

Alaska Department of Environmental Conservation

“Suspect Waterbodies List” Information Summary: compiled by Carol Huber, Forest Geologist

<u>Waterbody</u>	<u>Potential source/site</u>	<u>Potential problem</u>	<u>Estimated Tailings</u>	<u>Est. Placer Gold Production</u>
Crow Creek	1) Monarch Mine 2) Brenner Mine 3) Hydraulic placer mining	(1,2) Tailings: arsenic, mercury (3) mercury (literature review)	(1) 6,400 tons* (2) unknown (3) unknown	3) 42,000 oz
Falls Creek	1) Falls Creek Mine 2) Skeen Leckner Mine 3) Crown Point and East Point Mines 4) Historic placer mining	(1,2) Tailings: arsenic, mercury (1) petroleum spills (3) petroleum products (4) mercury (suspected, see notes d.)	(1,2) 2,300 tons* (3) unknown (4) unknown	(4) 200 oz
Juneau Creek	1) Juneau Bowl Mining Co.	(1) petro., acid, lead/acid batteries, possible petro. contaminated water flowing into stream.	NA	NA
Mills Creek	1) Triangle Cabin/ Mills Placer 2) Historic placer mining	(1) abandoned drums of petro. products next to stream	1) unknown 2) unknown	2) 4,000 oz
Summit Creek	1) Oracle Mine	(1) Tailings: arsenic, mercury	(1) 637 tons	(1) 1,274 oz
Bettles Bay	1) Mineral King Mine	(1) Tailings: arsenic mercury	1) 5,000 tons***	
Resurrection Creek	1) Mull Cabin/ vicinity 2) Historic placer mining	(1) misc. chemicals, and petroleum products** (2) mercury (suspected see notes d.)	1) unknown 2) unknown	2) 26,000 oz (inc. Palmer Ck.)

* Tailings estimated by calculating from recorded production and average grade ** materials in containers have been cleaned up
*** estimated by Bureau of Mines

NOTE:

- a) No known water quality samples exceed the State water quality standard for waterbodies listed above
- b) Tailings appear to have entered the listed waterbodies based on proximity, terrain and observation
- c) Estimated production indicates intensity of placer operations
- d) Historic placer mining used hydraulic methods and utilized mercury in the process

United States
Department of
Agriculture

Forest
Service

Chugach
National
Forest

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

Reply to: 2800/2160

Date: January 31, 1995

U.S. Environmental Protection Agency
Water Division 139
C/O Curry Jones
Region 10
Seattle, Washington 98101

RECEIVED

FEB - 2 1995

Re: Crow Creek Information

DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Dear Mr. Jones:

Enclosed is the information you requested in a telephone call to Carol Huber, Forest Geologist, on January 11. It includes reports of inactive mine hazards for the Monarch and Brenner Mines, both located on Crow Creek. These reports contain limited soil and water sampling information, which you specifically requested.

We understand that Crow Creek is presently on the 305(b) "impaired" list and is a candidate for the 303(d) list. We have recommended to Alaska Department of Environmental Conservation (ADEC) that Crow Creek be placed on the "suspected" list. We understand that the "impaired" listing targets water bodies for water quality studies which may include sampling for Total Maximum Daily Load (TMDL) analysis. We do not believe that available information warrants placing Crow Creek on the "impaired" list, and suggest that additional sampling be performed before this determination is made.

Monarch and Brenner Mines were further investigated by a Forest Service contractor during September, 1994. The intent of these investigations was to categorize each site for further action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Clean Water Act (CWA), and safety issues, as applicable. Reports of these investigations may provide additional information relative to water quality, and should be available within a few weeks. Information regarding the contracted investigations and potential for CERCLA applicability at the sites is available from Betsy Walatka, Regional Environmental Engineer, at (907) 586-8723.

If you have any questions or further information needs regarding water quality on the Forest, please contact Dave Blanchet, Forest Hydrologist, at (907) 271-2538. Questions concerning abandoned and inactive mine hazards or the enclosed reports should be addressed to Carol Huber, Forest Geologist, at (907) 271-2541.

