ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF SPORT FISH

WATER Bolio

WATER ANALYSIS

LOCATION

DATE	STATION	TIME	SNOW COVER	ICE COVER	SAMPLE DEPTH	TEMPERATURE WATER	TEMPERATURE AIR	DO	CO_2	pH	TOTAL ALKALI	REMARKS	BY
12-16-53			0	22"	Sur	33		13.1		7.4			
					5'	36		12.3		7.2			
					10'	38		11.4		7.2			
					15'	39		8.5		7.2			
					20'	39		7.0		7.0			
1-15-54			0	29"	Sur	32		12.1		7.4			
					5'	35		9.9		7.4			
					10'	39		9.6		7.4			
					15'	39		5.4		7.2			
					18'	39		4.0		7.2			
2-24-54			0	36½	Sur	32		9.7		7.0			
					5'	34		8.5		7.0			
					10'	36		8.6		7.0			
					15'	39		4.0		6.8			
					18'	39		3.1		6.8			

DEFINE LOCATION OF STATIONS ON REVERSE

2/69

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF SPORT FISH

WATER Bolio

WATER ANALYSIS

LOCATION

DATE	STATION	TIME	SNOW COVER	ICE COVER	SAMPLE DEPTH	TEMPERATURE WATER	TEMPERATURE AIR	DO	CO_2	pH	TOTAL ALKALI	REMARKS	BY
3-8-66			6"	39	Sur			6.5					
					8'			6.0					
					16'			2.0					
4-6-67			0"	30"	Sur			6.25					
					8'			5.25					
					10'			3.75					
					13'			1.50					
3-6-68			0"	23"	Sur			5.5					
					10'			6.0					
4-7-68			0"	16"	3'			8.0					
					5'			6.5					
1-23-69			6"	30"	5'			8.5					
					10'			7.5					
3-6-69			0"	36"	3'			9.0					
					8'			6.5					

DEFINE LOCATION OF STATIONS ON REVERSE

2/69

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF SPORT FISH

WATER Bolio Lake

WATER ANALYSIS

LOCATION Ft. Greely

DATE	STATION	TIME	SNOW COVER	ICE COVER	SAMPLE DEPTH	TEMPERATURE WATER	TEMPERATURE AIR	DO ppm	CO_2	pH	TOTAL ALKALI ppm	Total Hdness ppm	Total Acidity ppm	REMARKS	BY
2/5/71	Mid Lake	11 AM	6-8" 100%	30"	6' (in 8')			8.0		7.0	136	102	17	a few cladocerans in sample	DP
12/2/71			5"	15"	5'			12.0		7.7	85.5	102.6			
3/22/72			8-12" 100%	40"	5' IN 9'			3.0		7.0	102.6	136.8			
3/27/72	# 1	SKI SLOPE	8-10" 100%	28"	5' IN 7'			3.6			MAP SHOWING LOCATION OF STATIONS IN BACK OF BOOK #2				
	#2	ICE SHACK	"	36"	5' IN 12'			3.4			SNOW PLOW STARTED CLEARING SNOW FROM LK. AT 2PM				
	#3	GATE	"	36"	5' IN 10'			2.6			1 STRIP 25' WIDE CLEARED BY 4PM ; ANOTHER ONE STARTED.				
	#4	ICE SHACK	"	36"	10' IN 12'			0.6	30		STRIPS WENT THE FULL LENGTH OF THE LK.				
3/24/72	N. END	2-4PM			3' IN 4'			4.6							
	SKI SLOPE				7½ IN 7½			3.8							
	W. OF BAY				5' IN 12'			3.8							
	IN BAY NEAR SHORE				5' IN 9'			3.8							
3/28/72	#1	2:45PM.			5' IN 7'			3.8			4 STRIPS PLOWED THE DAY BEFORE, HOWEVER 1-2" OF SNOW FELL OVERNITE. EAST STRIP NOT AS SNOW COVERED, APPEARED				
3/31/72	(STRIP 3) STA #1							3.6			PLOWED THIS DATE.				
	#2							2.6							
	#3							3.2							
	STRIP 1 STA #2							3.6							

DEFINE LOCATION OF STATIONS ON REVERSE

2/69

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF SPORT FISH

WATER BOLIO LK.

