 8260 MSV LL Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

METHOD BLANK: 2441169

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/11/16 14:33	
1,1,1-Trichloroethane	ug/L	ND	0.50	11/11/16 14:33	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	11/11/16 14:33	
1,1,2-Trichloroethane	ug/L	ND	0.50	11/11/16 14:33	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/11/16 14:33	
1,1-Dichloroethane	ug/L	ND	0.50	11/11/16 14:33	
1,1-Dichloroethene	ug/L	ND	0.50	11/11/16 14:33	
1,1-Dichloropropene	ug/L	ND	0.50	11/11/16 14:33	
1,2,3-Trichlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/11/16 14:33	
1,2,4-Trichlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	11/11/16 14:33	
1,2-Dibromo-3-chloropropane	ug/L	ND	10.0	11/11/16 14:33	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/11/16 14:33	
1,2-Dichlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
1,2-Dichloroethane	ug/L	ND	0.50	11/11/16 14:33	
1,2-Dichloropropane	ug/L	ND	4.0	11/11/16 14:33	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	11/11/16 14:33	
1,3-Dichlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
1,3-Dichloropropane	ug/L	ND	0.50	11/11/16 14:33	
1,4-Dichlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
2,2-Dichloropropane	ug/L	ND	1.0	11/11/16 14:33	
2-Butanone (MEK)	ug/L	ND	5.0	11/11/16 14:33	
2-Chlorotoluene	ug/L	ND	0.50	11/11/16 14:33	
4-Chlorotoluene	ug/L	ND	0.50	11/11/16 14:33	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/11/16 14:33	
Acetone	ug/L	ND	20.0	11/11/16 14:33	
Allyl chloride	ug/L	ND	4.0	11/11/16 14:33	
Benzene	ug/L	ND	0.50	11/11/16 14:33	
Bromobenzene	ug/L	ND	0.50	11/11/16 14:33	
Bromochloromethane	ug/L	ND	1.0	11/11/16 14:33	
Bromodichloromethane	ug/L	ND	1.0	11/11/16 14:33	
Bromoform	ug/L	ND	4.0	11/11/16 14:33	
Bromomethane	ug/L	ND	4.0	11/11/16 14:33	
Carbon tetrachloride	ug/L	ND	1.0	11/11/16 14:33	
Chlorobenzene	ug/L	ND	0.50	11/11/16 14:33	
Chloroethane	ug/L	ND	1.0	11/11/16 14:33	
Chloroform	ug/L	ND	1.0	11/11/16 14:33	
Chloromethane	ug/L	ND	4.0	11/11/16 14:33	
cis-1,2-Dichloroethene	ug/L	ND	0.50	11/11/16 14:33	
cis-1,3-Dichloropropene	ug/L	ND	0.50	11/11/16 14:33	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

