Public-data File 92-8

Evaluation of Two Springs at Anchor Point, Alaska, for Water-Supply Potential

By

James A. Munter[1] and Mary A. Maurer'

Alaska Division of Water

April 1992

Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys
794 University Avenue, Suite 200
Fairbanks, Alaska 99709-3645

[1] Alaska Department of Natural Resources/Division of Water, Alaska Hydrologic Survey, PO Box 772116, Eagle River, Alaska 99577-2116

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INTRODUCTION

The Alaska Division of Water was requested by the Alaska Division of Parks and Outdoor Recreation (ADPOR) to evaluate two natural springs at Anchor Point, Alaska, for potential use as public water supplies at the Anchor River State Recreation Area. The springs are located on opposite sides of the Anchor River downstream of the new and old Sterling Highway bridges over the river (fig. 1, fig. 2). The north spring is also known as spring number 1 and the south spring is known as spring number 2, or the Steelhead spring. This report presents the results of a one-day water-sampling and reconnaissance trip to the springs, a review of the hydrogeology of the sites, and an evaluation of the suitability of the springs as public water supply sources.

ACKNOWLEDGMENTS

Funding for this study was provided by ADPOR under Reimbursable Services Agreement No. 1027091. Roger MacCampbell and Sid Richards of ADPOR assisted with field logistics.

GEOLOGIC SETTING

The geology of the Anchor Point area is characterized by Quaternary-age glacial and alluvial deposits overlying continental clastic sedimentary rocks (sandstone, siltstone, conglomerate, and coal) of the Tertiary-age Kenai Group (Reger, 1977). Kenai Group rocks are exposed in the lower Anchor River valley and have been penetrated by a number of water wells in the Anchor Point area.

The Anchor River is the predominant geomorphic feature in Anchor Point, occupying a valley approximately 200 to 300 m wide incised approximately 30 to 40 m below the surrounding uplands (fig. 2). The springs emanate from steeply-sloping valley walls and flow overland towards the Anchor River. Uplands near the springs consist of sandy and gravelly glacial outwash (R.D. Reger, oral communication, 1992) underlain by till, glaciomarine or glaciolacustrine deposits, or sedimentary rocks. Gravel pits are located in this outwash unit, and available records show that several wells in the uplands near the springs tap unconfined aquifers less than 20 m deep. An aquifer test has been conducted on one such well (Petrik and Munter, 1991).

WATER QUALITY

Field Sampling Procedures

Although no quality assurance plan was written prior to the sampling trip, field personnel generally followed the sampling procedures of the U.S. Geological Survey (USGS, 1977). Several on-site water quality measurements were made at the two springs. Water temperature, dissolved oxygen concentration, and specific conductance were measured with a Model 4041 Hydrolab that was pre- and post-calibrated in the office according to the instrument's maintenance instructions. The pH of the water was measured with a Beckman Φ 11 Ph meter that was calibrated on-site with standard buffers. Total alkalinity was measured in the field by the incremental titration method with a Hach digital titrator and Beckman Φ 11 pH meter, according to Method 310.1 (pp 310.1-I to 310.1-3) of the U.S. Environmental Protection Agency (1983).

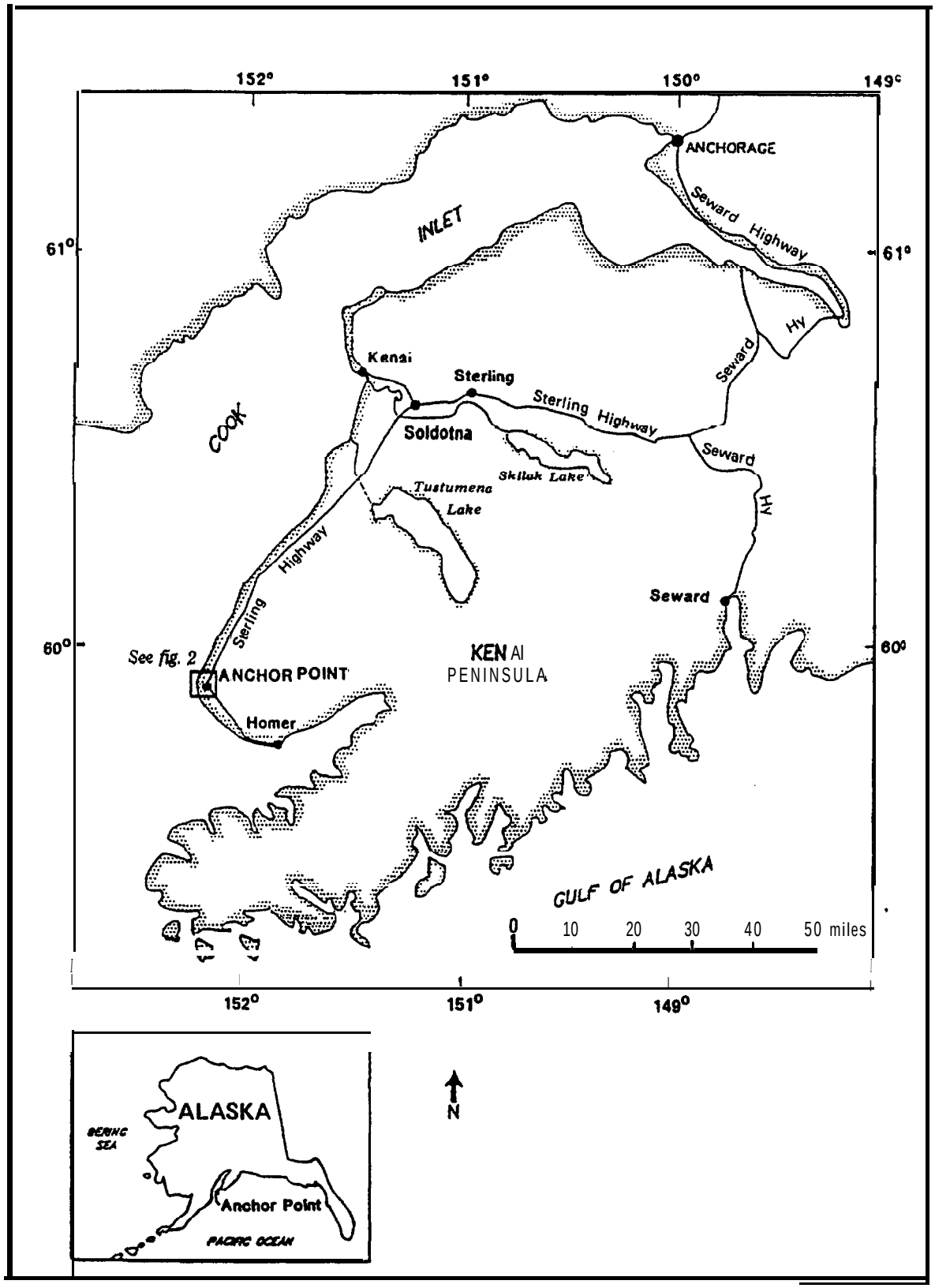


Figure 1. *Map showing location of Anchor Point, Alaska. Base map modified from Ecology and Environment (1986).*

