Summary of Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: 2006 - 2009

Crew preparing site at L9312 for water sampling, photo by K.Hilton

by

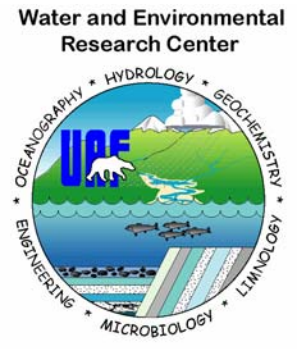
Kristie Hilton, Dan Reichardt, Horacio Toniolo,

and Michael Lilly

July 2009

Cooperative Arctic Lakes Data Collection Network, Alaska

Report No. INE/WERC 10.003



Summary of Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: 2006 - 2009

By:

Kristie Hilton[1], Dan Reichardt[1], Horacio Toniolo[2], and Michael Lilly[1]

A report on research sponsored by:

- Bureau of Land Management
- ConocoPhillips Alaska, Inc.
- Geo-Watersheds Scientific
- Department of Energy: National Energy Technology Laboratory

July 2009

Cooperative Arctic Lakes Data Collection Network, Alaska

Report Number INE/WERC 10.003

[1]Geo-Watersheds Scientific, Fairbanks, Alaska
[2]University of Alaska Fairbanks

Recommended Citation:

Hilton, K.M., Reichardt, D.A., Toniolo, H.A., and Lilly, M.R., 2009. Summary of Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: 2006 - 2009. Cooperative Arctic Lakes Data Collection Network, Alaska, Report 10.003, Fairbanks, Alaska, 21 pp. plus appendices.

Fairbanks, Alaska
July 2009

For additional information write to:

Publications,
Water and Environmental Research Center
University of Alaska Fairbanks
Fairbanks, Alaska 99775
www.uaf.edu/water/

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

DISCLAIMER

The contents of this report reflect the views of the authors, who are responsible for the accuracy of the data presented herein. This research was funded by the Bureau of Land Management (BLM) under BLM-INE agreement L09AC15318, and was supported by ConocoPhillips Alaska, Inc. (CPA) and Geo-Watersheds Scientific (GWS). The contents of the report do not necessarily reflect the views or policies of BLM, CPA, GWS, or any local sponsor. This work does not constitute a standard, specification, or regulation.

The use of trade and firm names in this document is for the purpose of identification only and does not imply endorsement by the University of Alaska Fairbanks (UAF), DOE, NETL, BLM, CPA, GWS, or other project sponsors.

CONVERSION FACTORS, UNITS, WATER QUALITY UNITS, VERTICAL AND HORIZONTAL DATUM, ABBREVIATIONS AND SYMBOLS

Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	25.4	millimeter (mm)
inch (in.)	2.54	centimeter (cm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
Acre	43559.999	square feet (ft^2)
Acre	0.405	hectare (ha)
Square foot (ft^2)	3.587e-8	square mile (mi^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
gallon (gal)	3.785	liter (L)
gallon (gal)	3785.412	milliliter (mL)
Cubic foot (ft^3)	28.317	liter (L)
Acre-ft	1233	Cubic meter (m^3)
	Velocity and Discharge	
foot per day (ft/d)	0.3048	meter per day (m/d)
Square foot per day (ft^2/d)	.0929	square meter per day (m^2/d)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/sec)
	Hydraulic Conductivity	
foot per day (ft/d)	0.3048	meter per day (m/d)
foot per day (ft/d)	0.00035	centimeter per second (cm/sec)
meter per day (m/d)	0.00115	centimeter per second (cm/sec)
	Hydraulic Gradient	
foot per foot (ft/ft)	5280	foot per mile (ft/mi)
foot per mile (ft/mi)	0.1894	meter per kilometer (m/km)
	Pressure	
pound per square inch (lb/in^2)	6.895	kilopascal (kPa)

Units

For the purposes of this report, both English and Metric (SI) units were employed. The choice of "primary" units employed depended on common reporting standards for a particular property or parameter measured. Whenever possible, the approximate value in the "secondary" units was also provided in parentheses.

Physical and Chemical Water-Quality Units:

Temperature:

Water and air temperature are given in degrees Celsius (°C) and in degrees Fahrenheit (°F). Degrees Celsius can be converted to degrees Fahrenheit by use of the following equation:

$°F = 1.8(°C) + 32$

Specific electrical conductance (conductivity):

Conductivity of water is expressed in microsiemens per centimeter at 25°C (µS/cm). This unit is equivalent to microhms per centimeter at 25°C.

Milligrams per liter (mg/L) or micrograms per liter (µg/L):

Milligrams per liter is a unit of measurement indicating the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter. For concentrations less than 7,000 mg/L, the numerical value is the same as for concentrations in parts per million.

Vertical Datum:

In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929), a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called *Sea Level Datum of 1929*.

Horizontal Datum:

The horizontal datum for all locations in this report is the North American Datum of 1983 or North American Datum of 1927.

Abbreviations, Acronyms, and Symbols

AC	Actual conductivity
ADF&G	Alaska Department of Fish and Game
ADOT&PF	Alaska Department of Transportation and Public Facilities
ADNR	Alaska Department of Natural Resources
ASTM	American Society for Testing and Materials
atm	Atmospheres
BLM	Bureau of Land Management
C	Celsius
CPA	ConocoPhillips Alaska, Inc.
DO	Dissolved oxygen
DOE	U.S. Department of Energy
F	Fahrenheit (^{o}F).
ft	Feet
GWS	Geo-Watersheds Scientific
GWSI	USGS Ground-Water Site Inventory
km^2	Square kilometers
kPa	Kilopascal
lb/in^2	Pounds per square inch
m	Meters
mg/L	Milligrams per liter, equivalent to ppm
µg/L	Micrograms per liter
mi^2	Square miles
mm	Millimeters
µS/cm	Microsiemens per centimeter
mV	Millivolt
MMS	Minerals Management Service
NGVD	National Geodetic Vertical Datum
NSB	North Slope Borough
NTU	Nephelometric Turbidity Units
NWIS	National Water Information System
ORP	Oxygen-reduction potential
ppm	Parts per million, equivalent to mg/L
SC25	Specific conductance at 25^{o}C
SWE	Snow Water Equivalent
QA	Quality assurance
QC	Quality control
UAF	University of Alaska Fairbanks
USGS	U.S. Geological Survey
WWW	World Wide Web
YSI	Yellow Springs Instruments

PROJECT COOPERATORS

The cooperative North Slope hydrology projects cover a large area of the North Slope and benefited from a number of positive partnerships, all contributing to the overall objectives of the coordinated projects.

- Bureau of Land Management (BLM)
- ConocoPhillips Alaska, Inc. (CPA)
- Geo-Watersheds Scientific (GWS)
- University of Alaska Fairbanks (UAF)
- Alaska Department of Natural Resources (ADNR)
- Alaska Department of Transportation and Public Facilities (ADOT&PF)
- U.S. Department of Energy (DOE)
- Minerals Management Service (MMS)
- Alaska Department of Fish and Game (ADF&G)
- North Slope Borough (NSB)

ACKNOWLEDGEMENTS

Original field data collection efforts were funded by the US Department of Energy and the Bureau of Land Management. Field coordination and logistics support were provided by ConocoPhillips Alaska. GWS provided in-kind match.

Summary of Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: 2006 - 2009

INTRODUCTION

Geo-Watersheds Scientific (GWS) and the University of Alaska Fairbanks (UAF), together with project cooperators, during the past several years collected physical measurements and water quality data in lakes associated with water use by the petroleum industry on the North Slope of Alaska. The purpose of this report is to provide a data summary to the Bureau of Land Management (BLM) and the Alaska Department of Fish and Game (ADFG) with data for testing the UAF Dissolved Oxygen (DO) model which was developed in 2008 as an outcome of the North Slope Lakes Project (White et al., 2008). Water quality data come from a variety of lakes, some of which were permitted and used during ice road seasons, while others were selected due to their use in initial development of the DO model. Please note, however, that this summary does not include all of the lakes that were sampled in these prior studies.

This summary report was funded by BLM in cooperation with ADF&G and ConocoPhillips Alaska (CPA). Table 1 lists the GPS coordinates for the lake sampling locations and Figures 1-3 show site locations in relation to local reference points. Appendix A lists the reference sources used in this data compilation and Appendix B contains the field sampling forms from the reports.

Table 1. GPS coordinates for study lake/sampling site locations.

Lake/Sampling Site	Latitude (NAD 83)	Longitude (NAD 83)
L9312-B	N70° 15.552’	W150° 56.918’
L9322-CT	N70° 20.269’	W151° 01.913’
L9323-CT	N70° 17.915’	W151° 0.326’
MO802-CT	N70° 9.523’	W151° 15.092’
MO710-CT	N70° 8.7516’	W151° 17.0874’
L9811-CT	N70° 12.4182’	W151° 10.4952’
L9817-1	N70° 14.070’	W151° 20.121’
MO806-CT	N70° 8.186’	W151° 23.756’
R0066-CT	N70° 8.608’	W151° 45.740’

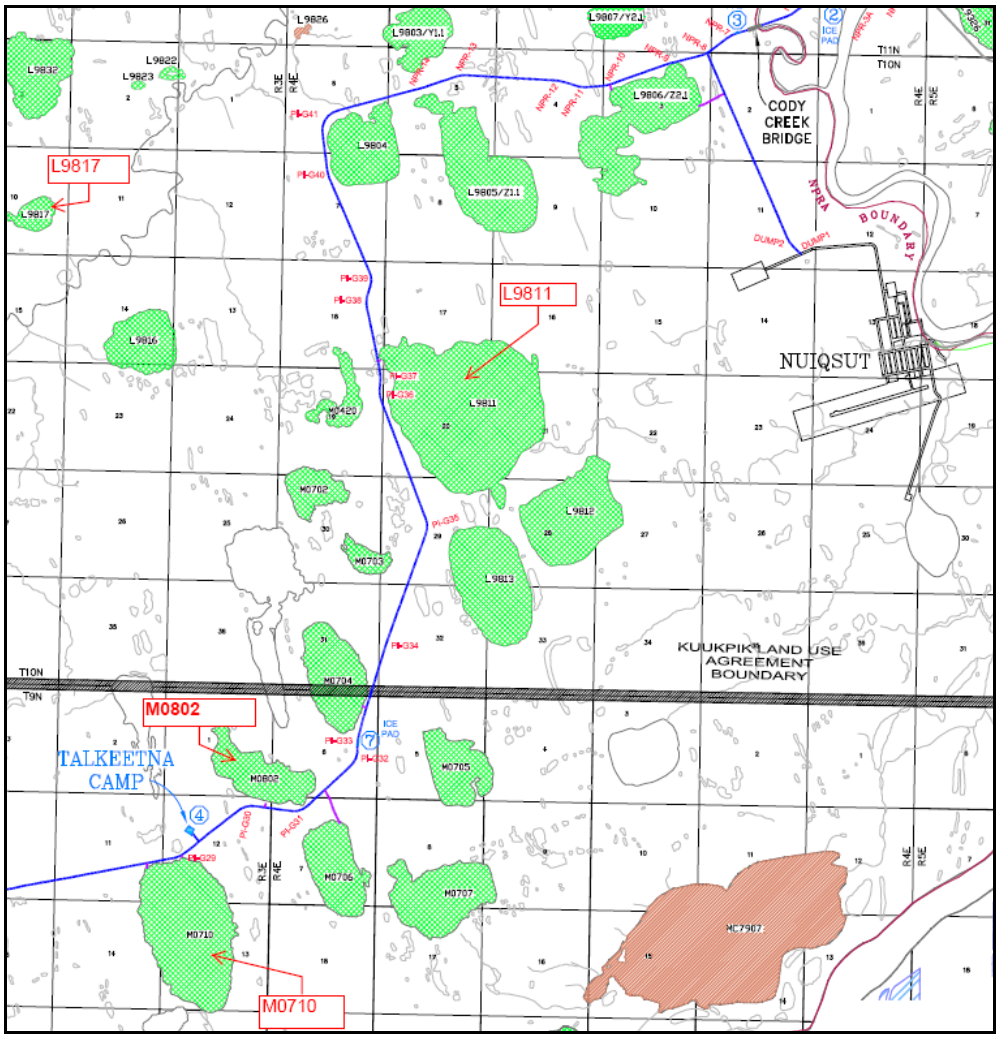


Figure 1. Locations of L9811, L9817, MO802 and M0710 near Nuiqsut (map source LCMF, 2009).

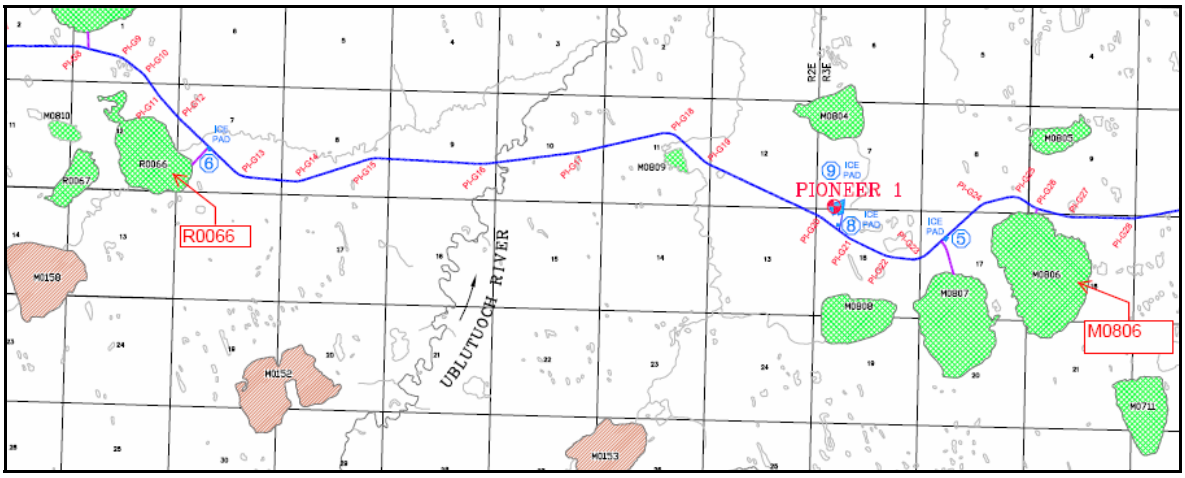


Figure 2. Locations of MO806 and R0066 near Ublutuoch River (map source LCMF, 2009).

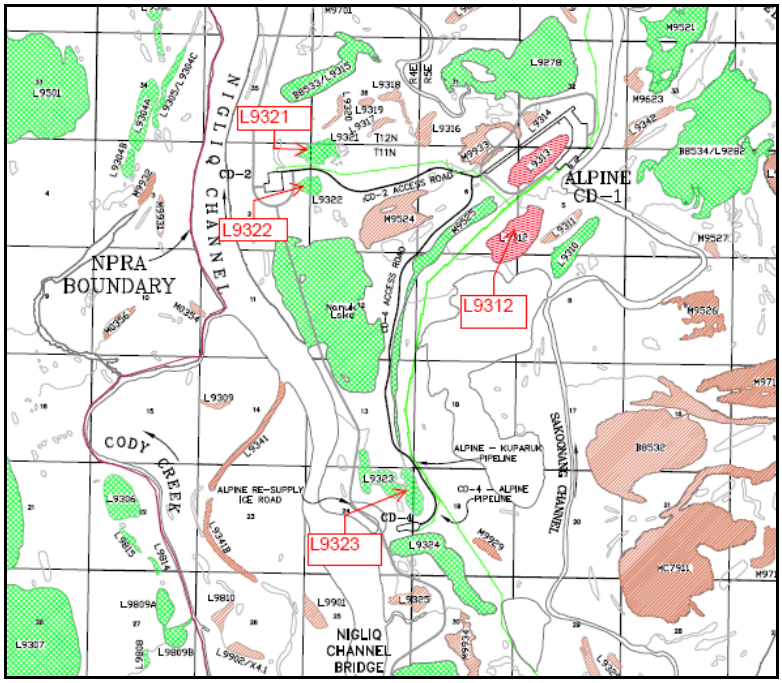


Figure 3. Locations of L9312, L9322, L9323 near Alpine (map source LCMF, 2009).

QUALITY CONTROL

Water chemistry sampling standards were reported in previous reports (see Appendices A and B for reference list and forms) In general, water-quality parameters such as temperature, pH, turbidity, conductivity, and dissolved oxygen (DO) were obtained by using an In-Situ Troll 9000 (submersible meter), at multiple depths throughout the water column. The precision with which

physical measurements were reported takes into account field conditions. The calibration of each parameter was checked before and after each day of sampling using the criteria in Table 3.

Table 2. In-Situ Troll 9000 calibration quality control criteria (Hilton et al., 2007).

Parameter	Standards used	Acceptable deviation from calibration standard value
Turbidity	Factory calibrated	± 2 (NTU)
pH	4.01, 7.0, 10.0	± 0.2
Conductivity	447 (µs/cm)	within 10%
100% DO	100 % saturated	within 10%
0% DO	0 % saturated solution	within 0.3 mg/L

SELECTED RESULTS

Sampling occurred at 9 locations (MO710, MO802, MO806, L9312, L9322, L9323, L9811, L9817, R0066) in this area over the past few years. Tables 3 and 4 summarize some of the conditions, including water depth and ice thickness, at the two most frequently visited sites (L9312 and L9817) which have more historical data than others. Middle water-column DO and conductivity (actual and/or estimated) were selected as the middle sampling depth data and are listed in Tables 3 and 4. The middle water column depth was taken from the sampling point nearest the middle of the water column from bottom of ice to lake bottom. As ice growth increases throughout the winter season, the middle column point gets closer to the lake bottom. For easier comparison between lakes, this approach was preferred over an average or median which may be skewed by repeated measurements at various depths.

General trends in DO concentration and conductivity are shown in Figures 4 and 5 for L9817, and Figures 6 and 7 for L9312, which were generated with the middle sampling depth data from L9817-1 and L9312-B. As indicated by the graphs, DO concentrations for both L9312 and L9817 declined throughout the winter sampling season (Figures 4 and 6), with L9312 having a historical record of higher DO levels throughout the year when compared to L9817. The highest middle water-column DO concentrations recorded for each location were in January 2006 with

9.79 mg/L at L9817 and 16.70 mg/L at L9312, indicating a substantial difference in available under-ice dissolved oxygen between the two lakes. Conductivity concentrations (at similar temperatures) for both L9312 and L9817 increased throughout the winter sampling season (Figures 5 and 7), with L9817 having a history of higher conductivity levels throughout the year when compared to L9312. The highest middle water-column conductivity concentration recorded for L9817 was in May 2008 (1536 uS/cm) and for L9312 was in March 2009 (145.8 uS/cm), indicating a substantial difference in under-ice conductivity concentrations between the two lakes.

Table 3. Total water depth and ice thickness at time of sampling, and DO concentration and conductivity for middle sampling depth at L9817-1 from January 2006-March 2009 (see Appendix A for list of references and Appendix B for field forms).

Sampling Date	Total Water Depth [ft]	Ice Thickness [ft]	Middle Depth DO Concentration [mg/L]	Middle Depth Actual Conductivity [µS/cm]
1/16/06	8.57	2.18	9.37	254.5
2/18/06	8.59	2.74	8.04	303.9
4/18/06	8.45	4.15	3.33	371.9
5/17/06	8.59	4.35	1.73	427.9
1/10/07	8.45	2.80	7.54	303.0
3/17/07	8.64	4.30	0.96	551.9
4/17/07	8.45	5.40	0.24	701.8
5/15/07	8.53	5.15	0.17	748.1
2/16/08	7.35	4.15	2.27	693.2
4/16/08	7.1	5.50	0.43	1428.0
5/11/08	7.40	5.95	1.40	1536.0
3/12/09	8.20	5.28	4.51	749.1

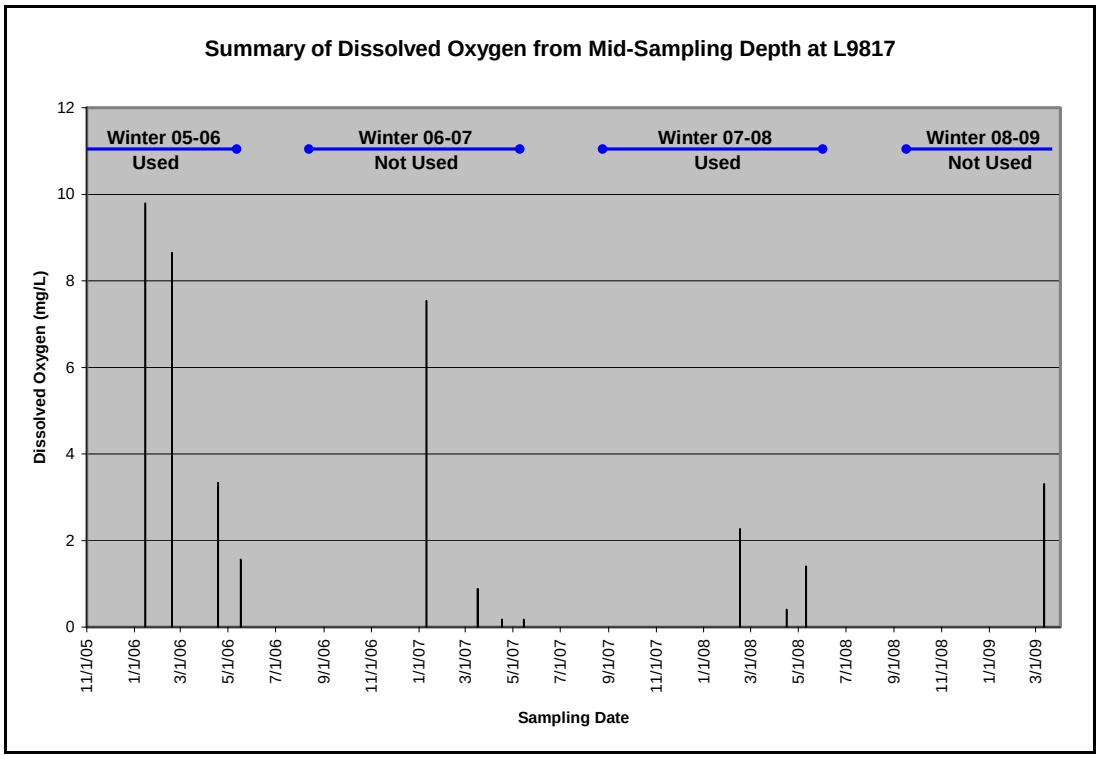


Figure 4. Summary of dissolved oxygen concentrations from middle sampling depth at L9817 (January 2006- March 2009). Winters that L9817 was pumped for ice road construction are indicated.

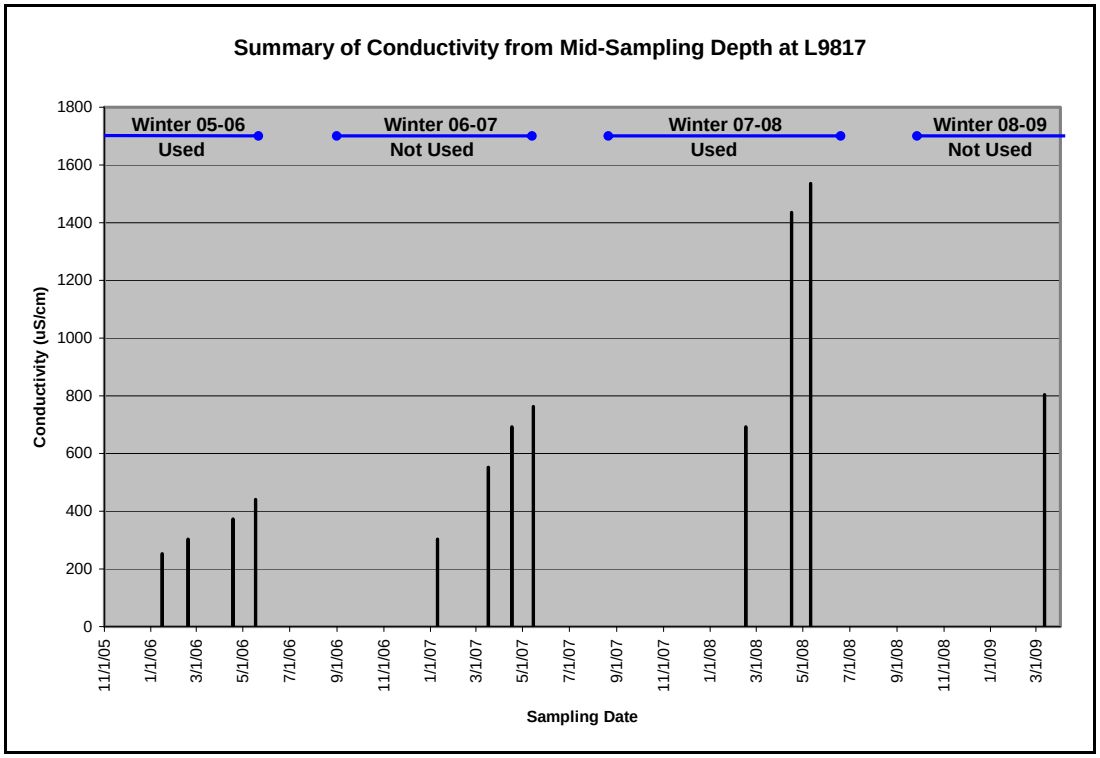


Figure 5. Summary of conductivity measurements from middle sampling depth at L9817 (January 2006- March 2009). Winters that L9817 was pumped for ice road construction are indicated.

Table 4. Total water depth and ice thickness at time of sampling, and DO concentration and conductivity for middle sampling depth at L9312-B from November 2005-March 2009 (see Appendix A for list of references and Appendix B for field forms).

Sampling Date	Total Water Depth [ft]	Ice Thickness [ft]	Middle Depth DO Concentration [mg/L]	Middle Depth Actual Conductivity [µS/cm]
11/18/05	11.4	1.6	15.33	56.68
1/16/06	11.18	2.67	16.70	63.14
2/17/06	11.00	3.55	16.10	75.05
3/17/06	11.10	3.8	15.20	65.60
4/17/06	11.00	4.47	14.12	81.20
5/18/06	11.05	4.62	12.91	92.30
11/18/06	11.45	1.40	15.25	45.00
12/19/06	11.35	2.20	15.33	51.85
1/9/07	11.4	2.92	14.69	54.44
2/16/07	11.3	3.55	12.04	75.66
3/16/07	11.1	4.85	10.10	87.38
4/16/07	11.22	5.50	10.83	93.32
5/13/07	11.1	5.55	12.85	77.15
9/22/07	NR	NR	12.63	45.73
11/13/07	10.96	1.26	15.07	48.65
12/17/07	11.03	1.83	14.80	53.90
1/13/08	10.9	3.30	13.63	62.14
2/15/08	10.9	3.65	12.25	79.02
4/15/08	10.85	4.80	11.71	94.92
5/10/08	10.83	5.15	9.13	97.64
3/12/09	10.40	4.80	11.26	146.50

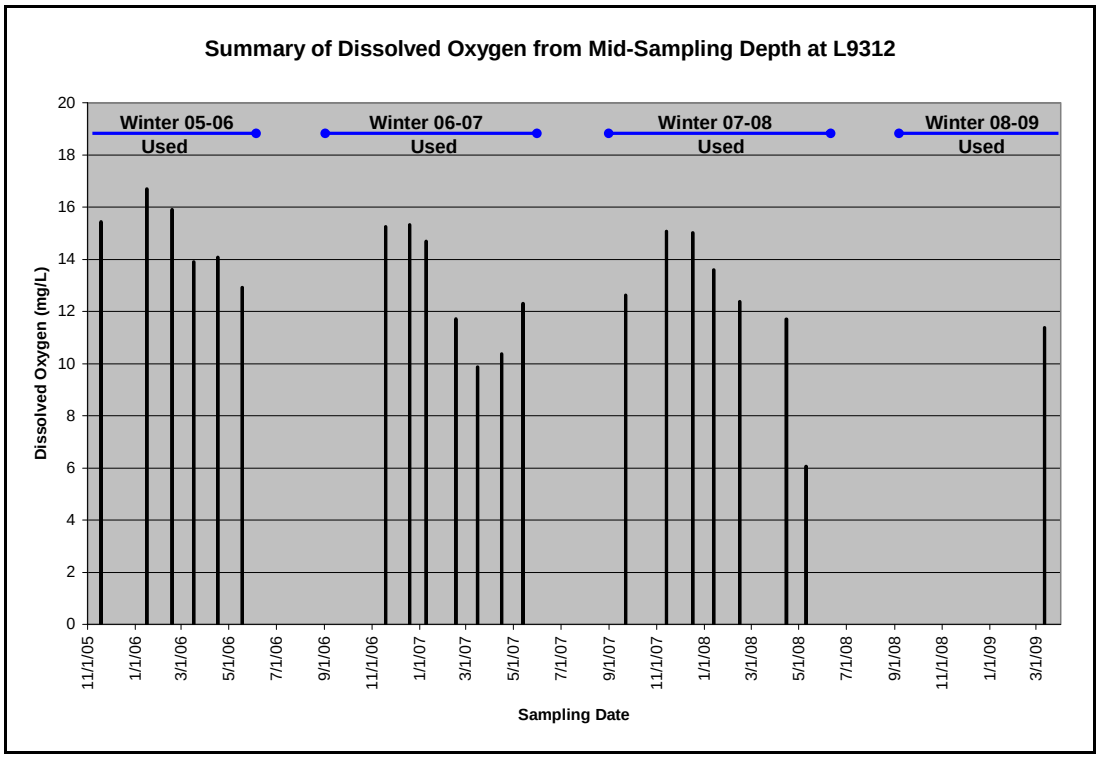


Figure 6. Summary of dissolved oxygen concentrations from middle sampling depth at L9312 which is used throughout the year as the main water supply source for the Alpine facility (November 2005- March 2009).

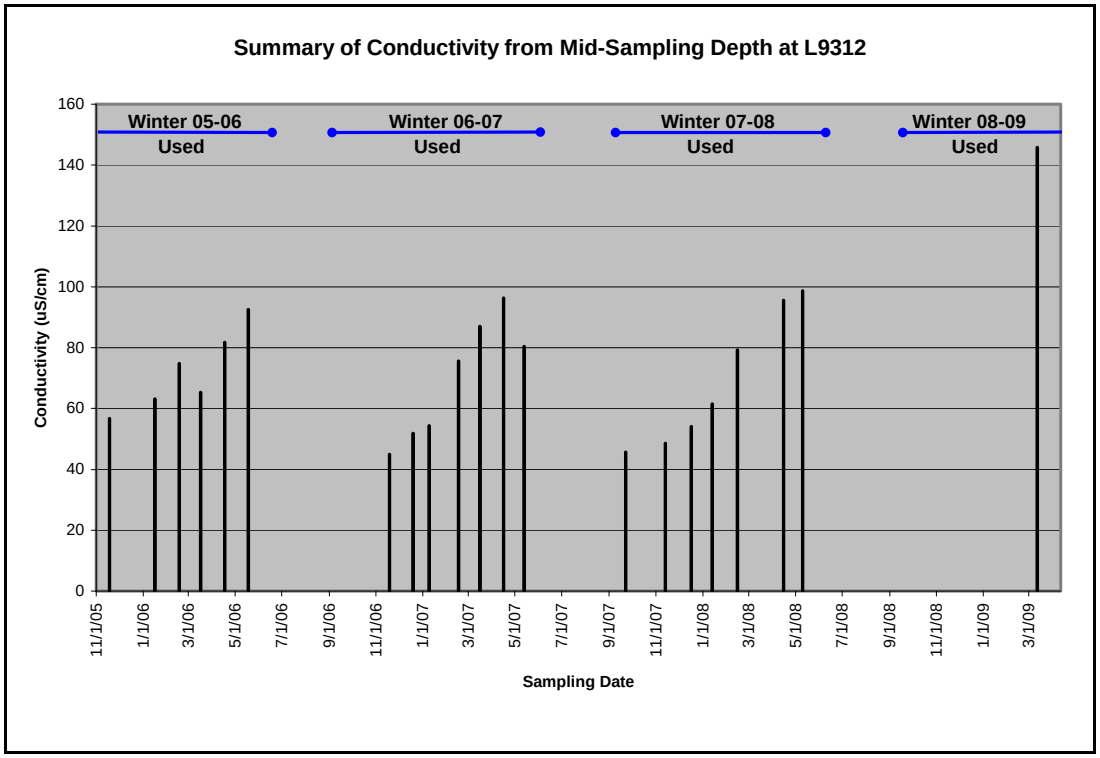


Figure 7. Summary of conductivity measurements from middle sampling depth at L9312 (November 2005- March 2009).

Comparisons of all of the sites visited in March 2009 reveal differences and similarities between each location in terms of water quality and depth (Figures 8 and 9). As seen is Figure 8, sites such as L9811 and L9817 were generally low in dissolved oxygen and had high conductivity, whereas L9312 and L9323 were generally high in dissolved oxygen and had low conductivity. The other sites (R0066, L9322, MO806, MO710, and MO802) were in the middle of these ranges with variations in both parameters.

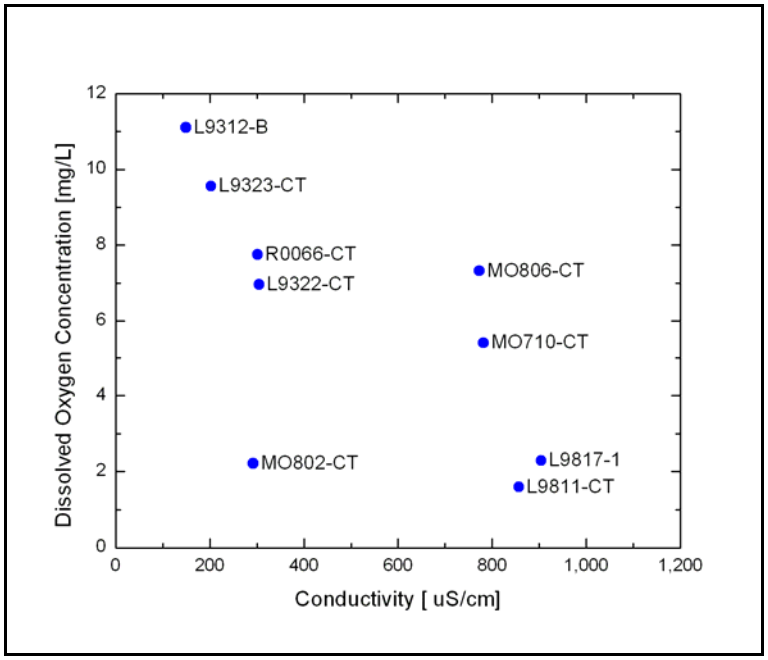


Figure 8. Comparison of conductivity and dissolved oxygen levels at sampled lake locations.

In Figure 9, comparisons of total water depth and dissolved oxygen concentrations at each of the sites revealed that greater depth was not necessarily correlated with higher DO concentrations. This can be seen in the three deepest lakes (L9322, L9312, L9321) which hosted a range of dissolved oxygen levels.