WATER ANALYSIS

LOCATION FT. GREELY

DATE	STATION	TIME	SNOW COVER	ICE COVER	SAMPLE DEPTH	TEMPERATURE WATER	TEMPERATURE AIR	DO (ppm)	CO_2	pH	TOTAL ALKALI	T.N.	REMARKS	BY
3/31/72	TRIP 1 STA. #3							4.0						
6/27/72						63°	62°	10.0		9.0	85.5	68.4		
8/10/72					SURFACE	63°	65°	9.0		8.5	85.5	85.5	SECCHI DISC: 9.0'	
					10' IN 12'	61°		9.0						
2/27/73				$\frac{3}{4}$	4 ½'			6.0						
					7' (in 8')			6.0		Lake mostly snow free, ice transparent				
3/19/73			2"	44"	5' (in 10')			9.0	5	7.0	68.4	85.5		
7/3/73		2:40 PM			Surface	64°F		10.0		8.5	68.4	68.4		
7/31/74		9 AM			Surface	65°F							Cloudy, rain overnight	
			1-5"											
4/5/75			100%	40"	Surface			3.4		7.0	68	85		
					5'			2.4						
1/19/82			6-10" 100%	25"	1 M			6.0		7.5	154			
					2 M			3.4						
4/16/82		1 PM	0-18"	Clear	1 M			1.0		7.5	103	137	Slight H_2S	
								0.6						

DEFINE LOCATION OF STATIONS ON REVERSE 2M

2/69

Return 5-02

Gene
GW
& R

Route 5

MC/Ref

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Water Resources Division
1209 Orca Street
Anchorage, Alaska 99501

Mr. Eugene A. Ruguski
1300 College Road
Fairbanks, AK 99701

November 5, 1975

Dear Gene:

Enclosed are the analyses from the lakes sampled this spring as part of the cooperative program. A few words of explanation about the computer printout are in order.

Please note that Aluminum, Cobalt, Copper, Zinc, Boron, Iron, and Manganese are in micrograms per litre (ug/l) all other parameters are in milligrams per litre (mg/l). NITROGEN TOT AS N is the value for total nitrogen. NITROGEN TOT AS NO_3 is a derived value and is an expression of total nitrogen if all nitrogen were present as NO_3. NITROGEN TOT KJD as N is Kjeldahl nitrogen and should equal the total of ammonia nitrogen and organic nitrogen.

Lab pH is deleted from our records. Experience has shown that pH may change drastically and must be measured in the field.

There are two values for total dissolved solids. RESIDUE DIS CALC SUM is a calculated value and for dilute waters such as these is usually a more reliable value than the measured one (RESIDUE DIS 180°C).

SAR is the sodium absorbtion ratio and is provided for all analyses, it means little for natural water and is of value primarily in analyzing water used for irrigation.

The reactive equivalents (meq/l) are printed at the bottom. Most of the lakes are calcium bicarbonate water, but Quartz is predominately magnesium bicarbonate. In general, magnesium seems to be somewhat higher in interior lakes than in most southcentral lakes.

Theoretically the cations and anions should balance. The percent difference is a way of expressing the error in the analysis. Less than 5 percent is usually considered to be acceptable, but in dilute water (conductivity less than 50 umhos at 25°C) 10 or 15 percent is about as good as can be expected.

If you have any further questions about these analyses please contact George McCoy (279-1563).

Enclosures
cc: G. McCoy
V. Berwick
J. Meckel

Sincerely,
George A. McCoy
George McCoy

June 6, 1975

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY, SALT LAKE CITY, UTAH

PROVISIONAL RECORDS
SUBJECT TO REVISION

WATER QUALITY ANALYSIS
LAB ID # 192034 RECORD # 27534

SAMPLE LOCATION: BOLIO LK NR DELTA JUNCTION AK
STATION ID: 635342145503000 LAT.LONG.SEQ.: 635342 1455030 00
DATE OF COLLECTION: BEGIN--750603 END-- TIME--1330
COUNTY CODE: 090 PROJECT IDENTIFICATION: 78
DATA TYPE: 2 SOURCE: LAKE OR RESERVOIR GEOLOGIC UNIT:
COMMENTS:
BOTTLES F-7