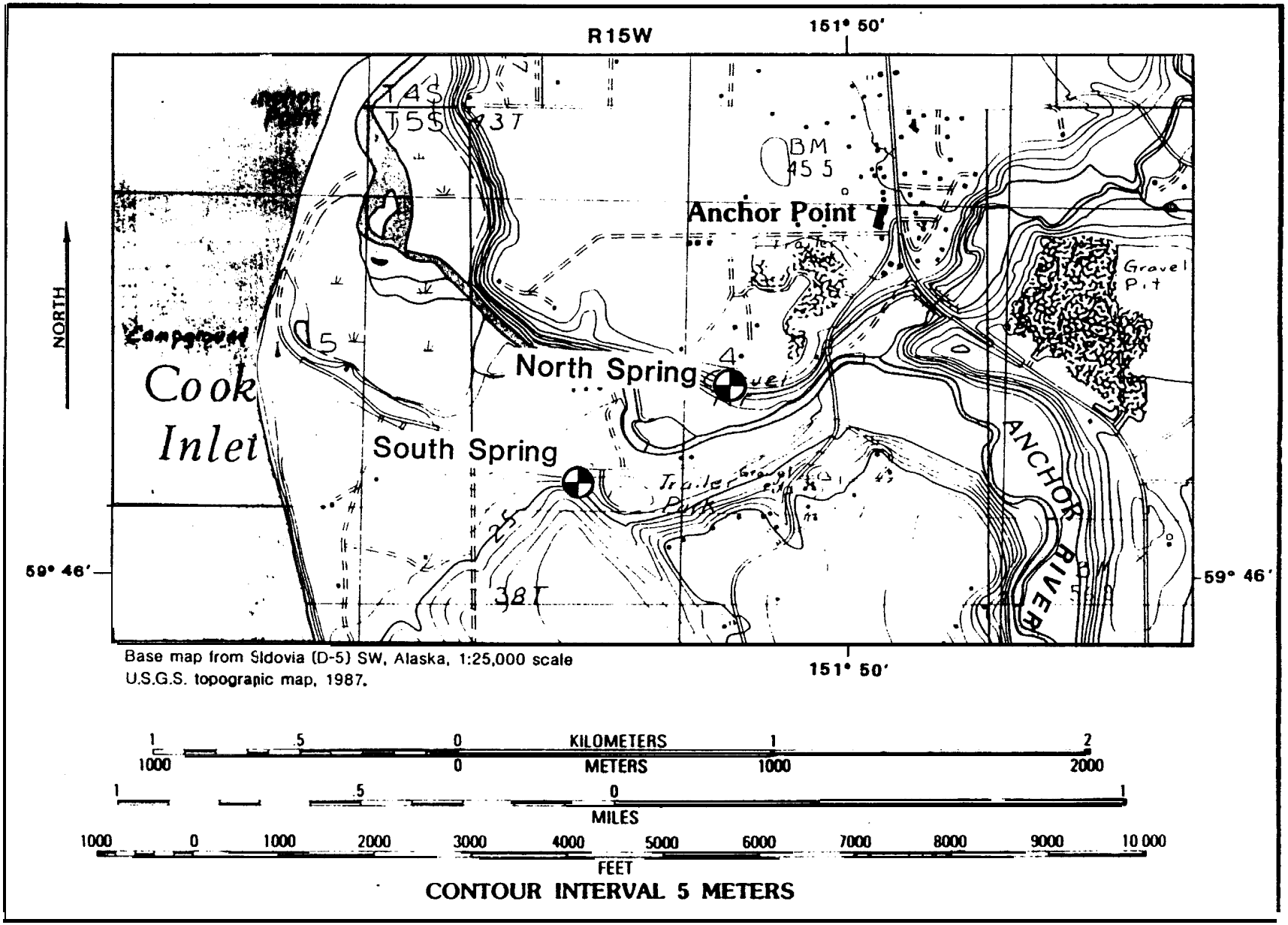


Figure 2. *Location map of north and south springs (modified from Petrik and Munter, 1991).*

Unfiltered, untreated spring water emanated from a PVC overflow pipe at both springs. Labelled water bottles were filled by holding the bottles below the outlet of the PVC overflow pipe. Water samples requiring on-site preservation were collected in samples bottles that were pre-charged with preservative at Chemical and Geological Laboratory of Alaska. Water samples were immediately placed in coolers filled with blue ice packs and delivered to Chemical and Geological Laboratory of Alaska in Anchorage Alaska by Alaska Division of Parks personnel.

Results and Discussion

Field measurements and notes are shown in Appendix A. The water from both springs appeared to be odorless and colorless, and also showed low-turbidity. Both springs have low water temperature, low specific conductance, low alkalinity, and high dissolved oxygen saturation. Low alkalinity indicates that the springs have a poor ability to neutralize acids. The Beckman pH meter, the most reliable of the two field pH instruments, recorded a pH of 6.6 and 6.25 at the north spring and south spring, respectively. Thus, both springs have acidic water.

Excluding combined radium-226 and 228, gross beta, strontium-90, and tritium, samples were analyzed for all of the water quality contaminants that are listed in the Alaska Drinking Water Regulations, Title 18, Chapter 80.070 of the Alaska Administrative Code (Alaska Department of Environmental Conservation, 1991). The water quality analyses of the two springs are shown in Appendix B.

The laboratory analyses indicate that both springs have good water quality. No water quality contaminant exceeds the primary maximum contaminant concentration level for a public water system listed in the Alaska Drinking Water Regulations 18 ACC 80 (ADEC, 1991). The south spring field pH of 6.25 is the only contaminant that is outside the secondary maximum contaminant concentration level range of 6.5 to 8.5 for a public water system listed in the Alaska Drinking Water Regulations (ADEC, 1991).