METHOD BLANK: 2441169

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005, 1278223006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	4.0	11/11/16 14:33	
Dibromomethane	ug/L	ND	1.0	11/11/16 14:33	
Dichlorodifluoromethane	ug/L	ND	1.0	11/11/16 14:33	
Dichlorofluoromethane	ug/L	ND	1.0	11/11/16 14:33	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/11/16 14:33	
Ethylbenzene	ug/L	ND	0.50	11/11/16 14:33	
Hexachloro-1,3-butadiene	ug/L	ND	4.0	11/11/16 14:33	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	11/11/16 14:33	
m&p-Xylene	ug/L	ND	1.0	11/11/16 14:33	
Methyl-tert-butyl ether	ug/L	ND	0.50	11/11/16 14:33	
Methylene Chloride	ug/L	ND	4.0	11/11/16 14:33	
n-Butylbenzene	ug/L	ND	0.50	11/11/16 14:33	
n-Propylbenzene	ug/L	ND	0.50	11/11/16 14:33	
Naphthalene	ug/L	ND	1.0	11/11/16 14:33	
o-Xylene	ug/L	ND	0.50	11/11/16 14:33	
p-Isopropyltoluene	ug/L	ND	0.50	11/11/16 14:33	
sec-Butylbenzene	ug/L	ND	0.50	11/11/16 14:33	
Styrene	ug/L	ND	0.50	11/11/16 14:33	
tert-Butylbenzene	ug/L	ND	0.50	11/11/16 14:33	
Tetrachloroethene	ug/L	ND	0.50	11/11/16 14:33	
Tetrahydrofuran	ug/L	ND	10.0	11/11/16 14:33	
Toluene	ug/L	ND	0.50	11/11/16 14:33	
trans-1,2-Dichloroethene	ug/L	ND	0.50	11/11/16 14:33	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/11/16 14:33	
Trichloroethene	ug/L	ND	0.40	11/11/16 14:33	
Trichlorofluoromethane	ug/L	ND	0.50	11/11/16 14:33	
Vinyl chloride	ug/L	ND	0.20	11/11/16 14:33	
Xylene (Total)	ug/L	ND	1.5	11/11/16 14:33	
1,2-Dichloroethane-d4 (S)	%	105	75-125	11/11/16 14:33	
4-Bromofluorobenzene (S)	%	103	75-125	11/11/16 14:33	
Toluene-d8 (S)	%	98	75-125	11/11/16 14:33	

LABORATORY CONTROL SAMPLE & LCSD: 2441170

2441171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.8	22.4	109	112	75-125	3	30	
1,1,1-Trichloroethane	ug/L	20	20.2	20.1	101	100	74-125	1	30	
1,1,2,2-Tetrachloroethane	ug/L	20	23.0	22.7	115	113	67-131	1	30	
1,1,2-Trichloroethane	ug/L	20	22.1	22.4	111	112	75-125	1	30	
1,1,2-Trichlorotrifluoroethane	ug/L	20	20.2	20.2	101	101	75-125	0	30	
1,1-Dichloroethane	ug/L	20	20.0	19.9	100	99	74-125	0	30	
1,1-Dichloroethene	ug/L	20	20.1	20.3	101	102	74-125	1	30	
1,1-Dichloropropene	ug/L	20	19.0	19.1	95	95	74-125	0	30	
1,2,3-Trichlorobenzene	ug/L	20	21.2	22.8	106	114	63-131	7	30	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