ALK,TOT (AS CACO3)	MG/L	40	NITROGEN TOT ORG N	MG/L	0.63
ALUMINUM TOTAL	UG/L	50	NITROGEN TOTKJD AS N	MG/L	0.67
BICARBONATE	MG/L	49	NO2 + NO3 AS N TOT	MG/L	0.05
BORON TOTAL	UG/L	40	NO2+NO3 AS N DISS	MG/L	0.05
CALCIUM DISS	MG/L	12	PHOS ORTHO DIS AS P	MG/L	0.01
CARBON TOT ORGANIC	MG/L	22	PHOSPHATE DIS ORTHO	MG/L	0.03
CHLORIDE DISS	MG/L	1.1	PHOSPHORUS TOT AS P	MG/L	0.01
COBALT TOTAL	UG/L	50	POTASSIUM DISS	MG/L	3.0
COLOR		10	RESIDUE DIS CALC SUM	MG/L	48
COPPER TOTAL	UG/L	20	RESIDUE-DIS-TON/AFT.		0.11
FLUORIDE DISS	MG/L	0.1	RESIDUE-DIS-TON/DAY		2160
HARDNESS NONCARB	MG/L	2	RESIDUE DIS 180C	MG/L	80
HARDNESS TOTAL	MG/L	42	SAR		0.1
IRON DISSOLVED	UG/L	220	SILICA DISSOLVED	MG/L	0.1
MAGNESIUM DISS	MG/L	3.0	SODIUM DISS	MG/L	1.3
MANGANESE DISSOLVED	UG/L	0	SODIUM PERCENT		6
MOLYBDENUM TOTAL	UG/L	0	SP. CONDUCTANCE LAB		98
NITROGEN NH4 ASN TOT	MG/L	0.04	STREAMFLOW(CFS)-INST		9999
NITROGEN TOT AS N	MG/L	0.72	SULFATE DISS	MG/L	2.4
NITROGEN TOT AS NO3	MG/L	3.2	WATER TEMP (DEG C)		10.6
			ZINC TOTAL	UG/L	0

CATIONS	(MG/L)	(MEQ/L)	ANIONS	(MG/L)	(MEQ/L)
CALCIUM DISS	12	0.599	BICARBONATE	49	0.804
MAGNESIUM DISS	3.0	0.247	CHLORIDE DISS	1.1	0.032
POTASSIUM DISS	3.0	0.077	FLUORIDE DISS	0.1	0.00
SODIUM DISS	1.3	0.057	SULFATE DISS	2.4	0.05
			NO2+NO3 AS N D	0.05	0.00
TOTAL		0.979	TOTAL		0.89

PERCENT DIFFERENCE = 4.59

TABLE D-11

WATER QUALITY DATA COLLECTED FROM BOLIO LAKE

PARAMETER	DATE				
	July 10, 1974	August 10, 1975			
Depth (feet)	NR*	0.5	3.5	10.0	15.0
Bicarbonate-HCO_3 (mg/l)	50.0	45.0	NR	NR	NR
Carbonate-CO_3 (mg/l)	NR	4.0	NR	NR	NR
Total nitrite plus nitrate-N (mg/l)	NR	0.02	NR	NR	NR
Ammonia-N (mg/l)	NR	0.12	NR	NR	NR
Total Organic Nitrogen-N (mg/l)	NR	0.98	NR	NR	NR
Total Kjeldahl Nitrogen-N (mg/l)	NR	1.1	NR	NR	NR
Total Nitrogen-N (mg/l)	NR	1.1	NR	NR	NR
Total Phosphorus-P (mg/l)	NR	0.02	NR	NR	NR
Specific Conductance (Micromhos)	97	98	105	105	105
pH	8.8	9.2	NR	NR	NR
Temperature (^{o}C)	16.5	19.0	18.5	18.0	18.0
Dissolved oxygen (mg/l)	10.2	9.8	9.8	10.0	10.0
Carbon dioxide (mg/l)	0.1	0	NR	NR	NR

*NR - Not Reported

Source: U.S. Department of Interior, Geological Survey, 1975. Water Resources Data for Alaska.

element mercury above normal

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 8-13-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	PH (STANDARD UNITS) (00400)
SEP								
10...	1115	0.50	10.5	735	100	9.6	89	7.60
10...	1117	2.00	10.5	735	99	9.4	87	7.60
10...	1119	3.00	10.0	735	99	9.4	87	7.60
10...	1121	4.50	10.0	735	99	9.3	86	7.60
10...	1123	6.00	10.0	735	99	9.2	85	7.60
10...	1125	7.50	10.0	735	99	9.2	85	7.60
10...	1127	9.00	10.0	735	99	9.3	86	7.60
10...	1129	10.5	10.0	735	98	9.3	85	7.60
10...	1131	12.0	10.0	735	98	9.2	85	7.70
10...	1133	12.8	10.0	735	99	9.2	85	7.70
10...	1200	8.00	--	735	--	--	--	--