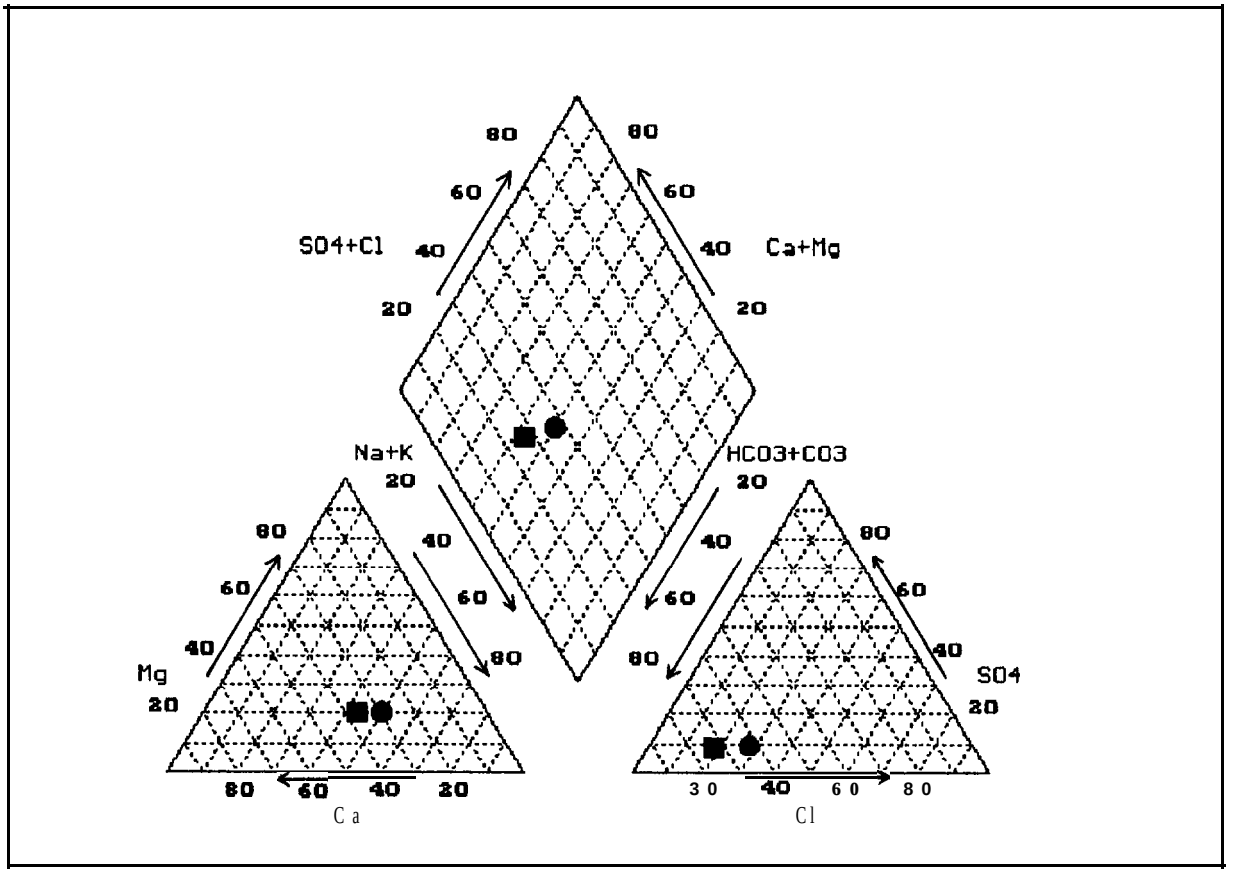
The calculated hardness, based on milliequivalents per liter of calcium and magnesium, is 15 mg/l in the north spring and 24 mg/l in the south spring. Therefore, both springs have soft water (Hem, 1985). The Langlier Index is negative at both springs, indicating that spring water is somewhat corrosive to metal pipes. If metal pipes are used in a water distribution system, the corrosive tendency of the water will deteriorate the metal pipes over time and could produce higher dissolved metal concentrations in the water.

Water-type classification of the two springs, based on major ionic compositions, is shown in a trilinear diagram (fig. 3). The springs have a similar water type. Both springs are classified as mixed-cation bicarbonate water because no one cation predominates. The total dissolved solid concentration in the north spring (44 mg/l) is only slightly lower than in the south spring (69 mg/l). These low dissolved solid concentrations in both springs suggest a short residence time of water in the aquifer.

INTERPRETATION OF SOURCES OF SPRING DISCHARGES

Both the north and south springs discharge ground water from shallow unconfined aquifers underlying upland areas immediately upslope of the respective springs. The springs occupy logical points of discharge for local ground-water flow systems in the aquifers, and the water chemistry is characteristic of shallow ground water with relatively short

residence time in the flow system. Recharge for the south spring occurs south of the spring, and recharge for the north spring occurs north of the spring. Most recharge of the ground-water systems supplying these springs probably occurs within 1 km of each spring. The sparsity of wells in the area for mapping the water table, however, precludes a more exact delineation of recharge areas.



EXPLANATION

- ■ south spring (south side of Anchor River)
- ● north spring (north side of Anchor River)

Figure 3. *Water type classification of two springs at Anchor Point, Alaska. See figure 2 for locations of springs.*

The south spring is located about 35 m in elevation below the top of the bluff south of the spring. The north spring is located about 10 to 15 m in elevation below the top of the bluff north of the spring. These distances are good estimates of the maximum depths of the aquifers supplying the respective springs.

SUITABILITY OF THE SPRINGS FOR WATER-SUPPLY DEVELOPMENT

The north and south springs were estimated to be discharging approximately 1.6 and 0.56 l/s (or 36,000 and 13,000 gallons per day), respectively, on February 4, 1992. Although no other discharge estimates are available, the observed discharges are probably typical of

wintertime low flows, and could be used for water-system design purposes. Current water quality is acceptable for drinking water purposes.

The aquifers supplying the springs may be vulnerable to contamination because of their shallow depth and absence of confining units. Kenai Peninsula Borough plat maps show the presence of numerous platted lots that are upgradient and within 0.5 km of the south spring. These lots are long-term potential sources of contamination. Upgradient of the north spring, lower density development has occurred close to the springs. Further north (greater than 0.5 km to the north), denser development has occurred.

The potential for contamination of both springs is similar to potential contamination threats to ground-water wells throughout similarly developed areas on the Kenai Peninsula where water table aquifers are widely used. Although development structures and monitoring of the springs may best be designed by considering the springs themselves as surface water, long-term protection of recharge areas for the springs is probably best accomplished by regarding the spring water as ground water because ground water is what feeds the spring discharges.

Two known sources of benzene contamination occur north of the Anchor River at Anchor Point. ADEC (1988) delineated a benzene plume northeast of the north spring that appears to be too far east to present a threat to water quality of the north spring. Rozak and ACES (1992) show a plume located about 0.9 km north of the north spring. The leading edge of the plume is currently, as of 1992, about 60 m from the source of contamination. This plume could be in the recharge area for the north spring, but is probably far enough away that dilution and degradation of the harmful contaminants in the plume would occur before they reach the north spring. These two plumes illustrate that older developed areas located north of the north spring may have a greater potential for contamination of ground-water from fuel components or other contaminants than newer residential areas to the south.