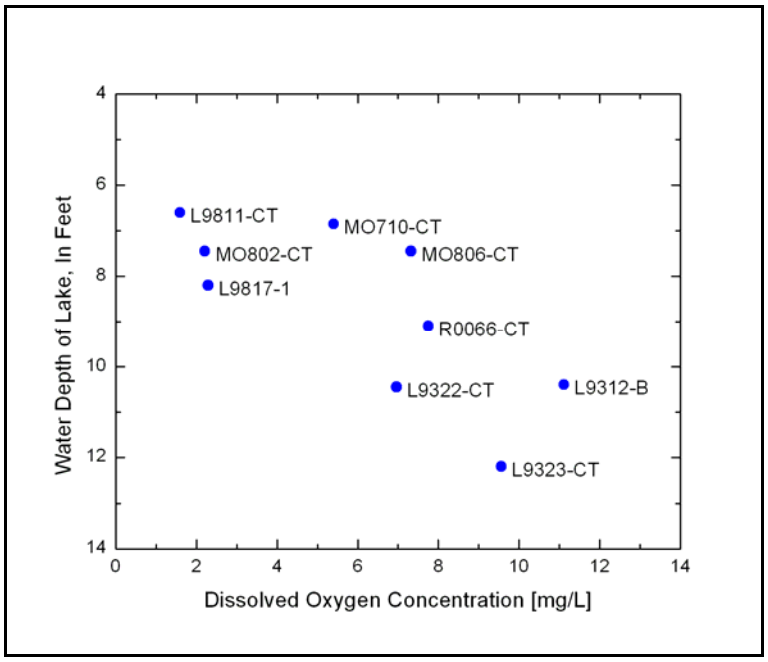


Figure 9. Comparison of dissolved oxygen levels and water depth at sampled lake locations.

SUMMARY

Arctic lakes that retain unfrozen water throughout the winter are important for a variety of reasons including their uses as both fish habitat and industrial water sources (White et al., 2008). Given their importance, it's essential to monitor any trends that may be observed between and within these systems so agencies can make informed decisions related to water allocation. This project sampled 9 different lakes to determine the general variability of a subset of lakes located in NPRA.

Of the sites visited, L9312 was generally high in DO and had low conductivity, while L9817 was generally low in DO and had high conductivity. L9817 was low in DO in years without and with winter water use. At both lakes, seasonal trends were observed throughout the 3 years of historical data, with DO concentrations declining and conductivity concentrations increasing throughout each winter. The increasing conductivity should be expected as ice continues to form throughout the winter and solutes excluded from the freezing water disburses in the water column. In early lake ice formation, DO increases as it is rejected from the freezing of lake water at the lake ice boundary. The later decreasing winter DO should also be expected since ice formation also prevents additional oxygen absorption from the atmosphere while the lake biota

and potential lake bottom sediment geochemical interactions continue to use the available oxygen in the water column throughout the winter.

The other sites visited (L9811, L9323, R0066, L9322, MO806, MO710, and MO802) were quite variable when compared to L9817, L9312, and each other. Long term monitoring would help to establish whether or not trends observed at long-term index lake sites carry over to other lakes in the area. Additional focus on the correlation between soil units and lake water quality would also be recommended in future research. Continued monitoring of physical and chemical characteristics of North Slope lakes will help in the understanding and management of these important water resources. This information is necessary for permitting agencies as well as industry professionals who depend on them for facility use and ice road/pad construction.

REFERENCES

Hilton, K., Derry, J., Reichardt, D., Lilly, M.R., and Kemnitz, R., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: April 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.09, Fairbanks, Alaska, 7 pp.

White, D.M., Clilverd, H.M., Tidwell, A.C., Lilly, M.R., Chambers, M., and D. Reichardt. 2008. A Tool for Modeling the Winter Oxygen Depletion Rate in Arctic Lakes. Journal of the American Water Resources Association (JAWRA) 44(2): 1-12. DOI: 10.1111/j.1752-1688.2007.00162

APPENDIX A. TABLE OF REFERENCE REPORT CITATIONS

The following table gives the reference citations for the reports from which field forms and data were pulled in the generation of this summary report. Note: These reports are available online at: http://www.uaf.edu/water/projects/nsl/reports.html.

Month/Year	Report Number	Citation
November-05	INE/WERC 06.02	Hilton, K.M., Chambers, M.K., and Lilly, M.R., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: November 2005. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.02, Fairbanks, Alaska, 6 pp.
January-06	INE/WERC 06.04	Hilton, K.M., Reichardt, D., Lilly, M.R., and White, D.M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: January 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.04, Fairbanks, Alaska, 9 pp.
February-06	INE/WERC 06.05	Hilton, K., Derry, J., Reichardt, D., Lilly, M.R., and Blackburn, A., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: February 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.05, Fairbanks, Alaska, 7 pp.
March-06	INE/WERC 06.06	Holland, K., Reichardt, D., Lilly, M.R., and White, D.M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: March 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.06, Fairbanks, Alaska, 7 pp.
April-06	INE/WERC 06.07	Holland, K., Lilly, M.R., Derry, J., and Reichardt, D., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: April 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.07, Fairbanks, Alaska, 8 pp.
May/June-06	INE/WERC 06.08	Holland, K., Reichardt, D., Bining, E., and Lilly, M.R., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: May-June 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.08, Fairbanks, Alaska, 12 pp.
November-06	INE/WERC 07.03	Rust, C., Reichardt, D., Derry, J., and Lilly, M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: November 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.03, Fairbanks, Alaska, 10 pp.
December-06	INE/WERC 07.04	Derry, J., Reichardt, D., Lilly, M.R., and Blackburn, A., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: December 2006. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.04, Fairbanks, Alaska, 9 pp.
January-07	INE/WERC 07.05	Derry, J., Reichardt, D., Lilly, M.R., Cormack, C., Clilverd, H., and Whitman, M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: January 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.05, Fairbanks, Alaska, 9 pp.
February-07	INE/WERC 07.07	Derry, J., Reichardt, D., Lilly, M.R., Cherry, J., and Clilverd, H., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: February 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.07, Fairbanks, Alaska, 10 pp.
March-07	INE/WERC 07.08	Cormack, C., Reichardt, D., Clilverd, H., Lilly, M.R., and Whitman, M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: March 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.08, Fairbanks, Alaska, 9 pp.
April-07	INE/WERC 07.09	Holland, K., Derry, J., Reichardt, D., Lilly, M.R., Kemnitz, R., and Blackburn, A., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: April 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.09, Fairbanks, Alaska, 8 pp.
May-09	INE/WERC 07.10	Holland, K., Cormack, C.M., Lilly, M.R., Derry, J.E., Reichardt, D.A., Lilly, M.R., and Myerchin, G.M., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: May 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.10, Fairbanks, Alaska, 8 pp.
September-07	INE/WERC 07.12	Derry, J., Holland, K.M., Reichardt, D.A., and Lilly, M.R., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: September 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.12, Fairbanks, Alaska, 11 pp.
November-07	INE/WERC 07.22	Derry, J., Holland, K.M., Reichardt, D.A., Whitman, M., and Lilly, M.R., 2007. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: November 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 07.22, Fairbanks, Alaska, 9 pp.
December-07	INE/WERC 08.07	Holland, K.M., Reichardt, D.A., Whitman, M., and Lilly, M.R., 2008. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: December 2007. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08.07, Fairbanks, Alaska, 7 pp.
January-08	INE/WERC 08.08	Holland, K.M., Toniolo, H., Derry, J., Cormack, C., Myerchin, G., Blackburn, A.Jl, Whitman, M., and Lilly, M.R., 2008. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: January 2008. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08.08, Fairbanks, Alaska, 7 pp.
February-08	INE/WERC 08.09	Holland, K.M., Reichardt, D.A., Myerchin, G., Blackburn, A.J., Whitman, M., and Lilly, M.R., 2008. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: February 2008. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08.09, Fairbanks, Alaska, 7 pp.
April-08	INE/WERC 08.11	Holland, K.M., Derry J., Reichardt, D.A., Clilverd, H., Blackburn, A., Cherry, J., and Lilly, M.R., 2008. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: April 2008. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08.11, Fairbanks, Alaska, 6 pp.
May-08	INE/WERC 08.13	Holland, K.M., Lilly, M.R., Toniolo, H., Reichardt, D., Derry, J., Myerchin, G., Cormack, C., and Blackburn, A., 2008. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: May 2008. University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08.13, Fairbanks, Alaska, 15 pp.
March-09	CNSHP 09.01	Holland, K.M., Reichardt, D.A., Toniolo, H.A., and Lilly, M.R., 2009. Lake Chemistry and Physical Data For Selected North Slope, Alaska, Lakes: March 2009. Cooperative North Slope Hydrology Projects, Report 09.01, Fairbanks, Alaska, 9 pp.

APPENDIX B. WATER QUALITY FIELD SAMPLING FORMS

The following forms report the data collected with water quality meters during field sampling. Site visits are summarized in the below table.

	L9312	L9322	L9323	L9811	L9817	MO710	MO802	MO806	RO066
Nov-05	x								
Dec-05									
Jan-06	x				x				
Feb-06	x				x				
Mar-06	x								
Apr-06	x				x				
May-06	x				x				
Jun-06									
Jul-06									
Aug-06									
Sep-06					x				
Oct-06									
Nov-06	x								
Dec-06	x								
Jan-07	x				x				
Feb-07	x								
Mar-07	x				x				
Apr-07	x				x				
May-07	x				x				
Jun-07									
Jul-07									
Aug-07									
Sep-07	x								
Oct-07									
Nov-07	x								
Dec-07	x								
Jan-08	x								
Feb-08	x				x				
Mar-08									
Apr-08	x				x				
May-08	x				x				
Jun-08									
Jul-08									
Aug-08									
Sep-08									
Oct-08									
Nov-08									
Dec-08									
Jan-09									
Feb-09									
Mar-09	x	x	x	x	x	x	x	x	x

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Raft A

Sample Purpose: **Lake Water Quality** Date: 11/18/2005 Time: 16:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.071 Easting: W150 56.401 Datum: NAD 27

Measurements By: Hilton Time: 16:30

Water Depth (ft): 10.35 Ice Thickness (ft): 1.48

Freeboard (ft): 0.08 Snow Depth (ft): 0.4

Elev. (BPMSL): 7.4 +/- .02 Survey By: Lilly Time: 18:00 11/17/2005

Sampled By: Hilton Sample Depths BWS (ft): #. n/a Time: n/a

#. n/a

#. n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Samp QAQC Chk	Post-Samp QAQC Chk
pH, cond., turb.,temp, pressure, RDO	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**								
Time:	16:07	16:10	16:13	16:17	16:21	16:24	16:29	16:34	16:40
Depth BWS (ft):	2	3	4	5	6	7	8	9	10
Temp (°C):	0.03	0.11	0.32	0.57	0.78	0.95	1.07	1.24	1.34
pH:	7.30	7.31	7.32	7.32	7.32	7.3	7.27	7.13	6.91
Barometeric (mmHg):	760.5	760.5	760.6	760.6	760.7	760.6	760.6	760.6	760.6
Pressure (kPa):	4.567	7.520	10.606	13.291	16.539	19.316	22.172	26.102	25.352
Conductivity (µS/cm):	58.79	57.71	57.20	56.76	56.37	56.26	56.46	59.17	61.05
RDO (ppm):	16.17	16.33	16.37	16.24	16.01	15.86	15.64	14.48	11.73
Turbidity (NTU):	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	0.40	3.20
ORP	-	-	-	-	-	-	-	-	-

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**		
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3
Oxygen (mg/L)									
Alkalinity (mg/L as $CaCO_3$)									
Nitrate (mg/L NO_3^--N)									
Nitrite (mg/L NO_2^--N)									
Ammonia (mg/L NH_3-N)									
Sulfate (mg/L)									
Sulfide (µg/L)									
Total iron--UF (mg/L)									
Ferrous (II) iron--F tot Fe (mg/L)									

Remarks: Accidentally hit bottom on last measurement (11 ft depth), waited for stabalization but data may not reflect true water chemistry at depth.

Field-Form Filled Out By: Hilton Date: 11/21/2005

QAQC Check By: Lawson Date: 2/5/2006

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Raft B

Sample Purpose: **Lake Water Quality** Date: 11/18/2005 Time: 14:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.014 Easting: W150 56.725 Datum: NAD 27

Measurements By: Hilton Time: 14:35

Water Depth (ft): 11.4 Ice Thickness (ft): 1.6

Freeboard (ft): 0.1 Snow Depth (ft): 0.25

Elev. (BPMSL): 7.4 +/- .02 Survey By: Lilly Time: 18:00 11/17/2005

Sampled By: Hilton Sample Depths BWS (ft): #. 11 Time: 18:30

#. 9

#. 2

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Samp QAQC Chk	Post-Samp QAQC Chk
pH, cond., turb.,temp, pressure, RDO	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**								
Time:	15:00	15:03	15:07	15:10	15:13	15:17	15:22	15:26	15:32
Depth BWS (ft):	2	3	4	5	6	7	8	9	10
Temp (°C):	0.05	0.22	0.31	0.48	0.71	0.88	1.11	1.39	1.60
pH:	7.39	7.35	7.34	7.34	7.34	7.32	7.3	7.25	7.11
Barometeric (mmHg):	760.6	760.7	760.7	760.7	760.8	760.8	760.8	760.9	760.9
Pressure (kPa):	4.748	7.605	10.300	13.319	16.391	19.418	22.263	25.468	28.371
Conductivity (µS/cm):	58.88	58.17	57.78	57.39	56.89	56.68	56.51	56.69	58.60
RDO (ppm):	15.41	15.63	15.70	15.71	15.56	15.33	15.17	14.69	13.43
Turbidity (NTU):	0.00	0.40	0.4	0.4	0.3	0.1	0.0	-0.1	0.0
ORP	-	-	-	-	-	-	-	-	-

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**		
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3
Oxygen (mg/L)									
Alkalinity (mg/L as $CaCO_3$)									
Nitrate (mg/L NO_3^--N)									
Nitrite (mg/L NO_2^--N)									
Ammonia (mg/L NH_3-N)									
Sulfate (mg/L)									
Sulfide (µg/L)									
Total iron--UF (mg/L)									
Ferrous (II) iron--F tot Fe (mg/L)									

Remarks:

Field-Form Filled Out By: Hilton Date: 11/21/2005

QAQC Check By: Lawson Date: 2/5/2006

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Survey Hole

Sample Purpose: **Lake Water Quality** Date: 11/18/2005 Time: 11:30

FIELD MEASUREMENTS

GPS Coord. Northing: 70 20.037 Easting: W150 56.884 Datum: NAD 27

Measurements By: Hilton Time: 12:00

Water Depth (ft): 9.82 Ice Thickness (ft): 1.7

Freeboard (ft): 0.1 Snow Depth (ft): 0.4

Elev. (BPMSL): 7.4 Survey By: Lilly Time: 18:00 11/17/2005

Sampled By: Hilton Sample Depths BWS (ft): 1. 9 Time: 17:00

2 2

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Samp QAQC Chk	Post-Samp QAQC Chk
pH, cond., turb.,temp, pressure, RDO	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**							
Time:	12:15	12:20	12:24	12:28	12:34	12:40	12:50	13:00
Depth BWS (ft):	2	3	4	5	6	7	8	9
Temp (°C):	0.07	0.17	0.29	0.39	0.83	0.89	0.99	1.32
pH:	7.31	7.37	7.35	7.28	7.22	7.19	7.12	6.97
Barometeric (mmHg):	761.1	761.1	761.1	761.1	761.1	761.1	761.2	761.1
Pressure (kPa):	6.049	7.689	10.359	13.054	16.784	19.469	22.252	25.298
Conductivity (µS/cm):	60.01	59.21	58.55	58.18	57.09	56.83	57.64	58.94
RDO (ppm):	14.30	14.61	14.70	14.80	13.63	13.60	13.07	11.17
Turbidity (NTU):	0.50	0.70	0.7	0.6	0.6	0.4	0.3	0.6
ORP								

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**		
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3
Oxygen (mg/L)									
Alkalinity (mg/L as $CaCO_3$)									
Nitrate (mg/L NO_3^--N)									
Nitrite (mg/L NO_2^--N)									
Ammonia (mg/L NH_3-N)									
Sulfate (mg/L)									
Sulfide (µg/L)									
Total iron--UF (mg/L)									
Ferrous (II) iron--F tot Fe (mg/L)									

Remarks:

Field-Form Filled Out By: Hilton Date: 11/18/05

QAQC Check By: Lawson Date: 2/6/2005

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP

Sample Purpose: **Lake Water Quality** Date: 11/18/2005 Time: 15:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.043 Easting: W150 56.563 Datum: NAD 27

Measurements By: Hilton Time: 15:30

Water Depth (ft): 11.15 Ice Thickness (ft): 1.57

Freeboard (ft): 0.08 Snow Depth (ft): 0.4

Elev. (BPMSL): 7.4 +/- .02 Survey By: Lilly Time: 18:00 11/17/2005

Sampled By: Hilton Sample Depths BWS (ft): #. n/a Time: n/a

#. n/a

#. n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Samp QAQC Chk	Post-Samp QAQC Chk
pH, cond., turb.,temp, pressure, RDO	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**								
Time:	15:30	15:32	15:35	15:39	15:42	15:46	15:49	15:53	15:57
Depth BWS (ft):	2	3	4	5	6	7	8	9	10
Temp (°C):	0.00	0.08	0.28	0.53	0.75	0.96	1.14	1.35	1.70
pH:	7.26	7.28	7.29	7.29	7.28	7.28	7.27	7.19	6.83
Barometeric (mmHg):	760.4	760.5	760.5	760.5	760.5	760.6	760.6	760.7	760.7
Pressure (kPa):	4.827	7.402	10.377	13.796	16.399	19.168	22.612	25.601	28.362
Conductivity (µS/cm):	58.63	57.98	57.59	57.11	56.72	56.43	56.31	57.74	64.87
RDO (ppm):	16.10	16.22	16.16	15.99	15.73	15.48	15.16	13.46	9.15
Turbidity (NTU):	0.90	1.50	1.6	1.4	1.6	1.6	0.2	0	0.7
ORP	-	-	-	-	-	-	-	-	-

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**		
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3
Oxygen (mg/L)									
Alkalinity (mg/L as $CaCO_3$)									
Nitrate (mg/L NO_3^--N)									
Nitrite (mg/L NO_2^--N)									
Ammonia (mg/L NH_3-N)									
Sulfate (mg/L)									
Sulfide (µg/L)									
Total iron--UF (mg/L)									
Ferrous (II) iron--F tot Fe (mg/L)									

Remarks:

Field-Form Filled Out By: Hilton Date: 11/21/2005

QAQC Check By: Lawson Date: 2/5/2006

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: Survey Hole/L9312

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 15:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.037 Easting: W150 56.884 Datum: NAD 27

Measurements By: DMW/MRL Time: nr

Water Depth (ft): 9.58 Ice Thickness (ft): 3

Freeboard (ft): 0 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.5 Survey By: DMW/MRL Date: 1/16/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In_Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	14:30	14:32	14:35	14:39	14:44	14:48	14:50			
Depth BWS (ft):	3.0	4.0	5.0	5.0	7.0	8.0	9.0			
Temp (°C):	-0.01	0.04	0.32	0.39	0.78	1.00	1.21			
pH:	6.86	6.83	6.86	6.85	6.85	6.77	6.74			
Barometeric (mmHg):	761.8	761.8	761.8	761.8	761.8	761.8	761.8			
Pressure (kPa):	7.533	10.159	13.747	13.052	19.044	22.332	25.147			
Conductivity (µS/cm):	74.08	73.36	71.80	71.71	71.21	71.95	72.71			
RDO (ppm):	12.76	12.74	12.78	12.83	12.92	10.54	8.87			
Turbidity (NTU):	3.20	6.60	6.50	7.10	5.60	5.90	5.70			
ORP	741.00	730.00	742.00	736.00	741.00	753.00	753.00			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N

Remarks:

Field-Form Filled Out By: DAR Date: 1/21/06

QAQC Check By: St. Amand Date: 3/22/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft A

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 12:32

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.071 Easting: W150 56.401 Datum: NAD 27

Measurements By: DAR Time: 12:32

Water Depth (ft): 10 Ice Thickness (ft): 2.6

Freeboard (ft): 0.1 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.5 Survey By: Lilly Date: 1/16/06 Time: 11:15

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	12:37	12:42	12:45	12:48	12:54	12:56	13:11	13:18	nr	
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0	8.0	9.0	9.5	10.0	
Temp (°C):	0.00	0.14	0.38	0.58	0.87	1.13	1.35	nr	1.48	
pH:	7.09	7.07	7.07	7.06	7.03	6.98	6.78	nr	6.66	
Barometeric (mmHg):	761.6	761.7	761.8	761.9	761.9	761.9	761.9	nr	761.9	
Pressure (kPa)	7.587	nr	13.534	16.326	19.330	22.768	25.499	nr	28.104	
Conductivity (µS/cm):	68.71	67.00	67.26	67.23	67.18	67.26	70.35	nr	77.33	
RDO (ppm):	17.86	17.68	16.94	17.26	16.87	16.47	11.50	nr	7.22	
Turbidity (NTU):	3.7	0.3	0.5	0.5	0.0	0.5	2.0	nr	3.5	
ORP	734	735	740	734	733	730	716	nr	720	
LDO Temp (UAF/BLM)	0.4/0.5	0.4/0.5	0.7/0.6	0.8/1.1	1.1/1.2	1.2/1.6	1.3/1.7	1.6	1.6/1.8	
LDO DO (UAF/BLM)	17.1/15.5	17/15.2	16.5/15.3	16.6/14.8	16.5/14.9	15/11.8	14.3/7.38	9.6	7.73/4.19	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										0.01-0.50

Remarks: BLM LDO 10 was originally used and UAF LDO 20 was also used.

Field-Form Filled Out By: Blackburn Date: 8/23/06

QAQC Check By: Hilton Date: 8/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: Survey Hole/L9312

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 15:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.037 Easting: W150 56.884 Datum: NAD 27

Measurements By: DMW/MRL Time: nr

Water Depth (ft): 9.58 Ice Thickness (ft): 3

Freeboard (ft): 0 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.5 Survey By: DMW/MRL Date: 1/16/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
d.o., temp	UAF	HACH LDO-20	nr	yes	yes

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	3.0	4.0	5.0	5.0	8.0	9.0	bottom			
Temp (°C):	0.70	0.20	0.40	0.50	1.00	1.40	1.60			
LDO (ppm):	12.90	13.20	13.10	13.20	12.90	7.78	0.02			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N

Remarks: Note that bottom readings may not be representative of oxygen levels.

Field-Form Filled Out By: DAR Date: 1/21/06

QAQC Check By: St. Amand Date: 3/22/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: raft A /L9312

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 12:12

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.071 Easting: W150 56.401 Datum: NAD 27

Measurements By: DMW/MRL Time: nr

Water Depth (ft): 10.25 Ice Thickness (ft): 2.6

Freeboard (ft): 0.1 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.5 Survey By: DMW/MRL Date: 1/16/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
d.o., temp	BLM	HACH LDO-10	nr	yes	yes

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	3.0	4.0	5.0	5.0	7.0	8.0	9.0	10.0		
Temp (°C):	0.50	0.50	0.60	1.10	1.20	1.60	1.70	1.80		
LDO (ppm):	15.50	15.20	15..3	14.80	14.90	11.80	7.38	4.19		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N

Remarks:

Field-Form Filled Out By: DAR Date: 1/21/06

QAQC Check By: St. Amand Date: 3/22/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 10:01

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.014 Easting: W150 56.725 Datum: NAD 27

Measurements By: DAR Time: nr

Water Depth (ft): 11.18 Ice Thickness (ft): 2.67

Freeboard (ft): 0 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.5 Survey By: DMW/MRL Date: 1/16/05 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 4 Date: 1/16/05 Time: nr

2 8

WATER QUALITY METER INFORMATION 3 11

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In Situ Troll 9000	33033	ok	ok
temp/ LDO	BLM	Hach LDO	nr	yes	yes

Parameters	**Field Measurements**									
Time:	10:07	10:19	10:22	10:28	10:31	10:36	10:48	10:53	10:58	
Depth BWS (ft):	3	4	5	6	7	8	9	10	11	Bottom
Temp (°C):	0.00	0.24	0.48	0.64	0.94	1.22	1.51	1.71	1.83	
pH:	6.99	7.04	7.00	7.02	7.01	6.98	6.83	6.72	6.87	
Barometeric (mmHg):	761.4	761.4	761.4	761.4	761.5	761.5	761.5	761.5	761.6	
Pressure (kPa):	7.420	10.373	13.544	16.354	19.342	22.768	25.634	28.174	30.787	
Conductivity (µS/cm):	64.30	62.86	63.56	63.17	63.14	63.06	63.25	70.28	90.46	
RDO (ppm): (mg/L)	16.85	17.21	17.06	16.81	16.70	16.02	13.86	8.12	3.34	
Turbidity (NTU):	0.5	0.1	0.1	1.9	0.2	0.1	0.5	2.1	3.5	
ORP	726	768	762	763	764	758	762	741	711	
Hach temp °C	0.7	0.3	0.4	0.9	1.0	1.3	1.5	1.8	2.0	2.1
Hach LDO	17.6	18.0	17.6	16.5	16.3	15.8	14.0	9.19	4.8	0.17
Stable RDO	15.7	16.11	16.24	16.42						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 4**			**Depth BWS (ft): 8**			**Depth BWS (ft): 11**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)							3.8			Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	35	37	36	37	40	38	52	59	59	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)	0.001	0.003	0.003	0.004	0.003	0.003	UR, - 0.002	UR, - 0.003	UR, - 0.002	Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)	0.04			0.04			0.85*10 =8.5			Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.02			0.02			0.66*10 =6.6			Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****	0.01	0.02	0.01	0.01	0.02	0.04	0.51	0.48	0.50	Hach spec 0.01-0.50 mg/L NH3-N

Remarks: Note: 3 foot RDO was read while "jigging" inst. Reading later stabilized to 15.70. Some small bubbles were observed under ice.

Field-Form Filled Out By: Dan Reichardt Date: 1/21/06

QAQC Check By: St. Amand Date: 3/13/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B-SH midpoint

Sample Purpose: **Lake Water Quality** Date: 1/16/06 Time: 10:01

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.043 Easting: W150 56.563 Datum: NAD 27

Measurements By: Lilly Time: 14:30

Water Depth (ft): nr Ice Thickness (ft): 2.6

Freeboard (ft): 0.1 Snow Depth (ft): 0.8

Elev. (BPMSL +/- .02): 7.5 Survey By: DMW/MRL Date: 1/16/05 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model			Serial No.		Pre-Sampling QAQC Check		Post-Sampling QAQC Check	
temp/ LDO	BLM	Hach LDO			nr		yes		yes	
Parameters	**Field Measurements**									
Time:	14:35	nr	nr	nr	nr	nr	nr	nr	nr	
Depth BWS (ft):	3	4	5	6	7	8	9	10	10.5	
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (ppm): (mg/L)										
Turbidity (NTU):										
ORP										
Hach temp °C	0.2	0.1	0.1	0.1	0.1	0.1	1.6	2.0	2.1	
Hach LDO	15.5	15.5	15.5	15.6	15.6	15.6	6.3	2.37	1.0	

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										Hach spec 0.01-0.50 mg/L NH3-N

Remarks: Midpoint between survey hole and raft B

Field-Form Filled Out By: Hilton Date: 2/15/06

QAQC Check By: Blackburn Date: 7/31/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 1/15/06 Time: 11:24

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.090 Easting: W151 19.929 Datum: Nad 27

Measurements By: DAR, BC Time: nr

Water Depth (ft): 8.57 Ice Thickness (ft): 2.18

Freeboard (ft): 0.02 Snow Depth (ft): nr

Elev. (BPMSL): 53.35 +/- .02 Survey By: DAR Date: 1/15/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 2.5 Date: 1/16/06 Time: nr

2 5.5

WATER QUALITY METER INFORMATION 3 8

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	InSitu troll 9000	33033	yes	yes
Temp/ LDO	BLM	Hach LDO	nr	yes	yes

Parameters	**Field Measurements**									
Time:	11:33	11:36	11:40	11:50	11:53	12:07	12:14			
Depth BWS (ft):	2.5	3.5	4.5	5.5	6.5	7.5	8.5	Bottom		
Temp (°C):	0.01	0.10	0.43	0.89	1.10	1.57	1.90			
pH:	7.01	7.00	7.01	6.99	6.69	6.99	7.52			
Barometeric (mmHg):	759.3	759.3	759.3	759.3	759.3	759.4	759.5			
Pressure (kPa):	6.327	8.699	12.199	14.810	17.787	20.898	23.889			
Conductivity (µS/cm):	251.1	251.0	251.8	253.5	255.5	296.2	368.4			
RDO (ppm):	10.26	10.29	10.28	9.79	8.94	2.07	0.58			
Turbidity (NTU):	1.30	1.20	1.40	3.20	3.10	3.60	5.50			
ORP	1014	1020	1023	1013	1003	929	911			
Hach LDO temp	0.4	0.3	0.7	1.1	1.2	1.5	2.0	2.0		
Hach LDO DO	11.0	11.1	10.9	8.40	8.11	2.58	0.12	UR		

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 2.5**			**Depth BWS (ft): 5.5**			**Depth BWS (ft): 8**			**Method**	
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3		processed
Oxygen (mg/L)				11.3						Hach spec 0.3-15 mg/L	15-Jan
Alkalinity (mg/L as $CaCO_3$)	64	70	66	67	71	71	66	71	69	Digital titrator 10-4000 mg/L as CaCO3	16-Jan
Nitrite (mg/L NO2--N)	0.006	0.006	0.005	0.006	0.006	0.007	0.006	0.006	0.005	Hach spec 0.002-0.300 mg/L NO2--N	16-Jan
Total iron--UF (mg/L)	0.04	0.04	0.05	0.08			0.06			Hach spec 0.02-3.00 mg/L	15-Jan
Filtered Iron--F tot Fe (mg/L)	0.02	0.01	0.01	0.01			0.01			Hach spec 0.02-3.00 mg/L	15-Jan
Ammonia (mg/L NH_3-N)	0.13	0.14	0.14	0.15	0.16	0.16	0.21	0.22	0.20	Hach spec 0.01-0.50 mg/L NH3-N	16-Jan

Remarks: All depths recorded according to yellow cord. Sample drawn from bottom was drawn from an intermediate depth between 5.5' and 8.5'.

Subtract 0.3' from recorded Hach depths.

Field-Form Filled Out By: DAR Date: 1/15/06

QAQC Check By: St. Amand Date: 3/12/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 1/15/06 Time: 15:48

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.071 Easting: W151 19.870 Datum: Nad 27

Measurements By: Lilly Time: nr

Water Depth (ft): 8.24 Ice Thickness (ft): 2.15

Freeboard (ft): 0 Snow Depth (ft): nr

Elev. (BPMSL): 53.35 +/- .02 Survey By: DAR Date: 1/15/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In Situ MP Troll 9000	33033	yes	yes
Temp/ LDO	BLM	Hach LDO	nr	yes	yes

Parameters	**Field Measurements**									
Time:	15:54	16:01	16:05	16:10	16:15	16:20	16:28			
Depth BWS (ft):	2.5	3.5	4.5	5.5	6.5	7.5	8.0	Bottom		
Temp (°C):	-0.04	0.06	0.35	0.75	1.10	1.51	1.70			
pH:	7.04	7.02	7.00	6.99	6.94	6.91	7.28			
Barometeric (mmHg):	759.0	759.5	nr	759.6	759.7	759.7	759.8			
Pressure (kPa):	6.348	8.711	11.677	15.154	18.057	21.014	22.422			
Conductivity (µS/cm):	267.1	266.3	266.2	268.1	272.1	297.9	338.4			
RDO (ppm):	12.02	11.54	10.66	10.27	9.09	2.51	1.27			
Turbidity (NTU):	1.50	3.80	2.10	0.80	0.90	3.20	7.00			
ORP	980	980	982	983	975	952	933			
Hach LDO temp	nr	0.1	0.3	0.9	1.2	1.6	nr	1.8		
Hach LDO DO	nr	11.7	11.3	10.7	9.66	3.53	nr	0.5		

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**	
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3		processed
Oxygen (mg/L)										Hach spec 0.3-15 mg/L	15-Jan
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3	16-Jan
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N	16-Jan
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L	15-Jan
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L	15-Jan
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N	16-Jan

Remarks: Bottom reading was with LDO probe in the mud or on the mud. All depths recorded according to yellow cord.
Subtract 0.3' from recorded Hach depths.

Field-Form Filled Out By: DAR Date: 1/16/06

QAQC Check By: St. Amand Date: 3/12/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 1/15/06 Time: 14:54

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.029 Easting: W151 19.746 Datum: Nad 27

Measurements By: Lilly Time: nr

Water Depth (ft): 8.0 Ice Thickness (ft): 2.1

Freeboard (ft): 0 Snow Depth (ft): nr

Elev. (BPMSL): 53.35 +/- .02 Survey By: DAR Date: 1/15/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In Situ MP Troll 9000	33033	yes	yes
Temp/ LDO	BLM	Hach LDO	nr	yes	yes

Parameters	**Field Measurements**									
Time:	15:00	15:03	15:13	15:17	15:24	15:32				
Depth BWS (ft):	3.5	2.5	4.5	5.5	6.5	7.5	Bottom			
Temp (°C):	0.01	-0.01	0.29	0.64	0.93	1.40				
pH:	7.03	7.04	6.99	6.97	6.96	6.96				
Barometeric (mmHg):	759.6	759.5	759.5	759.5	754.6	nr				
Pressure (kPa):	9.103	6.519	12.186	14.758	17.436	20.844				
Conductivity (µS/cm):	267.4	267.4	269.0	270.4	272.1	284.9				
RDO (ppm):	11.65	11.77	9.86	9.36	8.22	4.33				
Turbidity (NTU):	4.4	8.8	1.3	0.50	2.40	6.50				
ORP	971	973	970	962	974	955				
Hach LDO temp	0.2		0.5	0.5	1.2	1.5	1.7			
Hach LDO DO	11.0		10.1	9.95	7.58	4.28	UR			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N

Remarks: All depths recorded according to yellow cord. Subtract 0.3' from recorded Hach depths.

Field-Form Filled Out By: DAR Date: 1/16/06

QAQC Check By: St. Amand Date: 3/12/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 1/15/06 Time: 14:18

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.018 Easting: W151 19.805 Datum: Nad 27

Measurements By: Lilly Time: nr

Water Depth (ft): 5.94 Ice Thickness (ft): 2.4

Freeboard (ft): 0.15 Snow Depth (ft): nr

Elev. (BPMSL): 53.35 +/- .02 Survey By: DAR Date: 1/15/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In Situ mp troll 9000	33033	yes	yes
Temp/ LDO	BLM	Hach LDO	nr	yes	yes

Parameters	**Field Measurements**									
Time:	14:22	14:25	14:30	14:36						
Depth BWS (ft):	2.5	3.5	4.5	5.5	Bottom					
Temp (°C):	-0.06	-0.05	0.28	0.49						
pH:	7.06	7.05	6.97	6.95						
Barometeric (mmHg):	759.6	759.6	759.6	759.5						
Pressure (kPa):	6.496	9.623	12.434	15.200						
Conductivity (µS/cm):	273.70	272.90	275.00	276.40						
RDO (ppm):	11.48	11.41	9.07	8.86						
Turbidity (NTU):	0.60	1.60	1.30	2.60						
ORP	7.62	916.00	944.00	965.00						
Hach LDO temp	0.1	0.1	0.3	0.7	0.8					
Hach LDO DO	12.4	11.9	10.1	9.20	0.03					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)										Hach spec 0.002-0.300 mg/L NO2--N
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)										Hach spec 0.01-0.50 mg/L NH3-N

Remarks: All depths recorded according to yellow cord. Subtract 0.3' from recorded Hach depths.