LABORATORY CONTROL SAMPLE & LCSD: 2441170

2441171

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,3-Trichloropropane	ug/L	20	22.5	22.4	113	112	73-125	1	30	
1,2,4-Trichlorobenzene	ug/L	20	22.3	22.8	111	114	66-126	2	30	
1,2,4-Trimethylbenzene	ug/L	20	21.5	21.8	107	109	74-129	2	30	
1,2-Dibromo-3-chloropropane	ug/L	50	56.8	54.7	114	109	54-129	4	30	
1,2-Dibromoethane (EDB)	ug/L	20	21.3	21.7	107	109	75-125	2	30	
1,2-Dichlorobenzene	ug/L	20	21.5	22.0	107	110	75-125	2	30	
1,2-Dichloroethane	ug/L	20	19.3	19.8	96	99	75-125	3	30	
1,2-Dichloropropane	ug/L	20	20.0	20.4	100	102	75-125	2	30	
1,3,5-Trimethylbenzene	ug/L	20	21.7	21.8	109	109	73-127	0	30	
1,3-Dichlorobenzene	ug/L	20	21.2	21.5	106	107	75-125	1	30	
1,3-Dichloropropane	ug/L	20	20.7	21.4	104	107	69-125	3	30	
1,4-Dichlorobenzene	ug/L	20	20.9	21.3	105	106	75-125	2	30	
2,2-Dichloropropane	ug/L	20	22.5	22.1	113	111	69-125	2	30	
2-Butanone (MEK)	ug/L	100	106	99.6	106	100	48-145	6	30	
2-Chlorotoluene	ug/L	20	21.3	21.1	106	105	74-125	1	30	
4-Chlorotoluene	ug/L	20	21.1	21.2	105	106	73-125	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	100	112	105	112	105	53-138	7	30	
Acetone	ug/L	100	92.6	94.0	93	94	70-142	2	30	
Allyl chloride	ug/L	20	18.4	18.7	92	93	61-127	1	30	
Benzene	ug/L	20	18.1	18.2	90	91	65-125	0	30	
Bromobenzene	ug/L	20	22.1	22.3	110	112	75-125	1	30	
Bromochloromethane	ug/L	20	19.7	20.6	99	103	75-125	4	30	
Bromodichloromethane	ug/L	20	21.5	22.4	107	112	73-125	4	30	
Bromoform	ug/L	20	21.7	22.7	109	113	69-125	4	30	
Bromomethane	ug/L	20	15.0	18.3	75	92	40-136	20	30	
Carbon tetrachloride	ug/L	20	21.5	21.5	108	107	70-125	0	30	
Chlorobenzene	ug/L	20	20.4	20.6	102	103	75-125	1	30	
Chloroethane	ug/L	20	18.6	19.3	93	97	67-141	4	30	
Chloroform	ug/L	20	20.2	20.4	101	102	75-125	1	30	
Chloromethane	ug/L	20	20.0	20.1	100	100	50-150	0	30	
cis-1,2-Dichloroethene	ug/L	20	20.1	19.9	100	99	75-125	1	30	
cis-1,3-Dichloropropene	ug/L	20	20.7	21.6	104	108	75-125	4	30	
Dibromochloromethane	ug/L	20	20.7	22.1	104	110	75-125	6	30	
Dibromomethane	ug/L	20	22.7	22.2	113	111	75-129	2	30	
Dichlorodifluoromethane	ug/L	20	22.2	21.9	111	110	59-135	1	30	
Dichlorofluoromethane	ug/L	20	20.5	20.7	103	104	74-130	1	30	
Diethyl ether (Ethyl ether)	ug/L	20	19.6	20.7	98	104	66-132	6	30	
Ethylbenzene	ug/L	20	20.2	20.1	101	101	75-125	0	30	
Hexachloro-1,3-butadiene	ug/L	20	24.4	25.1	122	126	72-126	3	30	
Isopropylbenzene (Cumene)	ug/L	20	21.1	21.2	105	106	71-136	1	30	
m&p-Xylene	ug/L	40	41.6	41.9	104	105	75-125	1	30	
Methyl-tert-butyl ether	ug/L	20	20.9	21.0	105	105	73-127	0	30	
Methylene Chloride	ug/L	20	17.4	17.9	87	89	68-128	3	30	
n-Butylbenzene	ug/L	20	21.5	22.2	107	111	70-126	3	30	
n-Propylbenzene	ug/L	20	21.0	21.0	105	105	67-131	0	30	
Naphthalene	ug/L	20	21.6	21.7	108	108	52-134	0	30	
o-Xylene	ug/L	20	21.1	21.7	105	108	75-125	3	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

LABORATORY CONTROL SAMPLE & LCSD: 2441170

Parameter	Units	2441171		LCS Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCSD Result							
p-Isopropyltoluene	ug/L	20	22.0	22.4	110	112	74-125	2	30	
sec-Butylbenzene	ug/L	20	21.2	21.5	106	107	69-134	1	30	
Styrene	ug/L	20	20.9	21.1	105	105	75-125	1	30	
tert-Butylbenzene	ug/L	20	21.8	21.4	109	107	71-128	2	30	
Tetrachloroethene	ug/L	20	21.2	20.9	106	105	74-125	1	30	
Tetrahydrofuran	ug/L	200	195	197	97	99	64-142	1	30	
Toluene	ug/L	20	19.1	19.3	95	97	75-125	1	30	
trans-1,2-Dichloroethene	ug/L	20	20.0	20.4	100	102	73-125	2	30	
trans-1,3-Dichloropropene	ug/L	20	21.0	21.6	105	108	75-125	3	30	
Trichloroethene	ug/L	20	20.9	21.0	104	105	75-125	0	30	
Trichlorofluoromethane	ug/L	20	23.4	23.5	117	117	75-126	0	30	
Vinyl chloride	ug/L	20	21.1	21.7	106	108	72-125	3	30	
Xylene (Total)	ug/L	60	62.6	63.6	104	106	75-125	2	30	
1,2-Dichloroethane-d4 (S)	%				101	100	75-125			
4-Bromofluorobenzene (S)	%				101	101	75-125			
Toluene-d8 (S)	%				100	100	75-125			