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APPENDIX A

Field Data Sheets

STATE OF ALASKA • DEPABTMENT OF NATURAL RESOURCES
Division of Geological & Geophysical Surveys
PO BOX 772116, Eagle River AK 99577-2116 • Ph. (907) 696-0070

Div Techs: Sid Richards, Roger McCampbell

WATER QUALITY FIELD NOTES • GROUND WATER

"Anchor River State Recreation Area"

Location/Project: Anchor Point State Park Spring Evaluation Date: 2-4-92 Collected by: Munter & Maurer

Well Owner: Byrne Kyllonen (H.K) Weather conditions: ~20° cloudy -0 to -7.5°C

Use of well: None Well name: Steelhead Spring - southside #2 (SOUTH SPRING)

Sampling equipment (for measuring water **level,** purging, sampling and filtering • include model **if** appropriate): Hydrolab B / 12.3 volts 7950 barometric pressure

Casing mater&l: PVC 4" x 3"

Casing diameter:

Casing condition: used

Total depth to water (ft): surface

Depth to bottom of well (ft):

Volume of H_2O in well (gal):

Pressure tank volume (gal):

Volume to be purged (4 x vol. in well):

Time purging began: Time purging completed:

Purged Dry? (Y/N):

Time sample withdrawn: start 1130 HRS / 1143 HRS / DO = 9.8 1108
% D.O. Saturation stop = 73%
Field water temperature (°C)/time: 2.6°C / 1103 HRS
Field conductivity (uncorrected)/time: 110/1104
Field conductivity (slope corrected): 100
Field pH (standard units)/time: 6.9 / 1105
Turbidity (Y/N): N
Color (Y/N): N Odor (Y/N): N (No taste)
Hach Iron: mg/l Hach Nitrate: mg/l
Hach Hardness: mg/l as $CaCO_3$
Well cap and lock replaced? ((Y/N):

Some All bottles precharged w/ preservative

Bottle No:							1139 HRS	1140	1141	
Analysis:	Inorganics + Ca, Mg, K	Sec. Contaminants	Inorganics + Si	Sec. Contaminants	Gross Alpha	THM	Herbicides	Pesticides	Vol. organics	Total coliform Raw water
Treatment:	unfiltered, HNO_3 well-mixed	unfiltered, acidified	field-filtered, acidified	field-filtered, unacidified						
volume (ml)	100						1 l. Amber	1 l. Amber	25 ml	100 ml.
preservative	HNO_3	HNO_3	None	None		$Na_2S_2O_3$			HCl	None

Alkalinity: Sample size 100 ml; H_2SO_4 N=0.16 (factor 0.1) Instruments ($Na_2S_2O_3$) Beckman/digital titrator

TITER (digits)	pH	TITER (digits)	pH	TITER (digits)	pH	TITER (digits)	pH
5.62 initial reading		150 ml	5.68	360 ml	5.36	425	3.65
Temp = 1.7°C @ 1209		180 ml	5.68	390 ml	4.54	430	3.59
		210 ml	5.59	395 ml	4.53	435	3.51
0	5.69	230 ml	5.59	400 ml	4.28	440	3.44
30 ml	5.71	250 ml	5.57	405 ml	4.14		
60 ml	5.74	280 ml	5.56	410 ml	4.05	finish	1221
90 ml	5.72	310 ml	5.54	415 ml	3.90	Alkalinity = 39 mg/L as $CaCO_3$	
120 ml	5.71	331 ml	5.49	420 ml	3.89		

COMMENTS: Discharge measured w/ 3 lb coffee can out of pipe. Filled in 10.4 sec, filled twice (28.72 - 7.98) ÷ 2. Pipe captures approx. 50% of flow.

Spring had been excavated 3' wide 2' long 2" deep. water = 1 ft below original LS w/ dam and overflow pipe pH: 6.25 @ 2.2°C w/ Beckman @ 1233

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Division of Geological & Geophysical Surveys
PO BOX 772116, Eagle River AK 99577-2116 • Ph. (907) 696-0070

WATER QUALITY FIELD NOTES • GROUND WATER

w/ Sid Richards
& Roger MacCampbell

Location/Project: Anchor River State Recreation Spring #1 Date: 2-4-92 Collected by: Munter & Maurer

Well Owner: Div of Parks Weather conditions: ~25° cloudy breezy -4°C

Use of well: Domestic summer only maybe Well name: Div. Parks Spring No. 1 (NORTH SPRING

Sampling equipment (for measuring water level, purging, sampling and filtering • include model if appropriate):
Hydrolab B 12.3 volts Bar. Pressure = 29.95

Casing material: 4" PVC 10' long

Time sample withdrawn: 1440-1453 D.O. = 12.3

% D.O. saturation = 88%

Casing diameter:

Field water temperature (°C)/time: 2.2°C / 1417

Casing condition: O K

Field conductivity (uncorrected)/time: 85 / 1419

Total depth to water (ft):

Field conductivity (slope corrected): 75

Depth to bottom of well (ft):

Field pH (standard units)/time: 6.5 (Hydrolab)

Volume of H_2O in well (gal):

Turbidity (Y/N): N

Pressure tank volume (gal):

Color (Y/N): N Odor (Y/N): N

Volume to be purged (4 x vol. in well):

Hach Iron: mg/l Hach Nitrate: mg/l

Time purging began: Time purging completed:

Hach Hardness: mg/l as $CaCO_3$

Purged Dry? (Y/N):

Well cap and lock replaced? (Y/N):

Some bottles precharged w/ preservative

Bottle No:	1440	1441	1442	1443	1444 6 Ross	1446	1447	1449	1451	145[illegible]
Analysis:	Inorg. w/ Ca Mg K	Sec Contam [illegible]	~~Sec Contam~~ Si	Sec Contam.	ALPHA	THM	Pesticides	Herbicides	Vol. Org.	Total Col[illegible]
Treatment:	unfiltered, well-mixed	unfiltered, acidified	Inorganics ~~field-filtered, acidified~~	~~field-filtered,~~ unacidified		raw	raw	raw		[illegible]
volume (ml)										[illegible]
preservative	HNO_3	HNO_3	None	None	NONE	$Na_2S_2O_3$	NONE	NONE	HCl	[illegible]

Alkalinity: Sample size 100 ml ml; H_2SO_4 0.16N (factor 0.1) Instruments Beckman digital titrator

TITER (digits)	pH	TITER (digits)	pH	TITER (digits)	pH	TITER (digits)	pH
initial	5.73	210	5.31	280	3.75		
@1515		240	4.32	285	3.70		
30 ml	5.73	245	4.17	290	3.67		
60 ml	5.72	250	4.10				
90 ml	5.69	255	4.04	Alkalinity = 23 mg/L			
120 ml	5.66	260	3.96	as $CaCO_3$			
150 ml	5.62	265	3.89				
180 ml	5.52	270	3.83				