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 11-12-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	TURBIDITY (NTU) (00076)	COLOR (PLATINUM-COBALT UNITS) (00080)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	PH LAB (STANDARD UNITS) (00403)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3 (00410)	ALKALINITY WH WAT TOTAL LAB MG/L AS CACO3 (00417)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
SEP 10...	1200	8.00	1028	80020	1.1	30	44	7.80	41	44	0.86	0.034

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) (00660)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
SEP 10...	0.80	0.058	0.064	0.01	0.016	0.004	52	10	15	3.6	1.0	0.1

DATE	PERCENT SODIUM (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)
SEP 10...	4	3.0	0.90	9.2	< 0.10	0.5	1	8	< 100	70	< 1	1

DATE	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)
SEP 10...	10	20	7	3	240	170	< 5	10	140	20	9	20

BL-2

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 11-12-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE) (01170)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	BROMO-FORM TOTAL (UG/L) (32104)
SEP 10...	1	10	80	7600	4.3	< 0.4	K10	< 1	< 3.0	< 3.0	< 3.0	< 3.0

"K" used to denote statistically invalid number

DATE	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-FORM TOTAL (UG/L) (32106)	TANNIN AND LIGNIN (MG/L) (32240)	TOLUENE TOTAL (UG/L) (34010)	BENZENE TOTAL (UG/L) (34030)	ACE-NAPHTH-YLENE TOTAL (UG/L) (34200)	ACE-NAPHTH-YLENE BOT.MAT (UG/KG) (34203)	ACE-NAPHTH-ENE TOTAL (UG/L) (34205)	ACE-NAPHTH-ENE BOT.MAT (UG/KG) (34208)	ANTHRA-CENE TOTAL (UG/L) (34220)	ANTHRA-CENE BOT.MAT (UG/KG) (34223)	BENZO B FLUOR-AN-THENE TOTAL (UG/L) (34230)
SEP 10...	< 3.0	< 3.0	1.1	< 3.0	< 3.0	< 5.0	< 200	< 5.0	< 200	< 5.0	< 200	< 10.0

DATE	BENZO B FLUOR-AN-THENE BOT.MAT (UG/KG) (34233)	BENZO K FLUOR-AN-THENE TOTAL (UG/L) (34242)	BENZO K FLUOR-AN-THENE BOT.MAT (UG/KG) (34245)	BENZO-A-PYRENE TOTAL (UG/L) (34247)	BENZO-A-PYRENE BOT.MAT (UG/KG) (34250)	BIS 2-CHLORO-ETHYL ETHER TOTAL (UG/L) (34273)	BIS (2-CHLORO-ETHYL) ETHER BOT.MAT (UG/KG) (34276)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L) (34278)	BIS (2-CHLORO-ETHOXY) METHANE BOT.MAT (UG/KG) (34281)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L) (34283)	BIS (2-CHLORO-ISO-PROPYL) ETHER BOT.MAT (UG/KG) (34286)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L) (34292)
SEP 10...	< 400	< 10.0	< 400	< 10.0	< 400	< 5.0	< 200	< 5.0	< 200	< 5.0	< 200	< 5.0

DATE	N-BUTYL BENZYL PHTHAL-ATE BOT.MAT (UG/KG) (34295)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHRY-SENE TOTAL (UG/L) (34320)	CHRY-SENE BOT.MAT (UG/KG) (34323)	DIETHYL PHTHAL-ATE TOTAL (UG/L) (34336)	DIETHYL PHTHAL-ATE BOT.MAT (UG/KG) (34339)	DI-METHYL PHTHAL-ATE TOTAL (UG/L) (34341)	DI-METHYL PHTHAL-ATE BOT.MAT (UG/KG) (34344)	ETHYL-BENZENE TOTAL (UG/L) (34371)	FLUOR-ANTHENE TOTAL (UG/L) (34376)	FLUOR-ANTHENE BOT.MAT (UG/KG) (34379)
SEP 10...	< 200	< 3.0	< 3.0	< 10.0	< 400	< 5.0	< 200	< 5.0	< 200	< 3.0	< 5.0	< 200

