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Dirty Old Mines

By Kate Golden | JUNEAU EMPIRE

The legacy of the Alaska-Juneau Mine, closed in 1944, included a riveted steel tank filled with heavy black petroleum sludge, across Thane Road from what is now Taku Smokeries.

The tank, 115 feet wide and 4 feet high, lay uncovered for many of the last 60 years. Occasionally an unfortunate itinerant camper or Canada goose would fall in, and the tank would get on the radar of the press or a government agency, according to Bill Janes, who handles contaminated sites for the state Department of Environmental Conservation.

Last year the landowner and state finally cleaned up the contaminated sludge, to the tune of \$1.1 million, Janes said.

Thousands of mining claims, prospects, abandoned mine sites and metal deposits dot Southeast Alaska, and some of those sites are known or suspected to be contaminated. Nine are federal Superfund sites, a designation by the federal government for the country's sites most in need of cleanup, though none of these are on the National Priority List. In addition, the state has identified impaired water bodies and contaminated sites related to mining.

Often little is known about how much contamination is leaching into soil or water.

"These mining sites tend to languish for so long," Janes said.

But cleaning up requires knowing where to start. And after more than a century of mining, federal and state agencies are just now talking about making a list of all the contaminated old mine sites in Alaska.

"We really should have an interagency list. It would help us kill them off quicker," said Joe Wehrman, who directs the abandoned mine lands program for the state Department of Natural Resources.

"I'm surprised that some of the sites here haven't received funding to be cleaned up," said Rob Cadmus, mining organizer for the Southeast Alaska Conservation Council, a local environmental group. "People are eating shellfish and fish that frequent those areas, and that's not a good thing."

Juneau's good fortune: Inert rock

Juneau is lucky that the A-J mine's waste rock, upon which much of downtown is built, turned out to be mostly harmless. Downtown's shoreline originally stopped where McDonald's restaurant is; the land beyond that is waste rock from the A-J gold mine.

Federal and state regulations controlling hazardous waste from mine tailings weren't written until the 1960s and 1970s. Tailings are the waste rock produced after the metal is extracted from the ore.



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"If the ore body had been different, we'd be sitting on a Superfund site," said mining historian and Juneau Assembly member David Stone.

Around Juneau, however, a few problems do remain. For instance, the lower of two tailings dumps from the Treadwell mine in Douglas was long a barren zone without plants, about a quarter of a mile south of Sandy Beach.

"I used to run down there all the time," said DEC's Janes, who grew up on Douglas Island. It has never been the kind of toxicity that would instantly make someone sick, he said.

But Department of Environmental Conservation documents noted higher levels of zinc, lead, arsenic and mercury there in 1993.

"Obvious stress to vegetation because no vegetation is growing there," an unknown author wrote of the cyanide mill tailings area in 1999.

Sometimes cleaning up is as simple as covering up.

Last summer, landowner AJT Mining Properties, which owns Alaska Electric Light & Power, covered the zone with topsoil, fertilizer and grass seed.

Residual soil contamination remains underneath the topsoil and growth, but the barrier prevents it from being harmful to people, according to DEC documents.

"I suspect they will have to re-hydroseed it every year," said Janes. "You're always balancing out cost with benefit."

The method used is much cheaper than hauling all that material outside Southeast, which could have cost up to six figures, he said.

Unknowns and cleanup dilemmas

The sand of the Thane mine tailings dump, near Sheep Creek and the old Alaska Gastineau mine, has arsenic and lead in it at twice the concentration of surrounding areas.

The official state cleanup threshold is 4.5 parts per million of arsenic. A study found 35 parts per million.

"If you had arsenic in your yard at 35 parts per million, and kids were playing in your yard, you'd have a concern," Janes said.

But nothing has been done about the Thane Road rock dump.

"Extent of contamination unknown," state documents say. "No public health concerns identified with the site at this time."

That is partly because the area isn't a residential area, and partly because arsenic levels well beyond the cleanup threshold occur naturally, according to Janes.

"What do you do, go out and clean up Mother Nature?" he said. "You've got to be realistic about this."

The U.S. Fish and Wildlife Service recently found elevated levels of zinc, copper, arsenic and lead in fish from that area. It's hard to say whether those metals came from natural or manmade sources, Janes said.