COMMENTS: No water rights yet? - was filed last fall / Spring basin 6' wide 4' long 1-2' deep w/ wood dam & PVC pipe overflow pH = 6.6 w/ Beckman pH @ 1437
Estimated pipe discharge = 10 gpm (not measured)
Sampled from pipe Pipe Q = approx. 40% of total flow
Basin bottom is gravel w/ some cobbles in ravine

APPENDIX B

Laboratory Results

**(Note: Steelhead spring = south spring
and Division of Parks spring #1 = north spring)**

CHEMICAL & GEOLOGICAL LABORATORY

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

5633 B STREET ANCHORAGE, ALASKA 9951 8 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample 8 1 Matrix: WATER

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : FEB 4 9 2 @ 11:32 hrs.
Received : FEB 5 9 2 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client k c t :AKDPKAP
BPO# : PO8 **:NONE RECEIVED**
Req# :
Ordered By :SID RICHARDS

Analysis Completed : FEB 13 9 2
Laboratory Supervisor : STEPHEN C. EDE
Released By : Steph C. Ede

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
INORGANIC CHEMICALS/TITLE 18	n/a	n/a		n/a
ARSENIC	ND(0.0005)	mg/l	ASTM D2972	0.05 maximu
BARIUM	ND(0.050)	mg/l	EPA 200.7	1.0 maximum
CADMIUM	ND(0.0005)	mg/l	EPA 213.2	0.010 maxim
CHROMIUM	ND(0.005)	mg/l	EPA 218.2	0.0s maximu
FLUORIDE	ND(0.10)	mg/l	EPA 340.3	2.4 maximum
LEAD	N(0.005)	mg/l	EPA 239.2	0.0s maximu
MERCURY	ND(0.0002)	mg/l	SM14 301AVI	0.002 maxim
NITRATE-N	ND(0.10)	mg/l	EPA 353.2	10 maximum
SELENIUM	ND(0.0005)	mg/l	ASTM D3859	0.01 maximu
SILVER	ND(0.001)	mg/l	EPA 272.2	0.05 maximu
TURBIDITY	0.08	mu	EPA 180.1	1.0 maximum
CALCIUM	6.1	mg/l	EPA 200.7*ICP	
MAGNESIUM	2.1	mg/l	EPA 200.7*ICP	
POTASSIUM	1.1	mg/l	EPA 200.7*ICP	
SILICON	8.7	mg/l	EPA 200.7*ICP	

Sample Remarks: **ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER.**

16 **Tests Performed**
ND- **None Detected**
NA- Not **Analyzed**
• **See Special Instructions** Above
• * **See Sample Remarks Above**
LT-Less Then. **GT-Greater** Than
UA-Unavailable

CHEMICAL & GEOLOGICAL LABORATORY

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5633 B STREET ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample # 2 Matrix: WATER

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name : AK PARKS
Client Acct : AKDPKAP
BPO# : **PO# : NONE** RECEIVED
Req# :
Ordered By : SID RICHARDS

Analysis Completed : FEB 12 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

Sand Rapottr to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
ORGANIC CRBNICALS-TITLE 18	n/a	n/a		n/a
ENDRIN	ND(0.0002)	mg/l	EPA 508	0.0002 maxi
LINDANE	ND(0.0002)	mg/l	EPA 508	0.004 maxim
METHOXYCHLOR	ND(0.002)	mg/l	EPA SOB	0.1 maximum
TOXAPHENE	ND(0.002)	mg/l	EPA 508	0.005 maxim
2,4-D	ND(0.002)	mg/l	EPA 515.1	0.1 maximum
2,4,5-TP SILVEX	ND(0.0002)	mg/l	EPA 515.1	0.01 maximu

Sample Remarks: ROUTINE SAMPLE COLLECTED BI: MARY A. MAURER.

7 Tests Performed
ND- None Detected
NA- Rot Analyzed

. See Special Instructions Above
** See Sample Remarks Above
LT-Less Than. GT-Greater Than

UA-Unavailable

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ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440' Sample # 3 **Matrix: WATER**

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 11:33 hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client Acct :AKDPKAP
BPO# :
Req# :
Ordered By :SID RICHARDS

PO# :NONE RECEIVED

Analysis Completed : FEB 13 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
SECOND CONTAMINANTS-TITLE 18	n/a	n/a		n/a
CHLORIDE	7.1	mg/l	SM16ED407A	250
TRUE COLOR	LT 5	PCD	SM16ED204A	15 units
COPPER	ND(0.013)	mg/l	EPA200.7A	1
LANGLIER INDEX @ 40 degrees F	-2.61		SM14ED203	
LANGLIER INDEX @ 140 degrees F	-1.53		SM14ED203	
FLUORIDE	ND(0.10)	mg/l	EPA34G.3	4.0
FOAMING AGENT, WAS	ND(0.10)	mg/l	SM16ED512B	0.5
IRON	0.036	mg/l	EPA200.7A	0.3
MANGANESE	ND(0.013)	mg/l	EPA200.7A	0.05
ODOR	NO ODOR	TON	SM16ED207	3
pH	6.90	units	EPA150.1	6.5 - 8.5
SODIUM	7.7	mg/l	EPA200.7A	250
SULFATE	4.4	mg/l	EPA375.4	250
TOTAL DISSOLVED SOLIDS	69	mg/l	EPA160.1	500
ZINC	ND(0.025)	mg/l	EPA200.7A	5

Sample Remarks: ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER. DUPLICATE TAG MARKED SAMPLED AT 1131 HRS. NEGATIVE LANGLIER INDEX INDICATES CORROSIVE TENDANCIES.

16 Tests Performed
ND- None Detected
HA- Not Analyzed

. See Special Instructions Above
. . See Sample Remarks
LT-Less Than, GT-Greater Than

UA-Unavailable

CHEMICAL & GEOLOGICAL LABORATORY

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

5633 B STREET ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 **Sample #** 4 **Matrix: WATER**

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 11:35 hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client kct :AKDPKAP
PO# :
Req# :
Ordered By :SID RICHARDS

Pot :NONE RECEIVED

Analysis Completed : FEB 6 92
Laboratory Supervisor: STEPHEN C. EDE
Released By : Stephen C. Ede

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowablr Limits
TOTAL TRIHALOMETHANES	n/a	n/a	EPA 501.1	n/a
CHLOROFORM	ND(0.0010)	mg/l	EPA501.1	
BROMODICHLOROMETHANE	ND(0.0010)	mg/l	EPA501.1	
CHLORODIBROMOMETHANE	ND(0.0010)	mg/l	EPA501.1	
BROMOFORM	ND(0.0010)	mg/l	EPA501.1	
TOTAL TRIHALOMETHANES	ND(0.0010)	mg/l	EPA501.1	0.10 mg/l

Sample Remarks: ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER.