Field-Form Filled Out By: DAR Date: 1/16/06

QAQC Check By: St. Amand Date: 3/12/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 10:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.090 Easting: W151 19.931 Datum: NAD 27

Measurements By: DAR, MW Time: 10:20

Water Depth (ft): 8.59 Ice Thickness (ft): 2.74

Freeboard (ft): -0.05 Snow Depth (ft): 1

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 3 Date: 2/18/06 Time: nr

2 6.5

WATER QUALITY METER INFORMATION 3 8

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	10:20	10:24	10:27	10:29	10:33	10:46	10:52			
Depth BWS (ft):	3.0	4.0	5.0	6.5	7.0	8.0	8.5			
Temp (°C):	0.01	0.08	0.35	0.90	1.16	1.49	1.70			
pH:	6.94	6.93	6.93	6.92	6.86	7.37	7.76			
Barometeric (mmHg):	756.3	756.3	756.3	756.3	756.3	756.3	756.2			
Pressure (kPa):	7.725	10.470	13.560	17.760	19.590	22.620	24.070			
Conductivity (µS/cm):	298.4	298.0	298.7	303.1	305.0	351.4	418.0			
RDO (ppm): (mg/L)	8.12	8.33	8.55	8.65	7.53	2.75	1.03			
Turbidity (NTU):	0.7	0.8	1.6	2.7	4.8	10.0	7.4			
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 3**			**Depth BWS (ft): 6.5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)	90	93	93	94	91	92	133	133	134	Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.06	0.07	0.07	0.6	0.58	0.58	31.6	25.1	OR	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0	0.01	0.01	0.3	0.29	0.3	19.1	19.4	20.4	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****	0.1	0.1	0	0.28	0.27	0.28	2.6	2.4	2.5	0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution							10%	10%	10%	

Remarks: OR= Over Range. 8 ft sample had color, Iron and Ammonia diluted to 10% (5 ml sample, 45 ml nanopure).

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 10:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.071 Easting: W151 19.868 Datum: NAD 27

Measurements By: Whitman Time: 10:15

Water Depth (ft): 8.25 Ice Thickness (ft): 3.08

Freeboard (ft): 0.16 Snow Depth (ft): 0.52

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	12:01	12:03	12:04	12:08	12:16	12:24				
Depth BWS (ft):	3.5	4.0	5.0	6.0	7.0	8.0				
Temp (°C):	0.02	0.09	0.47	0.79	1.16	1.51				
pH:	6.87	6.83	6.83	6.84	6.77	7.49				
Barometeric (mmHg):	755.5	755.4	755.4	755.4	755.4	755.4				
Pressure (kPa):	8.750	10.300	13.330	16.140	19.440	22.620				
Conductivity (µS/cm):	302.9	301.9	302.3	304.6	311.7	354.7				
RDO (ppm): (mg/L)	9.26	9.35	9.35	9.07	6.21	2.15				
Turbidity (NTU):	1.5	0.9	2.2	4.6	2.1	7.3				
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 10:22

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.043 Easting: W151 19.840 Datum: NAD 27

Measurements By: Whitman Time: 10:22

Water Depth (ft): 7.94 Ice Thickness (ft): 2.76

Freeboard (ft): 0 Snow Depth (ft): 0.8

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	12:43	12:46	12:48	12:50	12:57	13:07	13:14			
Depth BWS (ft):	3.0	4.0	5.0	5.0	7.0	7.5	8.0			
Temp (°C):	0.00	0.08	0.29	0.36	1.01	1.23	1.42			
pH:	6.86	6.81	6.81	6.81	6.80	6.95	7.08			
Barometeric (mmHg):	755.1	755.1	755.1	755.2	755.2	755.1	755.1			
Pressure (kPa):	7.930	10.450	13.700	13.650	19.570	21.310	22.210			
Conductivity (µS/cm):	297.4	305.4	309.7	310.2	315.6	332.7	355.9			
RDO (ppm): (mg/L)	9.26	9.12	9.05	9.00	8.63	5.52	2.61			
Turbidity (NTU):	0.2	0.4	0.6	0.5	0.8	6.1	9.2			
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: 5 ft reading was taken twice. Both are good numbers, a reading at 6 ft was taken.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 10:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.018 Easting: W151 19.807 Datum: NAD 27

Measurements By: Whitman Time: 10:45

Water Depth (ft): 5.89 Ice Thickness (ft): 3.26

Freeboard (ft): 0.17 Snow Depth (ft): 0.65

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	13:30	13:34	13:40	13:43	13:45					
Depth BWS (ft):	3.5	4.5	5.5	6a	6b					
Temp (°C):	-0.02	-0.02	0.29	0.42	0.38					
pH:	6.77	6.77	6.74	6.70	6.71					
Barometeric (mmHg):	754.7	754.7	754.6	754.7	754.7					
Pressure (kPa):	8.530	11.690	14.820	16.750	16.880					
Conductivity (µS/cm):	317.8	317.5	320.5	321.1	321.2					
RDO (ppm): (mg/L)	8.97	8.82	8.10	7.95	7.89					
Turbidity (NTU):	0.1	0.1	0.3	465.0	60.5					
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: 6 ft (a) mark is sitting on bottom. 6 ft (b) mark was being agitated. Bottom seems relatively hard, couldn't sink probe into much.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20a

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 12:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.098 Easting: W151 19.777 Datum: NAD 27

Measurements By: Whitman Time: 12:15

Water Depth (ft): 9.13 Ice Thickness (ft): 3.68

Freeboard (ft): 0.01 Snow Depth (ft): 1.07

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: Whitman Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	14:45	14:51	14:55	15:00	15:06	15:10	15:13			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	9.2			
Temp (°C):	0.09	0.26	0.59	0.86	0.99	0.98	0.98			
pH:	6.67	6.64	6.63	6.62	7.13	7.69	7.72			
Barometeric (mmHg):	753.7	753.7	753.7	753.6	753.6	753.5	753.5			
Pressure (kPa):	10.370	13.602	16.513	19.614	22.449	25.452	26.053			
Conductivity (µS/cm):	309.5	309.9	311.2	314.2	371.4	518.0	515.4			
RDO (ppm): (mg/L)	3.66	2.65	1.96	1.51	0.57	0.25	0.17			
Turbidity (NTU):	2.8	4.1	4.9	9.3	8.7	4.6	49.9			
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: 20a is 3 ft from 20b. See notes on F004a-20b. Drilled at 12:00.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20b

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 12:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.098 Easting: W151 19.777 Datum: NAD 27

Measurements By: Whitman Time: 10:45

Water Depth (ft): 9.13 Ice Thickness (ft): 3.68

Freeboard (ft): 0.01 Snow Depth (ft): 1.07

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	UAF	In-Situ Troll 9000		yes	yes

Parameters	**Field Measurements**									
Time:	14:44	14:51	14:55	15:00	15:06	15:10	15:13			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	9.2			
Temp (°C):	-0.14	0.05	0.49	0.72	0.91	0.87	0.90			
pH:	6.89	6.85	6.84	6.87	7.26	7.87	7.88			
Barometeric (mmHg):	751.8	751.7	751.7	751.7	751.7	751.6	751.5			
Pressure (kPa):	10.280	13.570	16.680	19.320	22.490	25.610	26.590			
Conductivity (µS/cm):	299.0	300.0	301.4	303.1	334.6	495.6	526.8			
RDO (ppm): (mg/L)	4.10	2.46	2.02	1.77	0.45	0.14	0.16			
Turbidity (NTU):	3.1	5.4	5.9	6.1	8.9	5.2	57.2			
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Field Measurements were presumed to be the same as L9817-20b. 20b and 20a were sampled at the same time with both the UAF and GWS instruments. Lilly reported significant off-gassing and air voids in the ice. See his field book for details.

9 ft reading was at the bottom.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-21

Sample Purpose: **Lake Water Quality** Date: 2/18/06 Time: 11:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.083 Easting: W151 20.084 Datum: NAD 27

Measurements By: Whitman Time: 11:00

Water Depth (ft): 7.31 Ice Thickness (ft): 2.92

Freeboard (ft): -0.08 Snow Depth (ft): 0.98

Elev. (BPMSL): 53.41 +/-.02 Survey By: Whitman Date: 2/18/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	14:03	14:07	14:11	14:13	14:20					
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0					
Temp (°C):	0.04	0.18	0.57	0.86	1.06					
pH:	6.74	6.75	6.73	6.74	6.68					
Barometeric (mmHg):	754.3	754.3	754.2	754.2	754.2					
Pressure (kPa):	7.660	10.330	13.440	16.390	19.510					
Conductivity (µS/cm):	295.0	295.3	296.8	299.9	312.4					
RDO (ppm): (mg/L)	7.93	7.82	7.84	7.93	5.99					
Turbidity (NTU):	0.1	0.1	0.4	0.8	0.8					
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St. Amand Date: 3/8/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.036 Easting: W150 56.884 Datum: NAD 27

Measurements By: Hilton Time: 10:55

Water Depth (ft): 9' 9.5" Ice Thickness (ft): 3.64

Freeboard (ft): -0.02 Snow Depth (ft): 0.85

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	15:58	16:00	16:12	16:16	16:20	16:25	16:32			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	10.0			
Temp (°C):	0.07	0.19	0.46	0.72	0.96	1.22	1.35			
pH:	6.53	6.49	6.46	6.46	6.46	6.41	6.47			
Barometeric (mmHg):	771.6	771.6	771.5	771.6	771.6	771.5	771.5			
Pressure (kPa):	10.380	13.380	16.330	19.400	22.430	25.630	28.360			
Conductivity (µS/cm):	80.06	79.27	78.71	78.44	78.28	78.25	79.12			
RDO (ppm): (mg/L)	11.04	10.25	9.77	9.72	9.14	6.45	4.32			
Turbidity (NTU):	0.7	1.8	1.1	1.2	1.5	2.2	200.0			
ORP	921	-	-	913	917	917	916			
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Note- probe is just touching bottom at 10 ft.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.036 Easting: W150 56.884 Datum: NAD 27

Measurements By: Hilton Time: 10:55

Water Depth (ft): 9' 9.5" Ice Thickness (ft): 3.64

Freeboard (ft): -0.02 Snow Depth (ft): 0.85

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	UAF	In-Situ Troll 9000	-	yes	yes

Parameters	**Field Measurements**									
Time:	15:58	16:00	16:16	16:20	16:24	16:29	16:35			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	10.0			
Temp (°C):	-0.09	-0.01	0.32	0.54	0.78	1.05	1.21			
pH:	6.93	6.86	6.89	6.89	6.86	6.83	6.83			
Barometeric (mmHg):	769.7	769.7	769.6	769.6	769.5	769.5	769.5			
Pressure (kPa):	10.338	13.280	16.370	19.310	22.310	25.330	28.110			
Conductivity (µS/cm):	80.38	79.42	79.11	78.80	79.50	79.01	80.18			
RDO (ppm): (mg/L)	12.34	12.02	10.02	9.70	8.01	5.05	3.62			
Turbidity (NTU):	1.0	1.5	1.7	1.7	2.1	2.9	4.5			
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Field measurements (physical) taken from data for L9312-SH. 10 ft reading is just above bottom of lake.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (B-SH)

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.027 Easting: W150 56.820 Datum: NAD 27

Measurements By: Hilton Time: 10:40

Water Depth (ft): 10' 10.5" Ice Thickness (ft): 3.55

Freeboard (ft): 0.04 Snow Depth (ft): 0.8

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	14:49	14:58	15:01	15:08	15:15	15:20	15:26			
Depth BWS (ft):	4.0	5.0	6.0	8.0	9.0	10.0	10.5			
Temp (°C):	0.19	0.25	0.66	1.09	1.43	1.65	1.72			
pH:	6.76	6.76	6.71	6.67	6.49	6.39	6.58			
Barometeric (mmHg):	772.1	772.1	772.1	772.2	772.2	722.2	722.1			
Pressure (kPa):	10.100	13.460	16.780	22.400	25.380	28.070	29.860			
Conductivity (µS/cm):	76.00	74.76	73.76	72.88	71.14	74.84	94.80			
RDO (ppm): (mg/L)	16.18	16.15	15.82	13.91	7.85	3.60	2.45			
Turbidity (NTU):	1.0	1.8	5.6	4.0	2.3	2.0	1.9			
ORP	922	920	914	915	913	916	911			
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Midpoint between B and Survey Hole.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312- B

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: 10:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 15.366 Easting: W148 19.942 Datum: NAD 27

Measurements By: Hilton Time: 10:00

Water Depth (ft): 11 Ice Thickness (ft): 3.55

Freeboard (ft): 0.73 Snow Depth (ft): 0.65

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: Reichardt Sample Depths BWS (ft): 1 4 Date: na Time: na

2 9

WATER QUALITY METER INFORMATION 3 10.5

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	10:26	10:41	10:47	10:55	11:05	11:10	11:15	11:26	11:33	
Depth BWS (ft):	4	5	6	7	8	9	10.0	10.5	4.0	
Temp (°C):	0.06	0.21	0.49	0.8	1.06	1.28	1.56	1.75	0.06	
pH:	7.07	7.02	7	6.98	6.94	6.86	6.55	6.57	6.85	
Barometeric (mmHg):	773.1	773.2	773.2	773.2	773.5	773.5	773.5	773.6	773.3	
Pressure (kPa):	10.210	13.350	16.550	19.260	22.290	25.390	28.170	29.950	10.350	
Conductivity (µS/cm):	74.70	75.18	75.01	75.05	74.88	74.19	74.24	83.31	75.83	
RDO (ppm): (mg/L)	14.89	15.59	16.05	16.1	15.91	15.74	13.70	9.52	14.97	
Turbidity (NTU):	2.1	3.4	3.5	2	3.4	4	8.2	8.10	14.40	
ORP	727	742	755	784	818	842	892	924	924	
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 4**			**Depth BWS (ft): 9**			**Depth BWS (ft): 10.5**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	46	45	46	38	41	41	81	78	78	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.04	0.03	0.04	0.18	0.2	0.18	21.3	21.4	21.3	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.06	0.02	0.02	0.06	0.05	0.05	16.9	16.8	17.1	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****	0.02	0	0.01	0.03	0.01	0	1.2	1.2	1.1	0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution							10%	10%	10%	

Remarks:

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (A-B)

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: 10:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.042 Easting: W150 56.566 Datum: NAD 27

Measurements By: Hilton Time: 10:30

Water Depth (ft): 11' .5" Ice Thickness (ft): 3.66

Freeboard (ft): 0.03 Snow Depth (ft): 0.39

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	14:01	14:09	14:12	14:16	14:22	14:27				
Depth BWS (ft):	4.0	5.0	7.0	9.0	10.0	10.5				
Temp (°C):	0.02	0.27	0.68	1.18	1.50	1.62				
pH:	6.76	6.75	6.71	6.64	6.46	6.43				
Barometeric (mmHg):	772.5	772.6	772.6	772.6	772.6	772.5				
Pressure (kPa):	10.320	13.500	19.330	25.230	28.380	30.170				
Conductivity (µS/cm):	78.56	77.72	77.38	76.90	80.08	92.34				
RDO (ppm): (mg/L)	15.56	15.65	15.83	14.86	8.38	5.48				
Turbidity (NTU):	0.0	0.3	1.1	0.2	1.3	2.9				
ORP	918	917	912	910	909	905				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Midpoint between A and B. Less sample density due to low priority of this sample site.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-A

Sample Purpose: **Lake Water Quality** Date: 2/17/06 Time: 10:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 20.071 Easting: W150 56.405 Datum: NAD 27

Measurements By: Hilton Time: 10:15

Water Depth (ft): 10' .5" Ice Thickness (ft): 3.41

Freeboard (ft): 0.15 Snow Depth (ft): 0.58

Elev. (BPMSL +/- .02): 7.42 Survey By: Lilly Date: 2/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	12:56	13:03	13:06	13:09	13:14	13:22	13:31	13:35	13:40	
Depth BWS (ft):	5.0	4.0	6.0	7.0	8.0	9.0	10.0	10.5a	10.5b	
Temp (°C):	0.33	0.02	0.38	0.77	1.03	1.21	1.35	1.39	1.39	
pH:	6.75	6.76	6.74	6.72	6.67	6.54	6.45	6.40	6.63	
Barometeric (mmHg):	772.9	772.9	772.9	772.9	733.0	773.0	773.0	773.1	773.0	
Pressure (kPa):	13.520	10.210	10.120	19.440	22.460	25.100	28.310	29.520	29.890	
Conductivity (µS/cm):	76.83	77.26	76.21	75.95	76.19	78.81	88.26	89.78	98.03	
RDO (ppm): (mg/L)	14.06	14.04	14.54	14.53	13.65	10.52	9.14	8.39	7.46	
Turbidity (NTU):	2.1	4.7	6.2	6.5	6.3	6.8	8.0	11.50	113.80	
ORP	924	924	924	924	924	924	924	924	905	
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Note- 10.5a is gently on bottom, 10.5b is agitated briefly prior to letting equilbrate.

Field-Form Filled Out By: Hilton Date: 2/26/06

QAQC Check By: St.Amand Date: 3/7/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID:	**North Slope Lakes**		Site Location/Lake ID:	L9312-SH	
Sample Purpose:	**Lake Water Quality**		Date: 3/18/06	Time:	15:26

FIELD MEASUREMENTS

GPS Coord. Northing:	N70.33392	Easting:	W150.94803	Datum:	NAD 27		
Measurements By:	DAR	Time:	15:29				
Water Depth (ft):	9.8	Ice Thickness (ft):	4				
Freeboard (ft):	0.05	Snow Depth (ft):	0.9				
Elev. (BPMSL):	7.40 +/- .02	Survey By:	DAR/MKC	Date:	3/17/06	Time:	18:30
Water Sampling By:	DAR	Sample Depths BWS (ft): 1	na	Date:	na	Time:	na
		2	na				
		3	na				

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters	**Field Measurements**									
Time:	15:33	15:38	15:41	15:48	15:51	15:53	16:00		15:42	
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	Bottom		4.0	
Temp (°C):	-0.20	0.30	0.50	0.90	1.00	1.10	1.50		0.20	
pH:										
Barometeric (mmHg):	764	765	764	765	764	764	765		764	
Pressure (kPa):										
Conductivity (uS/cm):	73.5	72.3	72.1	72.4	72.0	72.0	86.0		73.9	
RDO (ppm): (mg/L)	10.40	9.15	8.72	7.36	7.17	7.03	4.18		9.13	
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Field measurements (physical) taken from data for L9312-SH. 10 ft reading is just above bottom of lake.

Field-Form Filled Out By:	DAR/Hilton	Date:	3/21/06
QAQC Check By:	St. Amand	Date:	3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (A-B)

Sample Purpose: **Lake Water Quality** Date: 3/18/06 Time: 17:54

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33405 Easting: W150.94272 Datum: NAD 27

Measurements By: DAR Time: 10:40

Water Depth (ft): 10.9 Ice Thickness (ft): 4.2

Freeboard (ft): 0 Snow Depth (ft): 0.7

Elev. (BPMSL): 7.40 +/- .02 Survey By: DAR/MRL Date: 3/17/06 Time: 18:30

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters	**Field Measurements**									
Time:	17:55	17:57	17:59	18:00	18:02	18:08	18:10	18:15		
Depth BWS (ft):	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.0		
Temp (°C):	0.4	0.4	0.7	0.9	1.3	1.6	1.7	1.8		
pH:										
Barometeric (mmHg):	765	765	765	765	765	765	765	765		
Pressure (kPa):										
Conductivity (µS/cm):	65.6	65.0	64.7	64.6	64.8	71.0	97.2	120.0		
RDO (ppm): (mg/L)	15.00	15.00	14.40	14.60	14.00	8.79	3.52	1.05		
Turbidity (NTU):										
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Midpoint between B and Survey Hole. 11 ft sample is on, or near, bottom

Field-Form Filled Out By: DAR/KMH Date: 3/21/06

QAQC Check By: St. Amand Date: 3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312- B

Sample Purpose: **Lake Water Quality** Date: 3/17/06 Time: 16:19

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33356 Easting: W150.94537 Datum: NAD 27

Measurements By: DAR Time: 16:20

Water Depth (ft): 11.1 Ice Thickness (ft): 3.8

Freeboard (ft): 0.1 Snow Depth (ft): 0.8

Elev. (BPMSL): 7.40 +/- .02 Survey By: DAR/MRL Date: 3/17/06 Time: 18:30

Water Sampling By: DAR Sample Depths BWS (ft): 1 4.5 Date: 3/17/06 Time: 18:30

2 9

WATER QUALITY METER INFORMATION 3 10.5

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters	**Field Measurements**									
Time:	16:27	16:28	16:28	16:29	16:35	16:39	16:44	16:54	16:56	
Depth BWS (ft):	4.5	5	6	7	8	9	10.0	10.5	11.0	
Temp (°C):	0.4	0.4	0.7	0.9	1.4	1.5	1.9	2.0	2.0	
pH:				.						
Barometeric (mmHg):	772	772	772	772	772	772	772	772	772	
Pressure (kPa):										
Conductivity (µS/cm):	67.2	66.9	65.8	65.6	65.1	65.1	72.2	94.4	130.7	
RDO (ppm): (mg/L)	15.3	15.1	15.1	15.2	12.6	9.96	6.49	0.20	0.08	
Turbidity (NTU):										
ORP										
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):__4.5___**			**Depth BWS (ft):__9__**			**Depth BWS (ft):__10.5__**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	39	45	45	42	46	42	84	88	86	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)	0.006	-	-	0.003	-	-	UR= - 0.0.22	-	-	Hach spec 0.002-0.300 mg/L NO2-N
Total iron--UF (mg/L)	0.04	-	-	0.13	-	-	*27.4	-	-	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.02	-	-	0.09	-	-	*28.1	-	-	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****	0	-	-	0.04	-	-	*OR	-	-	Hach spec 0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution							10%	-	-	
pH (hanna)	6.6	-	-	6.7	-	-	6.7	-	-	

Remarks: *Over Range- used a 10% dillution. Probably over range due to iron. Bottom sample is colored. Lab pHs are at warmer temp.

Field-Form Filled Out By: DAR/KMH Date: 3/21/06

QAQC Check By: St. Amand Date: 3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (B-SH)

Sample Purpose: **Lake Water Quality** Date: 3/17/06 Time: 9:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33378 Easting: W150.94832 Datum: NAD 27

Measurements By: DAR Time: 9:08

Water Depth (ft): 10.8 Ice Thickness (ft): 3.8

Freeboard (ft): 0.1 Snow Depth (ft): 0.7

Elev. (BPMSL): 7.40 +/- .02 Survey By: DAR/MRL Date: 3/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters	**Field Measurements**									
Time:	9:19	9:20	9:23	9:24	9:27	9:30	9:33	9:42		
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	10.0	10.5		
Temp (°C):	0.30	0.30	0.70	0.80	1.20	1.50	1.80	2.00		
pH:										
Barometeric (mmHg):	772	772	772	772	772	772	772	772		
Pressure (kPa):										
Conductivity (µS/cm):	68.9	68.6	67.7	67.5	67.2	67.1	72.3	114.6		
RDO (ppm): (mg/L)	14.40	14.50	13.80	14.00	13.30	11.90	7.11	1.61		
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: 10.5 foot sample on, or just above, bottom.

Field-Form Filled Out By: DAR/Hilton Date: 3/21/06

QAQC Check By: St. Amand Date: 3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-A

Sample Purpose: **Lake Water Quality** Date: 3/17/06 Time: 17:40

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33450 Easting: W150.94005 Datum: NAD 27

Measurements By: DAR Time: 17:43

Water Depth (ft): 10 Ice Thickness (ft): 3.9

Freeboard (ft): 0.1 Snow Depth (ft): 0.7

Elev. (BPMSL): 7.40 +/- .02 Survey By: DAR/MRL Date: 3/17/06 Time: 18:30

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters	**Field Measurements**									
Time:	17:51	17:53	17:56	17:57	17:57	16:05	18:12			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	10.0			
Temp (°C):	0.20	0.50	0.70	0.80	1.00	1.40	1.20			
pH:										
Barometeric (mmHg):	772	772	772	772	771	771	771			
Pressure (kPa):										
Conductivity (uS/cm):	73.1	72.1	71.9	72.2	72.2	75.1	81.0			
RDO (ppm): (mg/L)	12.90	13.20	13.00	13.20	13.30	8.42	5.11			
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Hagland was parked near hole, may affect freeboard reading by approximately 0.2 feet.

Field-Form Filled Out By: DAR/KMH Date: 3/21/06

QAQC Check By: St. Amand Date: 3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH-Pump-MP

Sample Purpose: **Lake Water Quality** Date: 3/18/06 Time: 16:50

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33399 Easting: W150.94832 Datum: NAD 27

Measurements By: DAR Time: 16:51

Water Depth (ft): 9 Ice Thickness (ft): 3.7

Freeboard (ft): 0.1 Snow Depth (ft): 1

Elev. (BPMSL): 7.4 +/- .02 Survey By: DAR/MRL Date: 3/17/06 Time: 18:30

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Temp, Barometric pressure, RDO	UAF	Hach LDO (short)	-	yes	yes
Conductivity	GWS	YSI Meter	-	yes	yes

Parameters										
Time:	16:56	17:02	17:08	17:13	17:18	17:28				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0				
Temp (°C):	0.2	0.3	0.5	0.7	0.9	0.9				
pH:										
Barometeric (mmHg):	765	765	765	765	765	765				
Pressure (kPa):										
Conductivity (µS/cm):	74.8	73.7	73.1	72.8	73.6	178.8				
RDO (ppm):	11.30	9.72	8.13	6.63	5.28	1.14				
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										Digital titrator
Nitrite (mg/L NO_2^--N)										Hach spec
Ammonia (mg/L NH_3-N)										Hach spec
Total iron--UF (mg/L)										Hach spec
Filtered Iron--F tot Fe (mg/L)										Hach spec

Remarks: 74' from BMP. 50' from SH. More confident in 74'

Field-Form Filled Out By: DAR Date: 3/17/06

QAQC Check By: Hilton Date: 3/23/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 14:02

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33392 Easting: W150.94803 Datum: NAD 27

Measurements By: DAR Time: 13:50

Water Depth (ft): 9.9 Ice Thickness (ft): 4.45

Freeboard (ft): 0.2 Snow Depth (ft): 1.05

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass

Parameters	**Field Measurements**									
Time:	14:03	14:13	14:19	14:22	14:25	14:40	14:47			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.0	9.7			
Temp (°C):	0.10	0.18	0.43	0.67	0.90	1.20	1.30			
pH:	6.56	6.46	6.50	6.48	6.48	6.44	6.35			
Barometeric (mmHg):	755.6	755.7	755.7	755.7	755.7	755.8	755.8			
Level TOC (ft)	3.96	4.87	6.10	6.87	7.91	8.87	9.34			
Conductivity (µS/cm):	89.3	90.8	93.8	94.1	94.7	94.7	94.9			
RDO (ppm): (mg/L)	11.58	10.70	9.22	9.46	9.30	5.65	4.42			
Turbidity (NTU):										
ORP	133	141	146	147	148	147	96			

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Last depth on rugged reader log is for hold L9312-SS.

Field-Form Filled Out By: Hilton Date: 4/18/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (A-B)

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 12:07

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33405 Easting: W150.94272 Datum: NAD 27

Measurements By: DAR/MW Time: 12:07

Water Depth (ft): 10.9 Ice Thickness (ft): 4.55

Freeboard (ft): 0.13 Snow Depth (ft): 0.84

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters	**Field Measurements**									
Time:	12:15	12:20	12:26	12:30	12:35	12:52	13:03			
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	10.0	10.7			
Temp (°C):	0.3	0.7	1.0	1.2	1.5	1.7	1.8			
pH:	6.59	6.56	6.47	6.59	6.50	6.38	6.91			
Barometeric (mmHg):	755.7	755.7	755.7	755.8	755.8	755.8	755.8			
Level TOC (ft)	4.920	5.940	6.850	7.840	8.880	9.910	10.530			
Conductivity (µS/cm):	81.3	80.3	80.3	80.4	82.1	91.5	137.8			
RDO (ppm): (mg/L)	12.60	12.25	11.41	11.49	10.19	4.41	1.82			
Turbidity (NTU):										
ORP	190	190	191	190	178	126	-59			
Hach LDO (mg/L)	13.4	11.7	11.7	12.1	8.86	7.85	1.44			
Hach temp °C	0.6	1	1.1	1.3	1.7	1.9	2			

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 4/18/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312- B

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 9:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33356 Easting: W150.94537 Datum: NAD 27

Measurements By: DAR Time: 9:35

Water Depth (ft): 11 Ice Thickness (ft): 4.47

Freeboard (ft): 0.25 Snow Depth (ft): 0.85

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 5 Date: 4/17/06 Time: nr

2 9

WATER QUALITY METER INFORMATION 3 10.5

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters	**Field Measurements**									
Time:	9:43	9:48	9:54	9:57	10:06	10:10	10:17	10:24		
\	5	6	7	8	9	10	10.5	11.0		
Temp (°C):	0.3	0.6	1.0	1.2	1.5	1.6	1.7	1.8		
pH:	6.63	6.62	6.62	6.6	6.41	6.27	6.65	7.04		
Barometeric (mmHg):	755.7	755.8	755.8	755.8	755.9	755.9	755.9	755.9		
Level TOC (ft)	4.83	5.90	6.88	7.93	8.94	9.82	10.37	10.19		
Conductivity (µS/cm):	81.6	81.0	81.2	81.7	89.2	92.2	115.2	133.1		
RDO (ppm): (mg/L)	13.91	14.17	14.12	14.08	9.1	5.73	3.11	1.57		
Turbidity (NTU):										
ORP	353	348	338	324	210	116	-13	-89		
Hach LDO (mg/L)	15.5	13.9	13.7	13.9	10	7.17	3.62	nr		
Hach temp °C	0.4	1	1.2	1.2	1.7	1.8	1.9	nr		

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):__5____**			**Depth BWS (ft):__9____**			**Depth BWS (ft):__10.5____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	48	53	51	55	56	58	85	90	88	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)	0.002	-	-	0	-	-	UR= 0.037	-	-	Hach spec 0.002-0.300 mg/L NO2-N
Total iron--UF (mg/L)	0.05	-	-	0.37	-	-	*2.44= 24.4	-	-	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.02	-	-	0.04	-	-	*1.76= 17.6	-	-	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)	0	-	-	0.12	-	-	*0.10= 1.0	-	-	Hach spec 0.01-0.50 mg/L NH3-N
pH (hanna)	7.02	-	-	6.77	-	-	6.72	-	-	

Remarks: *Over Range- used a 10% dillution. Bottom sample is colored. Lab pHs are at warmer temp.

Field-Form Filled Out By: Hilton Date: 3/18/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (B-SH)

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 15:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33378 Easting: W150.94832 Datum: NAD 27

Measurements By: DAR/MW Time: 13:01

Water Depth (ft): 10.65 Ice Thickness (ft): 4.7

Freeboard (ft): 0.35 Snow Depth (ft): 0.6

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: na

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters	**Field Measurements**									
Time:	15:25	15:28	15:39	15:45	15:51	15:57	16:05			
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	10.0	10.5			
Temp (°C):	0.38	0.67	1.02	1.22	1.41	1.50	1.59			
pH:	6.49	6.58	6.55	6.64	6.46	6.41	6.59			
Barometeric (mmHg):	755.7	755.7	755.7	755.7	755.7	755.7	755.7			
Level TOC (ft)	4.97	5.84	6.88	7.89	8.98	9.96	10.45			
Conductivity (µS/cm):	81.5	80.9	81.1	81.0	91.4	95.9	118.2			
RDO (ppm): (mg/L)	12.55	12.68	13.11	13.23	10.52	7.07	4.91			
Turbidity (NTU):										
ORP	192	191	189	188	170	99	17.00			
Hach LDO (mg/L)	11.4	11.9	11.5	9.8	5.07	4.88	4.66			
Hach Temp (°C):	0.9	1.2	1.5	1.7	1.8	1.8	1.9			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Hach LDO measurements by MW, in DAR field book.

Field-Form Filled Out By: Hilton Date: 4/18/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-A

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 11:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33450 Easting: W150.94005 Datum: NAD 27

Measurements By: DAR Time: 11:25

Water Depth (ft): 9.9 Ice Thickness (ft): 4.66

Freeboard (ft): 0.2 Snow Depth (ft): 0.65

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters	**Field Measurements**									
Time:	11:28	11:30	11:32	11:37	11:43	11:49				
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	9.7				
Temp (°C):	0.25	0.47	0.69	1.00	1.18	1.27				
pH:	6.51	6.40	6.45	6.40	6.40	6.35				
Barometeric (mmHg):	755.6	755.7	755.7	755.7	755.7	755.8				
Level TOC (ft)	4.95	5.94	6.85	7.97	8.95	9.45				
Conductivity (µS/cm):	87.68	88.67	90.27	91.54	95.52	97.54				
RDO (ppm): (mg/L)	10.47	10.42	10.22	9.06	6.69	5.31				
Turbidity (NTU):										
ORP	165	165	165	167	163	139				
Hach LDO (mg/L)	11	10.2	10.1	9.02	7.07	5.33				
Hach Temp (°C):	0.4	0.7	1	1.2	1.4	1.3				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 4/18/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SEW4

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 16:29

FIELD MEASUREMENTS

GPS Coord. Northing: N70 19.961 Easting: W150 56.380 Datum: NAD 27

Measurements By: MW Time: 16:20

Water Depth (ft): 8.2 Ice Thickness (ft): 4.75

Freeboard (ft): 0.35 Snow Depth (ft): 0.5

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters										
Time:	16:31	16:36	16:40	16:44						
Depth BWS (ft):	5.0	6.0	7.0	8.0						
Temp (°C):	0.17	0.41	0.70	0.88						
pH:	6.50	6.41	6.40	6.38						
Barometeric (mmHg):	755.5	755.3	755.4	755.4						
Level TOC (ft)	4.97	5.99	7.00	7.80						
Conductivity (µS/cm):	90.88	92.24	92.33	92.50						
RDO (ppm): (mg/L)	11.43	9.70	9.10	8.74						
Turbidity (NTU):										
ORP	117	127	131	135						
Hach LDO (mg/L)	12.3	10.3	9.55	9.33						
Hach Temp (°C):	0.8	0.8	1.1	1.2						

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**	**Detection range**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3		
Oxygen (mg/L)										Hach spec	0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator	10-4000 mg/L as CaCO3
Nitrite (mg/L NO_2^--N)										Hach spec	0.002-0.300 mg/L NO_2^--N
Ammonia (mg/L NH_3-N)										Hach spec	0.01-0.50 mg/L NH_3-N
Total iron--UF (mg/L)										Hach spec	0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec	0.02-3.00 mg/L

Remarks:

Field-Form Filled Out By: Hilton Date: 4/17/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General (shore side)

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SS

Sample Purpose: **Lake Water Quality** Date: 4/17/06 Time: 15:03

FIELD MEASUREMENTS

GPS Coord. Northing: nr Easting: nr Datum:

Measurements By: MW Time: 15:05

Water Depth (ft): 4 Ice Thickness (ft): 3.9

Freeboard (ft): 0.35 Snow Depth (ft): 1.35

Elev. (BPMSL +/- .02): 7.35 Survey By: Lilly Date: 4/17/06 Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	Rental	In-Situ Troll 9000E	31576	Pass	Pass
DO, Temp	BLM	Hach LDO	nr	Pass	Pass

Parameters										
Time:	14:56									
Depth BWS (ft):	3.7									
Temp (°C):	0.04									
pH:	6.32									
Barometeric (mmHg):	755.3									
Level TOC (ft)	3.54									
Conductivity (µS/cm):	112.20									
RDO (ppm): (mg/L)	3.54									
Turbidity (NTU):										
ORP	117									
Hach LDO (mg/L)										
Hach Temp (°C):										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**	**Detection range**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3		
Oxygen (mg/L)										Hach spec	0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator	10-4000 mg/L as CaCO3
Nitrite (mg/L NO_2^--N)										Hach spec	0.002-0.300 mg/L NO_2^--N
Ammonia (mg/L NH_3-N)										Hach spec	0.01-0.50 mg/L NH_3-N
Total iron--UF (mg/L)										Hach spec	0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec	0.02-3.00 mg/L

Remarks: Note: Rugged Reader log is last point on log for L9312 SH

Field-Form Filled Out By: Hilton Date: 4/17/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 11:56

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.090 Easting: W151 19.931 Datum: NAD 27

Measurements By: DAR, MW Time: 11:56

Water Depth (ft): 8.45 Ice Thickness (ft): 4.15

Freeboard (ft): 0.1 Snow Depth (ft): 0.53

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: DAR/MW Sample Depths BWS (ft): 1 5 Date: 4/18/06 Time: 12:30

2 6.5

3 8

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	Rental	In-Situ Troll 9000E	A	yes	yes

Parameters	**Field Measurements**									
Time:	12:01	12:02	12:04	12:08	12:13	12:16				
Depth BWS (ft):	4.5	5.0	6.0	7.0	8.0	8.5				
Temp (°C):	0.20	0.21	0.63	0.77	1.31	1.41				
pH:	6.62	6.62	6.61	6.68	7.46	7.72				
Barometeric (mmHg):	755.2	755.2	755.2	755.3	755.4	755.4				
Pressure (kPa):	4.47	4.96	6.06	6.95	7.90	8.39				
Conductivity (µS/cm):	370.7	370.2	371.9	374.9	454.4	484.7				
RDO (ppm): (mg/L)	3.46	3.41	3.33	3.34	1.32	0.57				
Turbidity (NTU):										
ORP	222	222	221	152	-132	-198				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 5**			**Depth BWS (ft): 6.5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	109	110	111	112	113	117	156	158	159	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2-N)	0.001			0.004			UR= -.104			Hach Spec 0.002-0.300 mg/L NO2-N
Total iron--UF (mg/L)	0.27			0.34			32.4			Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.07			1.23			OR			Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)	0.19			0.21			3.2			0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution							10%			
pH	6.94			6.93			6.85			Hanna pH probe

Remarks: OR= Over Range. 8 ft sample had color, Iron and Ammonia were diluted to 10% (5 ml sample, 45 ml nanopure).