Clam-digging in tailings

The state is worried about some areas heavily used for subsistence.

For instance, the Salt Chuck Mine, four miles southwest of Thorne Bay on Prince of Wales Island, was an acid-producing mine from 1919 to 1941. Now it's a low-priority Superfund site. The state found heavy metal contamination of surface water, clams and intertidal sediments, and petroleum-contaminated soil.

People from the village of Kassan harvest shellfish from there, said Drew Grant of DEC, who will consider designating the area as an impaired water body.

The question is how pervasive and how chronic the problems are, he said.

Another former mine, Klag Bay, on west Chichagof Island, has been listed by DEC as an impaired water body since 1996, and is another low-priority Superfund site.

From 1906 until it was closed by a war order in 1942, more than 600,000 ounces of gold and 2 million ounces of silver were extracted from the mine. The tailings were dumped directly into the water.

Since then its blue mussels have been found to have abnormalities.

It might not be a good idea to eat them, Grant said. "Maybe not even the fish."

The area is known to be frequented by subsistence users, but the actual danger to humans is still unquantified.

The state is looking for a consultant to assess that, Grant said.

Gamma radiation on Prince of Wales

On Prince of Wales Island lies the defunct Ross-Adams uranium and thorium mine, on Bokan Mountain, with 184,000 tons of radioactive waste rock.

Discovery of the gamma radiation in 1955 is what prompted mining there in the first place.

The Ross-Adams mine is a contaminated site according to DEC, and a Superfund site that the Environmental Protection Agency tracks but has not proposed for the National Priority List.

The EPA is now filling in the "data gaps," according to DEC documents.

Meanwhile, there's been recent prospecting in the area. If the prospectors decide to develop a mine, they could be responsible for cleaning up any pre-existing problems.

Finding responsible parties to clean up abandoned mine sites can be difficult when the mines closed decades ago, according to state and federal officials. Renewed interest in old mines can be a valuable government hook into getting expensive problems fixed, and not just in this country.

For example, recently the British Columbia provincial government required Redfern Resources Ltd. to clean up acidic tailings from two old Cominco mines before digging anew at the Tulsequah Chief mine site, 40 miles northwest of Juneau.

But the expense makes prospectors wary of where they work, according to Crafford, mine permitting coordinator.

"They'll be careful to not put themselves in the position where they would be responsible for cleaning up issues related to the prior mining," Crafford said. "It can be a tremendous financial liability."

Other contaminated Southeast mine sites:

Contaminated sites around Juneau:

- Jualapa Tunnel: This former underground sluice for gold extraction now pipes Juneau's drinking water to Gold Creek. In 1987, the state found mercury on the tunnel floor, but this was not making it into the drinking water. Nonetheless, the state installed a concrete barrier and a plastic liner to prevent mercury from entering the water.
- Perseverance Mill: This site off Perseverance Trail has elevated levels of arsenic, lead, zinc and mercury. The area is "hazardous but stable," according to a 1988 study by the landowner. The Alaska Department of Environmental Conservation found the area to be too contaminated to allow plants to grow as they would naturally, though metals weren't leaching out to the surface or groundwater.

Some contaminated sites in Southeast Alaska:

- Mahoney Zinc Mine, nine miles northeast of Ketchikan. Documented since 2001. The U.S. Forest Service found highly elevated lead, zinc and cadmium levels at the site, but nothing in nearby water bodies. Abandoned equipment litters the nearby woods.
- Sealevel Mine, in a roadless part of the Tongass on the northeast end of Ketchikan. Low-priority Superfund site. Heavy metals in tailings and more than 800 cubic yards of soil.
- Riverside Mountain Mine, seven miles north of Hyder. High levels of cadmium, lead, arsenic, mercury and zinc in the sediments and surface water, flowing into the Salmon River.
- Gold Standard Mine, at Mill Creek, West Helm Bay, near Ketchikan. "Visible mercury beads in mine tailings," according to state documents.
- Kimsham Cove Mine, on West Chichagof Island. Tailings were dumped into the intertidal zone. The state found mercury, arsenic, cobalt, copper, lead and silver there.
- Beaver Falls Mine, near Ketchikan. The Alaska Lead and Silver Mine left some chemicals and processed metal ores at the mill site, but "no observed threats to groundwater," according to state documents.
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