6 Tests Performed
ND- None Detected
NA- Not Analyzed
. See Special Instructions Above
** See Sample Remarks Above
LT-Less Than. GT-Greater Than
UA-Unavailable

CHEMICAL & GEOLOGICAL LABORATORY

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

5633 B STREET ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample # 5 Matrix: **WATER**

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ hrs.
Received : FEB 5 92 @ 09:10 hrs .
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client kct :AKDPKAP
BPO# : **PO# :NONE RECEIVED**
Req# :
Ordered By **:SID RICHARDS**

Analysis Completed : **FEB** 6 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : *Stephen C. Ede*

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
VOLATILE ORGANIC CHEMICALS	n/a	n/a	EPA502.2/524.2	n/a
1,1,1 TRICHLOROETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	0.200
1.1DICHLOROETHYLENE	ND(0.0010)	mg/L	EPA502.2/524.2	0.0070
1,2 DICHLOROETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	0.0050
CARBON TETRACHLORIDE	ND(0.0010)	mg/L	EPA502.2/524.2	0.0050
VINYL CHLORIDE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0010
BENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0050
1,4-DICHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0750
TRICHLOROETHYLENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0050
TTHM	ND(0.0010)	mg/L	EPA502.2/524.2	0.100
BROMOBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2	
BROMOCHLOROMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	
BROMODICHLOROMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	
BROMOFORM	ND(0.0010)	mg/L	EPA 502.2/524.2	
BROMOMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	
n-BUTYLBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2	
SEC-BUTYLBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2	
TERT-BUTYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLORODIBROMOMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROFORM	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
1.2DIBROMO-3-CHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
o-CHLOROTOLUENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
p-CHLOROTOLUENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
DIBROMOMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
m-DICHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
o-DICHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
DICHLORODIFLUOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
1,1-DICHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
cis-1,2-DICHLOROETHYLENE	ND(0.0010)	mg/L	EPA502.2/524.2	
trans-1,2-DICHLOROETHYLENE	ND(0.0010)	mg/L	EPA502.2/524.2	
DICHLOROMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	

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ANALYSIS RESULTS for INVOICE # 50903

Chemlab Ref.# 92.8440 **Sample #** 5 **Matrix: WATER**

1,2-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
2,2-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,1-DICHLOROPROPENE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3-DICHLOROPROPENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ETHYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ETHYLENE DIBROMIDE (EDB)	ND(0.0010)	mg/L	EPA 502.2/524.2
FLUOROTRICHLOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
HEXACHLOROBUTADIENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ISOPROPYLBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2
p-ISOPROPYLTOLUENE	ND(0.0010)	mg/L	EPA 502.2/524.2
NAPTHALENE	ND(0.0010)	mg/L	EPA S02.2fS24.2
n-PROPYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
STYRENE	ND(0.0010)	mg/L	BPA502.2/524.2
1,1,1,2-TETRACHLOROETHANE	ND(0.0010)	mg/L	EPA502.2/524.2
1,1,2,2-TETRACHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
TETRACHLOROETHYLENE	ND(0.0010)	mg/L	EPA 502.2/524.2
TOLUENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,2,3-TRICLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,2,4-TRICHLOROBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,1,2-TRICHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,2,3-TRICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,2,4-TRIMETHYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3,5-TRIMETHYLBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2
p & m XYLENE	ND(0.0010)	mg/L	EPA502.2/524.2
o-XYLENE	ND(0.0010)	mg/L	EPA502.2/524.2

Sample Remarks: ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER.

60 rests Performed
MD- None Datrctad
MA- Mot Analyzed

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

UA-Unavailable

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ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref .# 92.0440 Sample # 6 Matrix: WATER

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : UA
Collected : a hrr.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client Acct :AKDPKAP
BPO# : PO# :NONE RECEIVED
Req# :
Ordered By :SID RICHARDS

Analysis Completed :
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

send **Reports** to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
TOTAL COLIFORM	0	**col/100 ml**		

Sample Remarks: **ROUTINE SAMPLE COLLECTED BY: MARY A.. MAURER. MD TAG FOR THIS SAMPLE.**

1 **Tests Performed** ND. Won. **Detected** NA- Not **Analyzed**
. **See Special Instructions** Above
. * **See Sample Remarks Above**
LT-Less Than, GT-Greater Than
UA-Unavailable

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ANALYSIS RESULTS for **INVOICE # 50903**
Chemlab Ref.# 92.0440 Sample # 7 **Matrix: WATER**

Client Sample ID : STEELHEAD SPRING ANCHOR POINT
PWSID : **UA**
Collected : **FEB 4 92 @ 11:34 hrs.**
Received : PEB 5 92 **@ 09:10 hrs.**
Preserved with : AS **REQUIRED**

Client Name : AN PARKS
Client Acct : AKDPKAP
BPO# : PO: **:NONE RECEIVED**
Req# :
Ordered By :SID **RICHARDS**

Analysis Completed : **MAR 7 92**
Laboratory **Supervisor** : **STEPHEN** C. **EDE**
Released By :

Send Reports to:
1)**AK** PARKS
2)

Parameter	Results	Units	Method	Allowable **Limits**
GROSS **ALPHA**	**0.2 +/- 0.3**	**pCi/L**	EPA 900.0	**15**

RECEIVED
MAR 25 1992
D.P.O.R.
DESIGN & CONSTRUCTION

Sample **ROUTINE** SANPLE COLLECTED **BY: MARY** A. **MAURER.**
Remarks: SAMPLE ANALYZED BY CH2M HILL, BEDDING. **CALIFORNIA.**

1 Tests Performed
ND- None Detected
NA- Not Analyzed

. See Special Instructions Above
** See Sample **Remarks** Above
LT-Less Than. CT-Greater Than

UA-Unavailable

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ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample # 8 Matrix: WATER

Client Sample ID : DIV. PARKS SPRING #1 ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 14:42 hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name : AK PARKS
Client kct : AKDPKAP
BPO# : PO# : NONE RECEIVED
Req# :
Ordered By : SID RICHARDS

Analysis Completed : FEB 13 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

Send Reports to:
1) AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
INORGANIC CHEMICALS/TITLE 18	n/a	n/a		n/a
ARSENIC	ND(0.0005)	mg/l	ASTM D2972	0.05 maximu
BARIUM	ND(0.050)	mg/l	&PA 200.7	1.0 maximum
CADMIUM	ND(0.0005)	mg/l	EPA 213.2	0.010 maxim
CHROMIUM	ND(0.005)	mg/l	EPA 218.2	0.05 maximu
FLUORIDE	ND(0.10)	mg/l	EPA 340.3	2.4 maximum
LEAD	ND(0.005)	mg/l	EPA 239.2	0.0s maximu
MERCURY	ND(0.0002)	mg/l	SM14 301AVI	0.002 maxim
NITRATE-N	0.66	mg/l	EPA 353.2	10 maximum
SELENIUM	ND(0.0005)	mg/l	ASTM 03859	0.01 maximu
SILVER	ND(0.001)	mg/l	&PA 272.2	0.0s maximu
TURBIDITY	0.09	NTU	EPA 180.1	1.0 maximum
CALCIUM	3.6	mg/l	EPA200.7*ICP	
MAGNESIUM	1.5	mg/l	EPA200.7*ICP	
POTASSIUM	1.1	mg/l	EPA200.7*ICP	
SILICON	6.2	mg/l	EPA200.7*ICP	

Sample Remarks: ROUTINE SAMPLE COLLECTED BX: MARY A. MAURER.