Sincerely,


CHARLES R. FREY
Forest Supervisor

Enclosure

cc:

Dave Blanchet

District Ranger, Glacier RD

Mike Kuehn, RO-WFEW

Betsy Walatka, RO-EAM

Carol Huber

Watershed, RO

~~Eric Decker, 305 (b)~~ /TMDL Coordinator

Alaska Department of Environmental Conservation

410 Willoughby Avenue, Suite 105

Juneau, Alaska 99801

950131 1330 MSW 2160/2800 CH

Site data:

Name: RESURRECTION CREEK

Seq: 0020950295

Type: PLACER

Commodity list: GOLD; SILVER

Mine method: PLACER

Length of workings: 0 meters

Mill method:

Latitude: 60.794

Longitude: 149.664

Quad: SEWARD

Sample data:

Type: water

Description: upstream

Reference number: 94.4025-13

Results:

<u>Element/material</u>	<u>Result</u>	<u>Units</u>
arsenic:	0.005	mg/l
asbestos:		N/A
copper:	0.025	mg/l
cyanide:		N/A
lead:	0.005	mg/l
mercury:		N/A
PCBs:		N/A
Solids:		N/A
Petroleum (total):		N/A
zinc:	0.025	mg/l

*A result of -9 indicates that the sample was analyzed but the results were below detection limit.
A blank in the result column indicates that the sample was not analyzed for that particular element.*

Site data:

Name: RESURRECTION CREEK

Seq: 0020950295

Type: PLACER

Commodity list: GOLD; SILVER

Mine method: PLACER

Length of workings: 0 meters

Mill method:

Latitude: 60.914

Longitude: 149.644

Quad: SEWARD

Sample data:

Type: water

Description: downstream

Reference number: 94.4025-15

Results:

<u>Element/material</u>	<u>Result</u>	<u>Units</u>
arsenic:	0.005	mg/l
asbestos:		N/A
copper:	0.025	mg/l
cyanide:		N/A
lead:	0.005	mg/l
mercury:		N/A
PCBs:		N/A
Solids:		N/A
Petroleum (total):		N/A
zinc:	0.025	mg/l

*A result of -9 indicates that the sample was analyzed but the results were below detection limit.
A blank in the result column indicates that the sample was not analyzed for that particular element.*

Site data:

Name: RESURRECTION CREEK

Seq: 0020950295

Type: PLACER

Commodity list: GOLD; SILVER

Mine method: PLACER

Length of workings: 0 meters

Mill method:

Latitude: 60.84

Longitude: 149.634

Quad: SEWARD

Sample data:

Type: water

Description: other

Reference number: 94.4025-8

Results:

<u>Element/material</u>	<u>Result</u>	<u>Units</u>
arsenic:	0.005	mg/l
asbestos:		N/A
copper:	0.025	mg/l
cyanide:		N/A
lead:	0.005	mg/l
mercury:		N/A
PCBs:		N/A
Solids:		N/A
Petroleum (total):		N/A
zinc:	0.025	mg/l

*A result of -9 indicates that the sample was analyzed but the results were below detection limit.
A blank in the result column indicates that the sample was not analyzed for that particular element.*

Site data:

Name: MILLS CREEK

Seq: 0020950150

Type: PLACER

Commodity list: GOLD

Mine method: PLACER

Length of workings: 0 meters

Mill method:

Latitude: 60.666

Longitude: 149.426

Quad: SEWARD

Sample data:

Type: water

Description: waste discharge

Reference number: 94.3865-2

Results:

<u>Element/material</u>	<u>Result</u>	<u>Units</u>
arsenic:	0.0082	mg/l
asbestos:		N/A
copper:	0.025	mg/l
cyanide:		N/A
lead:	0.005	mg/l
mercury:		N/A
PCBs:		N/A
Solids:		N/A
Petroleum (total):		N/A
zinc:	0.025	mg/l