MATRIX SPIKE SAMPLE: 2441172

Parameter	Units	1278374001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	21.2	106	66-142	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.5	103	70-131	
1,1,2-Trichloroethane	ug/L	ND	20	20.1	101	75-128	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	24.1	120	54-150	
1,1-Dichloroethane	ug/L	ND	20	20.5	103	58-147	
1,1-Dichloroethene	ug/L	ND	20	21.9	109	49-150	
1,1-Dichloropropene	ug/L	ND	20	20.3	101	58-147	
1,2,3-Trichlorobenzene	ug/L	ND	20	20.7	103	57-139	
1,2,3-Trichloropropane	ug/L	ND	20	20.5	102	71-127	
1,2,4-Trichlorobenzene	ug/L	ND	20	21.5	108	55-136	
1,2,4-Trimethylbenzene	ug/L	ND	20	21.1	106	67-138	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	49.8	100	63-136	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20.0	100	74-125	
1,2-Dichlorobenzene	ug/L	ND	20	21.0	105	75-125	
1,2-Dichloroethane	ug/L	ND	20	19.0	95	63-133	
1,2-Dichloropropane	ug/L	ND	20	19.9	99	63-138	
1,3,5-Trimethylbenzene	ug/L	ND	20	21.4	107	69-136	
1,3-Dichlorobenzene	ug/L	ND	20	20.9	104	75-125	
1,3-Dichloropropane	ug/L	ND	20	19.7	99	65-135	
1,4-Dichlorobenzene	ug/L	ND	20	20.6	103	70-126	
2,2-Dichloropropane	ug/L	ND	20	23.1	116	39-148	
2-Butanone (MEK)	ug/L	ND	100	88.2	88	50-144	
2-Chlorotoluene	ug/L	ND	20	21.1	106	71-135	
4-Chlorotoluene	ug/L	ND	20	20.9	105	71-131	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