16 Tests Performed
ND- None Detected
NA- Not Analyzed
Special Instructions Above
See Remarks Above
LT-Less Than, GT-Greater Then
DA-Unenilable

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ANALYSIS RESULTS for INVOICE # 50903

Chemlab Ref.# 92.0440 **Sample #** 9 **Matrix: WATER**

Client Sample I D : **DIV. PARKS SPRING #1 ANCHOR POINT**
PWSID : **UA**
Collected : **@ hrs.**
Received : **FEB 5** 92 **@ 09:10 hrs.**
Preserved with : AS **REQUIRED**

Client Name :**AK PARKS**
client kct :**AKDPKAP**
BPO# : PM :**NONE RECEIVED**
Req# :
Ordered By :**SID RICHARDS**

Analysis Completed : **FEB 12** 92
Laboratory Supervisor : **STEPHEN C. EDE**
Released By : Stephen C. Ede

Send Reports to:
1)**AK PARKS**
2)

Parameter	Results	Units	Method	Allowable Limits
ORGANIC **CHEMICALS-TITLE** 18	n/a	n/a		n/a
ENDRIN	**ND(0.0002)**	**mg/l**	**EPA** 508	**0.0002 maxi**
LINDANE	**ND(0.0002)**	**mg/l**	**EPA 508**	0.004 **maxim**
METHOXICHLOR	**ND(0.002)**	**mg/l**	EPA **508**	0.1 **maximum**
TOXAPHENE	**ND(0.002)**	**mg/l**	EPA **508**	0.005 **maxim**
2.4D	**ND(0.002)**	**mg/l**	**EPA 515.1**	0.1 **maximum**
2,4,5-TP SILVEX	**ND(0.0002)**	**mg/l**	EPA 515.1	0.01 **maximu**

Sample Remarks: **ROUTINE SAMPLE COLLECTED** BY: **MARY** A. **MAURER.** NO **TAG FOR THIS SAMPLE.**

7 **Tests Performed**
ND- None Detected
NA- Not Analyzed

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

UA-Unavailable

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ANALYSIS RESULTS for INVOICE # *50903*
Chemlab Ref.# 92.0440 Sample # 10 **Matrix:** WATER

Client Sample ID : DIV. PARKS SPRING #1 ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 14:41 hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client kct :AKDPKAP
RPO# :
Req# :
Ordered By :SID RICHARDS

PO# :NONE RECEIVED

Analysis **Completed** : FEB 13 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
SECONDCONTAMINANTS-TITLE18	n/a	n/a		n/a
CHLORIDE	6.8	mg/l	SM16ED407A	250
TRUE COLOR	LT 5	PCU	SM16ED204A	15 units
COPPER	ND(0.013)	mg/l	EPA200.7A	1
LANGLIER INDEX @ 48 degrees F	-2.06		SM14ED203	
LANGLIER INDEX 8 140 degrees F	-3.14		SM14ED203	
FLUORIDE	ND(0.10)	mg/l	EPA340.3	4.0
FOAMING AGENT, WAS	ND(0.10)	mg/l	SM16ED512B	0.5
IRON	ND(0.025)	mg/l	EPA200.7A	0.3
MANGANESE	ND(0.013)	mg/l	EPA200.7A	0.05
ODOR	NO ODOR	TON	SM16ED207	3
pH	6.37	units	EPA150.1	6.5 - 8.5
SODIUM	6.4	mg/l	EPA200.7A	250
SULFATE	3.2	mg/l	CPA37S.4	250
TOTAL DISSOLVED SOLIDS	44	mg/l	EPA160.1	500
ZINC	ND(0.025)	mg/l	EPA200.7A	5

Sample ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER. DUPLICATE TAG NUKED
Remarks: SAMPLED AT 1443 HRS.

16 **Tests Performed**
ND- None Detected
NA- Not **Analyzed**
. See special **Instructions Above**
** see **Sample Remarks Above**
LT-Less Than, GT-Greater Than
UA-Unavailable

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ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample # 1 1 Matrix: WATER

Client Sample ID : DIV. PARKS SPRING #1 ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 14:46 hrs.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Name :AK PARKS
Client kct :AKDPKAP
BPO# : PO# :NONE RECEIVED
Req# :
Ordered By :SID RICHARDS

Analysis Completed : FEB 6 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

sand Reports to:
1)AK PARKS
2)

Paxamtrx	Results	Units	Method	Allowable Limits
TOTAL TRIHALOMETHANES	n/a	n/a	EPA 501.1	n/a
CHLOROFORM	ND(0.0010)	mg/l	EPA501.1	
BROMODICHLOROMETHANE	ND(0.0010)	mg/l	EPA501.1	
CHLORODIBROMOMETHANE	ND(0.0010)	mg/l	EPA501.1	
BROMOFORM	ND(0.0010)	mg/l	EPA501.1	
TOTAL TRIHALOMETHANES	ND(0.0010)	mg/l	EPA501.1	0.10 mg/l

Sample Remarks: ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER.

