

Monarch Mine - 1

heavy and has sharp edges or corners. This could be dangerous to people trying to move, pickup, or walk over these items.

7. Unstable tailings piles or ditches;

No unstable tailings piles are at this site. As mentioned above, the ditch above the mill is a result of caving into the underlying adit.

Another ditch is located south-southwest of the mill site. It begins about 100 feet south west of the old vertical water tank and heads south for 50 yards. It joins an intermittent stream which in turn intercepts Crow Creek several hundred yards south-southwest of the mill site. In places, the ditch is 3 feet deep and 3 feet wide with vertical sides. It is overgrown with vegetation and difficult to see until a person is about to step into it. See figure 2.

8. Timber, ladders;

Extensive timber was used at the portal of 3,200 adit. Much of this timber is waterlogged, covered with fungus, and rotten. The timbers have failed in several places and allowed the rock above to fall into the workings. No stopping was done in this level so no ladders or drill platforms are present.

9. Mine gases;

The flame safety lamp gave no indication of oxygen deficiency or presence of combustible gases in the 3,200 adit. A radon survey indicated no radon is present in this adit.

10. Miscellaneous physical hazards;

None.

C. ENVIRONMENTAL HAZARDS

1. Mercury, arsenic, cyanide;

a. Soil

The soil to the southwest of the mill showed several strata of different colors which indicate the deposition of tailings over the native soil. The evaluation team collected a sample of this soil

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and had it analyzed. See figure 2 for the location. The results are as follows;

Element	Concentration (parts per million)
Mercury	22.88
Arsenic	6750

These results are very high, especially for arsenic. This may be due to the natural release of arsenic in the area or it could be due to the past mining activities. More detailed soil sampling would help to determine the extent of these high values.

b. Water

The evaluation team collected 3 water samples from Crow Creek as part of the investigation at the Brenner Mine. Crow Creek might or might not be influenced by the Monarch Mine or Mill remains because of the local topography.

Crow Creek flows from north to south on the west side of the mill site. The stream and mill site, however, are separated by a ridge or bluff which forms the east bank of the stream for several hundred yards. To the east of this ridge, a ditch leads from a point southwest of the mill site and heads south and then southwest, as mentioned previously. It connects with an intermittent stream which eventually joins Crow Creek approximately a quarter mile south-southwest of the mill site and 100 yards downstream from the Brenner Mine. See figure 2.

Water samples were collected upstream, beside, and downstream from the Brenner Mill site, but not downstream from where the intermittent stream joins Crow Creek. The analyses for mercury and arsenic indicated that the concentrations of these elements were very low and the same for all three samples. The Brenner Mill site appears not to affect the water in Crow Creek. No conclusions can be made with respect to the Monarch Mine or Mill sites because no water samples were obtained below the point where the intermittent stream joins Crow Creek. See the Brenner Mine report for the details of these results.

2. Acid forming materials;

Minor amounts of sulfide minerals are present in the quartz veins that were mined, but no evidence of acid drainage was observed in or around the mine site.

3. Heavy metals;

The soil from near the mill site was also analyzed for lead. The results are as follows;

Element	Concentration (parts per million)
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Lead	799
------	-----

This indicates that the soil near the mill also has a high concentration of lead, in addition to the mercury and arsenic.

4. Asbestos;

No evidence of asbestos was noted at the site.

5. Radioactive materials;

The radon test in the 3,200 level adit indicated that no radon is present.

6. Sedimentation;

A cursory inspection of the area around the mill site disclosed a 1 to 2 inch deposit of tailings overlying the native soil throughout a wide area to the west and southwest of the mill site. Evidently, the tailings from the mill were not collected, but were dumped on the ground and allowed to flow down slope from the mill. They flowed into the ditch and intermittent stream which were previously discussed in the sections on water, mercury, arsenic, and cyanide. Most of the area covered by tailings has lush grass and small shrubs covering it. Only in a few isolated areas is the soil barren of vegetation. Thus, only very limited areas have been affected by this accumulation of tailings.

