

KSM Pt. 2: A river runs through it, and that's the problem

Seabridge's KSM mine will be as deep as any the world has seen with the potential to critically damage Alaska's downstream resources

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If built, the Kerr-Sulphurets-Mitchell mine near the British Columbian border could produce more than 10 billion pounds of copper, 133 million ounces of silver, 38 million ounces of gold and 200 million pounds of molybdenum. It would also produce more than 2 billion tons of tailings, and one of its three open pit mines would be about as deep as the deepest open pit mine in the world today. Water treatment facilities filtering water from the mine site and into the Unuk River, which flows into Alaska's Misty Fjords National Monument, may need to operate 200 years or more to prevent acid from draining into Southeast Alaska waters.

British Columbia's Environmental Assessment Office, which is reviewing Seabridge Gold's 33,000-page mining application, says review and oversight — as well as Seabridge's efforts to date — will ensure the mine, if permitted, is environmentally safe.

But others in Alaska and BC worry about the mine's vast scope and effect on fish. They say should anything go wrong with this or other mines proposed in BC during or after their operation, acid mine drainage could contaminate important salmon producing rivers and Southeast Alaska's waters, and Southeast Alaska and Yakutat's more than 5,000 annual fishing jobs — and its fish — could be in jeopardy.

A THREAT TO FISH?

Kevin Koch, a fish and wildlife biologist with the Gitanyow Fisheries Authority, said the KSM project represents “the biggest threat to the Gitanyow way of life to date.”

The Gitanyow have for thousands of years used the Nass River, located in the same watershed as the tailings facility, as their primary source of salmon. The Nass River empties into the ocean just south of Alaska's border.

In a report prepared in January for the Gitanyow Fisheries Authority and submitted to British Columbia's Environmental Assessment Office as public comment, Michael H.H. Price, a biologist with the University of Victoria, wrote that salmonids (fish in the salmon family) in waters downstream from the tailings facility "will undoubtedly be subject to sub-lethal metal toxicity. In some circumstances ... the effect most probable is secondary death."

Seabridge Gold's data suggests otherwise; the company's six years of studies, asphalt-core earthen dams for the tailings pond, mitigation strategies, water treatment facilities and consistent monitoring will minimize negative impacts to fish in the Nass and Unuk rivers, they say.

In a fact sheet, the company declared, "the proposed tailing management facility will be located at a watershed divide between Teigen and Treaty Creeks (which leads, eventually, to the Nass River) but there will be no impacts on water or salmon because no acid-generating contact water will be released into the environment and water-flow disturbance will be minimized — as confirmed by extensive scientific studies."

Seabridge Vice President of Environmental Affairs Brent Murphy said crushed rock is being deposited into the tailings management facility, and "potentially acid-generating material" will be separated and put in a lined cell, maintained under a water cover. The facility will also be constructed and used in phases, allowing for "reclamation."

"This (lined cell) is one of the main aspects of accommodation and was built into the design to address the concerns of the local Aboriginal people," he said.

In the executive summary to its application, the company says that in the two watersheds the project is expected to have "minor" effects on Dolly Varden, pacific salmon, bull trout, cutthroat trout and rainbow trout, steelhead and fish habitat, most of which will be mitigated through good monitoring and management.

Despite the additional measures taken, many Alaskans and British Columbians are not reassured, citing seismic activity and the potential for other disasters, worries about monitoring, the massive and perpetual need to treat the water flowing over the site and into the Unuk River, and, most of all, the decades or centuries of required maintenance after the closure of the mine as reasons to worry about acid mine contamination in Alaska's waters and its fish.

Post-closure, due to naturally occurring mineralized rock, water treatment will be needed at the mine site, which flows to the Unuk River, "for the foreseeable future," Murphy said.

Not all nearby First Nations oppose the project: the Gitksan Treaty Society supports it, in part due to Seabridge Gold representatives' "open, honest and transparent dealings."

The Tahltan Central Council requested more information about many aspects of the project, saying that they need more information on the impact on water quality and fish in the same creeks Koch is concerned about. The KSM project also has support in some nearby towns; the company has donated \$200,000 to a trades training program at a nearby college and says it will provide around 6,500 jobs in British Columbia over the course of the project.

Seabridge Gold has made an effort to address some other environmental concerns. The state of Alaska was concerned that the water treatment facility was not adequately mimicking the natural ebb and flow of water quantities in a natural coastal, glacial system; Seabridge revised its plans to mimic natural flow more accurately, with the highest amount of water released in the summer months.

“Contrary to belief, this process is rigorous,” Murphy said of environmental assessment and permitting. “It is a very thorough and time-consuming process.”

Some First Nations representatives recently attempted to attend a recent transboundary mining summit in Craig, hosted by the Organized Village of Kasaan, but were turned back by weather. Eleven of Southeast Alaska’s 19 federally recognized tribes attended, formed a working group and unified in opposition to the mine.

“That’s just the first of many meetings that are going to come,” Rob Sanderson, 2nd Vice President of the Central Council of Tlingit and Haida Indian Tribes of Alaska, said. “Right now we’re trying to ... slow or stop that permitting process ... (KSM is) very real and it sits above the most pristine waters in Southeast Alaska.”