6 Tests Performed
ND- None Detected
NA- Not Analyzed
. See Special Instructions Above
. * See Sample Remarks Above
LT-Less Than, GT-Greater Than
UA-Unavailable

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ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref.# 92.0440 Sample # 12 Matrix: WATER

Client Sample ID : DIV. PARKS SPRING #1 ANCHOR POINT
PWSID : UA
Collected : FEB 4 92 @ 14:51 hr.
Received : FEB 5 92 @ 09:10 hrs.
Preserved with : AS REQUIRED

Client Man :AK PARKS
Client Acct :AKDPKAP
BPO# : PO# :NONE BBCBIVBL
Req# :
Ordered By :SID RICHARDS

Analysis Completed : FEB 6 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : Stephen C. Ede

Send Reports to:
1)AK PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
VOLAIILB ORGANIC CHEMICALS	n/a	n/a	EPA 502.2/524.2	n/a
1,1,1 TRICHLOROETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	0.200
1.1DICHLOROETHYLENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0070
1,2 DICHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0050
CARBON TETRACHLORIDE	ND(0.0010)	mg/L	EPA502.2/524.2	0.0050
VINYL CHLORIDE	ND(0.0010)	mg/L	EPA502.2/524.2	0.0010
BENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0050
1,4-DICHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0750
TRICHLOROETHYLENE	ND(0.0010)	mg/L	EPA 502.2/524.2	0.0050
TTHM	ND(0.0010)	mg/L	EPA 502.2/524.2	0.100
BROMOBENZENE	ND(0.0010)	mg/L	EPAS02.2jS24.2	
BROMOCHLOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
BROMODICHLOROMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	
BROMOFORM	ND(0.0010)	mg/L	EPA502.2/524.2	
BROMOMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
n-BUTYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
SEC-BUTYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
TERT-BUTYLBENZENE	ND(0.0010)	mg/L	CPA S02.2fS24.2	
CHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLORODIBROMOMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROFORM	ND(0.0010)	mg/L	EPA 502.2/524.2	
CHLOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
1,2 DIBROMO-3-CHLOROPROPANE	ND(0.0010)	mg/L	BPA502.2/524.2	
o-CHLOROTOLUENE	ND(0.0010)	mg/L	BPA S02.2fS24.2	
p-CHLOROTOLUENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
DIBROMOMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
m-DICHLOROBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2	
o-DICHLOROBENZENE	ND(0.0010)	mg/L	BPA S02.2fS24.2	
DICHLORODIFLUOROMETHANE	ND(0.0010)	mg/L	BPA502.2/524.2	
1,1-DICHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2	
cis-1,2-DICHLOROETHYLENE	ND(0.0010)	mg/L	BPA502.2/524.2	
trans-1,2-DICHLOROETHYLENE	ND(0.0010)	mg/L	EPA502.2/524.2	
DICHLOROMETHANE	ND(0.0010)	mg/L	EPA502.2/524.2	

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ANALYSIS RESULTS for INVOICE # 50903

Chemlab Ref.# 92.0440 **Sample #** 12 **Matrix: WATER**

1,2-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
2,2-DICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,1-DICHLOROPROPENE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3-DICHLOROPROPENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ETHYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ETHYLENE DIBROMIDE (EDB)	ND(0.0010)	mg/L	EPA S02.2J524.2
FLUOROTRICHLOROMETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
HEXACHLOROBUTADIENE	ND(0.0010)	mg/L	EPA 502.2/524.2
ISOPROPYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
p-ISOPROPYLTOLUENE	ND(0.0010)	mg/L	EPA 502.2/524.2
NAPTHALENE	ND(0.0010)	mg/L	EPA 502.2/524.2
n-PROPYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
STYRENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,1,1,2-TETRACHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,1,2,2-TETRACHLOROETHANE	ND(0.0010)	mg/L	EPA 502.2/524.2
TETRACHLOROETHYLENE	ND(0.0010)	mg/L	EPA502.2/524.2
TOLUENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,2,3-TRICLOROBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,2,4-TRICHLOROBENZENE	ND(0.0010)	mg/L	EPA502.2/524.2
1,1,2-TRICHLOROETHANE	ND(0.0010)	mg/L	EPA502.2/524.2
1,2,3-TRICHLOROPROPANE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,2,4-TRIMETHYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
1,3,5-TRIMETHYLBENZENE	ND(0.0010)	mg/L	EPA 502.2/524.2
p & m XYLENE	ND(0.0010)	mg/L	EPA502.2/524.2
o-XYLENE	ND(0.0010)	mg/L	EPA502.2/524.2

Sample Remarks: ROUTINE SAMPLE COLLECTED BY: MARY A. MAURER.

60 Tests Performed
ND- None Detected
NA- Not Analyzed
. See Special Instructions Above
** See Sample Remarks Above
LT-Less Than, GT-Greater Than
UA-Unavailable

CHEMICAL & GEOLOGICAL LABORATORY

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

5633 B STREET . ANCHORAGE, ALASKA 99518 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for INVOICE # 50903
Chemlab Ref .# 92.0440 **Sample #** 13 **Matrix: WATER**

Client Sample ID : DIV. PARKS **SPRING #1 ANCHOR POINT**
PWSID : **UA**
Collected : **@ hrs.**
Received : **FEB 5 92 e 09:10 hrs.**
Preserved with : AS **REQUIRED**

Client Name :**AK** PARKS . .
Client kct : **AKDPKAP**
BPO# : **PO#** :**NONE RECEIVED**
Req# :
Ordered **By** :**SID RICHARDS**

Analysis Completed : **FEB** 6 92
Laboratory Supervisor : **STEPHEN C. EDE**
Released By : Stephen C. Ede

Send Reports to:
1)**AK PARKS**
2)

Parameter	Results	Units	Method	Allowable Limits
TOTAL **COLIFORM**	0	**col/100 ml**		

Sample Remarks: **ROUTINE SAMPLE COLLECTED BY: MARY** A. **MAURER.**

1 T o r t s **Performed** . **See Special Instructions Above** **UA-Unavailable**
ND- None Detected . * **See Sample Remarks Above**
NA- Not Analyzed **LT-Less** Than, CT-Greater **Than**

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5633 B STREET ANCHORAGE. ALASKA 99518 TELEPHONE (907) 562-2343 FAX: (907) 561-5301

ANALYSIS RESULTS for **INVOICE #** 50903
Chemlab Ref .# 92.0440 **Sample #** 14 **Matrix:** WATER

Client **Sample** ID : DIV. **PARKS SPRING #1 ANCHOR POINT**
PWSID : **UA**
Collected : **FEB** 4 92 **@ 14:44 hrs.**
Received : **FEB** 5 92 **@ 09:10 hrs.**
Preserved with : AS **REQUIRED**

Client Name : AK PARKS
Client Acct :**AKDPKAP**
BPO# : **PO#** :**NONE RECEIVED**
Req# :
Ordered By :**SID RICHARDS**

Analysis Completed : **MAR** 9 92
Laboratory **Supervisor**: **STEPHEN** C. EDE
Released By :

Send Reports to:
1)**AK** PARKS
2)

Parameter	Results	Units	Method	Allowable Limits
GROSS **ALPHA**	0.0 +/- 0.1	**pCi/L**	EPA 900.0	15

Sample **ROUTINE SAMPLE COLLECTED** BI: **MARY** A. **MAURER.**
Remarks: SAMPLE ANALYZED BY CH2M BILL, **REDDING, CALIFORNIA.**

1 Tests Performed
ND- Nom **Detected**
WA- Not Analyzed

*** See Special Instructions Above**
. * Ser **Sample Remarks Above**
LT-Less Than, GT-Greater fhan

UA-Unavailable