MATRIX SPIKE SAMPLE: 2441172		1278374001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	94.4	94	60-147	
Acetone	ug/L	ND	100	84.0	84	59-150	
Allyl chloride	ug/L	ND	20	19.2	96	38-149	
Benzene	ug/L	ND	20	18.5	92	61-138	
Bromobenzene	ug/L	ND	20	21.2	106	74-130	
Bromochloromethane	ug/L	ND	20	19.7	99	65-137	
Bromodichloromethane	ug/L	ND	20	21.6	108	66-136	
Bromoform	ug/L	ND	20	20.5	103	71-125	
Bromomethane	ug/L	ND	20	21.5	107	30-150	
Carbon tetrachloride	ug/L	ND	20	23.3	116	68-140	
Chlorobenzene	ug/L	ND	20	20.1	100	75-132	
Chloroethane	ug/L	ND	20	21.9	109	55-150	
Chloroform	ug/L	ND	20	20.4	102	64-139	
Chloromethane	ug/L	ND	20	22.9	115	73-150	
cis-1,2-Dichloroethene	ug/L	ND	20	20.1	101	62-138	
cis-1,3-Dichloropropene	ug/L	ND	20	19.9	99	70-125	
Dibromochloromethane	ug/L	ND	20	20.4	102	74-125	
Dibromomethane	ug/L	ND	20	21.1	105	66-138	
Dichlorodifluoromethane	ug/L	ND	20	28.5	143	53-150	
Dichlorofluoromethane	ug/L	ND	20	23.2	116	58-150	
Diethyl ether (Ethyl ether)	ug/L	ND	20	19.2	96	47-145	
Ethylbenzene	ug/L	ND	20	20.2	101	66-141	
Hexachloro-1,3-butadiene	ug/L	ND	20	26.5	133	63-139	
Isopropylbenzene (Cumene)	ug/L	ND	20	21.2	106	65-146	
m&p-Xylene	ug/L	ND	40	40.7	102	72-142	
Methyl-tert-butyl ether	ug/L	ND	20	19.6	98	63-134	
Methylene Chloride	ug/L	ND	20	17.4	87	49-143	
n-Butylbenzene	ug/L	ND	20	22.0	110	67-134	
n-Propylbenzene	ug/L	ND	20	20.9	105	62-142	
Naphthalene	ug/L	ND	20	19.8	99	41-150	
o-Xylene	ug/L	ND	20	20.8	104	66-138	
p-Isopropyltoluene	ug/L	ND	20	22.1	111	64-137	
sec-Butylbenzene	ug/L	ND	20	21.5	108	65-142	
Styrene	ug/L	ND	20	20.3	102	61-142	
tert-Butylbenzene	ug/L	ND	20	21.3	106	69-135	
Tetrachloroethene	ug/L	ND	20	20.9	104	62-142	
Tetrahydrofuran	ug/L	ND	200	177	88	55-150	
Toluene	ug/L	ND	20	19.0	95	66-132	
trans-1,2-Dichloroethene	ug/L	ND	20	21.3	107	48-150	
trans-1,3-Dichloropropene	ug/L	ND	20	20.3	102	65-130	
Trichloroethene	ug/L	ND	20	20.7	103	64-142	
Trichlorofluoromethane	ug/L	ND	20	29.2	146	63-150	
Vinyl chloride	ug/L	ND	20	25.7	128	58-150	
Xylene (Total)	ug/L	ND	60	61.5	103	70-140	
1,2-Dichloroethane-d4 (S)	%				101	75-125	
4-Bromofluorobenzene (S)	%				100	75-125	
Toluene-d8 (S)	%				99	75-125	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

SAMPLE DUPLICATE: 2441173

Parameter	Units	1278374002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

SAMPLE DUPLICATE: 2441173

Parameter	Units	1278374002 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	105	106	1		
4-Bromofluorobenzene (S)	%	102	101	1		
Toluene-d8 (S)	%	99	97	1		

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99424

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 1278223001, 1278223002, 1278223003

METHOD BLANK: 394698

Matrix: Water

Associated Lab Samples: 1278223001, 1278223002, 1278223003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	5.0	11/07/16 16:40	

LABORATORY CONTROL SAMPLE: 394699

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	101	101	90-110	

SAMPLE DUPLICATE: 394700

Parameter	Units	1278355001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	306	309	1	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99505

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 1278223004, 1278223005

METHOD BLANK: 394981

Matrix: Water

Associated Lab Samples: 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	5.0	11/08/16 13:44	

LABORATORY CONTROL SAMPLE: 394982

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	98.0	98	90-110	

SAMPLE DUPLICATE: 394983

Parameter	Units	1278380001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	35.0	30.9	12	20	

SAMPLE DUPLICATE: 394984

Parameter	Units	1278319001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	351	362	3	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF
Pace Project No.: 1278223

QC Batch: 99258 Analysis Method: SM 2510B
QC Batch Method: SM 2510B Analysis Description: 2510B Specific Conductance
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 394057 Matrix: Water
Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	10.0	11/04/16 09:37	

LABORATORY CONTROL SAMPLE: 394058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1413	1372	97	90-110	

SAMPLE DUPLICATE: 394059

Parameter	Units	1278287001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	131	131	0	20	

SAMPLE DUPLICATE: 394060

Parameter	Units	1278377002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	873	872	0	20	

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99019 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

LABORATORY CONTROL SAMPLE: 392989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 392990

Parameter	Units	1278220001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	0	10	H6

SAMPLE DUPLICATE: 392991

Parameter	Units	1278201001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	0	10	H6