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 11-12-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	FLUOR-ENE TOTAL (UG/L) (34381)	FLUOR-ENE BOT.MAT (UG/L) (34384)	HEXA-CHLORO-CYCLO-PENT-ADIENE TOTAL (UG/L) (34386)	HEXA-CHLORO-CYCLO-PENT-ADIENE BOT.MAT (UG/KG) (34389)	HEXA-CHLORO-ETHANE TOTAL (UG/L) (34396)	HEXA-CHLORO-ETHANE BOT.MAT (UG/KG) (34399)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L) (34403)	INDENO (1,2,3-CD) PYRENE BOT.MAT (UG/KG) (34406)	ISO-PHORONE TOTAL (UG/L) (34408)	ISO-PHORONE BOT.MAT (UG/KG) (34411)	METHYL-BROMIDE TOTAL (UG/L) (34413)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)
SEP 10...	< 5.0	< 200	< 5.0	< 200	< 5.0	< 200	< 10.0	< 200	< 5.0	< 200	< 3.0	< 3.0

DATE	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L) (34428)	N-NITRO-SODI-N-PROPYL-AMINE BOT.MAT (UG/KG) (34431)	N-NITRO-SODI-PHENY-LAMINE TOTAL (UG/L) (34433)	N-NITRO-SODI-PHENY-LAMINE BOT.MAT (UG/KG) (34436)	N-NITRO-SODI-METHY-LAMINE TOTAL (UG/L) (34438)	N-NITRO-SODI-METHY-LAMINE BOT.MAT (UG/KG) (34441)	NAPHTH-ALENE BOT.MAT (UG/KG) (34445)	NITRO-BENZENE TOTAL (UG/L) (34447)	NITRO-BENZENE BOT.MAT (UG/KG) (34450)	PARA-CHLORO-META CRESOL TOTAL (UG/L) (34452)	PARA-CHLORO-META CRESOL BOT.MAT (UG/KG) (34455)
SEP 10...	< 3.0	< 5.0	< 200	< 5.0	< 200	< 5.0	< 200	< 200	< 5.0	< 200	< 5.0	< 600

DATE	PHENAN-THRENE TOTAL (UG/L) (34461)	PHENAN-THRENE BOT.MAT (UG/KG) (34464)	PYRENE TOTAL (UG/L) (34469)	PYRENE BOT.MAT (UG/KG) (34472)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L) (34488)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L) (34506)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L) (34511)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L) (34516)	BENZOGH I PERYL ENE1,12 -BENZOP ERYLENE TOTAL (UG/L) (34521)
SEP 10...	< 5.0	< 200	< 5.0	< 200	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 10.0

DATE	BENZOGH I PERYL ENE1,12 -BENZOP ERYLENE BOT.MAT (UG/KG) (34524)	BENZO A ANTHRAC ENE1,2-BENZANT HRACENE TOTAL (UG/L) (34526)	BENZO A ANTHRAC ENE1,2-BENZANT HRACENE BOT.MAT (UG/KG) (34529)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L) (34536)	1,2-DI-CHLORO-BENZENE BOT.MAT (UG/KG) (34539)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,2-TRANSDI CHLORO-ETHYL-ENE TOTAL (UG/L) (34546)	1,2,4-TRI-CHLORO-BENZENE TOTAL (UG/L) (34551)	1,2,4-TRI-CHLORO-BENZENE BOT.MAT (UG/KG) (34554)	1,2,5,6 -DIBENZ -ANTHRA -CENE TOTAL (UG/L) (34556)	1,2,5,6 -DIBENZ -ANTHRA -CENE BOT.MAT (UG/KG) (34559)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L) (34561)
SEP 10...	< 400	< 10.0	< 200	< 3.0	< 200	< 3.0	< 3.0	< 5.0	< 200	< 10.0	< 400	< 3.0

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 11-12-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	1,3-DI-CHLORO-BENZENE TOTAL (UG/L) (34566)	1,3-DI-CHLORO-BENZENE BOT.MAT (UG/KG) (34569)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L) (34571)	1,4-DI-CHLORO-BENZENE BOT.MAT (UG/KG) (34574)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L) (34576)	2-CHLORO-NAPH-THALENE TOTAL (UG/L) (34581)	2-CHLORO-NAPH-THALENE BOT.MAT (UG/KG) (34584)	2-CHLORO-PHENOL TOTAL (UG/L) (34586)	2-CHLORO-PHENOL BOT.MAT (UG/KG) (34589)	2-NITRO-PHENOL TOTAL (UG/L) (34591)	2-NITRO-PHENOL BOT.MAT (UG/KG) (34594)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L) (34596)
SEP 10...	< 3.0	< 200	< 3.0	< 200	< 3.0	< 5.0	< 200	< 6.0	< 200	< 6.0	< 200	< 10.0