Took samples at 6.95 ft. as well: Alk= 114, Nitrite= .002, UF-Fe=.002, F-Fe= 0.48, Ammonia= 0.31, pH= 7.00.

Field-Form Filled Out By: Hilton Date: 5/19/06

QAQC Check By: A. Blackburn Date: 6/2/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 13:37

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.071 Easting: W151 19.868 Datum: NAD 27

Measurements By: DAR Time: 13:37

Water Depth (ft): 8.28 Ice Thickness (ft): 3.90

Freeboard (ft): -0.05 Snow Depth (ft): 0.84

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model		Serial No.		Pre-Sampling QAQC Check		Post-Sampling QAQC Check	
all	Rental	In-Situ Troll 9000E		A		yes		yes	
Parameters	**Field Measurements**								
Time:	13:41	13:42	13:44	13:46	13:57	14:06				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	8.2				
Temp (°C):	0.08	0.15	0.41	0.78	1.21	1.28				
pH:	6.56	6.54	6.53	6.58	7.60	7.69				
Barometeric (mmHg):	755.7	755.7	755.8	755.8	755.9	755.8				
Pressure (kPa):	3.94	4.97	5.90	6.89	7.90	8.01				
Conductivity (µS/cm):	374.5	374.3	375.7	378.5	429.2	439.9				
RDO (ppm): (mg/L)	3.65	3.63	3.56	3.21	0.99	0.75				
Turbidity (NTU):										
ORP	163	164	163	110	-212	-246				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 14:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.043 Easting: W151 19.840 Datum: NAD 27

Measurements By: DAR Time: 14:20

Water Depth (ft): 8.05 Ice Thickness (ft): 3.9

Freeboard (ft): 0 Snow Depth (ft): 1.4

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	Rental	In-Situ Troll 9000E	A	yes	yes

Parameters	**Field Measurements**									
Time:	14:25	14:27	14:32	14:36	14:39					
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0					
Temp (°C):	0.09	0.26	0.50	0.81	0.98					
pH:	6.59	6.52	6.61	6.59	6.90					
Barometeric (mmHg):	755.8	755.9	755.9	756.0	756.0					
Pressure (kPa):	3.94	4.94	5.99	6.96	7.74					
Conductivity (µS/cm):	375.6	374.3	375.5	381.0	400.2					
RDO (ppm): (mg/L)	4.61	4.37	3.95	3.47	1.58					
Turbidity (NTU):										
ORP	65	70	76	52	-84					
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 14:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.018 Easting: W151 19.807 Datum: NAD 27

Measurements By: DAR Time: 14:55

Water Depth (ft): 5.9 Ice Thickness (ft): 4.50

Freeboard (ft): 0.25 Snow Depth (ft): 0.50

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	Rental	In-Situ Troll 9000E	A	yes	yes

Parameters	**Field Measurements**									
Time:	15:03	15:05	15:07							
Depth BWS (ft):	4.5	5.5	5.8							
Temp (°C):	0.04	0.08	0.09							
pH:	6.61	6.57	6.58							
Barometeric (mmHg):	756.1	756.1	756.1							
Pressure (kPa):	4.24	5.34	5.63							
Conductivity (µS/cm):	385.4	385.0	384.7							
RDO (ppm): (mg/L)	2.79	2.62	2.55							
Turbidity (NTU):										
ORP	78	79	78							
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 15:25

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.098 Easting: W151 19.777 Datum: NAD 27

Measurements By: DAR Time: 15:30

Water Depth (ft): 9.35 Ice Thickness (ft): 3.60

Freeboard (ft): 0.02 Snow Depth (ft): 1.30

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: Whitman Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model		Serial No.		Pre-Sampling QAQC Check		Post-Sampling QAQC Check	
all	Rental	In-Situ Troll 9000E		A		yes		yes	
Parameters	**Field Measurements**								
Time:	15:25	15:28	15:30	15:32	15:35	15:42				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.3				
Temp (°C):	0.09	0.36	0.57	0.80	0.90	0.90				
pH:	6.62	6.60	6.58	6.60	7.05	7.91				
Barometeric (mmHg):	756.2	756.2	756.3	756.3	756.3	756.4				
Pressure (kPa):	3.82	4.93	5.90	6.91	7.84	8.96				
Conductivity (µS/cm):	366.2	366.3	368.0	373.1	437.3	648.2				
RDO (ppm): (mg/L)	2.70	2.33	2.40	2.64	1.25	0.16				
Turbidity (NTU):										
ORP	124	122	120	95	-74	-266				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-21

Sample Purpose: **Lake Water Quality** Date: 4/18/06 Time: 16:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.083 Easting: W151 20.084 Datum: NAD27

Measurements By: DAR Time: 16:05

Water Depth (ft): 7.41 Ice Thickness (ft): 4.00

Freeboard (ft): 0.0 Snow Depth (ft): 0.95

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

3 na

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	Rental	In-Situ Troll 9000E	A	yes	yes

Parameters	**Field Measurements**									
Time:	16:09	16:21	16:26	16:31	16:35					
Depth BWS (ft):	4.0	5.0	6.0	7.0	7.3					
Temp (°C):	0.21	0.49	0.83	0.90	0.90					
pH:	6.65	6.64	6.62	6.66	6.69					
Barometeric (mmHg):	756.5	756.7	756.5	756.5	756.6					
Pressure (kPa):	3.94	4.93	5.90	6.93	7.14					
Conductivity (µS/cm):	360.2	361.3	363.0	373.6	378.2					
RDO (ppm): (mg/L)	3.68	3.64	3.17	2.18	1.86					
Turbidity (NTU):										
ORP	77	87	89	69	25					
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 5/17/06 Time: 12:13

FIELD MEASUREMENTS

GPS Coord. Northing: N70.23485 Easting: W151.33221 Datum: NAD 27

Measurements By: DAR, LB Time: 12:15

Water Depth (ft): 8.59 Ice Thickness (ft): 4.35

Freeboard (ft): 0.13 Snow Depth (ft): 0.73

Elev. (BPMSL +/- .02): 53.49 Survey By: MRL Date: 5/17/06 Time: nr

Water Sampling By: DAR, EAB Sample Depths BWS (ft): 1 5 Date: 5/17/06 Time: 12:30

2 6.5

WATER QUALITY METER INFORMATION 3 8

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
nr	nr	nr	12:50	12:55	12:58	13:02				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	8.6				
Temp (°C):	-0.13	-0.06	0.27	0.57	0.81	1.00				
pH:	7.17	7.15	7.16	7.18	7.43	8.27				
Barometeric (mmHg):	758.0	758.0	758.0	758.1	758.10	758.1				
Pressure (kPa):	10.73	13.50	16.58	19.52	22.5	23.81				
Conductivity (µS/cm):	421.6	421.9	427.9	434.9	448.20	324.3				
RDO (ppm): (mg/L)	2.06	2.02	1.73	1.39	0.86	0.41				
Turbidity (NTU):	1.6	1.3	2.1	2.0	17.9	22.6				
ORP	254	255	240	194	53	-115				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 5**			**Depth BWS (ft): 6.5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	121	123	120	130	132	135	175	180	181	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2-N)	0.000			0.001			UR= -0.087			Hach Spec 0.002-0.300 mg/L NO2-N
Total iron--UF (mg/L)	0.21			2.14			*OR			Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.03			2.28			*OR			Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)	0.28			0.54			*0.27			0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution							10%			
pH										Hanna pH probe

Remarks: OR= Over Range. 8 ft sample had color, Iron and Ammonia were diluted to 10% (5 ml sample, 45 ml nanopure).

Field-Form Filled Out By: Hilton Date: 7/6/06

QAQC Check By: Blackburn Date: 7/17/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 5/17/06 Time: 14:21

FIELD MEASUREMENTS

GPS Coord. Northing: N70.23463 Easting: W151.33128 Datum: NAD 27

Measurements By: DAR Time: 14:30

Water Depth (ft): 8.35 Ice Thickness (ft): 4.30

Freeboard (ft): 0.05 Snow Depth (ft): 0.75

Elev. (BPMSL +/- .02): 53.49 Survey By: Lilly Date: 5/17/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	Rental	In-Situ Troll 9000E	A	yes	yes
DO, Temp	UAF	Hach LDO	5197-03	yes	yes

Parameters	**Field Measurements**									
Time:	14:36	14:40	14:49	14:58	15:05	15:08				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	8.3				
Temp (°C):	-0.08	-0.02	0.21	0.52	0.76	0.84				
pH:	7.20	7.21	7.21	7.23	7.80	8.50				
Barometeric (mmHg):	757.7	757.6	757.6	757.8	757.9	757.9				
Pressure (kPa):	10.60	13.74	16.42	19.55	22.62	23.70				
Conductivity (µS/cm):	420.6	422.7	435.6	441.6	463.8	477.0				
RDO (ppm): (mg/L)	0.96	0.86	1.92	1.87	1.69	0.93				
Turbidity (NTU):	6.4	5.9	3.2	3.1	23.2	56.0				
ORP	188	189	190	159	-79	-163				
Hach LDO (UAF) mg/L	0.78	0.65	1.92	1.38	0.2	0.12				
Hach temp °C	0.1	0.2	0.5	0.7	1.1	1				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 7/7/06

QAQC Check By: Blackburn Date: 7/17/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 5/17/06 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70.23402 Easting: W151.33061 Datum: NAD 27

Measurements By: DAR Time: nr

Water Depth (ft): 8.25 Ice Thickness (ft): 3.96

Freeboard (ft): 0.03 Snow Depth (ft): 1.25

Elev. (BPMSL +/- .02): 53.49 Survey By: MRL Date: 5/17/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	15:42	15:46	16:06	16:11	16:13	16:15				
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	8.2				
Temp (°C):	-0.11	-0.07	0.19	0.40	0.63	0.72				
pH:	7.19	7.17	7.20	7.21	7.40	7.84				
Barometeric (mmHg):	758.3	758.2	758.3	758.4	758.4	758.4				
Pressure (kPa):	10.69	13.53	16.33	19.52	22.41	23.107				
Conductivity (µS/cm):	426.9	431.5	440.1	443.7	462.4	484.5				
RDO (ppm): (mg/L)	2.29	1.25	1.15	0.79	0.54	0.43				
Turbidity (NTU):	5.7	6.2	7.1	6.6	13.1	32.7				
ORP	100	103	117	119	24	67				
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/8/06

QAQC Check By: Hilton Date: 7/9/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 5/17/06 Time: 16:23

FIELD MEASUREMENTS

GPS Coord. Northing: N70.23365 Easting: W151.33006 Datum: NAD 27

Measurements By: DAR Time: 16:23

Water Depth (ft): 6.2 Ice Thickness (ft): 4.50

Freeboard (ft): 0.10 Snow Depth (ft): 0.75

Elev. (BPMSL +/- .02): 53.49 Survey By: MRL Date: 5/17/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	16:35	16:38	16:41	16:42						
Depth BWS (ft):	4.0	5.0	6.0	6.2						
Temp (°C):	-0.20	-0.19	0.07	0.08						
pH:	7.18	7.18	7.18	7.18						
Barometeric (mmHg):	757.9	758.0	758.0	758.0						
Pressure (kPa):	10.32	13.53	16.74	17.020						
Conductivity (µS/cm):	439.0	439.3	442.2	442.6						
RDO (ppm): (mg/L)	1.51	0.83	0.49	0.36						
Turbidity (NTU):	7.5	8.2	54.3	170.8						
ORP	97	99	98	89.00						
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 7/706

QAQC Check By: Blackburn Date: 7/17/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 5/17/06 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70.23492 Easting: W151.32963 Datum: NAD 27

Measurements By: DAR/EAB Time: 16:52

Water Depth (ft): 9.55 Ice Thickness (ft): 3.60

Freeboard (ft): -0.03 Snow Depth (ft): 1.42

Elev. (BPMSL +/- .02): 53.49 Survey By: MRL Date: 5/17/06 Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
all	GWS	In-Situ Troll 9000	33033	yes	yes

Parameters	**Field Measurements**									
Time:	17:11	17:16	17:18	17:19	17:23	17:30	17:28			
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	9.5	9.0			
Temp (°C):	-0.16	-0.03	0.24	0.48	0.57	0.53	0.56			
pH:	7.21	7.19	7.20	7.26	7.34	8.96	8.92			
Barometeric (mmHg):	758.0	758.0	758.1	758.1	758.2	758.3	758.2			
Pressure (kPa):	10.48	13.45	16.47	19.46	22.54	27.24	25.670			
Conductivity (µS/cm):	419.3	423.4	431.7	442.3	453.9	752.4	700.9			
RDO (ppm): (mg/L)	0.86	0.37	0.34	0.30	0.20	0.22	0.18			
Turbidity (NTU):	21.3	21.9	19.6	19.8	29.0	83.8	21.2			
ORP	125	120	115	78	18	-272	-261.00			
Hach LDO (UAF) mg/L										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Small methane bubbles were released when the bottom was disturbed. Bug surfaced during testing (1/2" long, 1/4" diameter)-looked like a beetle.

Field-Form Filled Out By: Hilton Date: 7/7/06

QAQC Check By: Blackburn Date: 7/31/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 5/18/06 Time: 15:48

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33392 Easting: W150.94803 Datum: NAD 27

Measurements By: DAR Time: 15:48

Water Depth (ft): 9.3 Ice Thickness (ft): 4.62

Freeboard (ft): 0 Snow Depth (ft): 1.15

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/EB Date: 5/18/06 Time: 9:55

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	15:49	15:58	16:05	16:10	16:12	16:16				
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	9.2				
Temp (°C):	0.07	0.28	0.53	0.83	1.01	1.15				
pH:	6.91	6.67	6.62	6.61	6.58	6.58				
Barometeric (mmHg):	760.1	760.1	760.1	760.1	760.1	760.2				
Pressure (kPa):	13.26	16.38	19.82	23.18	25.38	26.61				
Conductivity (µS/cm):	85.6	99.3	103.3	107.9	108.3	108.4				
RDO (ppm): (mg/L)	13.50	10.41	7.98	6.99	6.11	4.47				
Turbidity (NTU):	0.8	0.1	0.8	1.2	2.3	2.8				
ORP	289	303	309	314	317	308				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 7/26/06

QAQC Check By: A. Blackburn Date: 8/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (A-B)

Sample Purpose: **Lake Water Quality** Date: 5/18/06 Time: 13:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33405 Easting: W150.94272 Datum: NAD 27

Measurements By: DAR Time: 13:45

Water Depth (ft): 10.95 Ice Thickness (ft): 4.6

Freeboard (ft): 0 Snow Depth (ft): 0.8

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/EB Date: 5/18/06 Time: 9:55

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	13:49	13:51	13:57	14:01	14:21	14:27	14:35			
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	10.0	10.8			
Temp (°C):	0.23	0.37	0.76	0.98	1.36	1.56	1.69			
pH:	6.78	6.71	6.68	6.63	6.63	6.57	6.64			
Barometeric (mmHg):	760.2	760.2	760.2	760.3	760.4	760.4	760.4			
Pressure (kPa)	13.85	16.38	19.43	22.31	25.77	28.73	30.59			
Conductivity (µS/cm):	90.3	90.6	94.2	97.2	103.4	111.2	115.5			
RDO (ppm): (mg/L)	12.85	12.86	10.56	9.48	8.47	6.56	5.40			
Turbidity (NTU):	0.2	0.2	-0.2	-0.1	4.3	6.6	21.9			
ORP	313	318	324	330	332	294	191			
Hach LDO (mg/L)										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 7/25/06

QAQC Check By: A. Blackburn Date: 8/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312- B

Sample Purpose: **Lake Water Quality** Date: 5/18/06 Time: 9:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33356 Easting: W150.94537 Datum: NAD 27

Measurements By: DAR Time: 9:55

Water Depth (ft): 11.05 Ice Thickness (ft): 4.62

Freeboard (ft): 0.04 Snow Depth (ft): 0.95

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/EB Date: 5/18/06 Time: 9:55

Water Sampling By: DAR Sample Depths BWS (ft): 1 5 Date: 5/18/06 Time: nr

2 9

WATER QUALITY METER INFORMATION 3 10.5

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	9:59	0:10	10:08	10:12	10:19	10:22	10:25			
Depth	5	6	7	8	9	10	10.5			
Temp (°C):	0.16	0.51	0.97	1.24	1.51	1.77	1.81			
pH:	6.82	6.74	6.68	6.84	6.68	6.51	6.65			
Barometeric (mmHg):	760.5	760.5	760.5	760.5	760.4	760.5	760.5			
Pressure (kPa)	13.64	16.43	19.46	22.53	25.45	23.55	30.18			
Conductivity (µS/cm):	89.3	91.8	92.3	92.5	97.0	103.9	112.2			
RDO (ppm): (mg/L)	12.77	12.55	12.91	12.93	9.21	4.08	3.03			
Turbidity (NTU):	0.4	0	0.4	1.1	3.1	6.6	6.9			
ORP										
Hach LDO (mg/L)										
Hach temp °C										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):__5____**			**Depth BWS (ft):__9____**			**Depth BWS (ft):__10.5____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	60	56	61	68	71	66	94	99	94	Digital titrator 10-4000 mg/L as CaCO3
Nitrite (mg/L NO2--N)	0.007	-	-	0.004	-	-	*UR= 0.02	-	-	Hach spec 0.002-0.300 mg/L NO2-N
Total iron--UF (mg/L)	0.17	-	-	0.21	-	-	*26.8	-	-	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.05	-	-	0.09	-	-	*OR	-	-	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)	0	-	-	0.12	-	-	*1.3	-	-	Hach spec 0.01-0.50 mg/L NH3-N
pH (hanna)		-	-		-	-		-	-	

Remarks: *Over Range- used a 10% dillution. Bottom sample is colored. Lab pHs are at warmer temp.

Field-Form Filled Out By: Hilton Date: 7/25/06

QAQC Check By: Blackburn Date: 7/28/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-MP (B-SH)

Sample Purpose: **Lake Water Quality** Date: 5/18/06 Time: 15:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33378 Easting: W150.94832 Datum: NAD 27

Measurements By: DAR Time: 15:05

Water Depth (ft): 10.75 Ice Thickness (ft): 4.6

Freeboard (ft): 0.05 Snow Depth (ft): 0.8

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/EB Date: 5/18/06 Time: 9:55

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	15:07	15:12	15:18	15:20	15:27	15:30	15:32			
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	10.0	10.7			
Temp (°C):	0.10	0.33	0.68	0.95	1.24	1.44	1.52			
pH:	6.76	6.70	6.67	6.63	6.60	6.56	6.61			
Barometeric (mmHg):	760.2	760.3	760.2	760.2	760.2	760.3	760.3			
Pressure (kPa)	13.68	16.56	19.87	22.64	25.37	28.67	29.91			
Conductivity (µS/cm):	91.29	94.47	98.98	94.78	103.40	108.90	111.40			
RDO (ppm): (mg/L)	11.43	11.28	10.02	9.27	8.61	6.44	5.40			
Turbidity (NTU):	0.0	0.3	0.9	0.9	3.2	5.5	7.4			
ORP	298	305	311	316	315	281	210			
Hach LDO (mg/L)										
Hach Temp (°C):										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Hilton Date: 7/26/06

QAQC Check By: A. Blackburn Date: 8/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-A

Sample Purpose: **Lake Water Quality** Date: 5/18/06 Time: 12:10

FIELD MEASUREMENTS

GPS Coord. Northing: N70.33450 Easting: W150.94005 Datum: NAD 27

Measurements By: DAR Time: 12:10

Water Depth (ft): 9.95 Ice Thickness (ft): 4.35

Freeboard (ft): 0.15 Snow Depth (ft): 0.93

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/EB Date: 5/18/06 Time: 9:55

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	12:11	12:19	12:30	12:32	13:14	13:31				
Depth BWS (ft):	5.0	6.0	7.0	8.0	9.0	9.9				
Temp (°C):	0.06	0.32	0.60	0.83	1.12	1.23				
pH:	6.73	6.71	6.67	6.60	6.59	6.54				
Barometeric (mmHg):	760.3	760.2	760.3	760.3	760.2	760.3				
Pressure (kPa)	13.58	16.43	19.41	22.38	25.38	27.24				
Conductivity (µS/cm):	89.64	98.40	103.80	104.90	109.60	114.80				
RDO (ppm): (mg/L)	11.26	11.13	10.47	9.93	8.76	3.98				
Turbidity (NTU):	-0.3	-0.1	0.2	0.3	2.4	6.9				
ORP	354	357	354	360	340	278				
Hach LDO (mg/L)										
Hach Temp (°C):										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Batteries replaced at 9' Ft.

Field-Form Filled Out By: Hilton Date: 7/25/06

QAQC Check By: A. Blackburn Date: 8/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID:	**North Slope Lakes**	Site Location/Lake ID:	L9312- Cond/Obs
Sample Purpose:	**Lake Water Quality**	Date: 5/18/06	Time: 9:20

FIELD MEASUREMENTS

GPS Coord. Northing:	nr	Easting: nr		Datum: nr	
Measurements By:	DAR	Time: 9:20			
Water Depth (ft):	6.32	Ice Thickness (ft): 4.64			
Freeboard (ft):	0.26	Snow Depth (ft): 0.7			
Elev. (BPMSL +/- .02):	11.72	Survey By: MRL/EB	Date: 5/18/06	Time:	9:55
Water Sampling By:	na	Sample Depths BWS (ft): 1 na	Date: na	Time:	na
		2			
		3			

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	9:25	9:28	9:31							
Depth BWS (ft):	4.5	5.0	6.0							
Temp (°C):	0.31	0.22	0.24							
pH:	6.74	6.76	6.70							
Barometeric (mmHg):	760.8	760.8	760.7							
Pressure (kPa)	11.85	13.75	16.64							
Conductivity (µS/cm):	90.03	94.98	97.18							
RDO (ppm): (mg/L)	8.64	8.39	7.69							
Turbidity (NTU):	3.2	2.4	7.0							
ORP	349	351	348							
Hach LDO (mg/L)										
Hach Temp (°C):										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Depth BWS (ft):**_____			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: At first depth, the pH from the pH/ORP probe read 5.7.

Field-Form Filled Out By:	Hilton	Date:	7/25/06
QAQC Check By:	A. Blackburn	Date:	8/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817- Shore

Sample Purpose: **Lake Water Quality** Date: 9/16/06 Time: 15:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70° 14' 05.6" Easting: W151° 19' 46.3" Datum: NAD 27 AK

Measurements By: DAR/KH Time: 15:30

Water Depth (ft): 6.4 Ice Thickness (ft): NA

Freeboard (ft): NA Snow Depth (ft): NA

Elev. (BPMSL): 53.11 Survey By: DAR Date: 9/16/06 Time: 15:45

Water Sampling By: DAR/KH Sample Depths BWS (ft): 1 4 Date: 9/16/06 Time: NR

2 NA

WATER QUALITY METER INFORMATION 3 NA

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All- GWS RDO	UAF	In-Situ Troll 9000E	33205	yes	yes

Parameters	**Field Measurements**									
Time:	15:33	15:34	15:35	15:36	15:37	15:37	15:38	15:39		
Depth BWS (ft):	0.5	1.3	2.5	3.0	4.0	5.0	6.0	6.4		
Temp (°C):	7.81	7.74	7.71	7.80	7.80	7.71	7.74	7.72		
pH:	7.91	7.92	7.93	7.93	7.92	7.91	7.89	7.84		
Barometeric (mmHg):	747.9	747.9	747.9	747.9	747.9	747.9	748.0	748.0		
Pressure (kPa):	1.165	3.356	5.381	6.696	9.672	12.943	15.485	18.489		
Conductivity (µS/cm):	198.1	197.9	198.1	198.4	198.3	198.2	198.3	198.2		
RDO (ppm):	11.78	11.80	11.82	11.82	11.80	11.84	11.83	11.84		
Turbidity (NTU):	3.7	3.9	2.2	6.5	2.8	3.6	3.8	96.3		
ORP	199	199	200	200	201	202	202	198		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):___4____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	44/52	50/58	46/54							Digital titrator 10-4000 mg/L as $CaCO_3$
Total iron--UF (mg/L)	0.19									Hach spec 0.02-3.00 mg/L
Ferrous (II) Iron--F tot Fe (mg/L)	0.02									Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										Hach spec 0.01-0.50 mg/L NH_3-N
Ammonia/ Iron dilution										

Remarks:

Turbidity cal checked 9-12-06, passed; no post cal check

Alkalinity: breakpoint/endpoint

Field-Form Filled Out By: Hilton Date: 9/17/06

QAQC Check By: Chambers Date: 12/4/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817- Raft

Sample Purpose: **Lake Water Quality** Date: 9/16/06 Time: 14:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70° 14' 2.0" Easting: W151° 20' 5.4" Datum: NAD 27 AK

Measurements By: KH/DAR Time: 14:00

Water Depth (ft): 6.5 Ice Thickness (ft): NA

Freeboard (ft): NA Snow Depth (ft): NA

Elev. (BPMSL): 53.11 Survey By: DAR Date: 9/16/06 Time: NR

Water Sampling By: KH/DAR Sample Depths BWS (ft): 1 0.5 Date: 9/16/06 Time: 14:30

2 4

WATER QUALITY METER INFORMATION 3 6

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All- GWS RDO	UAF	In-Situ Troll 9000	33205	yes	yes

Parameters	**Field Measurements**									
Time:	14:18	14:19	14:20	14:21	14:22	14:23	14:24	14:25		
Depth BWS (ft):	0.5	1.5	2.5	3.0	4.0	5.0	6.0	6.5		
Temp (°C):	7.59	7.58	7.60	7.53	7.53	7.53	7.57	7.54		
pH:	8.06	8.00	8.00	8.00	7.99	8.00	7.99	7.77		
Barometeric (mmHg):	748.3	748.2	748.2	748.2	748.2	748.2	748.3	748.3		
Pressure (kPa):	1.561	3.308	5.213	7.201	10.203	13.123	16.079	18.871		
Conductivity (µS/cm):	196.1	196.8	196.9	196.8	197.0	197.3	197.3	197.4		
RDO (ppm):	11.60	11.79	11.81	11.81	11.83	11.84	11.84	11.88		
Turbidity (NTU):	1.7	1.9	1.8	1.9	1.8	2.6	2.0	1276.4		
ORP	193	198	199	200	201	204	204	90		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):___0.5__**			**Depth BWS (ft):__4____**			**Depth BWS (ft):__6____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	47/56	48/56		45/53	46/52	44/51	49/54	49/54	48/54	Digital titrator 10-4000 mg/L as $CaCO_3$
Total iron--UF (mg/L)	0.25			0.18			0.15			Hach spec 0.02-3.00 mg/L
Ferrous (II) Iron--F tot Fe (mg/L)	0.25			0.02			0.02			Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										Hach spec 0.01-0.50 mg/L NH_3-N
Ammonia/ Iron dilution										

Remarks: Measured water quality parameters in reverse (bottom to top) to account for drift while sampling.

Turbidity cal checked 9-12-06, passed; no post cal check

Alkalinity: breakpoint/endpoint

Field-Form Filled Out By: Hilton Date: 9/17/06

QAQC Check By: Chambers Date: 12/4/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft "A"

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 13:12

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: WGS84

Measurements By: DAR Time: 13:40

Water Depth (ft): 10.3 Ice Thickness (ft): 2.13

Freeboard (ft): 0.05 Snow Depth (ft): 0.40

Elev. (BPMSL +/- .02): 7.68 Survey By: JD, MRL Date: 11/18/06 Time: 15:18

Water Sampling By: DAR Sample Depths BWS (ft): 1 2 Date: 11/18/06 Time: 14:22

2 6.5

WATER QUALITY METER INFORMATION 3 10

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	13:38	13:40	13:41	13:46	13:50	13:55	14:05	14:15	14:22	
Depth BWS (ft):	2	3	4	5	6.5	8	9	10	Bottom	
Temp (°C):	-0.26	-0.19	-0.11	0.02	0.25	0.57	0.73	0.89	0.95	
pH:	7.51	7.53	7.54	7.53	7.52	7.40	7.10	7.07	6.96	
Barometeric (mmHg):	770.3	770.3	770.4	770.4	770.4	770.5	770.6	770.7	770.7	
Pressure (kPa):	4.84	7.69	10.11	13.03	17.94	22.18	25.27	28.62	30.3	
Conductivity (µS/cm):	47.06	46.6	46.31	45.93	45.47	44.91	47.58	50.65	51.85	
RDO (ppm): (mg/L)	16.13	16.16	16.11	15.9	15.42	14.09	10.57	9.06	7.72	
Turbidity (NTU):	2.5	2.7	2.6	2.8	2.7	3.1	4.2	5.3	nr	
ORP	144	146	148	152	155	161	174	168	41	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____2___**			**Depth BWS (ft):____6.5__**			**Depth BWS (ft):___10___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	28	29	29	27	30	27	33	34	33	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.15	0.15	0.12	0.09	0.10	0.10	0.78	0.76	0.75	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.00	0.00	0.01	0.06	0.09	0.05	0.38	0.41	0.42	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: No Cal Check for ORP or turbidity.

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft "B"

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 11:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: WGS84

Measurements By: DAR Time: 11:30

Water Depth (ft): 11.45 Ice Thickness (ft): 1.40

Freeboard (ft): 0.1 Snow Depth (ft): 0.20

Elev. (BPMSL +/- .02): 7.68 Survey By: JD, MRL Date: 11/18/06 Time: 15:18

Water Sampling By: DAR Sample Depths BWS (ft): 1 2 Date: 11/18/06 Time: 12:20

2 7.5

3 11

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	11:41	11:43	11:45	11:49	11:52	12:05	12:16	12:19	12:28	
Depth BWS (ft):	2	3	4	5	7	8.5	10	11	Bottom	
Temp (°C):	-0.22	-0.19	-0.07	0.14	0.38	0.76	1.09	1.17	1.44	
pH:	7.63	7.61	7.61	7.60	7.59	7.3	7.17	7.05	7.15	
Barometeric (mmHg):	770.2	770.3	770.3	770.3	770.4	770.5	770.5	770.5	770.5	
Pressure (kPa):	4.69	7.71	10.37	13.36	19.25	24.05	28.37	31.19	33.63	
Conductivity (µS/cm):	47.22	47.11	46.58	45.83	45.00	43.94	46.18	48.06	71.92	
RDO (ppm): (mg/L)	15.95	16.02	15.99	15.55	15.25	13.59	10.08	9.24	3.41	
Turbidity (NTU):	3.0	2.7	2.8	2.9	3.0	2.9	2.7	2.7	299.3	
ORP	185	187	188	189	190	201	208	140	16	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____2___**			**Depth BWS (ft):____7.5__**			**Depth BWS (ft):___11___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	30	32	28	28	30	28	53	50	50	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.09	0.09	0.09	0.21	0.17	0.12	*4.5*	*4.6*	*4.8*	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.08	0.07	0.08	0.02	0.02	0.04	*3.7*	*3.5*	*3.5*	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: No Cal Check for ORP, italicised chemistry analysis data required 10% dilution to generate concentration value.
No turbidity cal check.

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 AB Midpt

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 15:22

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.023' Easting: W150°56.757' Datum: WGS84

Measurements By: DAR Time: 15:30

Water Depth (ft): 11.2 Ice Thickness (ft): 1.35

Freeboard (ft): 0.05 Snow Depth (ft): 0.15

Elev. (BPMSL +/- .02): 7.68 Survey By: JD, MRL Date: 11/18/06 Time: 15:18

Water Sampling By: N/A Sample Depths BWS (ft): 1 N/A Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	15:22	15:25	15:27	15:34	15:37	15:51	15:55	16:04	16:11	
Depth BWS (ft):	2	3	4	6	8	9	10	11	Bottom	
Temp (°C):	-0.22	-0.21	-0.03	0.22	0.51	0.72	0.92	1.18	1.33	
pH:	7.46	7.47	7.48	7.47	7.43	7.27	7.17	7.01	6.99	
Barometeric (mmHg):	770.5	770.6	770.6	770.6	770.7	770.7	770.7	770.8	770.9	
Pressure (kPa):	4.11	7.73	10.19	16.18	22.21	25.38	28.22	31.29	32.86	
Conductivity (µS/cm):	47.23	46.89	46.31	45.67	44.70	44.65	47.32	54.26	70.12	
RDO (ppm): (mg/L)	16.18	16.21	16.09	15.59	15.07	12.42	11.3	8.61	4.41	
Turbidity (NTU):	2.7	2.7	2.6	2.8	2.8	3.0	3.5	4.7	606	
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

No turbidity cal check.

