



By Carolyn Raffensperger

## New Alaskan Gold Rush To Judgment

**H**ow do we define wealth? Gold and money? Or clean water and abundant wildlife? The state of Alaska is faced with this conundrum: will it preserve one of the finest salmon runs anywhere while also protecting indigenous culture, or will it permit a foreign company to establish one of the largest open pit gold and copper mines in the world. The law is ambiguous. The science is not.

Northern Dynasty Mines Inc., a Canadian firm, has been exploring the headwaters of the Bristol Bay watershed, North America's greatest remaining salmon producing region, for what may be the largest gold deposit on the continent. The firm has not yet applied for state permits for the Pebble Mine, nor begun the environmental impact statement process, which will require consultation with tribes. Dynasty has proposed an open pit mine on state-owned land that would cover more than 3 square miles, with an adjacent 14-square-mile waste area, including a tailings pond. As *New York Times* writer Lisa Drew pointed out, this mine would be more than 10 times as large as New York's Central Park. The gold is embedded in surrounding rock as tiny specks and pebbles, a geological phenomenon called porphyry.

The scale alone is an environmental concern. But adding to that the toxic materials used in gold extraction guarantees that the environmental destruction will be vast. According to *World Watch* magazine, "Metals mining is the number one toxic polluter in the United States, responsible for 96 percent of arsenic emissions and 76

percent of lead emissions." A little 18 karat gold bauble weighing a third of an ounce leaves 18 tons of waste rock and pools of toxic chemicals. Topping the list is cyanide, which has been used since the 1960s to leach gold out of the rock after it has been excavated and crushed.

Industrial-scale gold mining has always been dirty and costly. In the United States, mining companies have been using cyanide since the U.S. Bureau of Mines urged them to use it instead of the old mercury amalgamation process. According to the U.S. Geological Service, "Elevated mercury concentrations in present-day mine waters and sediments indicate that hundreds to thousands of pounds of mercury remain at each of the many sites."

The modern technique is to render gold ore with sodium cyanide at the site. A solution of the chemical is sprayed from a glorified irrigation system positioned above masses of excavated, crushed rock or within enormous vats. The gold reacts with the sodium cyanide in the solution to form a compound of gold and cyanide, which washes out of the rock. Activated carbon then extracts the gold.

The only problem, of course, is that cyanide is a nasty poison — it was the key ingredient in the Zyklon B gas used in the Nazi death camps. Cyanide in gold mining can pose a direct risk to humans, but the chief danger so far has been to the health of waterbodies. "Fish and aquatic invertebrates are particularly sensitive to cyanide exposure," according to the International Cyanide Management Code, a project of the U.N. Environment Program. "Concentrations of free cyanide in the aquatic environment ranging from 5.0 to 7.2 micrograms per liter reduce swimming performance and inhibit reproduction in many species of fish. Other adverse effects include delayed mortality, pathology, susceptibility to predation, disrupted respiration, osmoregulatory disturbances and altered growth patterns."

Mining companies accurately point out that while cyanide is acutely toxic it is neither persistent nor bioaccumulative. It has low chronic toxicity and does not biomagnify in the food chain.

However, cyanide only degrades in aerobic conditions. Consequently, it is still measurable at Auschwitz where it has survived in anaerobic environments.

If constructed, the Pebble Mine will become just one part of an enormous mining district. It is not certain how far-flung the damage will be or all the cultural consequences for the Alaska natives. Risk assessments can estimate the number of sockeye salmon killed if there is a spill on June 14, 2010. But they cannot assess the impact on all the relationships — of the bear who eat the fish, and on the ceremonies of the Athabascans, Yupik, and Aleuts dependent on the fish harvest.

The real uncertainty is the legal ambiguity in the Alaska state constitution's natural resource provisions that say "it is the policy of the state to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest. . . . Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use."

At stake is the public interest and whether the proposed Pebble Mine can satisfy the tension of maximum use of resources and still permit the common use of fish, wildlife, and waters. The question is whether the state considers the commonwealth of future generations as part of the public interest.

Dynasty anticipates environmental problems that violate U.S. law. It claims in its 2004 Annual Report that since members of its management are Canadian citizens, they will not be subject to U.S. legal proceedings nor can a U.S. court judgment be recovered from them. Hopefully, our courts will disagree.

Other constitutions ensure that the rights of future generations are considered. An Israeli commission, as an example, evaluates all legislation for its detrimental effects on future generations. Would that the United States as a nation, or its constituent 50 states, were so wise.

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