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QUALITY CONTROL DATA

Project: Camp Ripley MMLF

Pace Project No.: 1278223

QC Batch: 99527 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

METHOD BLANK: 395054 Matrix: Water
 Associated Lab Samples: 1278223001, 1278223002, 1278223003, 1278223004, 1278223005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	11/08/16 14:58	
Sulfate	mg/L	ND	2.0	11/08/16 14:58	

LABORATORY CONTROL SAMPLE: 395055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.4	101	90-110	
Sulfate	mg/L	50	49.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 395056 395057

Parameter	Units	1278220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	50	50	50.9	51.0	101	101	90-110	0	20	
Sulfate	mg/L	3.9	50	50	54.1	54.5	101	101	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 395058 395059

Parameter	Units	1278263001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.1	50	50	70.6	70.7	101	101	90-110	0	20	
Sulfate	mg/L	157	50	50	206	206	97	98	90-110	0	20 E	

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QUALIFIERS

Project: Camp Ripley MMLF

Pace Project No.: 1278223

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DUL Pace Analytical Services - Duluth

PASI-M Pace Analytical Services - Minneapolis

PASI-V Pace Analytical Services - Virginia

BATCH QUALIFIERS

Batch: 446601

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1278223001	MW-3	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223002	MW-7	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223003	MW-8	EPA 350.1	99747	EPA 350.1 rev. 2 (1993)	99827
1278223004	FLD DUP	EPA 350.1	99748	EPA 350.1 rev. 2 (1993)	99828
1278223005	Equip Blank	EPA 350.1	99748	EPA 350.1 rev. 2 (1993)	99828
1278223001	MW-3	EPA 353.2 rev. 2 (1993)	99840		
1278223002	MW-7	EPA 353.2 rev. 2 (1993)	99840		
1278223003	MW-8	EPA 353.2 rev. 2 (1993)	99840		
1278223004	FLD DUP	EPA 353.2 rev. 2 (1993)	99840		
1278223005	Equip Blank	EPA 353.2 rev. 2 (1993)	99840		
1278223001	MW-3	EPA 200.7	99412	EPA 200.7	99477
1278223002	MW-7	EPA 200.7	99412	EPA 200.7	99477
1278223003	MW-8	EPA 200.7	99412	EPA 200.7	99477
1278223004	FLD DUP	EPA 200.7	99412	EPA 200.7	99477
1278223005	Equip Blank	EPA 200.7	99412	EPA 200.7	99477
1278223001	MW-3	EPA 200.8	99411	EPA 200.8	99476
1278223002	MW-7	EPA 200.8	99411	EPA 200.8	99476
1278223003	MW-8	EPA 200.8	99411	EPA 200.8	99476
1278223004	FLD DUP	EPA 200.8	99411	EPA 200.8	99476
1278223005	Equip Blank	EPA 200.8	99411	EPA 200.8	99476
1278223001	MW-3	EPA 7470	99825	EPA 7470	99849
1278223002	MW-7	EPA 7470	99825	EPA 7470	99849
1278223003	MW-8	EPA 7470	99825	EPA 7470	99849
1278223004	FLD DUP	EPA 7470	99825	EPA 7470	99849
1278223005	Equip Blank	EPA 7470	99825	EPA 7470	99849
1278223001	MW-3	EPA 8260B	446601		
1278223002	MW-7	EPA 8260B	446601		
1278223003	MW-8	EPA 8260B	446601		
1278223004	FLD DUP	EPA 8260B	446601		
1278223005	Equip Blank	EPA 8260B	446601		
1278223006	Trip Blank	EPA 8260B	446601		
1278223001	MW-3	SM 2320B	99424		
1278223002	MW-7	SM 2320B	99424		
1278223003	MW-8	SM 2320B	99424		
1278223004	FLD DUP	SM 2320B	99505		
1278223005	Equip Blank	SM 2320B	99505		
1278223001	MW-3	SM 2510B	99258		
1278223002	MW-7	SM 2510B	99258		
1278223003	MW-8	SM 2510B	99258		
1278223004	FLD DUP	SM 2510B	99258		
1278223005	Equip Blank	SM 2510B	99258		
1278223001	MW-3	SM 2540D (1997)	99273		
1278223002	MW-7	SM 2540D (1997)	99273		
1278223003	MW-8	SM 2540D (1997)	99273		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Camp Ripley MMLF