DATE	DI-N-OCTYL PHTHAL-ATE BOT.MAT (UG/KG) (34599)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L) (34601)	2,4-DI-CHLORO-PHENOL BOT.MAT (UG/KG) (34604)	2,4-DI-METHYL-PHENOL TOTAL (UG/L) (34606)	2,4-DP, IN BOTTOM MAT. (UG/KG) (34609)	2,4-DI-NITRO-TOLUENE TOTAL (UG/L) (34611)	2,4-DI-NITRO-TOLUENE BOT.MAT (UG/KG) (34614)	2,4,-DI-NITRO-PHENOL TOTAL (UG/L) (34616)	2,4-DI-NITRO-PHENOL BOT.MAT (UG/KG) (34619)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L) (34621)	2,4,6-TRI-CHLORO-PHENOL BOT.MAT (UG/KG) (34624)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L) (34626)
SEP 10...	< 400	< 6.0	< 200	< 6.0	< 200	< 5.0	< 200	< 20.0	< 600	< 5.0	< 600	< 5.0

DATE	2,6-DI-NITRO-TOLUENE BOT.MAT (UG/KG) (34629)	4-BROMO-PHENYL PHENYL ETHER TOTAL (UG/L) (34636)	4-BROMO-PHENYL PHENYL ETHER BOT.MAT (UG/KG) (34639)	4-CHLORO-PHENYL PHENYL ETHER TOTAL (UG/L) (34641)	4-NITRO-PHENOL TOTAL (UG/L) (34646)	4-NITRO-PHENOL BOT.MAT (UG/KG) (34649)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L) (34657)	4,6-DINITRO-ORTHO-CRESOL BOT.MAT (UG/KG) (34660)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	PHENOL (C6H-5OH) TOTAL (UG/L) (34694)	PHENOL (C6H-5OH) BOT.MAT (UG/KG) (34695)	NAPHTH-ALENE TOTAL (UG/L) (34696)
SEP 10...	< 200	< 5.0	< 200	< 200	< 30.0	< 600	< 30.0	< 600	< 3.0	< 6.0	< 200	< 5.0

DATE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	PENTA-CHLORO-PHENOL TOTAL (UG/L) (39032)	PER-THANE TOTAL (UG/L) (39034)	PENTA-CHLORO-PHENOL BOT.MAT (UG/KG) (39061)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L) (39082)	BIS(2-ETHYL HEXYL) PHTHAL-ATE TOTAL (UG/L) (39100)	BIS(2-ETHYL HEXYL) PHTHAL-ATE BOT.MAT (UG/KG((39102)	DI-N-BUTYL PHTHAL-ATE TOTAL (UG/L) (39110)	DI-N-BUTYL PHTHAL-ATE BOT.MAT (UG/KG) (39112)	VINYL CHLO-RIDE TOTAL (UG/L) (39175)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L) (39180)
SEP 10...	< 3.0	< 3.0	< 30.0	< 0.1	< 600	< 3.0	< 5.0	< 200	< 5.0	< 200	< 3.0	< 3.0

BL-5

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 11-12-87
635342145503000 - BOLIO LK NR DELTA JUNCTION AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	ALDRIN, TOTAL (UG/L) (39330)	LINDANE TOTAL (UG/L) (39340)	CHLORDANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DIELDRIN TOTAL (UG/L) (39380)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	TOXAPHENE, TOTAL (UG/L) (39400)
SEP 10...	< 0.10	< 0.010	< 0.010	< 0.1	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.01	< 1

DATE	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	METHOXYCHLOR, TOTAL (UG/L) (39480)	PCB, TOTAL (UG/L) (39516)	MALATHION, TOTAL (UG/L) (39530)	PARATHION, TOTAL (UG/L) (39540)	DIAZINON, TOTAL (UG/L) (39570)	METHYL PARATHION, TOTAL (UG/L) (39600)	HEXACHLOROBENZENE TOTAL (UG/L) (39700)	HEXACHLOROBENZENE TOT. IN BOTTOM MATL. (UG/KG) (39701)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXACHLOROBUTADIENE BOT.MAT (UG/KG) (39705)
SEP 10...	< 0.010	< 0.010	< 0.01	< 0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 5.0	< 200	< 5.0	< 200

DATE	MIREX, TOTAL (UG/L) (39755)	TOTAL TRITHION (UG/L) (39786)	METHYL TRITHION, TOTAL (UG/L) (39790)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L) (70954)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)
SEP 10...	< 0.01	< 0.01	< 0.01	59	0.0	0.08	5.40	0.300	0.04	3.8	< 0.10	0.34

High?