*A result of -9 indicates that the sample was analyzed but the results were below detection limit.
A blank in the result column indicates that the sample was not analyzed for that particular element.*

Site data:

Name: MILLS CREEK

Seq: 0020950150

Type: PLACER

Commodity list: GOLD

Mine method: PLACER

Length of workings: 0 meters

Mill method:

Latitude: 60.229

Longitude: 149.407

Quad: SEWARD

Sample data:

Type: water

Description: upstream

Reference number: 94.3865-3

Results:

<u>Element/material</u>	<u>Result</u>	<u>Units</u>
arsenic:	0.005	mg/l
asbestos:		N/A
copper:	0.025	mg/l
cyanide:		N/A
lead:	0.005	mg/l
mercury:		N/A
PCBs:		N/A
Solids:		N/A
Petroleum (total):		N/A
zinc:	0.025	mg/l

*A result of -9 indicates that the sample was analyzed but the results were below detection limit.
A blank in the result column indicates that the sample was not analyzed for that particular element.*

Future Projects Abandoned and/or Inactive Mines

Crow Creek
Falls Creek
Bettles Bay
Mills Creek
Resurrection Creek

Introduction: This section discusses the mine sites where further work has been identified, but is not addressed in detail. The only information provided in this report are the names of the mines, the hazards discovered and the actions proposed to mitigate the hazards. For detailed information, refer to the Bureau of Mine's "Reports of Inactive Mine Hazards" dated 1990 and 1991 (the 1992 volume is scheduled to be available in the spring, 1993). *Sites visited in 1993 & 1994, not included.*

See highlighted sites for information on identified waterbodies

1. Alaska Homestake Mine

Hazards Identified - Environmental

- Elevated concentrations of arsenic, lead, and mercury exist at the mill which is located on the beach just above high tide.
- Arsenic in the stream (below mill) is slightly above drinking water standard.
- Abandoned explosives contain nitroglycerin.

Hazards Identified - Physical

- Two to three cases of dynamite are estimated to be in the vicinity of the powder shed site. The sticks appear deteriorated but one complete box, found completely buried in the soil, may contain nitroglycerin that has migrated to the bottom. The separation of nitroglycerin makes these old explosives extremely dangerous.
- All of the original buildings have collapsed.
- The Chilean Mill is still standing and in reasonably good condition.
- Minor amounts of scrap materials are present.
- Adit is open but stopped above and below. Timbers are very deteriorated; several have completely rotted and collapsed making the mine unsafe to enter.

Action Proposed

- Collect additional soil samples around the mill to determine the extent of the arsenic and heavy metals. Collect background soil samples as well.
- Collect additional water samples both above and below the mill.
- Detonate or burn explosives. *has been done*

2. Arrowhead Prospect

Hazards Identified - Environmental

- Fifteen to twenty sticks of dynamite appear to be well preserved in a wooden box in the adit.

Hazards Identified - Physical

- Lagging near the portal indicates that the ground was not stable when first excavated and now, the lagging has rotted in places and failed. The workings will collapse completely in time, or sooner, if disturbed.
- Fifteen to twenty sticks of dynamite appear to be well preserved in a wooden box in the adit; they may be very dangerous.

Action Proposed

- Close the adit by collapsing the portal. Stabilizing the adit would be cost prohibitive since this mine never produced ore and there is no evidence of geologic value.
- Detonate or burn explosives. *has been done*

3. Blackjack Mine

Hazards Identified - Environmental

- The water in the lower adit was stained a deep red, indicating acidic water and possible heavy metals.
- Explosives contain nitroglycerin.

Hazards Identified - Physical

- Collapsed cabin in front of the lower adit. Logs are rotten and unstable.
- About 20 sticks of dynamite are within a wooden box in the lower adit.
- The lower adit seems stable. There is very little timbering and no large rockfalls. It is, however, flooded and hip boots were needed to explore it.
- The upper adit is in a highly sheared zone and is extremely dangerous. Ceiling lagging supports some very large loose boulders. Large rockfalls have occurred both outside and inside this adit.