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 16:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: WGS84

Measurements By: DAR Time: 16:47

Water Depth (ft): 11.3 Ice Thickness (ft): 1.100

Freeboard (ft): 0.05 Snow Depth (ft): 0.35

Elev. (BPMSL +/- .02): 7.68 Survey By: JD, MRL Date: 11/18/06 Time: 15:18

Water Sampling By: N/A Sample Depths BWS (ft): 1 N/A Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	16:37	16:38	16:41	16:43	16:45	16:58	17:06	17:14	17:22	
Depth BWS (ft):	2	3	4	6	8	9	10	11	Bottom	
Temp (°C):	-0.25	-0.24	0.02	0.15	0.37	0.77	0.99	1.28	1.39	
pH:	7.44	7.44	7.44	7.44	7.38	7.15	7.02	6.95	6.95	
Barometeric (mmHg):	770.6	770.7	770.7	770.7	770.7	770.7	770.8	770.8	770.8	
Pressure (kPa):	4.63	7.51	10.25	16.48	22.37	25.22	28.42	31.54	33.4	
Conductivity (µS/cm):	47.68	47.25	46.03	45.78	45.02	44.27	44.94	52.11	57.02	
RDO (ppm): (mg/L)	16.17	16.27	16.13	15.87	14.23	12.58	10.44	7.09	4.55	
Turbidity (NTU):	2.8	2.8	2.8	3.6	3.0	2.8	2.2	4.6	10.0	
ORP	160	162	164	165	163	179	187	166	99	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____2___**			**Depth BWS (ft):____6.5__**			**Depth BWS (ft):___10___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: No Cal Check for ORP or turbidity

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 17:35

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: WGS84

Measurements By: DAR Time: 16:47

Water Depth (ft): 11.2 Ice Thickness (ft): 1.30

Freeboard (ft): 0.10 Snow Depth (ft): 0.10

Elev. (BPMSL +/- .02): 7.68 Survey By: JD, MRL Date: 11/18/06 Time: 15:18

Water Sampling By: N/A Sample Depths BWS (ft): 1 N/A Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	17:35	17:41	17:45	17:47	17:51	17:55	18:01	18:03		
Depth BWS (ft):	2	3	4	6	8	9	10	Bottom		
Temp (°C):	-0.29	-0.2	-0.01	0.27	0.57	0.79	0.91	0.93		
pH:	7.38	7.37	7.38	7.37	7.23	6.96	6.86	6.80		
Barometeric (mmHg):	770.5	770.6	770.6	770.7	770.8	770.9	770.9	770.9		
Pressure (kPa):	4.78	7.52	10.22	16.42	22.38	26.41	28.21	29.59		
Conductivity (µS/cm):	47.44	40.85	46.17	45.33	44.89	45.93	48.06	48.77		
RDO (ppm): (mg/L)	15.88	15.94	15.72	15.27	13.94	9.17	7.49	6.22		
Turbidity (NTU):	2.6	2.6	2.8	2.8	2.6	2.7	3.5	34.9		
ORP	139	143	149	153	161	165	161	134		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: No Cal Check for ORP. Reading may have been taken before oxygen completely stabilized, especially at bottom reading.; No turbidity cal check.

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 WTP Raw

Sample Purpose: **Lake Water Quality** Date: 11/18/06 Time: 23:08

FIELD MEASUREMENTS

GPS Coord. Northing: N/A Easting: Datum:

Measurements By: Time:

Water Depth (ft): Ice Thickness (ft):

Freeboard (ft): Snow Depth (ft):

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 tap Date: 1/18/06 Time: 23:05

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	3303	Pass	Pass

Parameters	**Field Measurements**									
Time:	23:08									
Depth BWS (ft):	tap									
Temp (°C):	9.31									
pH:	6.84									
Barometeric (mmHg):	769.4									
Pressure (kPa):										
Conductivity (µS/cm):	57.15									
RDO (ppm): (mg/L)	7.95									
Turbidity (NTU):	2.3									
ORP	257									

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 2**			**Depth BWS (ft): 6.5**			**Depth BWS (ft): 10**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	29	30	27							Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.06	0.06	0.07							Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.02	0.04	0.05							Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: No Cal Check for ORP. Sampled at Raw water tap in Alpine.
No turbidity cal check.

Field-Form Filled Out By: Reichardt Date: 11/18/06

QAQC Check By: Chambers Date: 12/5/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 - B

Sample Purpose: **Lake Water Quality** Date: 12/19/06 Time: 9:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: WGS84

Measurements By: Reichardt Time: 9:20

Water Depth (ft): 11.35 Ice Thickness (ft): 2.20

Freeboard (ft): 0.15 Snow Depth (ft): 0.10

Elev. (BPMSL): 95.94 Survey By: J. Derry Date: 12/19/06 Time: 11:40

Water Sampling By: DAR Sample Depths BWS (ft): 1 3 Date: 12/19/06 Time: 10:25

2 6

WATER QUALITY METER INFORMATION 3 11

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	pass (pH fail)	pass (pH Fail)

Parameters	**Field Measurements**									
Time:	9:32	9:35	9:36	9:37	9:39	9:41	9:53	10:06	10:14	10:17
Depth BWS (ft):	3	4	5	6	7	8	9	10	11	Bottom
Temp (°C):	0.23	0.27	0.39	0.56	0.97	1.08	1.51	1.73	1.94	1.97
pH:										
Barometeric (mmHg):	740.5	740.5	740.6	740.7	740.7	740.8	740.8	740.8	740.9	740.9
Pressure (kPa):	7.509	10.220	13.527	16.442	19.349	22.234	25.484	28.353	31.315	33.072
Conductivity (µS/cm):	53.06	52.93	52.57	52.37	51.85	51.70	51.48	54.70	61.59	69.61
RDO (ppm): (mg/L)	15.56	15.70	15.71	15.68	15.33	14.88	11.36	5.67	2.60	1.93
Turbidity (NTU):	1.5	1.3	1.4	1.3	1.3	1.4	1.6	1.8	6.3	32.0
ORP	181	183	183	184	184	190	194	197	123	86

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____3__**			**Depth BWS (ft):_6__**			**Depth BWS (ft):__11__**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	45	36	33	31	31	35	47	47	57	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.01	0.00	0.00	0.01	0.00	0.00	2.81	2.86	2.82	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.03	0.06	0.07	0.04	0.02	0.02	2.37	2.31	2.46	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Reichardt Date: 12/19/06

QAQC Check By: jeff derry Date: 12/20/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-A

Sample Purpose: **Lake Water Quality** Date: 12/19/06 Time: 13:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: WGS84

Measurements By: DAR/JED Time: 13:32

Water Depth (ft): 10.35 Ice Thickness (ft): 1.9

Freeboard (ft): 0.1 Snow Depth (ft): 0.8

Elev. (BPMSL): 95.94 Survey By: J. Derry Date: 12/19/06 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	pass (pH fail)	pass (pH Fail)

Parameters	**Field Measurements**									
Time:	12:02	12:04	12:05	12:07	12:11	12:17	12:23	12:31	12:43	12:46
Depth BWS (ft):	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	Bot
Temp (°C):	0.10	0.12	0.24	0.52	0.73	0.95	1.13	1.29	1.46	1.53
pH:										
Barometeric (mmHg):	740.9	741.0	741.0	741.1	741.1	741.1	741.1	741.1	741.1	741.1
Pressure (kPa):	5.212	7.573	10.550	13.447	16.360	19.375	22.633	25.638	28.223	30.366
Conductivity (µS/cm):	54.11	54.16	53.64	53.03	52.75	52.43	54.60	57.86	60.27	62.86
RDO (ppm): (mg/L)	15.85	15.88	15.86	15.80	15.20	14.29	11.16	7.51	5.14	4.35
Turbidity (NTU):	1.3	1.6	1.4	1.4	1.4	1.7	3.0	5.3	8.1	195.2
ORP	188	189	190	191	193	197	204	207	183	-18

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										
Ammonia (mg/L NH_3-N)****										
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Reichardt Date: 12/19/06

QAQC Check By: jeff derry Date: 12/20/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Screen

Sample Purpose: **Lake Water Quality** Date: 12/19/06 Time: 13:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: WGS84

Measurements By: DAR Time: 13:37

Water Depth (ft): 11.3 Ice Thickness (ft): 2.25

Freeboard (ft): 0.2 Snow Depth (ft): 0.3

Elev. (BPMSL): 95.94 Survey By: J. Derry Date: 12/19/06 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	pass (pH fail)	pass (pH Fail)

Parameters	**Field Measurements**									
Time:	13:44	13:46	13:47	13:48	13:52	14:02	14:08	14:19	14:22	
Depth BWS (ft):	3.0	4.0	5.0	6.0	8.0	9.0	10.0	11.0	Bot	
Temp (°C):	0.15	0.28	0.43	0.59	1.15	1.48	1.72	1.89	1.92	
pH:										
Barometeric (mmHg):	740.9	740.9	740.9	740.9	741.0	740.8	740.8	740.8	740.9	
Pressure (kPa):	7.611	10.381	13.432	16.503	22.704	25.377	28.351	31.435	32.681	
Conductivity (µS/cm):	55.29	54.30	54.04	53.62	52.54	51.71	56.15	62.90	72.47	
RDO (ppm): (mg/L)	15.29	15.29	15.18	15.04	13.85	8.63	4.13	1.52	1.15	
Turbidity (NTU):	1.3	1.4	1.3	1.5	1.7	1.6	2.3	7.2	286.1	
ORP	178	180	182	182	188	196	196	101	56	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										
Ammonia (mg/L NH_3-N)****										
Ammonia/ Iron dilution										

Remarks: Log 2006-12-19 134020 (UAF)

Field-Form Filled Out By: Blackburn Date: 12/19/06

QAQC Check By: Reichardt Date: 12/20/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH-shore Mid

Sample Purpose: **Lake Water Quality** Date: 12/19/06 Time: 15:39

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.023' Easting: W150°57.134' Datum: WGS84

Measurements By: DAR Time: 15:39

Water Depth (ft): 8.5 Ice Thickness (ft): 2.4

Freeboard (ft): 0.2 Snow Depth (ft): nr

Elev. (BPMSL): 95.94 Survey By: J. Derry Date: 12/19/06 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	pass (pH fail)	pass (pH Fail)

Parameters	**Field Measurements**									
Time:	15:39	15:42	15:44	15:49	15:52	15:58	16:01			
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0	8.0	Bot			
Temp (°C):	0.17	0.18	0.34	0.59	0.80	0.99	1.11			
pH:										
Barometeric (mmHg):	740.5	740.5	740.5	740.4	740.5	740.4	740.4			
Pressure (kPa):	7.334	10.215	13.469	16.473	19.326	22.577	24.784			
Conductivity (µS/cm):	57.61	57.10	56.49	55.57	55.18	55.49	56.02			
RDO (ppm): (mg/L)	13.66	13.62	13.32	12.01	10.49	7.86	5.71			
Turbidity (NTU):	1.5	1.3	1.5	1.7	1.8	2.7	5.8			
ORP	161	166	171	179	184	189	185			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										
Ammonia (mg/L NH_3-N)****										
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Blackburn Date: 12/19/06

QAQC Check By: Reichardt Date: 12/20/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 12/19/06 Time: 14:47

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: WGS84

Measurements By: DAR Time: 14:47

Water Depth (ft): 10 Ice Thickness (ft): 2.4

Freeboard (ft): 0.25 Snow Depth (ft): 0.2

Elev. (BPMSL): 95.94 Survey By: J. Derry Date: 12/19/06 Time: 11:40

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	pass (pH fail)	pass (pH Fail)

Parameters	**Field Measurements**									
Time:	14:54	14:58	15:00	15:02	15:09	15:18	15:25	15:28		
Depth BWS (ft):	3.0	4.0	5.0	6.0	8.0	9.0	10.0	Bot		
Temp (°C):	0.14	0.21	0.40	0.56	1.15	1.34	1.51	1.52		
pH:										
Barometeric (mmHg):	740.5	740.5	740.6	740.6	740.6	740.6	740.6	740.7		
Pressure (kPa):	7.465	10.335	13.311	16.335	22.328	25.441	28.375	29.138		
Conductivity (µS/cm):	-	56.03	55.39	55.01	54.45	55.39	57.77	57.78		
RDO (ppm): (mg/L)	-	14.79	14.54	14.24	9.21	6.41	2.66	2.19		
Turbidity (NTU):	-	1.4	1.4	1.6	2.0	2.3	4.4	20.5		
ORP	-	175	177	179	192	184	159	140		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										
Ammonia (mg/L NH_3-N)****										
Ammonia/ Iron dilution										

Remarks: Log 2006-12-19 143711

Field-Form Filled Out By: Blackburn Date: 12/19/06

QAQC Check By: Reichardt Date: 12/20/06

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 12:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: DAR Time: 12:00

Water Depth (ft): 8.45 Ice Thickness (ft): 2.80

Freeboard (ft): 0.15 Snow Depth (ft): 0.27

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry, MRL Date: 1/10/2007 Time: 15:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 3 Date: 1/10/2007 Time: 13:25

2 5

3 8

4 7

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU TROLL 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:50	12:52	12:54	12:57	13:59	13:02	13:18			
Depth BWS (ft):	3	4	5	6	7	8	BOT			
Temp (°C):	-0.33	-0.21	0.22	0.45	0.97	1.24	1.65			
pH:	6.96	6.97	6.97	7.01	6.98	6.95	7.19			
Barometeric (mmHg):	762.5	762.6	762.6	762.6	762.6	762.6	762.5			
Pressure (kPa):	7.587	10.307	13.604	16.366	19.505	22.434	24.703			
Conductivity (µS/cm):	300.2	299.2	301.5	303.0	306.5	307.2	254.1			
RDO (ppm): (mg/L)	6.99	7.11	7.35	7.54	7.11	2.08	1.83			
Turbidity (NTU):	0.5	0.5	0.5	0.5	1.6	4.4	38.0			
ORP	264	263	262	259	256	30	-3			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 3**			**Depth BWS (ft): 5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	84	89	86	83	86	86	98	100	99	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.06	0.06	0.06	0.06	0.04	0.05	6.80*	6.80*	7.0*	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.08	0.1	0.1	0.04	0.03	0.06	7.60*	7.60*	7.50*	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

*1:10 DILUTION. REPORTED VALUE IS CALCULATED CONCENTRATION. ADDITIONAL SAMPLES TAKEN AT 7FT.

TOTAL Fe (mg/L) = 0.25, 0.21, 0.23. FILTERED Fe (mg/L) = 0.11, 0.12, 0.10. ALKALINITY (mg/L as $CaCO_3$) = 86, 91,89.

Field-Form Filled Out By: DAR Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 14:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: DMW Time: 14:00

Water Depth (ft): 6.9 Ice Thickness (ft): 2.70

Freeboard (ft): 0.2 Snow Depth (ft): 0.20

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry, MRL Date: 1/10/2007 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	IN-SITU TROLL 9000	33205	PASS	PASS
					FAIL ORP

Parameters	**Field Measurements**									
Time:	14:35	14:39	14:43	14:49	14:54					
Depth BWS (ft):	3	4	5	6	6.5					
Temp (°C):	0.08	0.32	0.71	1.12	1.29					
pH:	6.99	7.06	7.05	7.05	7.03					
Barometeric (mmHg):	763.2	763.2	763.2	763.3	763.3					
Pressure (kPa):	7.946	10.448	13.551	16.523	18.006					
Conductivity (µS/cm):	304.6	303.9	304.5	305.8	306.3					
RDO (ppm): (mg/L)	9.89	9.96	10.27	10.11	9.76					
Turbidity (NTU):	0.7	0.5	0.6	0.6	0.6					
ORP	2	1	3	3	3					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 3**			**Depth BWS (ft): 5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

RUGGED READER BATTERIES DIED AT BOTTOM READING. ORP failed due to faulty connection between chord and in-situ. ORP probe

Field-Form Filled Out By: DMW Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 13:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.022' Easting: W151°20.037' Datum: NAD83

Measurements By: DMW Time: 13:30

Water Depth (ft): 8 Ice Thickness (ft): 3.00

Freeboard (ft): 0.25 Snow Depth (ft): 0.17

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry Date: 1/10/2007 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	IN-SITU TROLL 9000	33205	PASS	PASS
					FAIL ORP

Parameters	**Field Measurements**									
Time:	13:37	13:40	13:44	13:45	13:55	14:00	14:12			
Depth BWS (ft):	3	4	5	6	7.0	7.5	8			
Temp (°C):	0.16	0.42	0.81	1.10	1.51	1.68	1.87			
pH:	7.02	7.01	6.99	6.98	6.90	6.88	7.01			
Barometeric (mmHg):	763.1	763.2	763.2	763.3	763.3	763.3	763.4			
Pressure (kPa):	7.783	10.773	13.522	16.618	19.562	21.257	22.880			
Conductivity (µS/cm):	298.6	296.3	297.4	298.6	305.9	306.2	323.6			
RDO (ppm): (mg/L)	7.29	7.24	7.21	7.12	4.81	3.82	2.91			
Turbidity (NTU):	0.5	0.5	0.6	1.0	2.9	3.7	9.0			
ORP	9	7	7	5	-13	-20	-72			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):__3____**			**Depth BWS (ft):__5____**			**Depth BWS (ft):___8___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: DMW Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 14:07

FIELD MEASUREMENTS

GPS Coord. Northing: N70°13.998' Easting: W151°19.997' Datum: NAD83

Measurements By: DAR Time: 14:02

Water Depth (ft): 5.8 Ice Thickness (ft): 2.50

Freeboard (ft): 0.1 Snow Depth (ft): 0.40

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry, MRL Date: 1/10/2007 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU TROLL 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:07	14:19	14:20	14:29	14:31					
Depth BWS (ft):	3.0	4.0	5.0	5.5	BOT					
Temp (°C):	-0.38	-0.40	-0.01	0.19	0.30					
pH:	6.99	6.99	6.98	6.96	7.01					
Barometeric (mmHg):	762.3	762.3	762.4	762.4	762.4					
Pressure (kPa):	7.561	10.415	13.392	14.706	16.587					
Conductivity (µS/cm):	318.6	316.5	317.3	317.7	319.3					
RDO (ppm): (mg/L)	4.36	4.35	4.37	4.24	4.15					
Turbidity (NTU):	0.6	0.7	0.7	0.9	84.2					
ORP	160	162	162	162	157					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 3**			**Depth BWS (ft): 5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: LOG 2007-01-10 140331

Field-Form Filled Out By: DAR Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 12:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: DMW Time: 12:10

Water Depth (ft): 8.98 Ice Thickness (ft): 2.74

Freeboard (ft): 0.03 Snow Depth (ft): 0.30

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry, MRL Date: 1/10/2007 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	IN-SITU TROLL 9000	33205	PASS	PASS, ORP Fail

Parameters	**Field Measurements**									
Time:	12:20	12:23	12:26	12:30	12:35	12:43	12:47	12:51	12:54	
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0	8.0	8.5	BOT	MUD	
Temp (°C):	0.18	0.33	0.61	0.99	1.42	1.65	1.68	1.67	1.68	
pH:	7.00	7.00	7.00	6.90	6.93	7.01	7.27	7.57	7.70	
Barometeric (mmHg):	763.3	763.4	763.4	763.4	763.5	763.5	763.7	763.6	763.6	
Pressure (kPa):	7.877	11.097	13.462	16.411	19.574	22.407	24.003	25.473	26.033	
Conductivity (µS/cm):	306.5	305.9	306.4	308.1	312.9	319.2	341.7	388.90	402.50	
RDO (ppm): (mg/L)	2.79	2.78	2.80	2.67	2.75	2.30	1.23	0.54	0.37	
Turbidity (NTU):	1.9	2.0	1.9	2.5	3.4	6.9	4.9	5.3	416.0	
ORP	14.0	14.0	14.0	-8.0	-3.0	-46.0	-98.0	-138.0	-155.0	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):__3____**			**Depth BWS (ft):__5____**			**Depth BWS (ft):___8___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: DMW Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 15:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: DMW Time: 12:10

Water Depth (ft): 8.98 Ice Thickness (ft): 2.74

Freeboard (ft): 0.03 Snow Depth (ft): 0.30

Elev. (BPMSL +/- .02): 53.05 Survey By: JED,MRL Date: 1/10/07 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU TROLL 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	15:24	15:29	15:31	15:33	15:34	15:35	15:39			
Depth BWS (ft):	3	4	5	6	7	8	Bottom			
Temp (°C):	-0.40	0.12	0.13	0.60	0.82	0.99	1.17			
pH:	6.95	6.95	6.97	6.94	6.90	6.93	7.64			
Barometeric (mmHg):	762.2	762.1	762.2	762.2	762.2	762.2	762.1			
Pressure (kPa):	7.448	10.584	13.532	16.383	19.569	22.447	26.078			
Conductivity (µS/cm):	301.7	300.6	301.0	302.3	304.1	306.4	417.9			
RDO (ppm): (mg/L)	3.25	2.90	2.83	2.67	2.58	2.60	1.12			
Turbidity (NTU):	1.6	1.9	1.7	2.1	2.4	3.6	253.7			
ORP	131	136	137	139	140	114	-131			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: log 07-01-10 1521##

Field-Form Filled Out By: DAR Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-21

Sample Purpose: **Lake Water Quality** Date: 1/10/07 Time: 14:51

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.063' Easting: W151°20.276' Datum: NAD83

Measurements By: DAR Time: 14:51

Water Depth (ft): 7.03 Ice Thickness (ft): 2.50

Freeboard (ft): 0.1 Snow Depth (ft): 0.30

Elev. (BPMSL +/- .02): 53.05 Survey By: J Derry Date: 1/10/2007 Time: 15:00

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU TROLL 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:54	14:56	14:57	14:58	15:01					
Depth BWS (ft):	3.0	4.0	5.0	6.0	BOT					
Temp (°C):	-0.38	-0.70	0.42	0.68	0.88					
pH:	7.08	7.06	7.04	7.05	7.06					
Barometeric (mmHg):	762.3	762.3	762.4	762.4	762.4					
Pressure (kPa):	7.235	10.229	13.500	16.496	19.629					
Conductivity (µS/cm):	293.4	290.6	292.3	293.7	300.7					
RDO (ppm): (mg/L)	6.98	6.95	6.87	6.83	6.16					
Turbidity (NTU):	0.4	0.4	0.3	0.5	15.2					
ORP	194	194	194	193	143					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft): 3**			**Depth BWS (ft): 5**			**Depth BWS (ft): 8**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: DAR Date: 1/10/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 1/9/07 Time 10:07

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: WGS84

Measurements By: HCM Time: 10:07

Water Depth (ft): 11.4 Ice Thickness (ft): 2.92

Freeboard (ft): 0.21 Snow Depth (ft): NA

Elev. (BPMSL): 7.63 Survey By: C. Cormack Date: 1/9/07 Time: 11:40

Water Sampling By: DAR Sample Depths BWS (ft): 1 3 Date: 1/9/07 Time: 10:07

2 8

WATER QUALITY METER INFORMATION 3 11

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	33033	PASS	Pass

Parameters	**Field Measurements**									
Time:	10:53	10:59	11:01	11:03	11:09	11:23	11:26	11:30	11:34	11:38
Depth BWS (ft):	3	4	5	6	7	8	9	10	11	BOT
Temp (°C):	-0.16	0.12	0.23	0.45	0.92	1.3	1.18	1.22	1.46	1.55
pH:	7.07	7.08	7.06	7.07	6.91	6.73	6.80	6.74	6.69	6.94
Barometeric (mmHg):	773.7	773.7	773.8	773.8	773.9	773.9	773.9	773.9	773.9	773.8
Pressure (kPa):	x	x	x	x	x	28.416	25.630	28.285	31.627	33.449
Conductivity (µS/cm):	56.76	55.94	56.03	55.09	54.44	55.61	54.01	54.34	69.86	96.00
RDO (ppm): (mg/L)	15.19	15.26	15.51	15.53	14.69	5.80	5.26	6.30	3.80	1.85
Turbidity (NTU):	0.4	0.6	0.5	0.6	1.0	2.5	1.5	2.4	6.7	165.6
ORP	245	246	247	247	251	239	219	222	66	-23

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____3 ft__**			**Depth BWS (ft):__8ft__**			**Depth BWS (ft):___11___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	41	43	36	31	33	31	60	65	58	
Total iron--UF (mg/L)	0.06	0.04	0.05	0.06	0.05	0.06	9.3*	9.6*	10.0*	
Filtered Iron--F tot Fe (mg/L)	0.02	0.04	0.09	0.09	0.10	0.10	10.7*	10.6*	10.4*	

Remarks: *1:10 DILUTION. REPORTED VALUE IS CALCULATED CONCENTRATION.

Field-Form Filled Out By: Jeff Derry Date: 1/9/07

QAQC Check By: DAR Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft A

Sample Purpose: **Lake Water Quality** Date: 1/9/07 Time: 15:24

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: WGS84

Measurements By: DMW Time: 15:24

Water Depth (ft): 10.2 Ice Thickness (ft): 3.0

Freeboard (ft): 0.05 Snow Depth (ft): 0.8

Elev. (BPMSL): 7.63 Survey By: C. Cormack Date: 1/9/07 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
All	UAF	In-Situ Troll 9000	33033	pass	Pass

Parameters	**Field Measurements**											
Time:	15:24	15:25	15:26	15:27	15:28	15:30	15:42	15:48	15:50			
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	BOT			
Temp (°C):	-0.41	-0.36	-0.19	-0.03	0.11	0.57	0.84	0.95	0.97			
pH:	7.06	7.00	7.00	7.02	7.00	8.89	6.71	6.65	6.70			
Barometeric (mmHg):	771.9	772.0	772.1	772.0	772.1	772.0	771.8	771.8	771.8			
Pressure (kPa):	7.235	10.362	13.593	16.391	19.411	22.290	25.442	28.142	29.976			
Conductivity (µS/cm):	57.87	57.05	56.81	56.35	56.20	54.91	57.89	68.33	68.68			
RDO (ppm):	15.54	15.82	15.98	15.98	15.92	13.93	6.28	3.49	3.18			
Turbidity (NTU):	0.5	0.2	0.2	0.2	0.3	1.6	5.3	9.3	254.1			
ORP	143	148	152	155	159	167	179	156	103			

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Ferrous (II) Iron--F tot Fe (mg/L										

Remarks:

Field-Form Filled Out By: J Derry Date: 1/9/07

QAQC Check By: DAR Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Screen

Sample Purpose: **Lake Water Quality** Date: 1/9/07 Time: 14:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: WGS84

Measurements By: DAR Time: 14:05

Water Depth (ft): 11.26 Ice Thickness (ft): 2.75

Freeboard (ft): 0.18 Snow Depth (ft): 0.35

Elev. (BPMSL): 7.63 Survey By: C. Cormack Date: 1/9/07 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling
All	UAF	In-Situ Troll 9000	33205	pass	Pass

Parameters	**Field Measurements**											
Time:	13:56	13:59	14:00	14:02	14:03	14:10	14:21	14:30	14:41	14:44		
Depth BWS (ft):	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	BOT		
Temp (°C):	-0.40	-0.34	-0.17	-0.04	0.19	0.70	1.02	1.28	1.44	1.51		
pH:	7.00	7.01	6.98	6.96	6.97	6.95	6.79	6.72	6.77	6.98		
Barometeric (mmHg):	772.6	772.6	772.6	772.6	772.6	772.6	772.5	772.6	772.4	772.3		
Pressure (kPa):	7.867	10.289	13.292	16.268	19.360	22.468	25.489	28.573	31.317	33.19		
Conductivity (µS/cm):	58.38	58.06	56.87	56.66	56.26	54.92	53.59	55.52	67.54	99.04		
RDO (ppm):	15.49	15.39	15.48	15.55	15.57	14.14	9.13	3.55	2.56	1.61		
Turbidity (NTU):	0.1	0.1	0.1	0.2	1.1	0.4	0.7	1.9	6.7	123.7		
ORP	209	209	210	211	211	213	218	213	82	-29		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Ferrous (II) Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-01-09 135210

Field-Form Filled Out By: DAR Date: 1/9/07

QAQC Check By: J Derry Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-SH

Sample Purpose: **Lake Water Quality** Date: 1/9/07 Time: 16:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: WGS84

Measurements By: DAR Time: 16:00

Water Depth (ft): 10.12 Ice Thickness (ft): 2.74

Freeboard (ft): 0.18 Snow Depth (ft): 0.35

Elev. (BPMSL): 7.63 Survey By: C. Cormack Date: 1/9/07 Time: 11:40

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model			Serial No.				Pre-Sampling QAQC Check		Post-Sampling QAQC Check	
Multi	GWS	In-Situ Troll 9000			33033				Pass		Pass	
Parameters	**Field Measurements**											
Time:	16:15	16:17	16:20	16:28	16:33	16:36	16:44	16:46				
Depth BWS (ft):	3.0	4.0	5.0	6.0	8.0	9.0	10.0	BOT				
Temp (°C):	-0.42	-0.37	-0.23	0.17	0.60	0.80	1.09	1.11				
pH:	6.74	6.74	6.75	6.73	6.73	6.71	6.69	6.68				
Barometeric (mmHg):	771.3	771.3	771.3	771.2	771.2	771.2	771.1	771.2				
Pressure (kPa):	7.516	10.324	13.884	16.906	22.530	25.403	28.517	29.567				
Conductivity (µS/cm):	69.55	68.93	67.88	66.95	57.69	57.25	57.67	57.67				
RDO (ppm):	12.10	12.08	11.37	9.99	9.21	7.95	3.31	2.78				
Turbidity (NTU):	1.6	0.2	0.6	0.5	0.8	0.9	1.9	7.5				
ORP	247	245	243	242	240	235	99	79				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Ferrous (II) Iron--F tot Fe (mg/L)										

Remarks:

Field-Form Filled Out By: J Derry Date: 1/9/07

QAQC Check By: DAR Date: 1/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 2/16/07 Time 11:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: HCM Time: 11:00

Water Depth (ft): 11.3 Ice Thickness (ft): 3.55

Freeboard (ft): 0.30 Snow Depth (ft): 0.40

Elev. (BPMSL): 7.55 Survey By: M. Lilly Date: 2/16/07 Time: 15:30

Water Sampling By: HMC Sample Depths BWS (ft): 1 4 Date: 2/16/07 Time: 12:50

2 6

WATER QUALITY METER INFORMATION 3 11 Additional Samples at 9ft, 10 ft.

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	Pass

Parameters	**Field Measurements**									
Time:	11:30	11:36	11:42	11:51	11:59	12:08	12:13	12:35	12:45	
Depth BWS (ft):	4	5	6	7	8	9	10	11	BOT	
Temp (°C):	0.14	0.34	0.73	0.96	1.22	1.55	1.66	1.97	2.04	
pH:	6.80	6.83	6.83	6.84	6.82	6.79	6.77	7.11	7.41	
Barometeric (mmHg):	773.7	773.7	773.8	771.2	771.3	771.4	771.4	771.6	771.6	
Pressure (kPa):	10.303	13.261	16.287	x	22.274	25.292	28.269	31.231	33.031	
Conductivity (µS/cm):	76.61	75.77	75.37	75.66	75.62	74.78	74.29	97.60	118.80	
RDO (ppm): (mg/L)	12.07	12.38	12.40	12.04	11.50	10.79	10.12	3.94	2.90	
Turbidity (NTU):	2.3	2.1	2.7	2.5	2.8	3.0	4.0	6.5	122.1	
ORP	71	73	75	74	73	69	65	-26	-80	

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____4 ft__**			**Depth BWS (ft):__6ft__**			**Depth BWS (ft):___11___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	38	42	40	41	40	39	84*	83*	83*	
Total iron--UF (mg/L)	0.14	0.13	0.14	0.16	0.16	0.15	18.80	18.80	18.80	
Filtered Iron--F tot Fe (mg/L)	0.10	0.10	0.11	0.10	0.13	0.11	20.90	21.10	21.10	

Remarks: *1:10 DILUTION. REPORTED VALUE IS CALCULATED CONCENTRATION.

Field-Form Filled Out By: HMC Date: 2/16/07

QAQC Check By: DAR Date: 3/7/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 2/16/07 Time 11:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: HCM Time: 11:00

Water Depth (ft): 11.3 Ice Thickness (ft): 3.55

Freeboard (ft): 0.30 Snow Depth (ft): 0.40

Elev. (BPMSL): 7.55 Survey By: M. Lilly Date: 2/16/07 Time: 15:30

Water Sampling By: HMC Sample Depths BWS (ft): 1 4 Date: 2/16/07 Time: 12:50

2 6

WATER QUALITY METER INFORMATION 3 11 Additional Samples at 9ft, 10 ft.

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	Pass

Parameters										
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (ppm): (mg/L)										
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____9 ft__**			**Depth BWS (ft):__10ft__**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)	0.17	0.17	0.18	0.25	0.25	0.26				
Filtered Iron--F tot Fe (mg/L)	0.11	0.08	0.10	0.16	0.14	0.14				

Remarks:

Field-Form Filled Out By: HMC Date: 2/16/07

QAQC Check By: DAR Date: 3/7/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft A

Sample Purpose: **Lake Water Quality** Date: 2/16/07 Time: 14:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: NAD83

Measurements By: HMC Time: 14:00

Water Depth (ft): 10.15 Ice Thickness (ft): 3.08

Freeboard (ft): 0.3 Snow Depth (ft): 0.52

Elev. (BPMSL): 7.55 Survey By: M. Lilly Date: 2/16/07 Time: 15:30

Water Sampling By: HMC Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	Pass

Parameters										
Time:	14:17	14:22	14:25	14:46	15:50	16:04	16:19	16:33		
Depth BWS (ft):	4	5	6	7	8	9	10	BOT		
Temp (°C):	0.14	0.28	0.46	0.84	1.07	1.12	1.35	1.43		
pH:	6.94	6.92	6.89	6.76	6.69	6.65	6.62	6.62		
Barometeric (mmHg):	771.5	771.6	771.6	771.6	771.6	771.7	771.8	772.0		
Pressure (kPa):	10.520	13.432	16.218	19.542	22.561	25.312	28.396	29.564		
Conductivity (µS/cm):	81.80	84.56	85.76	85.24	84.66	82.67	83.15	85.73		
RDO (ppm):	13.99	14.23	13.99	11.69	9.67	8.32	6.63	5.00		
Turbidity (NTU):	1.0	1.1	1.9	3.3	4.8	5.9	7.6	20.4		
ORP	43	46	47	44	37	30	21	12		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks:

Field-Form Filled Out By: HMC Date: 2/16/07

QAQC Check By: DAR Date: 3/7/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 AB Midpoint

Sample Purpose: **Lake Water Quality** Date: 2/16/07 Time: 17:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.024' Easting: W150°56.753' Datum: NAD83

Measurements By: JED Time: 17:00

Water Depth (ft): 11.1 Ice Thickness (ft): 3.80

Freeboard (ft): 0.3 Snow Depth (ft): 0.1

Elev. (BPMSL): 7.55 Survey By: M. Lilly Date: 2/16/07 Time: 15:30

Water Sampling By: JED Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	Pass

Parameters										
Time:	17:03				17:50	18:05	18:27			
Depth BWS (ft):	4	6	7	8	9	10	BOT			
Temp (°C):	0.11	0.53	0.81	1.10	1.37	1.55	1.81			
pH:	6.90	6.89	6.88	6.85	6.60	6.63	6.89			
Barometeric (mmHg):	771.7	771.8	771.8	771.8	771.9	771.9	771.8			
Pressure (kPa):	10.225	16.202	19.376	22.413	25.472	28.378	31.239			
Conductivity (µS/cm):	80.07	78.32	77.83	77.61	78.11	77.82	87.35			
RDO (ppm):	13.41	13.78	13.82	13.71	10.16	7.37	4.76			
Turbidity (NTU):	0.6	0.9	0.7	1.1	4.0	4.8	6.6			
ORP	41	42	42	41	26	19	-25			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks:

Field-Form Filled Out By: HMC Date: 2/16/07

QAQC Check By: DAR Date: 3/7/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: Alpine WTP

Sample Purpose: **Lake Water Quality** Date: 2/17/07 Time 18:00

FIELD MEASUREMENTS

GPS Coord. Northing: n/a Easting: n/a Datum:

Measurements By: Time:

Water Depth (ft): Ice Thickness (ft):

Freeboard (ft): Snow Depth (ft):

Elev. (BPMSL): Survey By: Date: Time:

Water Sampling By: HMC Sample Depths BWS (ft): 1 tap Date: 2/17/07 Time: 18:00

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	Pass

Parameters	**Field Measurements**									
Time:	18:00									
Depth BWS (ft):	tap									
Temp (°C):	10.37									
pH:	6.65									
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):	88.09									
RDO (ppm): (mg/L)	5.33									
Turbidity (NTU):	3.7									
ORP	3									

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):___tap_**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	34	39	36							
Total iron--UF (mg/L)	0.25	0.27	0.27							
Filtered Iron--F tot Fe (mg/L)										

Remarks: sample taken at Raw Water Tap at Water Treatment Plant sink.