A delegation including Dale Kelley, executive director of the Alaska Trollers Association; Brian Lynch, executive director of the Petersburg Vessel Owners Association; Bruce Wallace, a purse seiner from Juneau; and Raymond Paddock, environmental coordinator for the Central Council of Tlingit and Haida Indian Tribes of Alaska, recently flew to Washington, D.C. to meet with federal and elected officials, express their concerns and give them a letter signed by more than 40 different Southeast Alaska businesses, organizations and tribes.

On Wednesday, Senators Lisa Murkowski and Mark Begich and Rep. Don Young asked the U.S. State Department to raise the delegation’s concerns about water quality worries rising from mining in the Unuk, Stikine and Taku river watersheds with the governments of Canada and British Columbia.

A BIG MINE?

Some basic descriptions of the mine are debated.

“The complexity of this project is unprecedented for a gold mine in B.C., Canada, or indeed, the world,” the Gitanyow Hereditary Chiefs wrote in a Nov. 2013 letter to Canada’s Minister of the Environment.

“It’s amazing one of the biggest mines in the world is basically going unnoticed,” Koch said.

Rivers Without Borders calls the project a “giant.”

Sanderson said “the scale of the KSM mine is above comprehension.”

Multiple other sources call it one of the largest undeveloped gold and copper resources in the world. Seabridge’s own website states, “the KSM Project is one of the largest undeveloped gold projects in the world.”

In one of its fact sheets, however, Seabridge contradicts that statement saying it is a misconception that KSM is big and that it is in fact an average size.

“The KSM mine, including its open pit, is only average in size compared to other mines around the world,” it says.

Seabridge plans to mill around 43.8 million tons of mineral ore annually. Daily, it would handle 130,000 tons of ore and produce about 820 tons of gold-copper and molybdenum concentrate.

More than 2 billion tons of tailings would be transported through twin tunnels 23 kilometers long to facilities constructed in the Bell-Irving River Watershed, which flows to the Nass River. Two dams constructed for the tailings facility, which is 7.5 miles long by 1.8 miles wide, would be about as high, and much wider, than the Hoover Dam. Those dams will “become a part of the landscape after reclamation,” Murphy said.

The water treatment facility would have the capacity to treat 119,000 gallons of water per minute. Any water that comes in contact with the mine site would also need to be treated for 200 years or longer.

One of the three open pits in the project, located in the Unuk River watershed, would be three-quarters of a mile deep, reduced from an initial proposed depth of a mile. After it reaches that depth, it would be mined using underground methods.

The difference may be a matter of how “big” is defined; for example, Kennecott Copper mine in Utah, also known as Bingham Canyon Mine, is largely agreed to be the deepest open pit mine in the world. Mitchell Pit, one of the three open pits at KSM — originally proposed to be a mile deep, something the pre-assessment contractor called “unprecedented” — will be almost exactly the depth of Kennecott.

In other words, KSM will be as deep as the deepest open pit mine in the world.

IF SOMETHING GOES WRONG ...

“In our opinion, the likelihood of a catastrophic event or failure of mitigation is very high and possibly greater for this proposal than for other mines and should be addressed in the application,” the Petersburg Vessel Association wrote in its public comments.

In its public comments, Rivers Without Borders cited mining engineer Dave Chambers: “The (EA) should be considered inadequate for the intended purposes because it does not disclose any detail on how the project proponent or regulatory agencies will ensure that funds will be available as long as they are needed to implement the closure and post-closure obligations. Without this information, the likelihood that essential mitigation would be adequately funded in the long term cannot be assessed.”

British Columbia requires mines to post bonds for mitigation and cleanup costs, the amount of which is determined after environmental assessment during the permitting phase of a project. (This financial assurance will be more thoroughly addressed in the third article in this series.)

The Petersburg Vessel Association also cited EPA studies that found mining has contaminated the headwaters of 40 percent of the watersheds in the western continental U.S. and that 76 percent of U.S. hard rock mines exceeded discharge levels predicted in EPA environmental impact statements before construction.

“The application assumes mitigation will always work and a company will stand behind its commitments physically and financially. How this will be guaranteed needs to be addressed in the application,” Lynch wrote. “Considering that bankruptcies and buyouts are common in the mining industry, what assurances can be made that the long term commitments of one company will be kept by another?”

On its website, Seabridge Gold says it usually sells its projects to another company after permitting and prior to construction. Murphy said Seabridge will joint venture KSM — it will find a partner — but it will stay involved in the project.

Rivers Without Borders cited a different study.

“Research shows that even with mitigation measures in place, 93 percent of mines that had a potential for acid drainage exceeded water quality standards in groundwater and 85 percent exceeded water quality standards in nearby surface waters,” they wrote in public comments.

On its website, Seabridge says “protection of the environment is a guiding principle behind the design of the KSM project, and during operation, KSM will fully meet all applicable standards to ensure water quality set by the U.S. Environmental Protection Agency, the Canadian and Provincial governments and the BC Environmental Agency.”