Action Proposed

- Gate or otherwise restrict entrance to both adits.
- Collect water samples in the mine, in the drainage from the mine, and from the stream above and below the mine.
- Detonate or burn explosives. *has been done*

4. Brenner Mine

Crow Creek

Hazards Identified - Environmental

- Tiny beads of mercury can be seen in the soil at the mill.

Hazards Identified - Physical

- Flooded inclined shaft about 2 ft above Crow Creek which could easily collapse from a persons weight.
- Adit near stream is partially flooded. (It was not investigated because of its small size and wetness.)

Action Proposed

- Place warning signs advising the public of dangerous conditions, especially the inclined shaft.
- Install permanent closure at these mine openings because they are very hazardous and there is no known claimant.
- Collect additional soil and water samples from above and below the mill.

5. Culross Mine

Hazards Identified - Environmental

- Mercury value was high in the one soil sample that was collected.

Hazards Identified - Physical

- Equipment and scrap materials at the millsite are subject to falling, toppling, or collapsing.
- Adit has wooden drill platform which is supporting broken rock and could collapse at any time. This is very dangerous.

Action Proposed

- Install gate or otherwise restrict access to adit.
- Collect additional soil samples around the mill to determine the extent of mercury and the presence of other heavy metals. Collect background soil samples as well.
- Collect water samples both above and below the mill and mine adits.

6. Dado #1

Hazards Identified - Environmental and Physical

- Twenty time fuse blasting caps were found on the ground.

Action Proposed

- Remove or neutralize blasting caps. *has been done*

7. Falls Creek Mine

Falls Creek

Hazards Identified - Environmental

- Mercury values are high in the mill soil, but not in the stream water. Test was made for lead and none was detected.
- Hydrocarbons present in the mill soil was indicated by one sample.

Hazards Identified - Physical

- Two mill sites were located. Difficult to locate from the trail, the old Chilean mill site is still stable but the stamp mills and building have collapsed around it. The newer ball mill, which is directly adjacent to the still used mine trail, is still standing but the structure is not.
- Unstable heavy equipment are subject to fall, topple or roll.
- Hazardous scrap materials including nails, splintered wood and sharp edged pieces of metal, are scattered about the site.
- Adit is difficult to access in its location in a cliff along the stream bank.
- Pits in the area may be due to excavation or subsidence; the area may be subject to collapsing into a mine working below.

Action Proposed

- Stabilize heavy equipment at mill sites and clean up scrap materials.
- Conduct an extensive soil and water sampling program to determine the extent of the mercury contamination.
- Excavate oil contaminated soil and dispose of off Forest.

8. Gilpatrick Mill or Hatcher Mine

Hazards Identified - Environmental

- None identified

Hazards Identified - Physical

- The weak rotted floors and foundations for three buildings were found.
- Scrap materials are scattered about the site and along Slate Creek for 100 yards downstream.
- Steel tram cable leads to the workings upslope.

Action Proposed

- Remove or burn machinery, metal and wood which lies about the site and downstream.

9. Glendenning Mine - Patented - but may have effects on NF land

Hazards Identified - Environmental

- Considerable water is draining from the adit, but no water samples were taken.

Hazards Identified - Physical

- Flooded adit may have an extremely hazardous boarded-over shaft.
- Portal appears near failure; a large block of ground has shifted downward and a gap can be seen where the ground has separated.

Action Proposed

- Place warning signs at the Forest and patented land boundary, warning of the dangerous adit conditions. Since mine is patented, an adit closure cannot be installed.
- Sample and evaluate water flowing from the mine onto Forest land, for heavy metals.

14. Knight Island Mining and Development Company

Hazards Identified - Environmental

- Explosives have been abandoned at the remains of the old powder shed. There appears to be 4 - 5 cases, partially buried. The dynamite is badly deteriorated and mostly contained in rotted wooden boxes.