Field-Form Filled Out By: HMC Date: 2/17/07

QAQC Check By: DAR Date: 3/7/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 3/16/07 Time 11:01

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: HCM Time: 11:05

Water Depth (ft): 11.1 Ice Thickness (ft): 4.85

Freeboard (ft): 0.35 Snow Depth (ft): 0.65

Elev. (BPMSL): 7.51 Survey By: MRL, MSW Date: 3/16/07 Time: 15:32

Water Sampling By: HMC Sample Depths BWS (ft): 1 5 Date: Time:

2 7

WATER QUALITY METER INFORMATION 3 11 Additional Samples at 9ft, 10 ft.

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
In-Situ	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:13	11:17	11:27	11:34	11:38	11:41	11:58			
Depth BWS (ft):	5	6	7	8	9	10	BOT			
Temp (°C):	-0.21	0.2	0.66	0.92	1.22	1.52	1.68			
pH:	6.77	6.74	6.72	6.71	6.73	6.70	6.77			
Barometeric (mmHg):	778.8	777.8	777.9	777.9	778.0	778.0	778.0			
Pressure (kPa):	13.571	16.148	19.332	22.325	25.060	28.371	31.260			
Conductivity (µS/cm):	87.50	87.62	87.38	87.04	86.68	85.37	90.26			
RDO (ppm): (mg/L)	10.86	10.97	10.10	9.88	9.86	9.77	5.60			
Turbidity (NTU):	1.1	1.4	6.6	2.8	2.2	2.6	7.6			
ORP	173	175	180	183	163	179	75			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____5 ft__**			**Depth BWS (ft):__7ft__**			**Depth BWS (ft):___11___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	38	-	-	50	-	-	69	-	-	
Total iron--UF (mg/L)	0.27	0.26	0.28	0.29	0.27	0.28	2.06	2.05	2.09	
Filtered Iron--F tot Fe (mg/L)	0.14	0.12	0.15	0.31	0.31	0.32	1.03	1.02	1.02	

Remarks:

Field-Form Filled Out By: CMC Date: 3/18/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft A

Sample Purpose: **Lake Water Quality** Date: 3/16/07 Time: 12:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: NAD83

Measurements By: HMC Time:

Water Depth (ft): 10.2 Ice Thickness (ft): 4.10

Freeboard (ft): 0.3 Snow Depth (ft): 0.5

Elev. (BPMSL): 7.51 Survey By: MRL, MSW Date: 3/16/07 Time: 15:32

Water Sampling By: HMC Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
In-Situ	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters										
Time:	13:01	13:08	13:15	13:23	13:39	13:50				
Depth BWS (ft):	5	6	7	8	9	BOT				
Temp (°C):	-0.21	0.29	0.61	0.90	1.22	1.28				
pH:	6.70	6.71	6.71	6.69	6.61	6.63				
Barometeric (mmHg):	777.9	778.0	778.0	778.1	778.0	778.1				
Pressure (kPa):	13.226	16.598	19.304	22.415	25.381	29.766				
Conductivity (µS/cm):	88.61	88.96	89.29	89.78	89.16	92.77				
RDO (ppm):	10.88	10.62	10.45	10.32	7.98	6.92				
Turbidity (NTU):	1.5	1.7	1.9	8.6	6.6	72.9				
ORP	173	177	179	180	187	46				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-03-16 125254

Field-Form Filled Out By: HMC Date: 3/16/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 AB Midpoint

Sample Purpose: **Lake Water Quality** Date: 3/16/07 Time: 14:12

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.024' Easting: W150°56.753' Datum: NAD83

Measurements By: HMC Time:

Water Depth (ft): 11 Ice Thickness (ft): 4.75

Freeboard (ft): 0.35 Snow Depth (ft): 0.35

Elev. (BPMSL): 7.51 Survey By: MRL, MSW Date: 3/16/07 Time: 15:32

Water Sampling By: HMC Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
In-Situ	GWS	InSitu Troll 9000	33033	PASS	Pass

Parameters										
Time:	14:15	14:21	14:26	14:30	14:34	14:48	15:04			
Depth BWS (ft):	5	6	7	8	9	10	BOT			
Temp (°C):	-0.19	0.18	0.55	0.85	1.09	1.38	1.54			
pH:	6.70	6.67	6.67	6.68	6.66	6.68	6.80			
Barometeric (mmHg):	777.8	777.8	777.9	777.9	777.8	777.9	777.9			
Pressure (kPa):	13.708	16.259	19.320	22.297	24.965	28.603	32.420			
Conductivity (µS/cm):	91.23	90.18	90.62	90.59	90.64	91.98	116.00			
RDO (ppm):	8.95	9.09	9.13	9.13	9.08	8.58	7.06			
Turbidity (NTU):	3.4	3.8	5.0	5.7	6.0	6.7	22.4			
ORP	153	162	167	171	175	179	21			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-03-16 141049

Field-Form Filled Out By: HMC Date: 3/16/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 3/16/07 Time: 15:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: Time: 15:30

Water Depth (ft): 11.1 Ice Thickness (ft): 4.47

Freeboard (ft): 0.55 Snow Depth (ft): 0.5

Elev. (BPMSL): 7.51 Survey By: MRL, MSW Date: 3/16/07 Time: 15:32

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	15:30	15:33	15:35	15:39	15:42	15:50	15:55			
Depth BWS (ft):	5	6	7	9	10	11	BOT			
Temp (°C):	0.14	0.68	0.92	1.54	1.70	1.83	1.89			
pH:	6.68	6.68	6.67	6.54	6.57	6.65	6.83			
Barometeric (mmHg):	778.9	778.9	778.9	778.9	778.8	778.9	778.9			
Pressure (kPa):	13.442	16.444	19.464	25.255	28.378	31.263	32.902			
Conductivity (µS/cm):	87.29	85.77	85.58	86.42	88.86	101.40	131.00			
RDO (ppm):	10.92	11.13	11.31	9.23	7.56	7.18	5.88			
Turbidity (NTU):	0.9	1.0	1.2	6.9	6.0	7.3	41.2			
ORP	101	102	102	100	94	72	19			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-03-16 142751

Field-Form Filled Out By: HMC Date: 3/16/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 3/16/07 Time: 15:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: MSW Time:

Water Depth (ft): 9.85 Ice Thickness (ft): 4.75

Freeboard (ft): 0.33 Snow Depth (ft): 0.3

Elev. (BPMSL): 7.51 Survey By: MRL, MSW Date: 3/16/07 Time: 15:32

Water Sampling By: MSW Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
In-Situ	GWS	InSitu Troll 9000	33033	PASS	Pass

Parameters										
Time:	15:51	16:15	16:27	16:38	16:54	17:09				
Depth BWS (ft):	5	6	7	8	9	BOT				
Temp (°C):	-0.30	0.23	0.50	0.81	0.91	1.02				
pH:	6.68	6.74	6.71	6.67	6.61	6.62				
Barometeric (mmHg):	777.6	777.4	777.5	777.4	777.2	777.1				
Pressure (kPa):	13.118	16.225	19.378	22.236	25.222	29.304				
Conductivity (µS/cm):	93.36	94.07	93.63	86.89	94.01	96.60				
RDO (ppm):	10.60	10.62	10.12	8.05	7.48	7.06				
Turbidity (NTU):	1.3	2.0	2.7	4.1	5.9	58.3				
ORP	170	186	189	191	198	96				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks:

Field-Form Filled Out By: HMC Date: 3/16/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 13:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: HMC Time: 13:00

Water Depth (ft): 8.64 Ice Thickness (ft): 4.30

Freeboard (ft): 0.35 Snow Depth (ft): 0.40

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: HCM/DAR Sample Depths BWS (ft): 1 5 Date: Time:

2 7

3 8

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33035	PASS	Pass

Parameters	**Field Measurements**									
Time:	13:22	13:24	13:25	13:27	13:31					
Depth BWS (ft):	5	6	7	8	BOT					
Temp (°C):	0.13	0.26	0.50	0.78	1.09					
pH:	6.86	6.84	6.85	6.87	8.15					
Barometeric (mmHg):	774.3	774.3	774.3	774.3	774.4					
Pressure (kPa):	13.540	16.553	19.402	22.533	24.634					
Conductivity (µS/cm):	552.6	551.9	552.4	554.2	559.0					
RDO (ppm): (mg/L)	1.08	0.96	0.88	0.78	0.65					
Turbidity (NTU):	11.5	11.1	11.7	15.1	44.2					
ORP	73	73	72	55	-249					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____5 ft___**			**Depth BWS (ft):__7ft__**			**Depth BWS (ft):___8___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	171			167			170			
Total iron--UF (mg/L)	0.99	0.98	0.93	1.08	1.04	1.14	7.4*	7.8*	7.5*	
Filtered Iron--F tot Fe (mg/L)	0.06	0.05	0.06	0.36	0.33	0.34	6.7*	6.7*	6.9*	

Remarks: LOG 2007-03-17 131557 * 1:10 dilution corrected

Field-Form Filled Out By: CMC Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 20

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 12:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: DAR Time:

Water Depth (ft): 8.92 Ice Thickness (ft): 4.76

Freeboard (ft): 0.15 Snow Depth (ft): 0.90

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 5 Date: Time:

2 7

WATER QUALITY METER INFORMATION 3 8

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33035	PASS	Pass

Parameters	**Field Measurements**									
Time:	12:33	12:37	12:39	12:40	12:42	nr				
Depth BWS (ft):	5	6	7	8	8.5	BOT				
Temp (°C):	0.13	0.22	0.39	0.61	0.75	0.83				
pH:	6.82	6.83	8.82	8.84	7.05	7.83				
Barometeric (mmHg):	774.1	774.1	774.2	774.2	774.2	774.3				
Pressure (kPa):	13.484	16.473	19.450	22.441	23.690	26.166				
Conductivity (µS/cm):	545.9	552.6	555.2	555.6	549.6	554.9				
RDO (ppm): (mg/L)	0.76	0.76	0.74	0.66	0.50	0.52				
Turbidity (NTU):	13.4	11.0	12.3	15.3	20.2	948.8				
ORP	79	80	80	50	1	-244				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____5 ft___**			**Depth BWS (ft):__7ft__**			**Depth BWS (ft):___8___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)	170			166				194		
Total iron--UF (mg/L)	1.20	1.24	1.22	1.79	1.79	1.89	25.4*	25.3*	25.5*	
Filtered Iron--F tot Fe (mg/L)	0.20	0.18	0.22	1.41	1.45	1.44	16.8*	16.9*	16.6*	

Remarks: LOG 2007-03-17 12428 *1:10 Dilution Corrected

Field-Form Filled Out By: CMC Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 2

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: DAR Time:

Water Depth (ft): 6.91 Ice Thickness (ft): 4.40

Freeboard (ft): 0.28 Snow Depth (ft): 0.35

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: CMC Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33035	PASS	PASS

Parameters	**Field Measurements**									
Time:	15:10	15:13	15:16	15:18						
Depth BWS (ft):	5	6	6.5	BOT						
Temp (°C):	0.06	0.06	0.11	0.22						
pH:	6.88	6.88	6.87	6.87						
Barometeric (mmHg):	774.1	774.2	774.2	774.2						
Pressure (kPa):	13.492	16.513	18.093	19.901						
Conductivity (µS/cm):	569.3	569.9	572.2	572.5						
RDO (ppm): (mg/L)	1.40	1.24	1.16	1.14						
Turbidity (NTU):	7.7	7.5	7.4	11.4						
ORP	49	48	49	48						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-03-17 150944

Field-Form Filled Out By: CMC Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 3

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 14:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.022' Easting: W151°20.037' Datum: NAD83

Measurements By: DAR Time: 14:30

Water Depth (ft): 7.88 Ice Thickness (ft):

Freeboard (ft): 0.42 Snow Depth (ft): 0.20

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33035	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:39	14:45	14:48	14:50						
Depth BWS (ft):	5	6	7	BOT						
Temp (°C):	0.11	0.17	0.21	0.46						
pH:	6.88	6.88	6.88	7.83						
Barometeric (mmHg):	774.3	774.3	774.3	774.3						
Pressure (kPa):	13.566	16.310	19.539	22.115						
Conductivity (µS/cm):	564.0	565.2	572.4	576.3						
RDO (ppm): (mg/L)	1.07	0.93	0.92	0.85						
Turbidity (NTU):	8.4	7.6	7.7	90.4						
ORP	54	53	52	-221						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: LOG 2007-03-17 142950

Field-Form Filled Out By: DAR Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 4

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 13:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70°13.998' Easting: W151°19.997' Datum: NAD83

Measurements By: DAR Time: 13:55

Water Depth (ft): 5.80 Ice Thickness (ft): 3.70

Freeboard (ft): 0.10 Snow Depth (ft): 1.75

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33035	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:02	14:11	14:17	14:19						
Depth BWS (ft):	4	5	5.5	BOT						
Temp (°C):	0.04	0.15	0.22	0.26						
pH:	6.88	6.87	6.87	7.13						
Barometeric (mmHg):	774.2	774.3	774.3	774.3						
Pressure (kPa):	10.219	13.004	14.927	16.445						
Conductivity (µS/cm):	557.5	557.7	558.2	559.4						
RDO (ppm): (mg/L)	0.42	0.25	0.24	0.24						
Turbidity (NTU):	11.6	11.4	12.0	43.2						
ORP	57	52	46	-29						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: Next to Survey Hole

LOG 2007-03-17 135408

Field-Form Filled Out By: CMC Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 22

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 15:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.074' Easting: W151°20.017 Datum: NAD83

Measurements By: DAR Time: 15:30

Water Depth (ft): 9.20 Ice Thickness (ft): 4.65

Freeboard (ft): 0.25 Snow Depth (ft): 0.25

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	15:39	15:41	15:43	15:45	15:48	15:53				
Depth BWS (ft):	5	6	7	8	9	BOT				
Temp (°C):	0.12	0.09	0.17	0.34	0.80	1.06				
pH:	6.88	6.87	6.86	6.86	7.36	7.59				
Barometeric (mmHg):	774.2	774.2	774.2	774.3	774.3	774.3				
Pressure (kPa):	13.344	16.380	19.382	22.409	25.563	26.766				
Conductivity (µS/cm):	556.6	561.2	573.0	579.1	595.1	621.4				
RDO (ppm): (mg/L)	1.36	1.11	1.13	1.06	0.58	0.41				
Turbidity (NTU):	8.1	7.6	5.7	6.7	19.1	22.8				
ORP	48	48	48	46	-86	-203				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: L9817-22 is located 1/3 of the straight line distance from L9817-20 to L9817-1.

March 2007 is the first time that we have sampled at this location.

Field-Form Filled Out By: DAR Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 23

Sample Purpose: **Lake Water Quality** Date: 3/17/07 Time 16:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.071' Easting: W151°20.067 Datum: NAD83

Measurements By: DAR Time: 16:00

Water Depth (ft): 8.60 Ice Thickness (ft): 4.75

Freeboard (ft): 0.33 Snow Depth (ft): 0.20

Elev. (BPMSL): 53.06 Survey By: MRL,CMC Date: 3/17/07 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	16:05	16:13	16:15	16:18	16:20					
Depth BWS (ft):	5	6	7	8	Bot					
Temp (°C):	0.14	0.06	0.22	0.65	0.95					
pH:	6.90	6.87	6.87	6.87	6.97					
Barometeric (mmHg):	774.2	774.1	774.2	774.2	774.2					
Pressure (kPa):	13.640	16.390	19.263	22.367	25.048					
Conductivity (µS/cm):	567.1	565.7	567.7	568.5	568.3					
RDO (ppm): (mg/L)	1.04	0.95	0.97	0.96	0.67					
Turbidity (NTU):	9.1	9.4	10.0	12.9	50.8					
ORP	36	36	34	26	-18					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: L9817-23 is located 2/3 of the straight line distance from L9817-20 to L9817-1. Log 2007-03-17 160306 March 2007 is the first time that we have sampled at this location.

Field-Form Filled Out By: DAR Date: 3/17/07

QAQC Check By: DAR Date: 4/11/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 4/17/07 Time: 11:09

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.090 Easting: W151 19.931 Datum: NAD 27

Measurements By: GMM Time: 11:14

Water Depth (ft): 8.45 Ice Thickness (ft): 5.40

Freeboard (ft): 0.3 Snow Depth (ft): 0.40

Elev. (BPMSL +/- .02): 53.04 Survey By: ML, DR Date: 4/17/07 Time: 14:25

Water Sampling By: GMM/JED Sample Depths BWS (ft): 1 5 Date: 4/16/07 Time: 12:10

2 6.5

3 8

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:42	11:46	11:50	11:55	11:58					
Depth BWS (ft):	5	6	7	8	Bot					
Temp (°C):	0.06	0.08	0.28	0.68	0.90					
pH:										
Barometeric (mmHg):	758.4	758.5	758.4	758.5	758.4					
Pressure (kPa):	13.366	16.286	19.363	22.433	24.508					
Conductivity (µS/cm):	702.50	701.80	692.10	704.30	728.10					
RDO (ppm): (mg/L)	0.28	0.24	0.18	0.16	0.15					
Turbidity (NTU):	12.5	12.2	10.8	11.7	15.1					
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____5___**			**Depth BWS (ft):__6.5____**			**Depth BWS (ft):___8___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	206	204	202	201	210	214	240	236	234	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	1.21	1.25	1.24	1.09	1.08	1.06	13.2*	13.3*	13.4*	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.11	0.12	0.15	0.1	0.1	0.1	9.90*	9.90*	9.20*	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: 5' Reading redone: insturment wire disconnected and stopped collecting data. pH and OPR not calibrated or used

* results obtained with 10:1 dilution

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 4/17/07 Time: 11:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.071 Easting: W151 19.868 Datum: NAD 27

Measurements By: GMM Time: 12:00

Water Depth (ft): 7.04 Ice Thickness (ft): 5.20

Freeboard (ft): 0.39 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): 53.04 Survey By: ML, DR Date: 4/17/07 Time: 14:25

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	In-Situ Trolle 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:00	12:02	12:04	12:06						
Depth BWS (ft):	5	6	7	Bot						
Temp (°C):	-0.34	-0.34	-0.22	-0.11						
pH:	6.82	6.82	6.79	6.80						
Barometeric (mmHg):	757.4	757.4	757.4	757.4						
Pressure (kPa):	13.537	16.385	19.365	20.424						
Conductivity (µS/cm):	725.3	722.3	723.3	724.6						
RDO (ppm): (mg/L)	0.82	0.68	0.52	0.43						
Turbidity (NTU):	7.5	7.2	7.4	21.5						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: K. Holland Date: 5/4/07

QAQC Check By: A. Blackburn Date: 5/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID:	**North Slope Lakes**		Site Location/Lake ID:	L9817-3	
Sample Purpose:	**Lake Water Quality**		Date: 4/17/07	Time:	12:55

FIELD MEASUREMENTS

GPS Coord. Northing:	N70 14.043	Easting:	W151 19.840	Datum:	NAD 27	
Measurements By:	GMM	Time:	13:00			
Water Depth (ft):	8.02	Ice Thickness (ft):	5.20			
Freeboard (ft):	0.45	Snow Depth (ft):	0.40			
Elev. (BPMSL +/- .02):	53.04	Survey By:	ML, DR	Date:	4/17/07	Time: 14:25
Water Sampling By:	n/a	Sample Depths BWS (ft): 1	n/a	Date:	n/a	Time: n/a
		2	n/a			
		3	n/a			

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	In-Situ Trolle 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:02	13:03	13:05	13:07	13:09	13:11				
Depth BWS (ft):	4	5	6	7	8	Bot				
Temp (°C):	-0.30	-0.30	-0.24	0.02	0.33	0.42				
pH:	6.96	6.94	6.91	6.92	6.84	6.86				
Barometeric (mmHg):	757.0	757.0	757.1	757.2	757.2	757.2				
Pressure (kPa):	10.489	13.423	16.298	19.757	22.599	23.375				
Conductivity (µS/cm):	721.3	720.2	714.4	714.5	734.4	738.4				
RDO (ppm): (mg/L)	0.33	0.36	0.34	0.22	0.14	0.13				
Turbidity (NTU):	13.0	13.2	12.8	12.2	20.0	36.5				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: K. Holland Date: 5/4/07

QAQC Check By: A. Blackburn Date: 5/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 4/17/07 Time: 13:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.018 Easting: W151 19.807 Datum: NAD 27

Measurements By: GMM Time: 13:45

Water Depth (ft): 5.82 Ice Thickness (ft): 4.11

Freeboard (ft): 0.05 Snow Depth (ft): 2.20

Elev. (BPMSL +/- .02): 53.04 Survey By: ML, DR Date: 4/17/07 Time: 14:25

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	In-Situ Trolle 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:51	13:52	13:53							
Depth BWS (ft):	4	5	Bot							
Temp (°C):	-0.24	-0.33	-0.32							
pH:	6.92	6.92	6.73							
Barometeric (mmHg):	757.2	757.2	757.2							
Pressure (kPa):	10.513	13.542	16.826							
Conductivity (µS/cm):	711.2	708.4	715.1							
RDO (ppm): (mg/L)	0.49	0.37	0.27							
Turbidity (NTU):	10.9	10.8	124.8							
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: K. Holland Date: 5/4/07

QAQC Check By: A. Blackburn Date: 5/23/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-21

Sample Purpose: **Lake Water Quality** Date: 4/17/07 Time: 14:22

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.083 Easting: W151 20.084 Datum: NAD27

Measurements By: GMM Time: 14:45

Water Depth (ft): 8.9 Ice Thickness (ft): 0.50

Freeboard (ft): 0.3 Snow Depth (ft): 1.10

Elev. (BPMSL +/- .02): 53.04 Survey By: ML, DR Date: 4/17/07 Time: 14:25

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	15:01	15:04	15:07	15:11						
Depth BWS (ft):	6	7	8	Bot						
Temp (°C):	0.19	0.38	0.53	0.66						
pH:										
Barometeric (mmHg):	758.5	758.5	758.4	758.4						
Pressure (kPa):	16.253	19.277	22.340	26.027						
Conductivity (µS/cm):	692.20	695.30	699.30	750.60						
RDO (ppm): (mg/L)	0.38	0.22	0.15	0.11						
Turbidity (NTU):	17.2	16.8	17.6	41.5						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: pH and ORP probe not calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID:	**North Slope Lakes**		Site Location/Lake ID:	L9817-22	
Sample Purpose:	**Lake Water Quality**		Date: 4/17/07	Time:	14:02

FIELD MEASUREMENTS

GPS Coord. Northing:	N70 14.074	Easting:	W151 20.017	Datum:	NAD 83	
Measurements By:	GMM	Time:	14:04			
Water Depth (ft):	9.3	Ice Thickness (ft):	5.65			
Freeboard (ft):	0.35	Snow Depth (ft):	0.90			
Elev. (BPMSL +/- .02):	53.04	Survey By:	ML, DR	Date: 4/17/07	Time:	14:25
Water Sampling By:	n/a	Sample Depths BWS (ft): 1	n/a	Date: n/a	Time:	n/a
		2	n/a			
		3	n/a			

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:26	14:29	14:32	14:34	14:37					
Depth BWS (ft):	6	7	8	9	Bot					
Temp (°C):	0.14	0.27	0.40	0.85	0.89					
pH:										
Barometeric (mmHg):	758.3	758.3	758.7	758.4	758.4					
Pressure (kPa):	16.325	19.383	22.243	25.191	26.871					
Conductivity (µS/cm):	703.40	710.70	720.00	778.50	784.10					
RDO (ppm): (mg/L)	0.23	0.17	0.16	0.14	0.40					
Turbidity (NTU):	15.5	13.2	13.9	15.3	59.3					
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: pH and ORP probe not calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-23

Sample Purpose: **Lake Water Quality** Date: 4/14/07 Time: 12:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.071 Easting: W151 20.067 Datum: NAD 83

Measurements By: GMM Time: 12:59

Water Depth (ft): 8.7 Ice Thickness (ft): 5.70

Freeboard (ft): 0.4 Snow Depth (ft): 0.40

Elev. (BPMSL +/- .02): 53.04 Survey By: ML, DR Date: 4/17/07 Time: 14:25

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:23	13:33	13:39	13:44						
Depth BWS (ft):	6	7	8	Bot						
Temp (°C):	0.11	0.31	0.60	0.81						
pH:										
Barometeric (mmHg):	758.1	758.1	758.1	758.1						
Pressure (kPa):	16.200	19.146	22.350	24.937						
Conductivity (µS/cm):	711.80	718.80	733.30	759.30						
RDO (ppm): (mg/L)	0.67	0.23	0.18	0.15						
Turbidity (NTU):	12.5	11.1	10.6	17.0						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: pH and ORP probe not calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 raft "A"

Sample Purpose: **Lake Water Quality** Date: 4/16/07 Time: 13:21

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: NAD83

Measurements By: GMM Time: 13:25

Water Depth (ft): 10.1 Ice Thickness (ft): 4.90

Freeboard (ft): 0.25 Snow Depth (ft): 0.35

Elev. (BPMSL +/- .02): 7.5 Survey By: ML, DR Date: 4/16/07 Time: 15:23

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	Pass

Parameters	**Field Measurements**									
Time:	13:50	14:01	14:21	14:30	14:40	14:51	15:02			
Depth BWS (ft):	5	6	7	8	9	10	Bot			
Temp (°C):	0.16	0.26	0.97	1.34	1.72	1.89	1.92			
pH:										
Barometeric (mmHg):	757.3	757.3	757.6	757.6	757.7	757.8	757.8			
Pressure (kPa):	13.371	16.274	19.382	22.139	25.127	28.153	29.462			
Conductivity (µS/cm):	93.56	94.90	95.27	96.76	97.17	191.40	194.30			
RDO (ppm): (mg/L)	10.04	10.26	9.65	9.39	9.33	7.88	5.70			
Turbidity (NTU):	0.7	0.9	2.8	2.0	1.6	4.5	12.0			
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: pH and ORP probe nor calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 raft "B"

Sample Purpose: **Lake Water Quality** Date: 4/16/07 Time: 11:23

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: DAR/GMM Time: 11:23

Water Depth (ft): 11.22 Ice Thickness (ft): 5.50

Freeboard (ft): 0.36 Snow Depth (ft): 0.20

Elev. (BPMSL +/- .02): 7.5 Survey By: ML, DR Date: 4/16/07 Time: 15:23

Water Sampling By: GMM/JED Sample Depths BWS (ft): 1 6 Date: 4/16/07 Time: 12:35

2 9

3 11

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:32	11:40	11:45	11:59	12:07	12:14	12:19			
Depth BWS (ft):	6	7	8	9	10	11	Bot			
Temp (°C):	0.42	1.08	1.52	1.67	1.77	1.88	1.96			
pH:										
Barometeric (mmHg):	756.5	756.7	756.8	757.0	757.0	757.1	757.1			
Pressure (kPa):	16.566	19.573	22.408	25.156	28.170	31.452	32.879			
Conductivity (µS/cm):	92.32	93.32	94.61	96.35	107.30	114.30	130.70			
RDO (ppm): (mg/L)	10.46	10.83	10.63	10.38	8.13	7.13	4.45			
Turbidity (NTU):	0.7	0.8	1.0	1.8	1.8	3.3	39.6			
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____6___**			**Depth BWS (ft):___9___**			**Depth BWS (ft):__11____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)	52	54	49	58	55	56	87	89	87	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.14	0.14	0.15	0.32	0.32	0.3	200+	210+	230+	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.04	0.04	0.05	0.15	0.15	0.16	27.6*	27.7*	27.5*	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: * results obtained with 10:1 dilution

(+) results obtained with 100:1 dilution

pH and ORP probe not calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-Mid

Sample Purpose: **Lake Water Quality** Date: 4/16/07 Time: 15:19

FIELD MEASUREMENTS

GPS Coord. Northing: N70o20.024' Easting: W150o56.753' Datum: NAD83

Measurements By: GMM Time: 15:22

Water Depth (ft): 10.95 Ice Thickness (ft): 5.65

Freeboard (ft): 0.4 Snow Depth (ft): 0.75

Elev. (BPMSL +/- .02): 7.5 Survey By: ML, DR Date: 4/16/07 Time: 15:23

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

3 n/a

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	In-Situ Trolle 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	16:02	16:21	16:35	16:50	17:01	17:19				
Depth BWS (ft):	6	7	8	9	10	Bot				
Temp (°C):	0.26	0.97	1.49	1.72	1.86	1.93				
pH:										
Barometeric (mmHg):	758.1	758.2	758.3	758.4	758.5	758.6				
Pressure (kPa):	16.258	19.164	22.278	25.240	28.135	32.027				
Conductivity (µS/cm):	92.63	92.79	93.80	94.87	99.91	118.00				
RDO (ppm): (mg/L)	11.59	11.00	10.92	10.22	9.58	4.31				
Turbidity (NTU):	1.0	3.7	3.1	2.6	7.6	12.2				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: pH and ORP probe not calibrated nor recorded

Field-Form Filled Out By: A. Blackburn Date: 4/23/07

QAQC Check By: K. Holland Date: 5/1/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft A

Sample Purpose: **Lake Water Quality** Date: 5/13/07 Time: 11:55

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.053' Easting: W150°56.600' Datum: NAD83

Measurements By: GMM/DAR Time: 12:45

Water Depth (ft): 10.08 Ice Thickness (ft): 4.98

Freeboard (ft): 0.20 Snow Depth (ft): 0.70

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: GMM/DAR Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	12:55	13:03	13:16	13:20	13:25	13:34	13:37			
Depth BWS (ft):	5	6	7	8	9	10	Bot			
Temp (°C):	0.07	0.21	1.15	1.73	2.20	2.34	2.34			
pH:	6.70	6.68	6.61	6.61	6.61	6.60	6.65			
Barometeric (mmHg):	769.2	769.4	769.5	769.5	769.6	769.7	769.7			
Pressure (kPa):	13.682	16.502	20.891	22.694	25.500	28.720	29.014			
Conductivity (µS/cm):	101.5	102.6	107.8	108.8	107.7	115.4	117.5			
RDO (ppm):	9.98	10.15	6.92	6.79	6.80	5.07	4.81			
Turbidity (NTU):	0.5	0.8	11.6	1.5	1.7	18.0	18.4			
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks: LOG 2007-05-13 115548

Switched in-situ ENTS because GWS fiiled with water and readings incorrectly.