Log error?

DATE	STYRENE TOTAL (UG/L) (77128)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	TNT TOTAL (UG/L) (81360)	RDX TOTAL (UG/L) (81364)	SPECIFIC CONDUCTANCE LAB (US/CM) (90095)	ALKALINITY, CARBONATE IT-FLD (MG/L - CACO3) (99430)	BICARBONATE IT-FLD (MG/L AS HCO3) (99440)	CARBONATE IT-FLD (MG/L AS CO3) (99445)
SEP 10...	< 3.0	< 0.4	< 0.4	3.7	< 0.4	< 2.0	< 2.0	103	42	51	0

50 - Drinking Water Std

BL-6

TABLE D-3 (Concluded)

Sampling Point	Bolio Range Well	Gerstle Range Well	Black Range Well	Beales Range Well
Date of Sample	27 Feb 1975	27 Feb 1975	26 Feb 1975	01 Oct 1974
Alkalinity	98.0	104.0	81.0	109.0
pH (pH units)	7.8	7.8	7.7	7.7
Hardness (mg/l $CaCO_3$)	132.0	195.0	126.0	148.0
Calcium (mg/l)	37.0	55.0	30.0	42.0
Potassium (mg/l)	3.2	2.6	4.2	3.7
Silica (mg/l)	7.5	5.7	4.1	5.3
Specific Conductance (mmhos)	292.0	376.0	243.0	780.0
Total dissolved solid (mg/l)	172.0	266.0	166.0	191.0
Color (color units)	<5.0	<5.0	<5.0	<5.0
Fluoride (mg/l)	<0.1	0.66	<0.1	<0.1
Iron (mg/l)	0.1	0.1	0.23	0.16
Magnesium (mg/l)	10.8	14.9	12.2	9.6
Manganese (mg/l)	0.02	0.02	0.02	0.01
Chlorides (mg/l)	1.3	1.8	2.1	1.5
Sulfates (mg/l)	38.0	82.0	45.0	38.0
Arsenic (mg/l)	<0.01	<0.01	<0.01	<0.01
Barium (mg/l)	<0.3	<0.3	<0.3	<0.3
Boron (mg/l)	<0.1	<0.1	<0.1	<0.1
Cadmium (mg/l)	<0.001	<0.001	<0.001	<0.001
Chromium (mg/l)	<0.01	<0.01	<0.01	<0.01
Copper (mg/l)	<0.01	0.06	0.02	0.02
Lead (mg/l)	<0.01	<0.01	0.012	<0.01
Mercury (mg/l)	<0.0002	<0.0002	<0.0002	<0.0002
Nitrates (mg/l)	0.2	2.5	0.14	0.13
Silver (mg/l)	0.01	<0.01	<0.01	<0.01
Sodium (mg/l)	3.3	5.0	0.5	3.2
Zinc (mg/l)	0.1	0.21	0.28	0.25

TABLE D-3

CHEMICAL QUALITY OF GROUNDWATER FROM SELECTED WELLS ON FORT GREELY

Sampling Point	Bldg. 606	Well #8	Well #5	Bdlg. T-133
Date of Sample	27 Feb 1975	27 Feb 1975	10 July 1973	05 Dec 1972
Alkalinity (mg/l $CaCo_3$)	89.0	82.0	124.0	96.0
pH (pH units)	7.9	7.8	7.7	9.3
Hardness (mg/l $CaCo_3$)	129.0	126.0	136.0	128.0
Calcium (mg/l)	39.0	38.0	48.0	30.3
Potassium (mg/l)	3.2	3.5	14.4	2.8
Silica (mg/l)	6.9	6.3	4.3	7.8
Specific Conductive (mmhos)	263.0	278.0	----	237.0
Total Dissolved Solid (mg/l)	182.0	190.0	168.0	177.0
Color (color units)	5.0	5.0	0.0	5.0
Fluoride (mg/l)	0.1	0.1	0.22	0.1
Iron (mg/l)	0.03	0.03	0.0	0.06
Magnesium (mg/l)	9.1	9.1	11.2	5.7
Manganese (mg/l)	0.01	0.01	0.0	0.02
Chlorides (mg/l)	1.3	1.3	10.0	1.4
Sulfates (mg/l)	41.0	49.0	39.0	26.0
Arsenic (mg/l)	0.01	0.01	0.0	0.01
Barium (mg/l)	0.3	0.3	----	0.36
Boron (mg/l)	0.1	0.1	0.09	0.01
Cadmium (mg/l)	0.001	0.001	0.0	0.001
Chromium (mg/l)	0.01	0.01	0.0	0.005
Copper (mg/l)	0.01	0.11	0.0	0.01
Lead (mg/l)	0.01	0.01	0.01	0.01
Mercury (mg/l)	0.0002	0.0002	----	0.0001
Nitrates (mg/l)	0.2	0.16	----	0.19
Silver (mg/l)	0.01	0.01	0.0	0.028
Sodium (mg/l)	3.6	3.0	11.5	2.9
Zinc (mg/l)	0.17	0.01	----	0.11