Hazards Identified - Physical

- Some equipment and structural remains are present but have a low hazard potential
- Two open adits were visited (1,000 ft and 1,040 ft elevation), one is flooded (we did not enter it) and the other is 28 ft long and stable.

Action Proposed

- *Detonate or burn explosives. has been done.*
- *Cleanup debris and scrap materials*

15. Lansing Mine

Hazards Identified - Environmental

- None identified except dynamite.

Hazards Identified - Physical

- Very deteriorated dynamite in the wreckage of the mill building.
- Collapsed structures which include mill building, cook house, and 2 others, are indicated primarily by piles of timber and corrugated sheet metal.
- Within the adit is a large area where timbers are supporting heavy loose rock. As the timbers rot and collapse, the overlying material will fall.

Action Proposed

- *Gate or otherwise restrict access to adit.*
- *Cleanup debris by burning or removing.*
- *Detonate or burn explosives has been done*

16. Mills Creek Placer

Mills Creek

Hazards Identified - Environmental

- Petroleum products from two 55-gallon barrels have saturated the ground in and around the tool shed.
- Tool shed contains a variety of petroleum products, such as brake fluid, transmission oil, hydraulic oil and wheel bearing grease.

Hazards Identified - Physical

- Unstable bridge over a diversion ditch.
- Heavy equipment has been abandoned and lots of scrap metal is piled near the cabin and sheds.
- Two refrigerators are present and may present a smothering hazard for children.
- Sheds are in poor condition.

Action Proposed

- *Remove dangerous bridge.*
- *Remove or burn buildings in poor condition.*
- *Remove leaking petroleum barrels and containers of hazardous material in the shed and cabin.*
- *Excavate the contaminated soil and dispose of off forest at an approved hazardous waste facility.*

17. Mineral King Mine

Bettles Bay

Hazards Identified - Environmental

- Approximately 5,000 tons of tailings are estimated to have accumulated below the mill. Samples indicated elevated levels of lead and mercury.

Hazards Identified - Physical

- All buildings have collapsed, but a few of the mill structure walls are still in an upright, but precarious position.
- Extensive equipment is at the mill as well as in the tunnel and adit.
- A large quantity of rotten, unstable lumber and corrugated steel is at the mill site.
- Mine adit has water cascading into it from above leaving water standing in the mine near the portal about 1 1/2 ft deep. Evidence suggests this mine floods periodically (ladders were washed down from the inclined shaft leaving twigs and other debris).
- Large rockfall in the tunnel indicates weak ground. Since the tunnel is open at both ends, the danger lies in getting struck by falling rock rather than being trapped.

Action Proposed

- *Clean up by burning or removing debris. Two purposes for this action: 1) mitigate a physical hazard and 2) locate and identify hazardous materials which may lie buried in the rubble.*
- *Gate adit and tunnel to restrict visitors and wildlife.*
- *Collect additional soil samples around the mill to determine the extent of arsenic and heavy metals. Collect background soil samples as well.*
- *Collect water samples both above and below the mill and mine adits.*

18. Monarch Mine

Grow Creek

Hazards Identified - Environmental

- Arsenic, lead and mercury values were high just below the mill

Hazards Identified - Physical

- Shallow adit that is partially collapsed and flooded is adjacent to the Forest Service hiking trail. Timbers are still holding up some of the earth and keeping the void open.
- Two open adits and three caved adits were found. One open adit was flooded and was not investigated. The other open adit has several major rock falls in it, indicating bad ground. Timbers are rotten and have failed in several places.