Field-Form Filled Out By: A. Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312-BAKER

Sample Purpose: **Lake Water Quality** Date: 5/14/07 Time: 10:10

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.8683 Easting: W150°56.3499 Datum: NAD83

Measurements By: GMM/DAR Time: 10:20

Water Depth (ft): 11.4 Ice Thickness (ft): 5.75

Freeboard (ft): 4.2 Snow Depth (ft): 0.3

Elev. (BPMSL): na Survey By: na Date: na Time: na

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	10:37	10:40	10:46	10:51	11:01	11:13	11:23			
Depth BWS (ft):	6	7	8	9	10	11	Bot			
Temp (°C):	0.37	0.93	1.83	2.41	2.81	3.13	3.16			
pH:	6.57	6.51	6.49	6.47	6.48	6.38	6.50			
Barometeric (mmHg):	773.5	773.5	773.6	773.7	773.8	773.8	773.8			
Pressure (kPa):	16.774	19.467	22.199	25.714	28.235	31.840	33.751			
Conductivity (µS/cm):	94.61	95.69	97.46	99.85	103.5	109.1	111.2			
RDO (ppm):	16.19	16.16	15.66	15.40	14.97	5.39	4.44			
Turbidity (NTU):	1.0	0.6	0.4	0.6	0.9	2.3	282.0			
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks:

Field-Form Filled Out By: A. Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 5/13/07 Time 10:18

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: GMM/DAR Time: 10:20

Water Depth (ft): 11.1 Ice Thickness (ft): 5.55

Freeboard (ft): 0.32 Snow Depth (ft): 0.60

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: GMM/DAR Sample Depths BWS (ft): 1 6 Date: 5/13/07 Time: nr

2 9

WATER QUALITY METER INFORMATION 3 10.5

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:35	10:41	10:50	10:54	11:01	11:06				
Depth BWS (ft):	6	7	8	9	10	Bot				
Temp (°C):	0.08	0.99	1.07	2.06	2.34	2.40				
pH:	7.00	6.95	6.92	6.74	6.64	6.72				
Barometeric (mmHg):	767.7	767.8	767.2	767.9	768.0	768.1				
Pressure (kPa):	17.380	20.177	19.713	25.554	28.330	32.681				
Conductivity (µS/cm):	76.05	77.15	77.41	83.31	87.23	91.17				
RDO (ppm): (mg/L)	12.63	12.85	12.67	11.94	8.07	6.31				
Turbidity (NTU):	0.7	1.0	1.9	3.1	1.9	190.5				
ORP	641	630	628	624	626	629				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____6 ___**			**Depth BWS (ft):__9__**			**Depth BWS (ft):___10.5___**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)	53	60	51	63	66	57	63	64	62	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.05	0.06	0.06	0.21	0.19	0.21	1.30	1.34	1.31	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.02	0.03	0.03	0.23	0.24	0.24	4.00*	4.00*	4.00*	Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks: Log 2007-05-13 102309

* Results obtained by running 1:10 dilution

Field-Form Filled Out By: A.Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 AB Midpoint

Sample Purpose: **Lake Water Quality** Date: 5/13/07 Time: 13:48

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.024' Easting: W150°56.753' Datum: NAD83

Measurements By: GMM Time: 13:50

Water Depth (ft): 11.02 Ice Thickness (ft): 5.45

Freeboard (ft): 0.4 Snow Depth (ft): nr

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	14:02	14:11	14:19	14:25	14:36	14:43				
Depth BWS (ft):	6	7	8	9	10	Bot				
Temp (°C):	0.32	1.47	1.91	2.27	2.32	2.32				
pH:	6.80	6.76	6.73	6.71	6.65	6.68				
Barometeric (mmHg):	769.6	769.8	769.8	769.8	769.9	770.0				
Pressure (kPa):	16.284	19.920	22.407	25.240	28.656	31.785				
Conductivity (µS/cm):	93.34	96.25	98.41	101.6	113.3	121.8				
RDO (ppm):	12.04	11.66	10.12	8.65	4.98	2.51				
Turbidity (NTU):	1.3	1.4	0.9	1.2	2.6	10.7				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks: Log 2007-05-13 115548

Field-Form Filled Out By: A Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 5/13/07 Time: 15:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: GMM Time: 15:01

Water Depth (ft): 11.18 Ice Thickness (ft): 5.6

Freeboard (ft): 0.45 Snow Depth (ft): 0.7

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	15:07	15:13	15:28	15:41	15:50	15:54				
Depth BWS (ft):	6	7	9	10	11	Bot				
Temp (°C):	0.39	1.46	2.38	2.47	2.51	2.51				
pH:	6.85	6.86	6.74	6.51	6.62	6.77				
Barometeric (mmHg):	770.0	770.0	770.1	770.2	770.3	770.4				
Pressure (kPa):	16.365	19.424	25.481	28.287	31.407	32.848				
Conductivity (µS/cm):	93.11	93.85	103.8	108.9	113.5	129.1				
RDO (ppm):	13.04	13.70	11.99	6.73	2.35	2.01				
Turbidity (NTU):	0.7	0.8	1.0	3.0	5.3	196.7				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks: Log 2007-05-13 150020

Field-Form Filled Out By: A. Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 5/13/07 Time: 16:04

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: GMM/DAR Time: 16:06

Water Depth (ft): 9.55 Ice Thickness (ft): 5.6

Freeboard (ft): 0.35 Snow Depth (ft): 0.5

Elev. (BPMSL): nr Survey By: nr Date: nr Time: nr

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
Multi	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters										
Time:	16:06	16:13	16:22	16:31	16:42	16:46				
Depth BWS (ft):	5	6	7	8	9	Bot				
Temp (°C):	0.13	0.23	0.93	1.50	1.91	1.95				
pH:	6.79	6.77	6.60	6.61	6.64	6.68				
Barometeric (mmHg):	770.1	770.2	770.3	770.3	770.4	770.4				
Pressure (kPa):	13.764	16.240	19.288	22.323	25.660	28.044				
Conductivity (µS/cm):	99.38	98.43	107.7	110.0	112.2	113.3				
RDO (ppm):	11.18	10.97	5.70	4.70	3.18	1.41				
Turbidity (NTU):	0.7	3.1	1.7	3.9	3.6	9.8				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as CaCO3)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH3-N)****										0.01-0.50 mg/L NH3-N

Remarks: Log 2007-05-13 160219

Field-Form Filled Out By: A. Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 5/15/07 Time: 13:35

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.043 Easting: W151 19.840 Datum: NAD 27

Measurements By: GMM Time: 13:42

Water Depth (ft): 7.8 Ice Thickness (ft): 4.75

Freeboard (ft): 0.15 0.4

Elev. (BPMSL +/- .02): 100 Survey By: DAR/CC Date: 5/25/07 Time: 13:30

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:45	13:48	13:50	13:52						
Depth BWS (ft):	5	6	7	BOT						
Temp (°C):	0.06	0.09	0.29	0.57						
pH:	6.65	6.64	6.63	6.65						
Barometeric (mmHg):	769.8	769.8	769.8	769.8						
Pressure (kPa):	13.372	16.333	19.556	22.231						
Conductivity (µS/cm):	755.2	753.5	756.8	766.0						
RDO (ppm): (mg/L)	0.18	0.16	0.13	0.11						
Turbidity (NTU):	9.9	7.1	5.4	31.0						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: log # 2007/05/15 134328

Field-Form Filled Out By: RSamuel Date: 6/6/07

QAQC Check By: K. Holland Date: 7/9/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-4

Sample Purpose: **Lake Water Quality** Date: 5/15/07 Time: 13:59

FIELD MEASUREMENTS

GPS Coord. Northing: N70°13.998' Easting: W151°19.997' Datum: NAD83

Measurements By: GMM Time: 13:59

Water Depth (ft): 5.95 Ice Thickness (ft): 5.2

Freeboard (ft): 0.05 Snow Depth (ft): 1.8

Elev. (BPMSL +/- .02): 100 Survey By: DAR/CC Date: 5/25/07 Time: 13:30

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:08	14:10								
Depth BWS (ft):	5.5	BOT								
Temp (°C):	0.00	0.00								
pH:	6.68	6.88								
Barometeric (mmHg):	769.7	769.7								
Pressure (kPa):	14.851	16.922								
Conductivity (µS/cm):	750.1	757.3								
RDO (ppm): (mg/L)	0.18	0.12								
Turbidity (NTU):	1.7	63.5								
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: log #2007-05-15 1403xx

Field-Form Filled Out By: Rsamuel Date: 7/1/07

QAQC Check By: K. Holland Date: 7/9/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 5/15/07 Time: 14:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: DAR/GMM Time: 14:25

Water Depth (ft): 8.4 Ice Thickness (ft): 4.65

Freeboard (ft): 0.1 Snow Depth (ft): 1.30

Elev. (BPMSL +/- .02): 100 Survey By: DAR/CC Date: 5/25/07 Time: 13:30

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:32	14:36	14:38	14:40	14:42					
Depth BWS (ft):	5	6	7	8	BOT					
Temp (°C):	0.04	0.09	0.34	0.60	0.70					
pH:	6.72	6.73	6.73	6.79	7.09					
Barometeric (mmHg):	769.7	769.7	769.7	769.8	769.7					
Pressure (kPa):	13.602	16.390	19.510	22.591	23.670					
Conductivity (µS/cm):	745.1	745.4	752.3	758.1	765.0					
RDO (ppm): (mg/L)	0.19	0.13	0.12	0.11	0.09					
Turbidity (NTU):	2.7	3.2	3.8	4.5	74.1					
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log # 2007-05-15 1413128

Field-Form Filled Out By: Rsamuel Date: 7/5/07

QAQC Check By: K. Holland Date: 7/9/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 5/15/07 Time 12:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: GMM Time: 12:01

Water Depth (ft): 8.53 Ice Thickness (ft): 5.15

Freeboard (ft): 0.25 Snow Depth (ft): 0.2

Elev. (BPMSL): 100 Survey By: DAR/CC Date: 5/25/07 Time: 13:30

Water Sampling By: DAR Sample Depths BWS (ft): 1 6 Date: 5/15/07 Time: nr

2 7

WATER QUALITY METER INFORMATION 3 8

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:13	12:17	12:20	12:27						
Depth BWS (ft):	6	7	8	Bot						
Temp (°C):	0.16	0.45	0.68	0.93						
pH:	6.69	6.69	6.70	6.88						
Barometeric (mmHg):	769.9	770.0	770.0	770.1						
Pressure (kPa):	16.340	19.398	22.362	23.923						
Conductivity (µS/cm):	748.1	757.3	769.2	775.5						
RDO (ppm): (mg/L)	0.17	0.17	0.18	0.21						
Turbidity (NTU):	4.0	3.3	3.9	10.1						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____6 ft__**			**Depth BWS (ft):__7ft__**			**Depth BWS (ft):___8___**			**Method**
Alkalinity (mg/L as $CaCO_3$)	235	229	229	236	240	250	252	249	255	Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)	0.45	0.45	0.46	0.71	0.71	0.70	29.9	30.1	30.2	Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)	0.08	0.06	0.05	0.28	0.26	0.24	31.2	31.6	32.1	Hach spec 0.02-3.00 mg/L

Remarks: 2007-05-15 121206

Field-Form Filled Out By: A.Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 2

Sample Purpose: **Lake Water Quality** Date: 5/15/07 Time 13:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: GMM Time: 13:07

Water Depth (ft): 7.20 Ice Thickness (ft): 5.25

Freeboard (ft): 0.25 Snow Depth (ft): 0.95

Elev. (BPMSL): 100 Survey By: DAR/CC Date: 5/25/07 Time: 13:30

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2 na

WATER QUALITY METER INFORMATION 3 na

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	InSitu Troll 9000	33205	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:17	13:20	13:22	13:25						
Depth BWS (ft):	5.5	6	7	Bot						
Temp (°C):	0.06	0.06	0.25	0.37						
pH:	6.59	6.59	6.59	6.59						
Barometeric (mmHg):	769.8	769.8	769.8	769.8						
Pressure (kPa):	14.836	16.573	19.326	20.688						
Conductivity (µS/cm):	755.1	754.1	758.3	761.1						
RDO (ppm): (mg/L)	0.36	0.26	0.22	0.17						
Turbidity (NTU):	3.4	4.2	4.9	37.4						
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Depth BWS (ft):____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L

Remarks: LOG 2007-05-15 131329

Field-Form Filled Out By: A. Blackburn Date: 6/1/07

QAQC Check By: K. Holland Date: 6/5/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 9/22/07 Time nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: DAR Time: nr

Water Depth (ft): nr Ice Thickness (ft): 0.00

Freeboard (ft): na Snow Depth (ft): 0.00

Elev. (BPMSL): 7.63 Survey By: DAR Date: 9/21/07 Time: 7:30

Water Sampling By: na Sample Depths BWS (ft): 1 na Date: na Time: na

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	UAF	IN-SITU TROLL 9000	33205	PASS	Pass

Parameters	**Field Measurements**									
Time:	10:29	10:30	10:31	10:31	10:32					
Depth BWS (ft):	1	3	5	7	9					
Temp (°C):	3.03	3.05	3.04	3.04	3.02					
pH:	7.30	7.32	7.34	7.35	7.36					
Barometeric (mmHg):	762.8	762.7	762.8	762.8	762.8					
Pressure (kPa):	0.760	1.168	1.853	2.696	2.073					
Conductivity (µS/cm):	45.76	45.74	45.73	45.73	75.73					
RDO (ppm): (mg/L)	12.60	12.60	12.63	12.62	12.62					
Turbidity (NTU):	0.9	1.5	0.9	0.9	0.7					
ORP	245	245	244	244	243					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):____**			**Depth BWS (ft):_____**			**Method**
Alkalinity (mg/L as $CaCO_3$)										
Total iron--UF (mg/L)										
Filtered Iron--F tot Fe (mg/L)										

Remarks: Sampling done from boat. Lake is ice free. 32 degree F. Wind is 20 mph from the East.

Field-Form Filled Out By: A. Blackburn Date: 10/8/07

QAQC Check By: J. Derry Date: 10/25/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 11/13/07 Time: 12:49

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: Whitman Time: n/a

Water Depth (ft): 10.96 Ice Thickness (ft): 1.26

Freeboard (ft): 0.05 Snow Depth (ft): 0.10

Elev. (BPMSL +/- .02): 7.32 Survey By: JED Date: 11/13/07 Time: 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	not completed	PASS

Parameters	**Field Measurements**									
Time:	12:52	12:55	12:56	12:59	13:01	13:04	13:07	13:11		
Depth BWS (ft):	2	3	4	5	7	9	10	BOT		
Temp (°C):	1.25	0.79	0.92	1.29	1.60	2.25	2.54	2.75		
pH:	7.58	7.84	7.90	7.92	7.92	7.75	7.56	7.37		
Barometeric (mmHg):	751.1	751.1	751.2	751.1	751.2	751.2	751.2	751.3		
Pressure (kPa):	7.557	8.660	11.708	14.645	20.637	26.642	29.573	32.117		
Conductivity (µS/cm):	50.59	49.64	49.36	48.81	48.49	48.46	51.84	58.44		
RDO (ppm): (mg/L)	14.03	14.60	14.77	14.98	15.16	14.29	12.15	9.06		
Turbidity (NTU):	0.3	0.2	0.2	0.2	0.2	0.3	0.8	16.3		
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: rejected ORP data due to unbelievable results (-400 mV)

Field-Form Filled Out By: DAR Date: 11/13/07

QAQC Check By: JED Date: 11/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 11/13/07 Time: 13:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: Whitman Time: n/a

Water Depth (ft): 11.34 Ice Thickness (ft): 1.28

Freeboard (ft): 0.03 Snow Depth (ft): 0.10

Elev. (BPMSL +/- .02): 7.32 Survey By: JED Date: 11/13/07 Time: 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: 11/13/07 Time: 0:00

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	not completed	PASS

Parameters	**Field Measurements**									
Time:	13:58	14:01	14:04	14:05	14:09	14:12	14:16	14:18		
Depth BWS (ft):	2	3	5	7	9	10	11	BOT		
Temp (°C):	0.47	0.57	1.14	1.64	2.19	2.69	2.90	2.93		
pH:	7.03	7.34	7.46	7.49	7.28	7.06	6.99	7.09		
Barometeric (mmHg):	751.4	751.5	751.6	751.6	751.7	751.8	751.9	751.9		
Pressure (kPa):	5.730	8.508	14.679	21.023	26.622	29.600	32.413	33.392		
Conductivity (µS/cm):	49.90	49.54	48.92	48.77	49.37	53.46	71.87	78.21		
RDO (ppm): (mg/L)	15.17	15.52	15.63	14.68	13.27	10.21	5.42	4.29		
Turbidity (NTU):	2.0	0.1	0.1	0.2	0.6	1.0	12.7	45.2		
ORP	263	249	240	229	235	237	227	212		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: DAR Date: 11/13/07

QAQC Check By: JED Date: 11/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 11/13/07 Time: 14:49

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: Whitman Time: n/a

Water Depth (ft): 9.07 Ice Thickness (ft): 1.29

Freeboard (ft): 0.09 Snow Depth (ft): 0.10

Elev. (BPMSL +/- .02): 7.32 Survey By: JED Date: 11/13/07 Time: 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	not completed	PASS

Parameters	**Field Measurements**									
Time:	14:49	14:57	15:02	15:06	15:14	15:19				
Depth BWS (ft):	2	3	5	7	8	BOT				
Temp (°C):	0.21	0.84	1.33	1.78	2.01	2.22				
pH:	7.71	7.80	7.77	7.54	7.32	7.23				
Barometeric (mmHg):	751.9	751.8	751.9	752.0	752.1	752.1				
Pressure (kPa):	5.640	8.598	14.659	20.547	23.677	26.091				
Conductivity (µS/cm):	45.95	49.50	49.68	49.64	50.15	51.29				
RDO (ppm): (mg/L)	14.50	14.63	14.36	12.80	10.18	8.24				
Turbidity (NTU):	0.3	0.1	0.1	0.6	0.6	10.7				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: rejected ORP data due to unbelievable results (-400 mV)

Field-Form Filled Out By: DAR Date: 11/13/07

QAQC Check By: JED Date: 11/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH_SHORE_MID

Sample Purpose: **Lake Water Quality** Date: 11/13/07 Time: 15:36

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.101' Datum: NAD83

Measurements By: Whitman Time: n/a

Water Depth (ft): 7.94 Ice Thickness (ft): 1.30

Freeboard (ft): 0.1 Snow Depth (ft): 0.10

Elev. (BPMSL +/- .02): 7.32 Survey By: JED Date: 11/13/07 Time: 14:00

Water Sampling By: DAR Sample Depths BWS (ft): 1 Date: 11/13/07 Time: 15:36

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	not completed	PASS

Parameters	**Field Measurements**									
Time:	15:36	15:39	15:41	15:45	15:48	15:52				
Depth BWS (ft):	2	3	5	6	7	BOT				
Temp (°C):	0.32	0.54	1.10	1.50	1.71	1.77				
pH:	7.74	7.71	7.69	7.63	7.57	7.50				
Barometeric (mmHg):	751.7	751.8	751.8	751.9	752.0	752.0				
Pressure (kPa):	5.716	8.695	14.638	17.610	20.602	22.822				
Conductivity (µS/cm):	43.69	50.38	49.88	49.81	50.06	50.67				
RDO (ppm): (mg/L)	14.17	14.36	14.46	14.37	13.86	13.21				
Turbidity (NTU):	0.3	0.3	0.3	0.4	1.2	37.8				
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: rejected ORP data due to unbelievable results (-400 mV)

Field-Form Filled Out By: DAR Date: 11/13/07

QAQC Check By: JED Date: 11/13/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 12/17/07 Time: 10:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: Whitman Time: 10:30

Water Depth (ft): 11.03 Ice Thickness (ft): 1.83

Freeboard (ft): 0.04 Snow Depth (ft): 0.27

Elev. (BPMSL +/- .02): 7.32 Survey By: DAR/MRL Date: 12/17/07 Time: 12:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:38	10:43	10:54	11:07	11:18	11:29	11:36	11:47		
Depth BWS (ft):	2	3	4	5	7	9	10	BOT		
Temp (°C):	0.18	0.52	0.86	1.26	1.91	2.44	2.63	2.75		
pH:	7.39	7.37	7.37	7.35	7.28	6.90	6.76	7.12		
Barometeric (mmHg):	763.2	763.3	763.3	763.4	763.4	763.5	763.6	763.7		
Pressure (kPa):	5.814	8.807	11.729	14.903	20.694	26.414	29.565	32.892		
Conductivity (µS/cm):	54.92	54.61	54.43	54.44	53.90	54.83	59.68	86.91		
RDO (ppm): (mg/L)	15.40	15.56	15.31	15.23	14.80	8.94	4.67	0.45		
Turbidity (NTU):	0.3	0.3	0.4	0.5	0.3	1.1	3.4	77.3		
ORP	290	287	285	283	283	272	245	126		

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: _____

Field-Form Filled Out By: DAR Date: 12/18/07

QAQC Check By: A. Blackburn Date: 12/30/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 12/17/07 Time: 12:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: Whitman Time: 12:15

Water Depth (ft): 11.34 Ice Thickness (ft): 2.03

Freeboard (ft): 0 Snow Depth (ft): 0.32

Elev. (BPMSL +/- .02): 7.32 Survey By: DAR/MRL Date: 12/17/07 Time: 12:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:27	12:31	12:34	12:39	12:43	12:55	12:59	13:04	13:10	
Depth BWS (ft):	2	3	4	5	7	9	10	11	BOT	
Temp (°C):	0.21	0.45	0.81	1.19	1.69	2.33	2.63	2.76	2.86	
pH:	7.18	7.19	7.20	7.15	7.07	6.83	6.72	6.86	7.58	
Barometeric (mmHg):	763.5	763.5	763.5	763.5	763.5	763.6	763.7	763.8	763.9	
Pressure (kPa):	5.827	8.712	11.829	14.826	20.806	26.587	29.541	32.260	33.655	
Conductivity (µS/cm):	55.71	55.39	54.97	54.64	54.57	54.90	59.86	79.67	117.40	
RDO (ppm): (mg/L)	14.98	15.01	14.89	14.32	13.24	6.14	3.78	1.71	0.28	
Turbidity (NTU):	0.5	0.4	0.3	0.3	0.5	7.4	7.0	34.1	60.1	
ORP	186	186	186	188	190	197	204	184	-63	

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: DAR Date: 12/18/07

QAQC Check By: A. Blackburn Date: 12/31/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 12/17/07 13:40 13:40

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: Whitman Time: 13:40

Water Depth (ft): 9.42 Ice Thickness (ft): 2.04

Freeboard (ft): 0.16 Snow Depth (ft): 0.26

Elev. (BPMSL +/- .02): 7.32 Survey By: DAR/MRL Date: 12/17/07 Time: 12:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:52	13:55	14:00	14:03	14:09	14:14	14:20	n/r		
Depth BWS (ft):	2	3	4	5	7	8	9	Bot		
Temp (°C):	0.19	0.34	0.78	1.09	1.50	2.00	2.11	2.20		
pH:	6.91	6.90	6.87	6.87	6.82	6.74	6.70	6.68		
Barometeric (mmHg):	763.8	763.8	763.8	763.8	763.8	763.8	763.8	763.9		
Pressure (kPa):	5.843	8.771	11.755	14.813	20.709	23.505	26.381	28.158		
Conductivity (µS/cm):	58.09	57.32	56.45	56.53	56.44	56.44	57.45	71.50		
RDO (ppm): (mg/L)	11.19	11.18	10.91	10.90	9.06	7.37	4.49	3.88		
Turbidity (NTU):	0.6	0.7	0.8	0.8	1.7	3.4	10.7	210.0		
ORP	236	234	232	231	231	232	232	223		

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: _____

Field-Form Filled Out By: DAR Date: 12/18/07

QAQC Check By: A.Blackburn Date: 12/31/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH_SHORE_MID

Sample Purpose: **Lake Water Quality** Date: 12/17/07 Time: 14:36

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.101' Datum: NAD83

Measurements By: Reichardt Time: 14:36

Water Depth (ft): 7.33 Ice Thickness (ft): 1.90

Freeboard (ft): 0.05 Snow Depth (ft): 0.40

Elev. (BPMSL +/- .02): 7.32 Survey By: DAR/MRL Date: 12/17/07 Time: 12:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:42	14:45	14:49	14:54	14:57	15:01				
Depth BWS (ft):	2	3	5	6	7	BOT				
Temp (°C):	0.16	0.35	0.90	1.32	1.63	1.65				
pH:	6.89	6.87	6.84	6.79	6.73	6.73				
Barometeric (mmHg):	763.7	763.7	763.8	763.8	763.8	763.8				
Pressure (kPa):	6.159	8.753	14.572	17.560	20.404	21.248				
Conductivity (µS/cm):	58.84	58.22	57.89	57.60	57.37	57.41				
RDO (ppm): (mg/L)	11.68	11.29	10.73	9.17	6.85	6.68				
Turbidity (NTU):	0.6	0.7	0.8	1.4	2.7	3.3				
ORP	254	252	252	252	252	251				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: UAF Rugged Reader Log 2007-12-17 144155.

Field-Form Filled Out By: DAR Date: 12/18/07

QAQC Check By: A.Blackburn Date: 12/31/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: Alpine WTP Raw H_20 tap

Sample Purpose: **Lake Water Quality** Date: 12/17/07 Time: 17:50

FIELD MEASUREMENTS

GPS Coord. Northing: n/a Easting: n/a Datum: n/a

Measurements By: D. Reichardt Time: n/a

Water Depth (ft): n/a Ice Thickness (ft): n/a

Freeboard (ft): n/a Snow Depth (ft): n/a

Elev. (BPMSL +/- .02): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	17:50									
Depth BWS (ft):	n/a									
Temp (°C):	9.65									
pH:	6.81									
Barometeric (mmHg):	762.9									
Pressure (kPa):	0.704									
Conductivity (µS/cm):	69.28									
RDO (ppm): (mg/L)	6.54									
Turbidity (NTU):	1.4									
ORP	448									

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Sample taken from raw water tap at water treatment plant sink.

Field-Form Filled Out By: DAR Date: 12/7/07

QAQC Check By: A. Blackburn Date: 12/31/07

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time: 9:52

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: GMM Time: 9:52

Water Depth (ft): 10.9 Ice Thickness (ft): 3.30

Freeboard (ft): 0.2 Snow Depth (ft): 0.33

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:00	10:02	10:05	10:07	10:10	10:13	10:16	10:21		
Depth BWS (ft):	4	5	6	7	8	9	10	BOT		
Temp (°C):	0.34	0.81	1.19	1.49	1.74	2.11	2.38	2.57		
pH:	7.19	7.18	7.17	7.16	7.13	7.04	6.90	6.83		
Barometeric (mmHg):	765.8	765.7	765.7	765.7	765.8	765.8	765.8	765.9		
Pressure (kPa):	10.338	13.445	16.229	19.289	22.224	25.158	28.268	30.125		
Conductivity (µS/cm):	67.93	62.13	62.10	62.14	62.05	61.12	61.98	73.14		
RDO (ppm): (mg/L)	13.64	13.76	13.79	13.63	13.54	12.60	10.63	7.37		
Turbidity (NTU):	0.6	0.7	0.8	0.8	0.8	0.9	1.6	5.1		
ORP	468	466	465	464	464	466	469	472		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time: 10:36

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: GMM Time: 10:36

Water Depth (ft): 10.95 Ice Thickness (ft): 3.00

Freeboard (ft): 0.15 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:42	10:45	10:48	10:51	10:54	10:57	11:02	11:07		
Depth BWS (ft):	3	4	5	7	8	9	10	BOT		
Temp (°C):	0.15	0.30	0.64	1.31	1.69	1.93	2.39	2.58		
pH:	7.04	7.02	7.02	6.97	6.93	6.85	6.64	6.62		
Barometeric (mmHg):	765.6	765.6	765.6	765.8	765.8	765.8	765.8	765.9		
Pressure (kPa):	7.769	10.383	13.329	19.313	22.265	25.269	28.364	30.511		
Conductivity (µS/cm):	70.31	69.52	64.75	64.04	63.36	62.51	62.11	70.12		
RDO (ppm): (mg/L)	13.67	13.67	13.75	13.79	13.44	12.40	7.62	5.13		
Turbidity (NTU):	0.6	0.7	0.7	0.7	0.7	0.8	3.3	6.6		
ORP	474	474	473	474	474	475	481	481		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time: 11:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: GMM Time: 11:20

Water Depth (ft): 9.2 Ice Thickness (ft): 3.10

Freeboard (ft): 0.15 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:30	11:34	11:39	11:45	11:50	11:56				
Depth BWS (ft):	4	5	6	7	8	9				
Temp (°C):	0.26	0.59	1.14	1.47	1.68	1.93				
pH:	6.86	6.83	6.72	6.63	6.59	6.54				
Barometeric (mmHg):	765.6	765.7	765.7	765.8	765.8	765.9				
Pressure (kPa):	10.464	13.160	16.386	19.522	22.205	25.302				
Conductivity (µS/cm):	69.94	64.90	65.13	69.76	69.70	64.87				
RDO (ppm): (mg/L)	12.04	11.52	10.84	8.61	7.86	7.19				
Turbidity (NTU):	1.1	1.2	1.6	2.2	2.7	3.6				
ORP	468	469	473	475	476	477				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH_SHORE_MID

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time: 12:50

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.101' Datum: NAD83

Measurements By: GMM Time: 12:50

Water Depth (ft): 8.4 Ice Thickness (ft): 3.10

Freeboard (ft): 0.1 Snow Depth (ft):

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:55	12:58	1:01	1:07	1:12					
Depth BWS (ft):	4	5	6	7	8					
Temp (°C):	0.08	0.49	0.88	1.20	1.48					
pH:	6.84	6.78	6.68	6.61	6.58					
Barometeric (mmHg):	765.7	765.6	765.6	765.7	765.6					
Pressure (kPa):	10.400	13.574	16.199	19.593	22.281					
Conductivity (µS/cm):	91.43	71.01	74.19	74.37	75.20					
RDO (ppm): (mg/L)	2.00	3.30	1.30	1.90	2.20					
Turbidity (NTU):	479.0	481.0	481.0	483.0	483.0					
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 #1

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time:

FIELD MEASUREMENTS

GPS Coord. Northing: See Michael Lilly Easting: Datum:

Measurements By: JED Time:

Water Depth (ft): 12.9 Ice Thickness (ft): 3.30

Freeboard (ft): 0.3 Snow Depth (ft): See snow forms

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
		LDO		PASS	PASS

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	4.0	5.0	7.0	9.0	11.0	12.0	12.5	BOT		
Temp (°C):	0.30	1.10	1.50	2.10	3.30	3.20	3.20	3.30		
pH:										
Barometeric (mmHg):										
Pressure (kPa):	764.00	764.00	764.00	764.00	764.00	764.00	764.00	764.00		
Conductivity (µS/cm):										
RDO (ppm): (mg/L)	14.60	13.90	13.80	12.20	1.72	0.24	0.21	0.19		
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 #2

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time:

FIELD MEASUREMENTS

GPS Coord. Northing: See Michael Lilly Easting: Datum:

Measurements By: JED Time:

Water Depth (ft): 10.8 Ice Thickness (ft): 2.70

Freeboard (ft): 0.3 Snow Depth (ft): See snow forms

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
		LDO		PASS	PASS

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	4.0	5.0	7.0	9.0	10.0	10.5	BOT			
Temp (°C):	0.20	0.80	1.50	2.80	3.00	2.90	3.00			
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (ppm): (mg/L)	15.40	15.30	14.80	10.60	4.69	2.18	1.44			
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 #3

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time:

FIELD MEASUREMENTS

GPS Coord. Northing: See Michael Lilly Easting: Datum:

Measurements By: JED Time:

Water Depth (ft): 12.8 Ice Thickness (ft): 2.75

Freeboard (ft): 0.3 Snow Depth (ft): See snow forms

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
		LDO		PASS	PASS

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	3.0	4.0	5.0	7.0	9.0	10.0	11.0	12.0	12.5	BOT
Temp (°C):		0.80	1.20	1.90	2.70	2.90	3.00	3.10	3.20	3.2
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (ppm): (mg/L)	15.60	14.40	14.00	13.50	8.69	3.09	0.64	0.25	0.22	0.21
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 #4

Sample Purpose: **Lake Water Quality** Date: 1/13/08 Time:

FIELD MEASUREMENTS

GPS Coord. Northing: See Michael Lilly Easting: Datum:

Measurements By: JED Time:

Water Depth (ft): 8.5 Ice Thickness (ft): 2.60

Freeboard (ft): 0.3 Snow Depth (ft): See snow forms

Elev. (BPMSL +/- .02): Survey By: Date: Time:

Water Sampling By: Sample Depths BWS (ft): 1 Date: Time:

2

WATER QUALITY METER INFORMATION 3

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
		LDO		PASS	PASS

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):	4.0	5.0	6.0	7.0	8.0	BOT				
Temp (°C):	0.20	0.90	1.20	1.60	2.20	2.30				
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (ppm): (mg/L)	15.30	15.10	15.10	14.50	2.45	1.50				
Turbidity (NTU):										
ORP										

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: Cormack Date: 1/15/08

QAQC Check By: JED Date: 1/15/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 2/15/08 Time: 12:49

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: GMM Time: nr

Water Depth (ft): 10.9 Ice Thickness (ft): 3.65

Freeboard (ft): 0.2 Snow Depth (ft): 0.60

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/Whitman Date: 2/15/08 Time: 13:35

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS - pH Fail

Parameters	**Field Measurements**									
Time:	10:20	10:23	10:26	10:30	10:32	10:35	10:38	10:41		
Depth BWS (ft):	4	5	6	7	8	9	10	10.5		
Temp (°C):	0.34	0.47	0.77	1.15	1.62	1.90	2.12	2.27		
pH:										
Barometeric (mmHg):	747.1	747.0	747.0	747.0	747.1	747.1	747.2	747.3		
Pressure (kPa):	10.137	13.331	16.151	19.089	22.479	25.191	28.532	29.652		
Conductivity (µS/cm):	80.02	79.96	78.79	79.02	79.48	79.58	83.85	90.69		
RDO (ppm): (mg/L)	10.73	11.25	11.90	12.25	12.50	12.51	11.68	9.89		
Turbidity (NTU):	0.5	0.5	0.7	0.8	1.0	1.0	1.5	5.2		
ORP	295	281	280	281	281	282	285	297		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Start Log not recorded. End log time 11:01. Water samples collected by M. Whitman for zooplankton

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: Date:

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 2/15/08 Time: 10:58

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: GMM Time: nr

Water Depth (ft): 11.2 Ice Thickness (ft): 3.80

Freeboard (ft): 0.25 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/Whitman Date: 2/15/08 Time: 13:35

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS - pH Fail

Parameters	**Field Measurements**									
Time:	11:03	11:06	11:09	11:11	11:14	11:17	11:19			
Depth BWS (ft):	4	5	6	7	9	10	11			
Temp (°C):	0.19	0.27	0.65	1.06	1.78	2.12	2.42			
pH:	6.98	6.96	6.86	6.83	6.75	6.64	6.60			
Barometeric (mmHg):	747.4	747.4	747.5	747.6	747.6	747.7	747.7			
Pressure (kPa):	10.164	12.240	16.103	19.203	25.277	28.297	31.176			
Conductivity (µS/cm):	82.16	81.69	80.46	79.08	78.21	78.90	87.64			
RDO (ppm): (mg/L)	11.60	11.77	11.92	11.99	11.78	10.35	8.66			
Turbidity (NTU):	0.2	0.3	1.2	0.3	0.3	1.3	7.4			
ORP	354	355	358	358	361	365	361			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 11:08. Log end 11:20. Samples collected by M. Whitman for zooplankton.

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: Date:

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 2/15/08 Time: 11:38

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: GMM Time: nr

Water Depth (ft): 9.3 Ice Thickness (ft): 3.75

Freeboard (ft): 0.3 Snow Depth (ft): 0.65

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/Whitman Date: 2/15/08 Time: 13:35

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS - pH Fail

Parameters	**Field Measurements**									
Time:	11:45	11:49	11:52	11:56	11:59	12:03				
Depth BWS (ft):	4	5	6	7	8	9				
Temp (°C):	0.16	0.31	0.66	1.06	1.38	1.65				
pH:	7.11	7.08	7.02	6.88	6.83	6.78				
Barometeric (mmHg):	747.7	747.7	747.8	747.8	747.9	748.0				
Pressure (kPa):	10.487	13.296	16.507	19.376	22.462	25.231				
Conductivity (µS/cm):	80.49	80.70	81.70	81.56	81.31	80.99				
RDO (ppm): (mg/L)	10.76	10.66	9.91	9.44	9.08	8.48				
Turbidity (NTU):	0.6	1.0	1.4	1.4	2.1	2.8				
ORP	350	351	352	358	359	361				

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 11:45. Log end 12:04. Actual ice thickness 4.0 ft. Additional 0.25ft from ice road construction and surface flow.

Field-Form Filled Out By: GMM Date: 12/16/08

QAQC Check By: Date:

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH_SHORE_MID

Sample Purpose: **Lake Water Quality** Date: 2/15/08 Time: 12:27

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.101' Datum: NAD83

Measurements By: GMM Time: nr

Water Depth (ft): 7.55 Ice Thickness (ft): 3.75

Freeboard (ft): 0.1 Snow Depth (ft): 0.80

Elev. (BPMSL +/- .02): 11.72 Survey By: MRL/Whitman Date: 2/15/08 Time: 13:35

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS - pH Fail

Parameters	**Field Measurements**									
Time:	12:34	12:36	12:38	12:42	12:45					
Depth BWS (ft):	4	5	6	7	7.5					
Temp (°C):	0.15	0.26	0.66	1.02	1.14					
pH:	7.13	7.10	7.03	6.95	6.92					
Barometeric (mmHg):	748.0	748.0	748.1	748.1	748.1					
Pressure (kPa):	10.252	13.202	16.302	19.160	20.670					
Conductivity (µS/cm):	82.35	81.23	81.92	82.36	82.35					
RDO (ppm): (mg/L)	10.87	10.86	10.07	8.37	7.49					
Turbidity (NTU):	0.7	0.9	1.4	1.9	2.4					
ORP	363	363	365	367	368					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: rejected ORP data due to unbelievable results (-400 mV)

Field-Form Filled Out By: DAR Date: 12/16/08

QAQC Check By: Date:

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 2

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 10:32

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 5.85 Ice Thickness (ft): 4.45

Freeboard (ft): 0.30 Snow Depth (ft): 0.25

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:39	10:44	10:50	10:56						
Depth BWS (ft):	4	4.5	5	5.5						
Temp (°C):	0.07	0.05	0.04	0.03						
pH:	6.89	6.88	6.85	6.79						
Barometeric (mmHg):	758.4	758.4	758.4	758.4						
Pressure (kPa):	10.431	12.189	13.253	15.103						
Conductivity (µS/cm):	696.6	696.6	696.8	697.9						
RDO (ppm): (mg/L)	2.59	2.39	2.36	2.41						
Turbidity (NTU):	6.2	6.0	5.7	5.8						
ORP	310	306	304	304						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 10:38. Log stop 10:32

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 3

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 11:05

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.022' Easting: W151°20.037' Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 7.10 Ice Thickness (ft): 4.05

Freeboard (ft): 0.25 Snow Depth (ft): 0.45

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:13	11:17	11:21	11:24						
Depth BWS (ft):	4	5	6	7						
Temp (°C):	0.07	0.09	0.22	0.48						
pH:	6.74	6.72	6.68	6.54						
Barometeric (mmHg):	758.5	758.5	758.4	758.4						
Pressure (kPa):	10.367	13.263	16.323	19.286						
Conductivity (µS/cm):	695.3	691.7	694.2	711.6						
RDO (ppm): (mg/L)	2.30	2.29	2.20	2.04						
Turbidity (NTU):	7.8	8.5	7.7	10.0						
ORP	316	315	316	319						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 11:16. Log end 11:25

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 4

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 11:35

FIELD MEASUREMENTS

GPS Coord. Northing: N70°13.998' Easting: W151°19.997' Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 4.80 Ice Thickness (ft): 4.60

Freeboard (ft): 0.50 Snow Depth (ft): 0.60

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:41	11:45								
Depth BWS (ft):	4.5	BOT								
Temp (°C):	0.06	0.08								
pH:	6.70	6.68								
Barometeric (mmHg):	758.4	758.5								
Pressure (kPa):	11.695	13.644								
Conductivity (µS/cm):	715.1	717.5								
RDO (ppm): (mg/L)	1.43	1.17								
Turbidity (NTU):	9.7	25.8								
ORP	346	343								

FIELD TESTING OF WATER SAMPLES (if small probe is used)					
Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 11:39. Log stop 11:45

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 20

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 13:32

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 8.40 Ice Thickness (ft): 4.55

Freeboard (ft): 0.50 Snow Depth (ft): 0.45

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	PASS	Pass

Parameters	**Field Measurements**									
Time:	13:45	13:51	13:55	14:00	14:04					
Depth BWS (ft):	5	6	7	8	8.5					
Temp (°C):	0.47	0.46	0.69	1.09	1.30					
pH:	6.75	6.73	6.70	6.67	6.76					
Barometeric (mmHg):	758.4	758.4	758.4	758.4	758.4					
Pressure (kPa):	13.558	16.277	19.286	22.241	23.699					
Conductivity (µS/cm):	658.7	683.0	694.1	710.7	740.5					
RDO (ppm): (mg/L)	0.76	1.67	1.59	0.90	0.54					
Turbidity (NTU):	20.2	12.6	11.8	15.4	19.4					
ORP	338	338	335	312	283					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 13:37. Log end 14:04

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 22

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 13:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.074' Easting: W151°20.017 Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 8.35 Ice Thickness (ft): 4.25

Freeboard (ft): 0.15 Snow Depth (ft): 0.40

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	13:10	13:15	13:18	13:23						
Depth BWS (ft):	5	6	7	8						
Temp (°C):	0.12	0.16	0.25	0.77						
pH:	6.77	6.74	6.71	6.65						
Barometeric (mmHg):	758.7	758.8	758.7	758.8						
Pressure (kPa):	13.142	16.488	19.360	22.458						
Conductivity (µS/cm):	685.6	691.4	709.6	731.2						
RDO (ppm): (mg/L)	2.60	2.47	2.44	1.92						
Turbidity (NTU):	8.0	6.0	4.2	8.9						
ORP	346	347	347	342						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 13:13. Log end 13:24.