Pace Project No.: 1278223

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1278223004	FLD DUP	SM 2540D (1997)	99273		
1278223005	Equip Blank	SM 2540D (1997)	99273		
1278223001	MW-3	SM 4500-H+B	99019		
1278223002	MW-7	SM 4500-H+B	99019		
1278223003	MW-8	SM 4500-H+B	99019		
1278223004	FLD DUP	SM 4500-H+B	99019		
1278223005	Equip Blank	SM 4500-H+B	99019		
1278223001	MW-3	EPA 300.0	99527		
1278223002	MW-7	EPA 300.0	99527		
1278223003	MW-8	EPA 300.0	99527		
1278223004	FLD DUP	EPA 300.0	99527		
1278223005	Equip Blank	EPA 300.0	99527		

REPORT OF LABORATORY ANALYSIS

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1,1,2-Trichloroethane
1,1,2-Trichlorotrifluoroethane
1,1-Dichloroethane
1,1-Dichloroethylene (Vinylidene chloride)
1,1-Dichloropropene
1,2-Dichloroethylene (trans)
Organics (con't.)
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichlorobenzene (meta-)
1,3-Dichloropropane
1,3-Dichloropropene (cis + trans)
1,4-Dichlorobenzene (para-)
2,2-Dichloropropane
2-Chlorotoluene (ortho-)
4-Chlorotoluene (para-)
Acetone
Allyl chloride (3 chloropropene)
Benzene
Bromobenzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dichlorobromomethane)
Bromoform
Bromomethane (Methyl bromide)
Carbon tetrachloride
Chlorobenzene (monochlorobenzene)
Chlorodibromomethane (Dibromochloromethane)
Chloroethane
Chloroform
Chloromethane (Methyl chloride)
Cumene (Isopropylbenzene)
Dibromochloropropane (DBCP)
Dibromomethane (Methylene bromide)
Dichlorodifluoromethane
Dichlorofluoromethane
Dichloromethane (Methylene chloride)
Ethyl benzene
Ethyl ether
Hexachlorobutadiene
Methyl ethyl ketone (MEK)
Methyl isobutyl ketone (4-Methyl-2-pentanone)
Methyl tertiary-butyl ether (MTBE)
Naphthalene

1,2,4-Trimethylbenzene
1,2-Dibromoethane (Ethylene dibromide or EDB)
1,2-Dichlorobenzene (ortho-)
1,2-Dichloroethane
1,2-Dichloroethylene (cis-)
n-Butyl benzene
n-Propyl benzene
p-Isopropyltoluene
sec-Butyl benzene
Styrene
tert-Butyl benzene
Tetrachloroethylene (Perchloroethylene)
Tetrahydrofuran
Toluene
Trichloroethylene (TCE)
Trichlorofluoromethane
Vinyl chloride (chloroethene)
Xylenes (mixture of o, m, p)

Inorganics

Alkalinity, total as calcium carbonate
Ammonia Nitrogen
Arsenic, dissolved
Barium, dissolved
Boron, dissolved
Cadmium, dissolved
Chloride
Chromium, total dissolved
Copper, dissolved
Iron, dissolved
Lead, dissolved
Manganese, dissolved
Mercury, dissolved
Nitrate + Nitrite, as N
Sodium, dissolved
Sulfate
Suspended Solids, total
Appearance (b);
Dissolved Oxygen, field
pH (a)
Specific Conductance (a)
Temperature (a)
Turbidity, field
Water Elevation

**Parameter Lists for Sampling
of Ground Water Monitoring Network**

MDH 468 List (Organics)