Action Proposed

- *Fill in the shallow adit near the trail. It is of no significant geological interest (never intersected mineralization).*
- *Gate adits.*
- *Stabilize equipment at mill.*
- *Collect additional soil samples around the mill to determine the extent of the arsenic and heavy metals. Collect background soil samples as well.*
- *Collect additional water samples both above and below the mill.*

19. Mull Claims and Cabins

Resurrection Creek

Hazards Identified - Environmental

- Cans of paint, solvents, petroleum products and sulfuric acid containers (partially full) are present in the old cabin, under the lean to and in the other 2 cabins and storage shed.
- Soil sample analyzed for hydrocarbons indicated a high level (7,610 ppm).

Hazards Identified - Physical

- The older cabin has a lean to that has fallen down recently.

Action Proposed

- Revisit to inventory materials remaining (if any) after the District cleaned up the site in 1991.
- Collect additional soil samples to determine extent of hydrocarbon contaminated soil.

20. Nearhouse Mine

Hazards Identified - Environmental

- About 200 sticks of abandoned dynamite in a drift (inside mine).

Hazards Identified - Physical

- One open adit was found which appeared stable, but a passage was blocked by explosives lying on the floor and we did not investigate further.
- Mine road is not driveable, not even with four-wheel drive.

Action Proposed

- Gate adit
- Maintain gate on lower portion of mine road
- Place warning signs at entrance to mine.
- Detonate or burn explosives. *has been done*

21. No. 2 Above Crescent

Hazards Identified - Environmental

- Two 55-gallon barrels filled with unknown substance and two 5-gallon buckets of oil, both sitting on the ground unprotected from the weather.

Hazards Identified - Physical

- None identified.

Action Proposed

- Remove the 55-gallon barrels and 5-gallon cans (unless this mine is under an approved plan of operation).

22. Ready Boullion Mine

Hazards Identified - Environmental

- Several boxes of badly deteriorated dynamite were found in the remains of the old powder shed near Lynx Creek.

Hazards Identified - Physical

- Only minor amounts of equipment were found and structural remains consist mostly of cabin pits, leaving minimal hazards.

Action Proposed

- Destroy or neutralize explosives. *has been done*

23. Skeen Lechner Mine *Falls Creek*

Hazards Identified - Environmental

- The material sliding off the edge of the road may present an environmental hazard by causing increased sedimentation in Falls Creek.

Hazards Identified - Physical

- Block of ground is sliding off the edge of the mine road at about 3,100 ft elevation for approximately 100 ft (horizontal). Block has moved perhaps three to four feet vertically, exposing bare ground.
- The 3,210 ft level adit is open and extremely dangerous; several large rock falls have already occurred. The rock is highly fractured, and large blocks are loose and have shifted.
- Equipment and structural remains are minimal and generally not hazardous.

Action Proposed

- Gate or otherwise restrict access to the one open adit.
- Conduct additional study to evaluate the slide to determine if it is possibly an environmental hazard, a physical hazard, or both.
- Cleanup debris and scrap materials.

24. Swetman Mine

Hazards Identified - Environmental

- Soil samples near the mill contained unusually high levels of mercury, lead, and especially arsenic. Sediments along Palmer Creek have high levels of mercury.
- Trace of cyanide showed up at the old cyanide tank area.

Hazards Identified - Physical

- Two adits investigated, and both were extremely dangerous. Rock was fractured and unstable, and support timber were in very poor condition.

Action Proposed

- Maintain gates at the lower end of the mine road.
- Gate or restrict access to adits
- Conduct soil sampling to determine background for the heavy metals, arsenic and lead and additional sampling of the mill and stream banks.

25. West Gable Cannery

Hazards Identified - Environmental

- None identified, although asbestos is probably present in the ruins of buildings and other hazardous materials may be present as well.

Hazards Identified - Physical

- Integrity of the 3 structures still standing is questionable.
- Collapsed structures are hazardous due to unsteady footing, rusty nails, splinters, and sharp metal edges.
- Abundant pipe, structural steel, machinery, and scrap metal located on the wharf are subject to falling, toppling or collapsing.

Action Proposed

- Clean up by burning or removing debris. Two purposes for this action: 1) mitigate a physical hazard and 2) locate and identify hazardous materials which may lie buried in the rubble.