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.

5633 B STREET ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343
FEDERAL TAX ID # 92-0040440

ANALYSIS REPORT BY SAMPLE

Client PO# : DAKF70-87-M-0081 Req #:
Client Smpl ID: BOLIO LAKE, 1400 HRS

Sample Rec'd : SEP 24 87
Ordered By : BRAD PLATT

Send
Reports To: US ARMY FT RICHARDSON*M0081
FINANCE & ACCTING
BOX 499
FT RICHARDSON, AK. 99505

Special FORT GREELY, SAMPLED 9-23-87.
Instruct:

Work Order No. : 3293
Client Account : USAFRQP
Date Report Printed: OCT 29 87 @ 13:33
Released By : 2 ACE

Reports Address #2

Chemlab Ref #: 7809 Lab Smpl ID: 2 Matrix: Water

Parameter Tested	Result/Units	Method	Allowable Limits
HARDNESS (as CaCO3)	50 mg/l		
ALUMINUM	ND(0.01) mg/l	AA	
ANTIMONY	ND(0.05) mg/l	AA	
ARSENIC	0.0010 mg/l	GF	
BARIUM	ND(0.05) mg/l	GF	
BERYLLIUM	ND(0.001) mg/l	GF	
CADMIUM	ND(0.002) mg/l	AA	
CALCIUM	14 mg/l	AA	
CHROMIUM (TOTAL)	ND(0.01) mg/l	GF	
COBALT	ND(0.05) mg/l	AA	
COPPER	ND(0.05) mg/l	AA	
IRON (TOTAL)	0.28 mg/l	AA	
LEAD	ND(0.01) mg/l	AA	
MAGNESIUM	3.7 mg/l	AA	
MANGANESE	ND(0.05) mg/l	AA	
MERCURY	ND(0.0002) mg/l	AA	
NICKEL	ND(0.05) mg/l	AA	
POTASSIUM	2.7 mg/l	AA	
SODIUM	1.7 mg/l	AA	
THALLIUM	ND(0.001) mg/l	GF	
ZINC	ND(0.05) mg	AA	
ALKALINITY (CaCO3)	46 mg/l		
CHLORIDE	ND(1.0) mg/l		
FLUORIDE	0.10 mg/l		
AMMONIA-N	ND(0.05) MG/L		
NITRATE-N	ND(0.10) mg/l		10
NITRITE-N	0.045 mg/l		
PHOSPHORUS (TOTAL)	0.05 mg/l	ICP	
SILICA	0.27 mg/l	ICP	
SULFATE	40 mg/l		
SULFIDE	ND(0.002) mg/l		

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.

5633 B STREET ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343
FEDERAL TAX ID # 92-0040440

ANALYSIS REPORT BY SAMPLE

Client PO# : DAKF70-87-M-0081 Req #:
Client Smpl ID: BOLIO LAKE, 1400 HRS

Sample Rec'd : SEP 24 87
Ordered By : BRAD PLATT

Work Order No. : 3293
Client Account : USAFRGP
Date Report Printed: OCT 29 87 @ 13:35
Released By : 2 ACE

Reports Address #2

Send
Reports To: US ARMY FT RICHARDSON*M0081
FINANCE & ACCTING
BOX 499
FT RICHARDSON, AK. 99505

Special FORT GREELY, SAMPLED 9-23-87.
Instruct:

Chemlab Ref #: 7809 Lab Smpl ID: 2 Matrix: Water

Parameter Tested	Result/Units	Method	Allowable Limits

Sample
Remarks:

31 Tests Performed
ND= None Detected
NA= Not Analyzed

* See Special Instructions Above
** See Sample Remarks Above
LT=Less Than, GT=Greater Than