

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

1994 STATEWIDE WATER QUALITY ASSESSMENT

NAME OF WATERBODY: McKinley Lake

Location or Lat/Long: Sec 22, T16S, R1E, Copper River Meridian.
Approx. 20 miles ESE of Cordova

Is the waterbody in a national or state park, monument, refuge, preserve, or similar area?:
 Yes / No / Name: Chugach National Forest

Waterbody Type:	Waterbody Size:	Segment of Waterbody Addressed:
<input checked="" type="checkbox"/> River/Stream	<u>1/4</u> Miles (Stream)	From: _____
<input checked="" type="checkbox"/> Lake	<u>320</u> Acres (Lake)	To: _____
<input type="checkbox"/> Fresh Wetland	_____ Acres	Other Description: <u>pollutants enter</u>
<input type="checkbox"/> Tidal Wetland	_____ Acres	<u>Lake from NW side</u>
<input type="checkbox"/> Estuary	_____ Square Miles	Size of Segment: _____
<input type="checkbox"/> Coastal Shoreline	_____ Miles	_____
<input type="checkbox"/> Groundwater		

Period of Assessment, From: July 15, 1992 To: Sept 16, 1992

Assessment completed by: Chris Roe, Bureau of Mines & Carol Huber, Forest Service

Type of Documentation (attach if possible):

<input checked="" type="checkbox"/> Water quality data	<input checked="" type="checkbox"/> Written report
<input type="checkbox"/> Documented oil spill	<input checked="" type="checkbox"/> Field notes
<input type="checkbox"/> NOV / Enforcement action	<input type="checkbox"/> Overflight
<input checked="" type="checkbox"/> Photos with documentation	<input checked="" type="checkbox"/> Observation
<input type="checkbox"/> Fish / Habitat survey	<input checked="" type="checkbox"/> Other (please describe below)

Assessment based on: Monitored water quality data Evaluated (Best professional judgement)

Describe Source and Nature of Pollution, Documentation Provided and Other Comments: Abandoned Mine Inventory
McKinley Lake Mine (also called Lucky Strike).
Pollutants: water flowing from mine workings and through mine tailings &
waste rock contains arsenic, Copper, zinc, lead and mercury in
mill tailings, Tailings are on stream banks, stream bed and Lake.
Small stream drains through old land fill and into lake. See attachm-
ents. Asbestos and other solid waste at mine site.

RESPONDENT INFORMATION:

Name: Carol S Huber Phone: 271-2541 Date: 3-15-94
 Employer: USDA Forest Service Dept: Min/Soil/Water Title: Forest Geologist
 Address: 3301 C St Anchorage AK, 99503
 Education/Experience: BS Geology/Water quality study / Abandoned Mine Inventory

McKinley Lake Mine

Ditches: Several trenches Richelson² described were found. In the area he called the Lower Mill Creek Workings, Open Cut Numbers 11 and 12 still exist. These are approximately 1.5 meters (5 feet) wide and 0.6 meters (2 feet) deep.

The Upper Mill Creek Tunnel was searched for by walking west, up slope, from the 40-meter (130-foot) Lower Mill Creek Tunnel. The adit was never found; a trench possibly Open Cut Number 10, was found at an elevation of 25 meters (83 feet). Ditches are considered to have a medium hazard potential.

Impoundments: No impoundments were found.

Pits and highwalls: No evidence of pits or highwalls was found.

Sedimentation: No evidence of sedimentation was found.

Subsidence: Material above portions of the 42.7-meter (140-foot) adit caved in at the portal and consequently subsided. Several trenches were found in the vicinity of the mill site, and are considered to have a medium hazard potential.

Waste piles: Excavated material is associated with all of the trenches, shafts and adits at the site. Very little of it is in recognizable piles. Instead, it was distributed over the surrounding area and eventually it was revegetated.

Chemical

Acids: No evidence of acids was found.

Heavy metals: One soil sample and two water samples were taken. Results of the analysis are given below.

Table 2. Results from heavy metals testing.

Sample Number	Location	Lead (ppm)	Zinc (ppm)	Copper (ppm)	Mercury (ppm)
SS-2	Soil sample from suspected tailings at millsite	101	187	69	0.93
WS-1	Water sample Mill Creek upstream from millsite	<0.005	<0.05	<0.05	<0.0002
WS-2	Water sample from Lower Mill Creek workings	0.010	<0.05	<0.05	<0.0002

McKinley Lake Mine

Crustal abundance values for these elements in soils are; 6 - 7 ppm lead, 200 ppm zinc, 0.2 ppm mercury, and 70 ppm copper. The federal primary drinking water standards for lead and mercury are 0.050 and 0.002 mg/l (or ppm), respectively. Federal secondary drinking water standards for zinc and copper are 5 and 1.0 mg/l (or ppm), respectively.

Thus, tailings from the mill have elevated values of lead and mercury. The water draining from the Lower Mill Creek workings has an elevated value of lead, but still within Federal drinking water standards. Heavy metals are considered as having a medium hazard potential.

Petroleum products: Soil sample SS-1, from the tool/storage shed site was analyzed for petroleum products.

Table 3. Results from petroleum testing.