They also emphasize that the environmental assessment application took five years to prepare and involved “studies and input from more than 16 world-class consulting firms.”

Just the same, a debate surrounds aspects as fundamental as Seabridge’s baseline data on water quality; the Gitanyow Hereditary Chiefs have data that conflicts with Seabridge’s, Koch said.

“That (KSM’s data) is seriously in question,” he said. “We’ve worked with some independent water quality people ... to critique Seabridge’s work.”

It’s usual in the United States and in Canada for mines to hire consulting agencies to conduct studies. But Southeast Alaska Conservation Council Mining and Clean Water Project Coordinator Guy Archibald said frequently in the U.S., as with Kensington and Greens Creek mines, the company hires a state agency, like the Alaska Department of Fish and Game, which has a responsibility to the residents of the state and is more likely to submit impartial data. Another option, he said, is to hire someone through an interest group like a First Nation.

Archibald said the source of his unease about KSM is in part related to Seabridge’s confidence that it will have no significant impact on the ecosystem, when the future and human plans and structures are inherently unstable.

“Predictability progressively decreases from day one and uncertainty increases,” he wrote in a reflection about the project. “The 200-year mark is not some magic moment in time when suddenly contact water will cease to be contaminated, but the point where the built-up uncertainty in the analysis exceeds any predictive value. In other words, after 200 years, no one knows.”

The Tulsequah Chief Mine has been leaching acid mine drainage into the Tulsequah River, which flows into the Taku River, since it closed in 1957. Though a recent study found the drainage is not having a significant negative impact on the Taku’s fish, the fact that the mine has leached acid into Alaska’s waters for decades worries those concerned about KSM’s long-ranging water treatment needs.

And compared to KSM, the Tulsequah site is miniscule.

“Lord forbid if we have a seismic event,” Sanderson said. “I could only imagine the catastrophic events in Southeast Alaska.”

Seabridge is required, in its environmental assessment, to address the potential of various disasters. They say their tailing dams are planned to the standards of a dam in Chile that recently withstood an 8.8 magnitude earthquake. They also say the region is not known for large earthquakes.

Rivers Without Borders, in contrast, calls the region “seismically active.”

STEPS TO MITIGATION

More than 80 percent of the waste rock coming from the mine will produce acid, so Seabridge Gold plans to treat all tailings as potentially acidic. At the mine site, where water flows into Alaska, Seabridge plans to divert most water around the mine site and treat any water that comes in contact with it. Both steps have been praised by the EPA.

“The concerns that we’re hearing from Alaska are identical to the concerns in Canada,” Seabridge’s Murphy said. “From day one, the protection of the environment has been the key guiding principle behind the design of this project.”

Others are concerned about selenium, which has a negative effect on fish and is difficult to treat.

Seabridge says its residual effect on fish is “moderate;” Murphy said the ion-exchange technology Seabridge plans to address it is established.

The U.S. Environmental Protection Agency disagrees.

“It appears that the technology being proposed for the (selenium) portion of the water treatment is novel,” the EPA wrote in comments on the application. “While the development of novel water treatment options to provide site-specific solutions is commendable; there needs to be further studies performed at more relevant water chemistries, flow rates and volumes ... before any mining activity occurs in the Kerr pit.”

The EPA also requested some of the same things concerned Alaskan residents want: more information on potential downstream effects on salmon, eulachon (hooligan) and water quality and more information on potential dam failures, for example. The agency also reiterated Alaskan Tribal concerns including the absence of any information on eulachon in the impact statement, concern over acid mine drainage and the fact that the 45-day comment period was not long enough.

“Reading the EA application at one page a minute, 24 hours a day would take about half the comment period,” the Rivers Without Borders group pointed out in its comments.

The EPA also requested more information on water quality impacts.

Due to natural leaching and existing high levels of metals in the water in Sulphurets Creek, which flows into the Unuk River and then into Alaska, that treatment will actually improve the quality of the water, Seabridge’s studies say.

Some are skeptical of that statement, especially in the longterm.

“I have yet to see anything like that in the world — where an actual mine has improved a water system. I just have yet to see it. I don’t know if I could buy that just yet,” Raymond Paddock, Native Land and Resources Environmental Coordinator for Tlingit and Haida Central Council, said.

NEXT ARTICLE:

Several Southeast Alaskan organizations say five British Columbian projects, in transboundary watersheds like the Unuk and Stikine, have the greatest potential to negatively affect Alaska’s water and its fisheries.

British Columbia, according to its jobs plan, has a goal of eight new mines being in operation by 2015 and nine mines getting upgrades and expansions.

Currently, the BC Environmental Assessment Office has eight aggregate/coal mines and seven metal mines active in the pre-application phase; two metal mines are in the application phase, according to Greg Leake, the EAO’s Director of Client Communications and Engagement. And B.C.’s Premiere, Christy Clark, has told the EAO to “get to ‘yes’ faster.”

BC’s development push and assessment and regulatory process, Canada’s changing environmental laws, Alaska’s recourse — or lack of it — should something go wrong, Alaska and the U.S.’s input in the process and the overall scope of projects that could impact Alaskan waters will be examined in the next article in this series.