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 23

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 11:52

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.071' Easting: W151°20.067 Datum: NAD83

Measurements By: GMM Time: n/a

Water Depth (ft): 7.60 Ice Thickness (ft): 3.60

Freeboard (ft): 0.35 Snow Depth (ft): 0.55

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	12:04	12:09	12:23	12:16	12:20					
Depth BWS (ft):	4	5	6	7	BOT					
Temp (°C):	0.08	0.12	0.30	0.71	1.03					
pH:	6.76	6.73	6.70	6.67	6.64					
Barometeric (mmHg):	758.4	758.3	758.4	758.4	758.4					
Pressure (kPa):	10.300	13.256	16.258	19.133	22.023					
Conductivity (µS/cm):	684.7	679.9	681.1	686.6	705.5					
RDO (ppm): (mg/L)	2.58	2.40	2.39	2.19	1.78					
Turbidity (NTU):	4.9	4.8	4.9	6.3	47.1					
ORP	361	358	357	357	344					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 12:01. Log stop 12:21

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817 - 25

Sample Purpose: **Lake Water Quality** Date: 2/16/08 Time 14:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.100' Easting: W151°20.066' Datum: NAD83

Measurements By: GMM Time: 14:15

Water Depth (ft): 6.50 Ice Thickness (ft): 4.90

Freeboard (ft): 0.30 Snow Depth (ft): 0.00

Elev. (BPMSL): 52.11 Survey By: Lilly, Whitman Date: 2/17/08 Time: 16:00

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	14:27	14:30	14:35	14:40						
Depth BWS (ft):	5	5.5	6	BOT						
Temp (°C):	0.10	0.09	0.11	0.44						
pH:	6.80	6.79	6.78	6.75						
Barometeric (mmHg):	758.3	758.3	758.3	758.2						
Pressure (kPa):	13.224	14.967	16.278	18.146						
Conductivity (µS/cm):	699.8	694.8	693.2	697.2						
RDO (ppm): (mg/L)	2.28	2.26	2.23	1.86						
Turbidity (NTU):	6.6	6.7	6.5	11.3						
ORP	337	337	336	334						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):**			**Depth BWS (ft):**			**Depth BWS (ft):**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: Log start 14:21. Log stop 14:41.

Field-Form Filled Out By: GMM Date: 2/16/08

QAQC Check By: DAR Date: 2/17/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 4/15/08 Time: 12:08

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 10.85 Ice Thickness (ft): 4.80

Freeboard (ft): 0.3 Snow Depth (ft): 0.45

Elev. (BPMSL +/- .02): 7.16 Survey By: DAR/JED Date: 4/13/08 Time: 13:27

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:18	12:22	12:28	12:31	12:44	12:54	13:00	13:04		
Depth BWS (ft):	5	6	7	8	9	10	BOT	BOT-MIX		
Temp (°C):	0.16	0.67	1.29	1.52	1.90	2.09	2.19	2.23		
pH:	6.85	6.84	6.83	6.80	6.68	6.63	6.69	7.15		
Barometeric (mmHg):	757.0	757.0	757.2	757.3	757.4	757.5	757.6	757.6		
Pressure (kPa):	14.644	17.720	20.939	23.705	26.587	29.440	31.926	32.765		
Conductivity (µS/cm):	93.65	94.19	94.92	95.53	99.13	104.20	123.70	153.70		
RDO (ppm): (mg/L)	11.70	11.68	11.71	11.70	8.37	4.64	4.12	2.16		
Turbidity (NTU):	2.1	5.6	10.2	10.8	22.6	19.2	105.4	13.1		
ORP	297	296	296	296	297	282	235	139		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/15/08

QAQC Check By: AJB Date: 4/22/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 4/15/08 Time: 13:29

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 10.9 Ice Thickness (ft): 4.95

Freeboard (ft): 0.4 Snow Depth (ft): 0.80

Elev. (BPMSL +/- .02): 7.16 Survey By: DAR/JED Date: 4/13/08 Time: 13:27

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:35	13:41	13:47	13:52	14:02	14:09	14:17	14:20		
Depth BWS (ft):	5	6	7	8	9	10	BOT	BOT-MIX		
Temp (°C):	0.26	0.54	1.07	1.37	1.84	2.05	2.26	2.22		
pH:	6.84	6.85	6.81	6.78	6.68	6.65	6.92	7.07		
Barometeric (mmHg):	757.6	757.6	757.7	757.8	757.8	758.0	758.0	758.0		
Pressure (kPa):	14.736	17.563	20.359	23.484	27.021	30.185	32.046	32.556		
Conductivity (µS/cm):	96.67	95.54	95.63	95.53	97.95	101.10	144.20	129.10		
RDO (ppm): (mg/L)	11.41	11.52	11.31	11.23	8.41	6.12	4.16	1.44		
Turbidity (NTU):	1.9	12.2	5.8	26.3	11.8	19.7	37.7	1230.8		
ORP	177	181	184	186	193	196	142	108		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/15/08

QAQC Check By: AJB Date: 4/22/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 4/15/08 Time: 14:48

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: HMC Time: nr

Water Depth (ft): 9.2 Ice Thickness (ft): 5.00

Freeboard (ft): 0.35 Snow Depth (ft): 0.80

Elev. (BPMSL +/- .02): 7.16 Survey By: DAR/JED Date: 4/13/08 Time: 13:27

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:54	14:59	15:04	15:09	15:16	15:20	15:25			
Depth BWS (ft):	5	6	7	8	9	BOT	BOT-MIX			
Temp (°C):	0.28	0.43	0.88	1.27	1.58	1.67	1.55			
pH:	6.76	6.73	6.71	6.69	6.67	6.66	6.65			
Barometeric (mmHg):	758.0	758.1	758.2	758.2	758.3	758.3	758.3			
Pressure (kPa):	14.779	18.306	20.938	23.623	26.719	26.800	27.242			
Conductivity (µS/cm):	97.26	97.27	98.11	99.06	100.70	101.00	111.10			
RDO (ppm): (mg/L)	7.93	7.47	6.73	6.28	4.79	3.58	2.70			
Turbidity (NTU):	2.0	3.5	4.0	4.9	7.7	10.8	98.0			
ORP	151	154	156	158	161	159	156			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/15/08

QAQC Check By: AJB Date: 4/22/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 4/16/08 Time: 13:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 7.1 Ice Thickness (ft): 5.50

Freeboard (ft): 0.35 Snow Depth (ft): 0.70

Elev. (BPMSL +/- .02): 51.85 Survey By: DAR/JED Date: 4/16/08 Time: 14:19

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:46	13:50	13:55	13:58						
Depth BWS (ft):	6	7	BOT (7.1')	BOT-MIX						
Temp (°C):	0.11	0.22	0.37	0.30						
pH:	6.88	6.91	6.92	6.92						
Barometeric (mmHg):	763.6	763.6	763.7	763.8						
Pressure (kPa):	17.803	20.564	20.946	20.979						
Conductivity (µS/cm):	1428	1436	1471	1422						
RDO (ppm): (mg/L)	0.43	0.41	0.41	0.26						
Turbidity (NTU):	3.4	118.5	89.2	267.9						
ORP	83	68	43	34						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/16/08

QAQC Check By: DAR Date: 4/21/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 4/16/08 Time: 14:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 5.9 Ice Thickness (ft): 5.60

Freeboard (ft): 0.45 Snow Depth (ft): 0.45

Elev. (BPMSL +/- .02): 51.85 Survey By: DAR/JED Date: 4/16/08 Time: 14:19

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	14:29									
Depth BWS (ft):	BOT (5.9')									
Temp (°C):	0.10									
pH:	6.86									
Barometeric (mmHg):	763.9									
Pressure (kPa):	17.171									
Conductivity (µS/cm):	1423									
RDO (ppm): (mg/L)	1.02									
Turbidity (NTU):	21.2									
ORP	61									

FIELD TESTING OF WATER SAMPLES (if small probe is used) Probe:					
Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/16/08

QAQC Check By: DAR Date: 4/21/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 4/16/08 Time: 15:10

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.022' Easting: W151°20.037' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 6.8 Ice Thickness (ft): 5.20

Freeboard (ft): 0.25 Snow Depth (ft): 0.55

Elev. (BPMSL +/- .02): 51.85 Survey By: DAR/JED Date: 4/16/08 Time: 14:19

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	15:14	15:17								
Depth BWS (ft):	6	BOT(6.8')								
Temp (°C):	0.36	0.34								
pH:	6.95	6.97								
Barometeric (mmHg):	764.2	764.2								
Pressure (kPa):	17.388	19.769								
Conductivity (µS/cm):	1425	1421								
RDO (ppm): (mg/L)	1.13	0.83								
Turbidity (NTU):	2.4	11.8								
ORP	49	39								

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/16/08

QAQC Check By: DAR Date: 4/21/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 4/16/08 Time: 16:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 8.6 Ice Thickness (ft): 5.55

Freeboard (ft): 0.55 Snow Depth (ft): 0.80

Elev. (BPMSL +/- .02): 51.85 Survey By: DAR/JED Date: 4/16/08 Time: 14:19

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	16:25	16:28	16:31	16:34						
Depth BWS (ft):	6	7	8	BOT(8.6')						
Temp (°C):	0.26	0.27	0.49	0.61						
pH:	6.91	6.95	6.96	7.28						
Barometeric (mmHg):	764.7	764.7	764.8	764.8						
Pressure (kPa):	17.731	20.847	23.941	26.460						
Conductivity (µS/cm):	1423	1457	1541	1652						
RDO (ppm): (mg/L)	1.63	0.83	0.52	0.15						
Turbidity (NTU):	0.7	0.7	1.2	674.6						
ORP	74	67	58	-20						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/16/08

QAQC Check By: DAR Date: 4/21/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-22

Sample Purpose: **Lake Water Quality** Date: 4/16/08 Time: 15:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.074 Easting: W151 20.017 Datum: NAD83

Measurements By: HMC Time: n/a

Water Depth (ft): 8.15 Ice Thickness (ft): 5.00

Freeboard (ft): 0.3 Snow Depth (ft): 0.90

Elev. (BPMSL +/- .02): 51.85 Survey By: DAR/JED Date: 4/16/08 Time: 14:19

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	15:50	15:54	15:57	16:00						
Depth BWS (ft):	6	7	8	BOT(8.15')						
Temp (°C):	0.29	0.39	0.52	0.59						
pH:	6.90	6.95	6.96	7.00						
Barometeric (mmHg):	764.5	764.6	764.6	764.6						
Pressure (kPa):	17.902	21.053	23.804	23.966						
Conductivity (µS/cm):	1423	1470	1552	1553						
RDO (ppm): (mg/L)	1.80	1.04	0.84	0.65						
Turbidity (NTU):	1.7	1.4	8.4	92.4						
ORP	43	35	28	20						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: HMC Date: 4/16/08

QAQC Check By: DAR Date: 4/21/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Raft B

Sample Purpose: **Lake Water Quality** Date: 5/10/08 Time: 10:14

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: DAR Time: 10:14

Water Depth (ft): 10.83 Ice Thickness (ft): 5.15

Freeboard (ft): 0.35 Snow Depth (ft): 0.70

Elev. (BPMSL +/- .02): 7.14 Survey By: MRL Date: 5/10/08 Time: 13:20

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:31	10:36	10:42	10:52	11:09	11:17	11:20			
Depth BWS (ft):	5	6	7	8	9	10	BOT (10.8)			
Temp (°C):	0.18	0.45	0.93	1.63	1.94	2.06	2.11			
pH:	6.84	6.83	6.82	6.77	6.71	6.68	6.68			
Barometeric (mmHg):	763.6	763.6	763.7	763.7	763.7	763.7	763.7			
Pressure (kPa):	14.451	17.637	20.626	23.541	26.511	29.540	31.476			
Conductivity (µS/cm):	96.60	96.68	97.64	98.65	102.3	110.7	115.6			
RDO (ppm): (mg/L)	9.53	9.31	9.13	6.07	3.42	2.39	2.04			
Turbidity (NTU):	1.2	1.6	3.0	3.1	4.0	7.4	12.6			
ORP	260	259	259	258	253	238	214			

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks:

Field-Form Filled Out By: AJB Date: 5/15/08

QAQC Check By: KMH Date: 5/20/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 Screen

Sample Purpose: **Lake Water Quality** Date: 5/10/08 Time: 11:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.003' Easting: W150°57.005' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 11.35 Ice Thickness (ft): 5.20

Freeboard (ft): 0.4 Snow Depth (ft): 0.90

Elev. (BPMSL +/- .02): 7.14 Survey By: MRL Date: 5/10/08 Time: 13:20

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:45	11:48	11:51	11:54	12:07	12:13	12:17	12:19		
Depth BWS (ft):	5	6	7	8	9	10	11	BOT(11.35)		
Temp (°C):	0.15	0.28	0.95	1.26	1.85	2.10	2.20	2.23		
pH:	6.81	6.82	6.80	6.79	6.69	6.65	7.00	7.19		
Barometeric (mmHg):	763.5	763.5	763.5	763.5	763.6	763.6	763.6	763.6		
Pressure (kPa):	14.571	17.393	20.622	23.327	26.562	29.542	32.196	33.104		
Conductivity (µS/cm):	96.11	97.6	98.79	98.98	102.9	108.3	167.8	165.1		
RDO (ppm): (mg/L)	9.59	9.77	10.07	10.07	4.65	2.44	0.76	0.49		
Turbidity (NTU):	2.8	3.3	4.4	4.8	6.9	14.8	79.7	755.0		
ORP	222	222	222	222	224	213	112	40		

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: AJB Date: 5/15/08

QAQC Check By: KMH Date: 5/20/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9312 SH

Sample Purpose: **Lake Water Quality** Date: 5/10/08 Time: nr

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.017' Easting: W150°57.076' Datum: NAD83

Measurements By: DAR Time: nr

Water Depth (ft): 9.2 Ice Thickness (ft): 5.10

Freeboard (ft): 0.25 Snow Depth (ft): 1.50

Elev. (BPMSL +/- .02): 7.14 Survey By: MRL Date: 5/10/08 Time: 13:20

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:35	12:40	12:47	12:54	12:59					
Depth BWS (ft):	5	6	7	8	BOT (9)					
Temp (°C):	0.14	0.29	0.99	1.38	1.56					
pH:	6.82	6.79	6.71	6.70	6.67					
Barometeric (mmHg):	763.5	763.4	763.4	763.5	763.5					
Pressure (kPa):	14.511	17.787	20.854	23.972	26.502					
Conductivity (µS/cm):	98.25	98.74	101.8	103.1	104.3					
RDO (ppm): (mg/L)	8.31	8.39	4.78	4.29	2.83					
Turbidity (NTU):	1.4	6.5	4.4	6.1	172.7					
ORP	96	103	113	119	121					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: AJB Date: 5/15/08

QAQC Check By: KMH Date: 5/20/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 10:49

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 7.40 Ice Thickness (ft): 5.95

Freeboard (ft): 0.15 Snow Depth (ft): 0.70

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	10:52	10:57	11:01	11:05						
Depth BWS (ft):	5	6	7	BOT(7.4)						
Temp (°C):	0.07	0.08	0.32	0.42						
pH:	6.90	6.86	6.90	6.95						
Barometeric (mmHg):	760.1	760.1	760.1	760.1						
Pressure (kPa):	14.406	17.707	20.684	21.120						
Conductivity (µS/cm):	1536	1536	1560	1566						
RDO (ppm): (mg/L)	1.18	1.40	0.47	0.62						
Turbidity (NTU):	5.3	3.9	97.4	76.9						
ORP	264	262	247	218						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: DAR Date: 5/12/08

QAQC Check By: AJB Date: 5/14/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-2

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 11:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.046' Easting: W151°20.079' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 6.10 Ice Thickness (ft): 5.80

Freeboard (ft): 0.63 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:26	11:33								
Depth BWS (ft):	5	BOT(6.1)								
Temp (°C):	0.07	0.06								
pH:	6.87	6.87								
Barometeric (mmHg):	760.0	760.0								
Pressure (kPa):	14.646	17.083								
Conductivity (µS/cm):	1550	1550								
RDO (ppm): (mg/L)	1.57	1.33								
Turbidity (NTU):	10.0	53.5								
ORP	222	219								

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 1

Field-Form Filled Out By: DAR Date: 5/12/08

QAQC Check By: AJB Date: 5/14/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-3

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 11:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.022' Easting: W151°20.037' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 6.90 Ice Thickness (ft): 5.40

Freeboard (ft): 0.35 Snow Depth (ft): 1.00

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	11:52	11:58	12:05							
Depth BWS (ft):	5	6	BOT(6.8)							
Temp (°C):	0.05	0.07	0.22							
pH:	6.93	6.93	7.00							
Barometeric (mmHg):	759.8	759.8	759.8							
Pressure (kPa):	14.773	17.847	19.947							
Conductivity (µS/cm):	1547	1550	1554							
RDO (ppm): (mg/L)	1.47	0.95	0.65							
Turbidity (NTU):	6.3	5.0	91.9							
ORP	198	190	157							

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: In-Situ Cord #2

Field-Form Filled Out By: DAR Date: 5/11/08

QAQC Check By: AJB Date: 5/14/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-20

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 13:45

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.079' Easting: W151°19.969' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 8.70 Ice Thickness (ft): 5.60

Freeboard (ft): 0.40 Snow Depth (ft): 1.00

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:49	13:56	13:58	14:01	14:02					
Depth BWS (ft):	5	6	7	8	BOT(8.7)					
Temp (°C):	0.13	0.20	0.35	0.57	0.64					
pH:	6.94	6.94	6.98	7.01	7.12					
Barometeric (mmHg):	759.3	760.3	761.3	762.3	763.3					
Pressure (kPa):	15.106	17.886	21.035	23.983	26.084					
Conductivity (µS/cm):	1541	1547	1561	1664	1716					
RDO (ppm): (mg/L)	0.98	0.55	0.36	0.39	0.31					
Turbidity (NTU):	1.3	0.7	0.4	2.9	325.8					
ORP	139	131	125	114	97					

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 2

Field-Form Filled Out By: DAR Date: 5/12/08

QAQC Check By: AJB Date: 5/14/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-22

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 13:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70 14.074 Easting: W151 20.017 Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 8.1 Ice Thickness (ft): 5.80

Freeboard (ft): 0.20 Snow Depth (ft): 0.50

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	13:03	13:18	13:20	13:22						
Depth BWS (ft):	5	6	7	BOT(8.1')						
Temp (°C):	0.01	0.06	0.24	0.48						
pH:	6.93	6.79	6.90	6.95						
Barometeric (mmHg):	759.5	759.4	759.4	759.6						
Pressure (kPa):	14.480	17.915	20.286	23.026						
Conductivity (µS/cm):	1553	1554	1564	1623						
RDO (ppm): (mg/L)	0.41	0.41	0.38	0.39						
Turbidity (NTU):	3.6	1.1	0.7	2542.0						
ORP	178	175	172	165						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 2

Field-Form Filled Out By: DAR Date: 5/11/08

QAQC Check By: AJB Date: 5/14/08

University of Alaska Fairbanks, Water and Environmental Research Center

Form F-004a: Water Quality Field-Sampling General

Project ID: **North Slope Lakes** Site Location/Lake ID: L9817-23

Sample Purpose: **Lake Water Quality** Date: 5/11/08 Time: 12:17

FIELD MEASUREMENTS

GPS Coord. Northing: 70°14.071' Easting: W151°20.670' Datum: NAD83

Measurements By: DAR Time: n/a

Water Depth (ft): 7.40 Ice Thickness (ft): 5.38

Freeboard (ft): 0.18 Snow Depth (ft): 0.60

Elev. (BPMSL +/- .02): 51.83 Survey By: MRL Date: 5/11/08 Time: 12:30

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2

3

WATER QUALITY METER INFORMATION

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	IN-SITU Troll 9000	33033	PASS	PASS

Parameters	**Field Measurements**									
Time:	12:22	12:28	12:35	12:41						
Depth BWS (ft):	5	6	7	BOT(7.4')						
Temp (°C):	0.04	0.07	0.30	0.39						
pH:	6.89	6.88	6.91	6.92						
Barometeric (mmHg):	759.8	759.7	759.7	759.7						
Pressure (kPa):	14.330	17.318	20.825	21.303						
Conductivity (µS/cm):	1541	1540	1580	1607						
RDO (ppm): (mg/L)	0.66	0.61	0.86	1.01						
Turbidity (NTU):	2.1	1.8	3.0	15.0						
ORP	180	182	173	164						

FIELD TESTING OF WATER SAMPLES (if small probe is used)

Probe:

Depth (ft)					
Temp (°C)					
pH					
Eh					

NORTH SLOPE LAB CHEMISTRY ANALYSIS

Parameter	**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Depth BWS (ft):_____**			**Method**
	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	rep 1	rep 2	rep 3	
Oxygen (mg/L)										Hach spec 0.3-15 mg/L
Alkalinity (mg/L as $CaCO_3$)										Digital titrator 10-4000 mg/L as CaCO3
Total iron--UF (mg/L)										Hach spec 0.02-3.00 mg/L
Filtered Iron--F tot Fe (mg/L)										Hach spec 0.02-3.00 mg/L
Ammonia (mg/L NH_3-N)****										0.01-0.50 mg/L NH3-N
Ammonia/ Iron dilution										

Remarks: INSITU CORD # 2

Field-Form Filled Out By: DAR Date: 5/11/08

QAQC Check By: AJB Date: 5/15/08

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: MO802-CT

Sample Purpose: **Lake Water Quality** Date: 3/11/09 Time 11:02

FIELD MEASUREMENTS

GPS Coord. Northing: N70°9.523' Easting: W151°15.092' Datum: NAD83

Measurements By: KMH/DAR Time: 11:05

Water Depth (ft): 7.45 Ice Thickness (ft): 3.75

Freeboard (ft): 0.15 Snow Depth (ft): 1.0

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	11:11	11:15	11:19	11:23	11:27					
Depth BWS (ft):	4	5	6	7	BOT					
Temp (°C):	0.38	0.33	0.87	1.62	1.87					
pH:	7.40	7.28	7.18	7.35	7.98					
Barometeric (mmHg):	765.1	765.1	765.0	765.0	765.0					
Pressure (kPa):	10.518	13.251	16.384	19.544	21.336					
Conductivity (µS/cm):	290.8	288.8	291.9	366.9	442.5					
RDO (mg/L):	2.66	1.89	2.31	2.21	0.96					
RDO (%):	18.1	13.0	16.1	15.7	6.9					
Turbidity (NTU):	6.3	6.3	4.5	10.6	399.7					

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks: Turbidity data was not verified by calibration check and is listed for informative purposes only.

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: MO710-CT

Sample Purpose: **Lake Water Quality** Date: 3/11/09 Time 12:35

FIELD MEASUREMENTS

GPS Coord. Northing: N70°08.7516' Easting: W151°17.0874' Datum: NAD83

Measurements By: KMH Time: 12:40

Water Depth (ft): 6.85 Ice Thickness (ft): 4.55

Freeboard (ft): 0.49 Snow Depth (ft): 0.10

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	12:47	12:52	12:57	13:01	13:06					
Depth BWS (ft):	4	5	6	6.5	BOT					
Temp (°C):	0.40	0.21	0.18	0.48	0.50					
pH:	7.52	7.52	7.50	7.48	7.44					
Barometeric (mmHg):	764.7	764.7	764.7	764.8	764.8					
Pressure (kPa):	10.174	13.181	16.248	18.910	19.215					
Conductivity (µS/cm):	791.9	786.4	781.4	777.3	776.5					
RDO (mg/L):	6.37	5.66	5.40	5.20	4.42					
RDO (%):	44.0	38.9	37.0	36.0	30.5					
Turbidity (NTU):	20.3	15.6	3.8	6.2	46.6					

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks: Turbidity data was not verified by calibration check and is listed for informative purposes only.

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: MO806-CT

Sample Purpose: **Lake Water Quality** Date: 3/11/09 Time 14:10

FIELD MEASUREMENTS

GPS Coord. Northing: N70°8.186' Easting: W151°23.756' Datum: NAD83

Measurements By: KMH/DAR Time: 14:12

Water Depth (ft): 7.45 Ice Thickness (ft): 4.18

Freeboard (ft): 0.32 Snow Depth (ft): 0.45

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	14:21	14:25	14:29	14:32	14:38					
Depth BWS (ft):	4	5	6	7	BOT					
Temp (°C):	0.06	0.12	0.83	1.20	1.64					
pH:	7.61	7.60	7.56	7.52	7.42					
Barometeric (mmHg):	764.9	764.9	764.9	764.9	764.9					
Pressure (kPa):	10.277	13.237	16.280	19.182	21.458					
Conductivity (µS/cm):	671.8	785.6	773.4	769.8	773.0					
RDO (mg/L):	9.82	8.42	7.32	6.89	4.39					
RDO (%):	67.0	57.6	51.4	48.6	31.1					
Turbidity (NTU):	7.8	5.0	4.9	5.4	30.3					

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks: Turbidity data was not verified by calibration check and is listed for informative purposes only.

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: L9323-CT

Sample Purpose: **Lake Water Quality** Date: 3/11/09 Time 16:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°17.915' Easting: W151°00.326' Datum: NAD83

Measurements By: KMH Time: 16:30

Water Depth (ft): 12.20 Ice Thickness (ft): 4.45

Freeboard (ft): 0.40 Snow Depth (ft): 0.35

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	16:35	16:38	16:40	16:43	16:45	16:48	16:53	16:56	16:59	17:03
Depth BWS (ft):	3	4	5	6	7	8	9	10	11	12
Temp (°C):	0.43	0.25	0.27	0.62	0.94	1.26	1.50	1.72	2.10	2.26
pH:	7.98	7.77	7.62	7.41	7.36	7.30	7.20	7.10	7.23	7.35
Barometeric (mmHg):	768.5	768.5	768.5	768.4	768.4	768.5	768.5	768.6	768.6	768.6
Pressure (kPa):	7.599	10.273	13.872	16.372	19.121	22.162	25.296	28.274	31.236	34.204
Conductivity (µS/cm):	204.0	202.8	201.1	198.8	197.2	195.9	202.1	203.6	221.8	224.9
RDO (mg/L):	10.55	10.02	9.79	9.68	9.57	9.55	8.75	6.41	4.58	3.09
RDO (%):	72.1	68.3	67.0	66.5	66.5	66.9	61.7	45.6	32.7	22.4
Turbidity (NTU):	0.6	0.6	0.6	0.6	0.7	0.8	1.9	3.8	2.3	1.9

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks: Turbidity data was not verified by calibration check and is listed for informative purposes only.

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: R0066-CT

Sample Purpose: **Lake Water Quality** Date: 3/12/09 Time 10:15

FIELD MEASUREMENTS

GPS Coord. Northing: N70°8.608' Easting: W151°45.740' Datum: NAD83

Measurements By: KMH/DAR Time: 10:20

Water Depth (ft): 9.10 Ice Thickness (ft): 4.65

Freeboard (ft): 0.05 Snow Depth (ft): 0.65

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	10:31	10:33	10:35	10:39	10:45	10:48				
Depth BWS (ft):	5	6	7	8	9	BOT				
Temp (°C):	0.46	0.77	1.29	1.84	2.08	2.15				
pH:	7.66	7.58	7.51	7.39	7.29	7.25				
Barometeric (mmHg):	765.6	765.5	765.5	765.5	765.6	765.7				
Pressure (kPa):	13.339	16.239	19.229	22.083	25.060	26.371				
Conductivity (µS/cm):	295.8	294.5	294.8	308.0	315.1	317.8				
RDO (mg/L):	8.33	8.32	8.34	7.15	5.67	5.52				
RDO (%):	57.4	57.7	58.9	51.2	40.9	39.9				
Turbidity (NTU):										

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks:

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: L9811-CT

Sample Purpose: **Lake Water Quality** Date: 3/12/09 Time 11:35

FIELD MEASUREMENTS

GPS Coord. Northing: N70°12.4182' Easting: W151°10.4952' Datum: NAD83

Measurements By: KMH Time: 11:45

Water Depth (ft): 6.60 Ice Thickness (ft): 3.60

Freeboard (ft): 0.05 Snow Depth (ft): 0.80

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	12:04	12:07	12:10	12:12						
Depth BWS (ft):	4	5	6	BOT						
Temp (°C):	0.17	0.24	0.65	0.78						
pH:	7.47	7.47	7.46	7.43						
Barometeric (mmHg):	765.3	765.5	765.4	765.4						
Pressure (kPa):	10.281	13.371	16.164	18.954						
Conductivity (µS/cm):	859.7	858.3	855.1	855.5						
RDO (mg/L):	2.29	1.84	1.34	1.25						
RDO (%):	16.1	12.6	9.3	8.7						
Turbidity (NTU):										

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks:

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: L9817-1

Sample Purpose: **Lake Water Quality** Date: 3/12/09 Time 13:00

FIELD MEASUREMENTS

GPS Coord. Northing: N70°14.070' Easting: W151°20.121' Datum: NAD83

Measurements By: KMH Time: 13:10

Water Depth (ft): 8.20 Ice Thickness (ft): 5.28

Freeboard (ft): 0.10 Snow Depth (ft): 0.12

Elev. (BPMSL): n/a Survey By: n/a Date: n/a Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	13:21	13:25	13:28	13:33						
Depth BWS (ft):	6	7	8	BOT						
Temp (°C):	0.08	0.14	1.17	1.39						
pH:	8.51	8.03	7.44	7.44						
Barometeric (mmHg):	765.8	766.0	765.9	765.9						
Pressure (kPa):	16.721	19.237	22.216	23.609						
Conductivity (µS/cm):	749.1	803.8	1004.0	1011.0						
RDO (mg/L):	4.51	3.31	1.27	0.87						
RDO (%):	30.5	23.2	8.9	6.2						
Turbidity (NTU):										

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks:

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: L9312-Raft B

Sample Purpose: **Lake Water Quality** Date: 3/12/09 Time 16:30

FIELD MEASUREMENTS

GPS Coord. Northing: N70°19.995' Easting: W150°56.918' Datum: NAD83

Measurements By: KMH/DAR Time: 16:45

Water Depth (ft): 10.40 Ice Thickness (ft): 4.80

Freeboard (ft): 0.10 Snow Depth (ft): 0.45

Elev. (BPMSL): 7.03 Survey By: LCMF Date: 3/8/09 Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	17:01	17:06	17:09	17:11	17:18	17:23	17:26			
Depth BWS (ft):	5	6	7	8	9	10	BOT			
Temp (°C):	0.32	0.45	1.08	1.30	1.68	2.02	2.11			
pH:	8.05	7.95	7.89	7.82	7.74	7.35	7.19			
Barometeric (mmHg):	767.0	767.0	767.1	767.1	767.1	767.1	767.1			
Pressure (kPa):	13.393	16.287	19.284	22.193	25.181	28.342	30.672			
Conductivity (µS/cm):	150.7	148.9	146.5	145.8	144.6	154.0	166.9			
RDO (mg/L):	11.16	11.11	11.26	11.39	9.96	7.86	6.12			
RDO (%):	76.2	76.3	78.6	-	71.1	-	44.0			
Turbidity (NTU):										

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks: Before sampling, small bubbles were observed rising up to the surface.

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09

Geo-Watersheds Scientific

Form F-004a: Water Quality Field-Sampling General

Project ID: **GWS09G** Site Location/Lake ID: L9322-CT

Sample Purpose: **Lake Water Quality** Date: 3/13/09 Time 10:20

FIELD MEASUREMENTS

GPS Coord. Northing: N70°20.269' Easting: W151°01.913 Datum: NAD83

Measurements By: KMH Time: 10:25

Water Depth (ft): 10.45 Ice Thickness (ft): 4.30

Freeboard (ft): 0.25 Snow Depth (ft): 0.65

Elev. (BPMSL): 6.64 Survey By: LCMF Date: 3/8/09 Time: n/a

Water Sampling By: n/a Sample Depths BWS (ft): 1 n/a Date: n/a Time: n/a

2 n/a

WATER QUALITY METER INFORMATION 3 n/a

Calibration Information

Parameter (s)	Owner	Meter Make/Model	Serial No.	Pre-Sampling QAQC Check	Post-Sampling QAQC Check
MULTI	GWS	InSitu Troll 9000	33033	Pass	Pass

Parameters	**Field Measurements**									
Time:	10:39	10:45	10:48	10:51	10:53	10:59	11:03			
Depth BWS (ft):	5	6	7	8	9	10	BOT			
Temp (°C):	0.95	0.63	0.97	1.16	1.55	1.84	1.93			
pH:	6.92	6.97	6.96	6.96	6.95	6.91	6.83			
Barometeric (mmHg):	768.3	768.3	768.3	768.3	768.3	768.3	768.4			
Pressure (kPa):	13.373	16.216	20.014	22.291	25.261	28.242	30.532			
Conductivity (µS/cm):	316.5	311.8	306.7	304.5	300.1	300.2	312.3			
RDO (mg/L):	8.54	7.39	7.04	6.96	6.44	4.91	3.91			
RDO (%):	59.6	50.9	48.8	48.7	45.5	35.0	27.9			
Turbidity (NTU):										

Parameters	**Field Measurements**									
Time:										
Depth BWS (ft):										
Temp (°C):										
pH:										
Barometeric (mmHg):										
Pressure (kPa):										
Conductivity (µS/cm):										
RDO (mg/L):										
RDO (%):										
Turbidity (NTU):										

Remarks:

Field-Form Filled Out By: KMH Date: 3/13/09

QAQC Check By: DAR Date: 3/13/09