Sample Number	Location	ppm dry weight
SS-1	Soil sample from tool/storage shed	121

In addition, the laboratory report noted the ratio between total petroleum hydrocarbons by method 418.1 and total oil and grease by method 413.2 was 0.41 which indicates possible biogenic hydrocarbon contamination. Because of these results, petroleum products are considered to have a medium hazard potential.

Poly chlorinated biphenyls (PCB's): No evidence of PCB's was found.

Toxic substances: Two water samples were taken. Results are found in table 4.

Table 4. Results from Arsenic testing.

Sample Number	Location	Arsenic (ppm)
WS-1	Water sample Mill Creek upstream from millsite	0.010
WS-2	Water sample from Lower Mill Creek workings	0.075

McKinley Lake Mine

According to federal regulations, the Maximum Containment Level for arsenic is 0.05 milligrams per liter (ppm).³ Results indicate that the samples exceed the Federal Drinking Water Standards. Because of this, toxic substances are considered to have a high hazard potential.

SUMMARY OF FINDINGS

Table 5 provides a summary of potential hazards found at McKinley Lake Mine.

TABLE 5. - Summary of potential hazards. See text for discussion of each category.

Hazard	Potential	Hazard	Potential
General		Surface (cont.)	
Asbestos	Medium	Ditches	Medium
Dust	Low	Impoundments	Low
Equipment	High	Sedimentation	Low
Explosives	High	Subsidence	Medium
Radioactive materials	Low	Pits/highwalls	Low
Scrap materials	High	Waste piles	Low
Miscellaneous	High	Chemical	
Underground		Acids	Low
Mine gases	Low	Heavy metals	Medium
Timbers	High	Petroleum products	Medium
Workings	High	PCB's	Low
Surface		Toxic substances	High
Buildings/structures	High		

³U.S. Code of Federal Regulations. Title 40--Protection of the Environment; Chapter 1--Environmental Protection Agency; Subchapter D--Water Programs; Part 141--national Primary Drinking Water Regulations; Subpart B--maximum Contaminant Levels; Section 141.11(b)--Maximum Contaminant levels for Inorganic Chemicals; July 1, 1991.

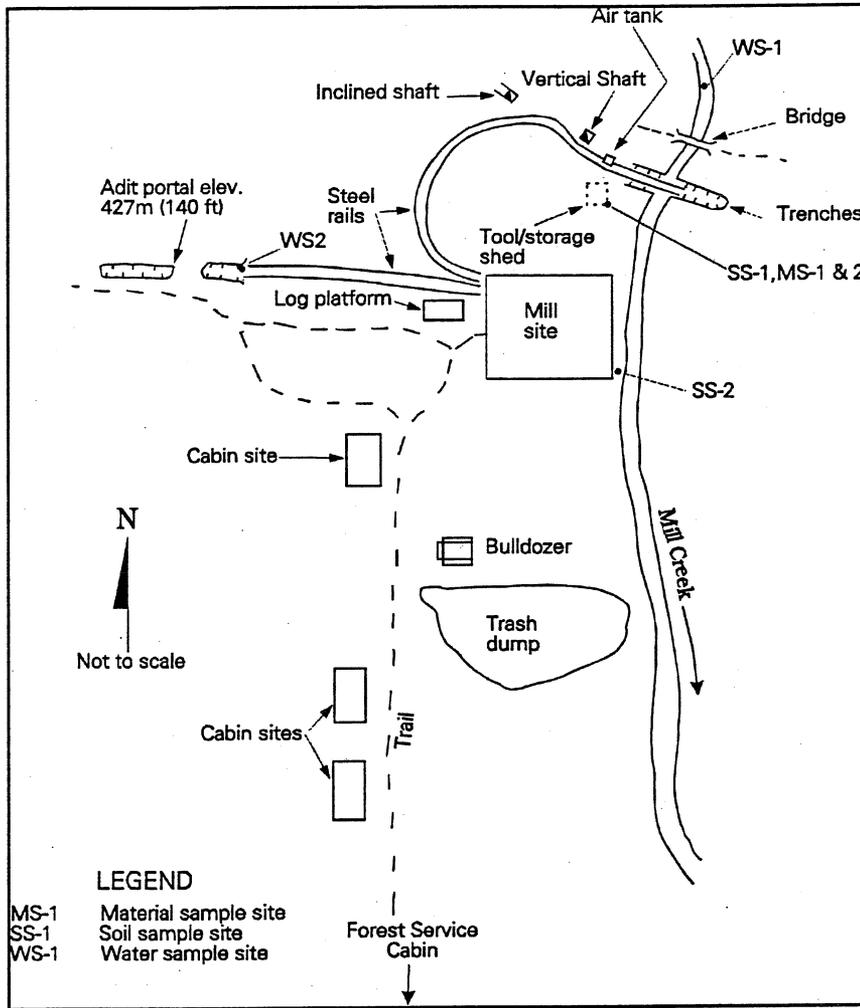
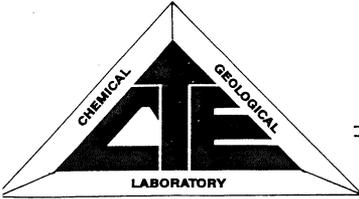


Figure 2. - Sketch of the McKinley Lake site showing main features and sample locations.