Analytes

1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane

1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene

Project No. 13134
410-01XA

EXHIBIT A
Page 5 of 8

Contract No. 68852

Sample Condition Upon Receipt

Client Name: Widseth Smith Nolting Project #: WO#: 1278223

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: SD



Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: 140792808 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 0.9 Cooler Temp Corrected °C: 1.2 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: 40.3 Date and Initials of Person Examining Contents: Log Dell 11-2-16

Comments: _____

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>PH</u>
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>SAMPLES DON'T HAVE ANALYSIS ON THEM AND BOTTLES AREN'T MARKED</u>
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: [Signature] Date: 11/2/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Intra-Regional Chain of Custody



Workorder: 1278223 Workorder Name: Camp Ripley MMLF Owner Received Date: 11/2/2016 Due Date: 11/16/2016

Received at: Pace Analytical Virginia
 315 Chestnut Street
 Virginia, MN 55792
 Phone (218) 742-1042

Send To Lab: Pace Analytical Duluth
 4730 Oneota Street
 Duluth, MN 55807
 Phone (218) 727-6380

Report To:
 Melisa M Woods

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	EPA 350.1 rev. 2 (1993)	EPA 353.2 rev. 2 (1993)	Requested Analysis	Comments
1	MM-3	PS	10/31/2016 13:35	1278223001	Water	1	X	X		
2	MM-7	PS	10/31/2016 14:30	1278223002	Water	1	X	X		
3	MM-8	PS	10/31/2016 15:20	1278223003	Water	1	X	X		
4	FLD DUP	PS	10/31/2016 00:00	1278223004	Water	1	X	X		
5	Equip Blank	PS	10/31/2016 13:40	1278223005	Water	1	X	X		
Transfers										
1	Released By	Date/Time		Received By	Date/Time					
1	Lat & CP	11/3/16 09:00		[Signature]	11/3/16 14:00					
2	[Signature]	11/3/16 09:50		[Signature]	11/3/16 15:30					
3										
4										
Cooler Temperature on Receipt 0.4 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N										

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.



Sample Condition Upon Receipt

Client Name: IR COC VIRG. Project #: _____

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Packing Number: _____

Study Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: B00051 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read °C: 1.0 Cooler Temp Corrected °C: 0.4 Biological Tissue Frozen? Yes No N/A
Temp should be above freezing to 6°C Correction Factor: -0.6 °C Date and Initials of Person Examining Contents: PK 11/3/16

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and Signature on COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>wt.</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

REGULATORY WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: AP for LMP Date: 11-3-16
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of date, incorrect preservative, out of temp, incorrect containers)

APPENDIX B

WELL STABILIZATION FORMS

WIDSETH SMITH NOLTING

GROUNDWATER SAMPLING and ELEVATION LOG SHEET

Project Name: Camp Ripley DBLF & MWLF Project No. _____ Location: _____
 Sampling Date: 10/31/16 By: Mike Bryant Project Manager: _____
 Sampling Device: _____ Cleaning Method: _____
 Purging Method: _____ Parameter: _____

Well Capacity Formula = [ft. H₂O] X [0.16 gals per ft. H₂O (2" well)]

Well No.	T.O.C. Elev.	Depth to Water	G.W. Elev.	Total Well Depth	Water in Casing	Well Capacity	Volume Purged	Color	Turb.	Odor	Time Sampled	Temp	PH	Do	ORP	SpC	Nitrate
DBLF-4		24.16		35.00	10.84	1.73	6.00				11:05						
DBLF-5		27.03		47.00	14.97	2.40	7.50				11:45						
MW-3		22.04		47.00	24.96	4.00	12.00				13:35						
MW-7		26.45		37.00	10.57	1.63	6.00				14:30 14:30						
MW-8		29.54		40.00	10.46	1.67	6.00				15:20						
DBLF-1		28.72															
DBLF-2		19.65															
DBLF-3		27.03															

* Referenced to Top of Well Casing (T.O.C.)

Comments: MW-7 is FUD DUP Equip Blank 13:40