D. RECOMMENDATIONS

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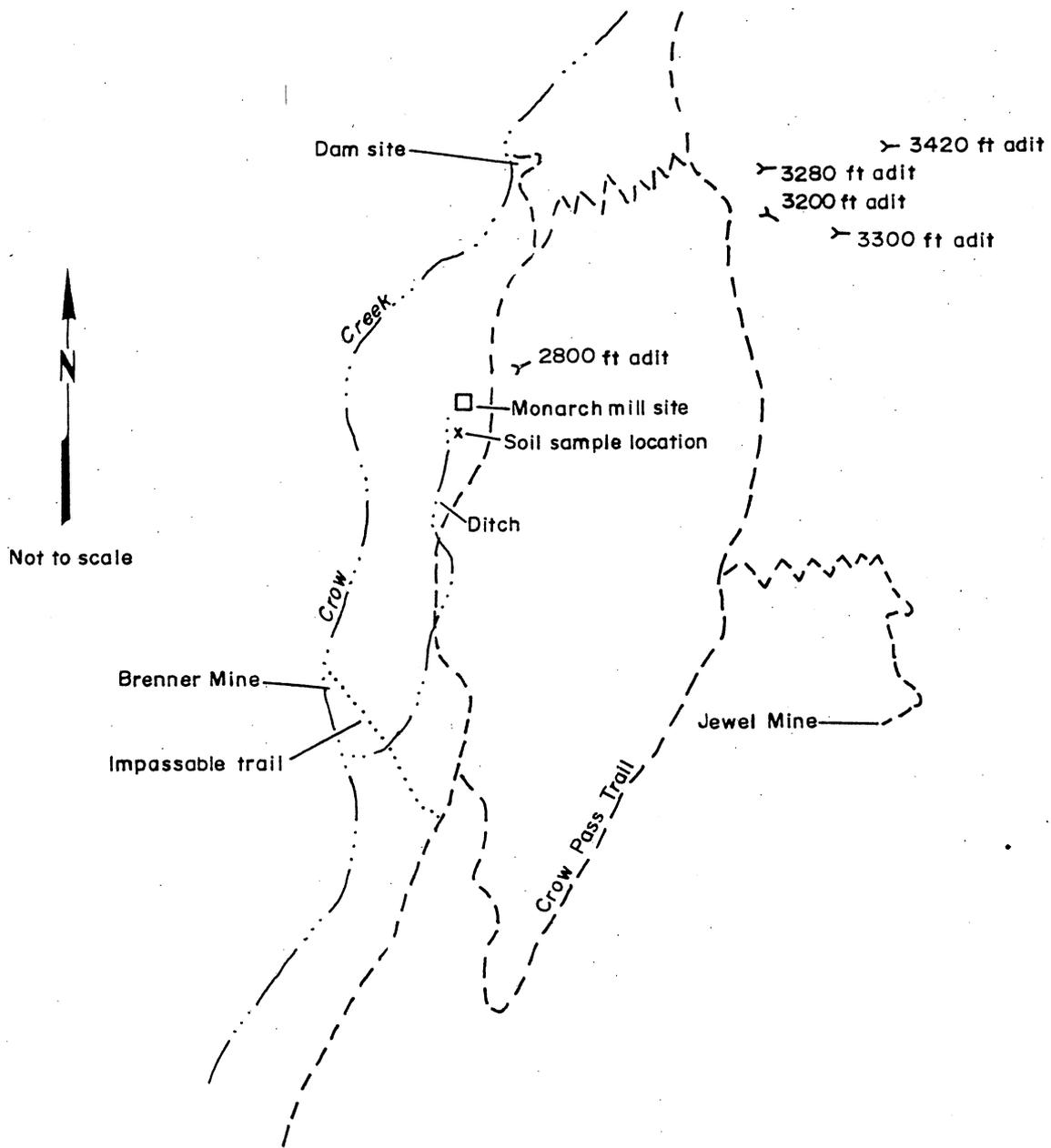


Figure 2.- Sketch map showing the main features of the Monarch Mine area and the location of the soil sample.



CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.



5633 B STREET • ANCHORAGE, ALASKA 99518 • TELEPHONE (907) 562-2343

FEDERAL TAX I.D. #92-0040440

ANALYSIS REPORT BY SAMPLE for Work Order # 29056

Date Report Printed: OCT 29 90 @ 19:18

Monarch Mine

Client Sample ID: ANC MH 3304

PWSID :UA

Collected @ hrs.

Received OCT 3 90 @ 15:30 hrs.

Preserved with :AS REQUIRED

Client Name : US FOREST SRV *ANCHORAGE

Client Acct : USFRSTP

P.O.# NONE RECEIVED

Req #

Ordered By : CAROL HUBER

Analysis Completed :OCT 26 90

Laboratory Supervisor :STEPHEN C. EDE

Released By : *Stephen C. Ede*

Send Reports to:

1)US FOREST SRV *ANCHORAGE

2)

Special
Instruct:

Chemlab Ref #: 904046 Lab Smpl ID: 4

Matrix: SOIL

Parameter Tested	Result	Units	Method	Allowable Limits
MERCURY	22.88	mg/kg	AA	
ARSENIC	6750	mg/kg	GF	
LEAD	799	mg/kg	GF	

Sample
Remarks:

3 Tests Performed

ND= None Detected

NA= Not Analyzed

* See Special Instructions Above

** See Sample Remarks Above

LT=Less Than, GT=Greater Than

UA=Unavailable

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

1994 STATEWIDE WATER QUALITY ASSESSMENT

NAME OF WATERBODY: Crow Creek

Location or Lat/Long: SW 1/4 NW 1/4 Sec 16, T11N, R2E, Seward Meridian
8 miles from Girdwood near headwaters of Crow Creek

Is the waterbody in a national or state park, monument, refuge, preserve, or similar area?:

Yes / No / Name: Chugach National Forest

Waterbody Type:

River/Stream

Lake

Fresh Wetland

Tidal Wetland

Estuary

Coastal Shoreline

Groundwater

Waterbody Size:

___ Miles

___ Acres

___ Acres

___ Acres

___ Square Miles

___ Miles

Segment of Waterbody Addressed:

From: _____

To: _____

Other Description: _____

Size of Segment: _____

Period of Assessment, From: July 18, 1990 To: August 31, 1990

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

Type of Documentation (attach if possible):

Water quality data

Documented oil spill

NOV / Enforcement action

Photos with documentation

Fish / Habitat survey

Written report

Field notes

Overflight

Observation

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

Brenner Mine workings and Mill site.

Pollutants: Tiny beads of mercury can be seen in mill tailings
on stream bank. Two shafts 3-5 ft above stream, are dewater-
-ing into the stream, may be carrying heavy metals.

Mine adjacent to the popular Crow Pass hiking trail.

Sample results are attached.

RESPONDENT INFORMATION:

Name: Carol S Huber Phone: 271-2541 Date: 3-15-94

Employer: USDA Forest Service Dept: Minerals/Soils/Water Title: Forest Geologist

Address: 3301 C St Ste 300, Anchorage, AK 99503

Education/Experience: BS Geology / Water Quality Study / Abandoned Mine Inventory

TYPES OF POLLUTANTS (Please indicate relative severity; H= High, M= Medium, S= Slight):

- Cause unknown
- Unknown toxicity
- Pesticides: _____
- Priority organics: _____
- Nonpriority organics: _____
- H Metals: Hg _____
- Ammonia
- Chlorine
- Other inorganics
- Nutrients
- S pH
- Siltation/sedimentation
- Low dissolved oxygen
- TDS/Salinity/Chlorides
- Other: _____
- Temperature modifications
- Flow alterations
- Other habitat alterations
- Pathogens
- Radiation
- S Oil and Grease
- Taste and odor
- Suspended solids
- Noxious aquatic plants
- Filling and draining
- Total toxics
- Turbidity
- Exotic species
- Debris, foam, scum, etc.
- S Arsenic

SOURCES OF POLLUTANTS (Please indicate relative severity; H= High, M= Medium, S= Slight):

- | | |
|--|--|
| <p><u>Point Sources:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Industrial <input type="checkbox"/> Municipal <p><u>Urban Runoff:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Storm sewers <input type="checkbox"/> Combined sewers <input type="checkbox"/> Surface runoff <p><u>Agriculture:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Non-irrigated crop production <input type="checkbox"/> Irrigated crop production <input type="checkbox"/> Pasture land <input type="checkbox"/> Range land <input type="checkbox"/> Feedlots <input type="checkbox"/> Aquaculture <input type="checkbox"/> Animal waste/holding areas <input type="checkbox"/> Manure lagoons <p><u>Silviculture:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Timber harvest <input type="checkbox"/> Stream restoration projects <input type="checkbox"/> Road construction/maintenance <input type="checkbox"/> Elimination of stream thermal cover <input type="checkbox"/> Log Transfer Facilities (estuary) <input type="checkbox"/> Log Sort Yard (land) <p><u>Construction:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Highway/road <input type="checkbox"/> Bridge construction/repair <input type="checkbox"/> Land development <p><u>Resource Exploration/extraction:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Surface mining <input checked="" type="checkbox"/> M Subsurface mining <input type="checkbox"/> Placer mining <input type="checkbox"/> Dredge mining <input type="checkbox"/> Petroleum activities <input checked="" type="checkbox"/> M Mill tailings <input checked="" type="checkbox"/> S Mine tailings <input type="checkbox"/> Gravel mining <input type="checkbox"/> Injection wells | <p><u>Waste Disposal:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Sludge <input type="checkbox"/> Wastewater <input type="checkbox"/> Landfills Industrial land treatment <input type="checkbox"/> Onsite wastewater systems <input type="checkbox"/> Hazardous waste <input type="checkbox"/> Sewage disposal <input type="checkbox"/> Septic tank leak <p><u>Hydrologic Modification:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Stream channelization <input type="checkbox"/> Dredging <input type="checkbox"/> Dam construction <input type="checkbox"/> Flow regulation/modification <input type="checkbox"/> Bridge construction <input type="checkbox"/> Removal of riparian vegetation <input type="checkbox"/> Streambank modification/destabilization <input type="checkbox"/> Draining/filling of wetlands <p><u>Marinas:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Small boat harbors (up to 10 slips) <input type="checkbox"/> Harbors (recreational/commercial) <input type="checkbox"/> Loading facilities (commercial) <p><u>Other:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Atmospheric deposition <input type="checkbox"/> Waste storage tank leaks <input type="checkbox"/> Highway maintenance/runoff <input checked="" type="checkbox"/> S Petroleum/chemical spills, leaks <input type="checkbox"/> In-place containments <input type="checkbox"/> Natural sources <input type="checkbox"/> Recreational activities <input type="checkbox"/> Upstream impoundment <input type="checkbox"/> Salt storage sites <input type="checkbox"/> Fire damage/restoration <input type="checkbox"/> Underground storage tanks <input type="checkbox"/> Aboveground storage tanks <input type="checkbox"/> Saltwater intrusion <input type="checkbox"/> Road salting <input type="checkbox"/> Fish, shellfish wastes <input type="checkbox"/> UNKNOWN SOURCE |
|--|--|

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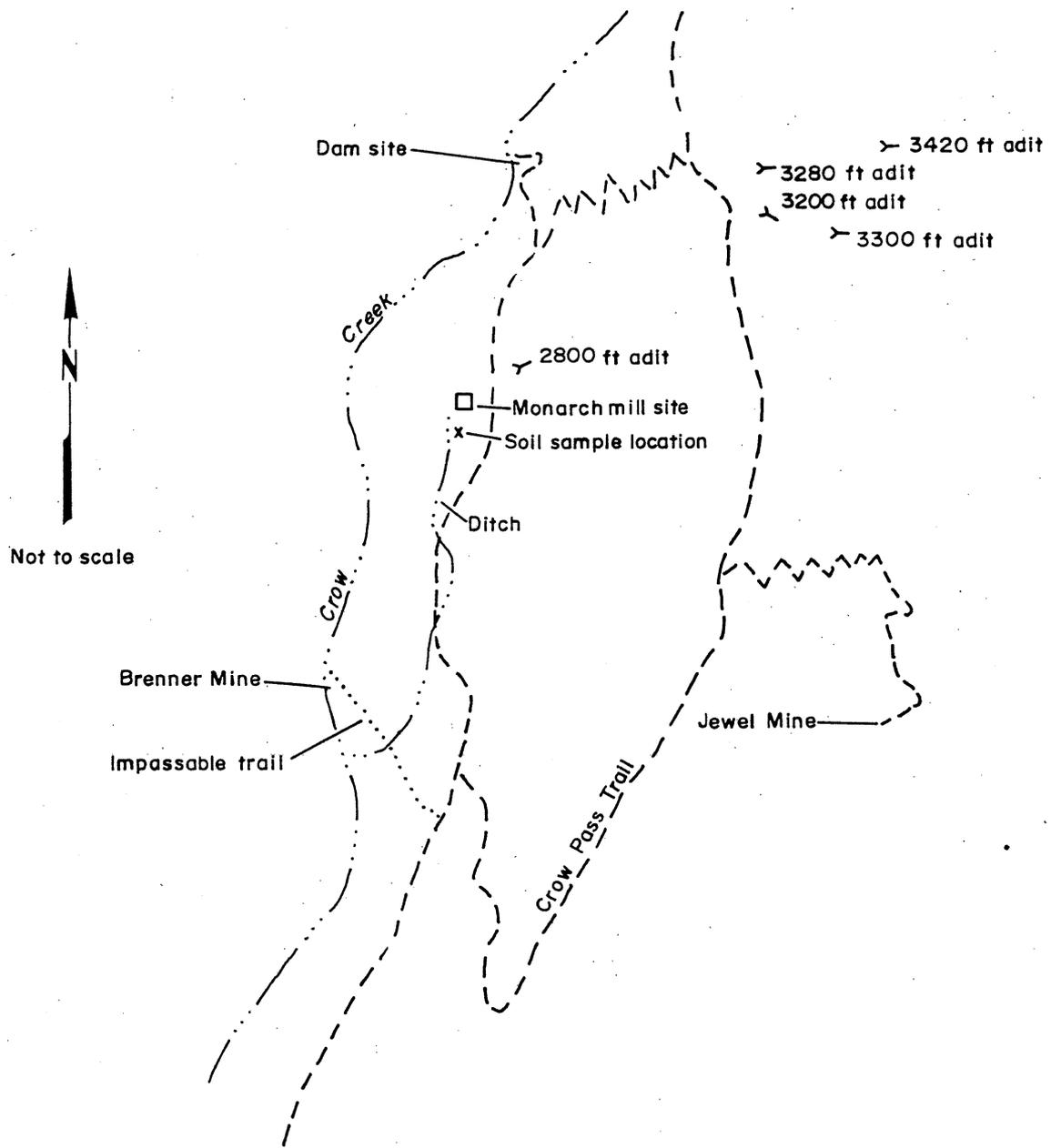


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