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 # 57572
Chemlab Ref.# 92.4464 Sample # 3 Matrix: SOIL

Mc Kinley Lake Mine

Client Sample ID : AML 3433
PWSID : UA
Collected : AUG 19 92 @ hrs.
Received : AUG 27 92 @ 13:30 hrs.
Preserved with : AS REQUIRED

Client Name : US DEPARTMENT OF AGRICULTURE
Client Acct : USAGRIC
BPO# : PO# : NONE RECEIVED
Req# :
Ordered By : CAROL HUBER

Analysis Completed : SEP 8 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : *Stephen C. Ede*

Send Reports to:
1) US DEPARTMENT OF AGRICULTURE
2)

Parameter	Results	Units	Method	Allowable Limits
SAMPLE PREPARATION			EPA 3050 DIGESTION	
LEAD	101	mg/kg	EPA 7421*GF	
ZINC	187	mg/kg	EPA 6010*ICP	
COPPER	69	mg/kg	EPA 6010*ICP	
MERCURY	0.93	mg/kg	EPA 7471*AA	

Sample SAMPLE COLLECTED BY: UA.

Remarks:

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



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ANALYSIS RESULTS for INVOICE # 57442

Chemlab Ref.# 92.4389 Sample # 1 Matrix: WATER

Client Sample ID : MCKINLEY LAKE MINE 140 MINE DRAINAGE
PWSID : UA
Collected : AUG 20 92 @ hrs.
Received : AUG 24 92 @ 10:13 hrs.
Preserved with : AS REQUIRED

Client Name :US DEPARTMENT OF AGRICULTURE
Client Acct :USAGRIC
BPO# : PO# :NONE RECEIVED
Req# :
Ordered By :CAROL HUBER

Analysis Completed : AUG 28 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : *Stephen C. Ede*

Send Reports to:
1)US DEPARTMENT OF AGRICULTURE
2)USDA FOREST SERVICE

Parameter	Results	Units	Method	Allowable Limits
ARSENIC	0.075	mg/l	EPA 206.2*GF	
MERCURY	ND(0.0002)	mg/l	EPA 245.1*AA/CV	
LEAD	0.010	mg/l	EPA 239.2*GF	
ZINC	ND(0.05)	mg/l	EPA 200.7*ICP	
COPPER	ND(0.05)	mg/l	EPA 200.7*ICP	

92 SEP -2 PM 3:05

Sample SAMPLE COLLECTED BY: UA.
Remarks:

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



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

ANALYSIS RESULTS for INVOICE # 57442
Chemlab Ref.# 92.4389 Sample # 2 Matrix: WATER

Client Sample ID : MCKINLEY LAKE MILL MILL CREEK
PWSID : UA
Collected : AUG 20 92 @ hrs.
Received : AUG 24 92 @ 10:13 hrs.
Preserved with : AS REQUIRED

Client Name : US DEPARTMENT OF AGRICULTURE
Client Acct : USAGRIC
BPO# : PO# : NONE RECEIVED
Req# :
Ordered By : CAROL HUBER

Analysis Completed : AUG 28 92
Laboratory Supervisor : STEPHEN C. EDE
Released By : *Stephen C. Ede*

Send Reports to:
1)US DEPARTMENT OF AGRICULTURE
2)USDA FOREST SERVICE

Parameter	Results	Units	Method	Allowable Limits
ARSENIC	0.010	mg/l	EPA 206.2*GF	
MERCURY	ND(0.0002)	mg/l	EPA 245.1*AA/CV	
LEAD	ND(0.005)	mg/l	EPA 239.2*GF	
ZINC	ND(0.05)	mg/l	EPA 200.7*ICP	
COPPER	ND(0.05)	mg/l	EPA 200.7*ICP	

USDA
NATIONAL FOREST
92 SEP -2 PM 3:05

Sample SAMPLE COLLECTED BY: UA.
Remarks:

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



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United States
Department of
Agriculture

Forest
Service

Chugach
National
Forest

3301 "C" Street
Suite 300
Anchorage, AK 99503-3998

Reply to: 2800

Date: March 17, 1993

Earl Hubbard
Water Quality Management Section
Department of Environmental Conservation
410 Willoughby Avenue, Suite 105
Juneau, Alaska 99801

RE: Water Quality Survey Form

Dear Mr. Hubbard:

Enclosed are eighteen completed survey forms with information for your 305b report, Water Quality in Alaska. The survey forms cover sixteen waterbodies that are suspected to be affected by various pollutants.

All suspected pollutant sources were identified during the Chugach National Forest Abandoned/Inactive Mine Inventory. Additional information required, or clarification of information provided, can be obtained by contacting Carol S. Huber, at 271-2541.

Sincerely,


BRUCE VAN ZEE
Forest Supervisor

Enclosures

cc:
Bill Edwards, RO w/enclosures
D.Blanchet w/enclosures
C.Huber

940317 1200 MSW 2800 CH

RECEIVED
MAR 21 1994
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION