

## **ILLINOIS CREEK MINE - Inadequate Reclamation Bonding**

The State had a bond of \$1,524,941 posted by USMX<sup>1</sup>, but the company went bankrupt in 1998. A later reclamation estimate \$3,759,764 was made by Alaska Reclamation Group<sup>2</sup>, a company that later operated the property under a contract from ADNR as a "mine-to-reclaim" plan using the proceeds from gold/silver production to fund concurrent and post-closure reclamation. While this approach was successful, it is one the State agrees should not be repeated and highlights a major weakness in regulatory performance and Alaska mining law.

The following article taken from the ADN describes the issue:

### **GOLD MINE TEACHES LESSONS ON CLEANUP ILLINOIS CREEK: Tab won't be paid by state.**

By PAULA DOBBYN  
Anchorage Daily News

*(Published: November 4, 2005)*

The troubled life of Illinois Creek gold mine finally expired last month after years of high drama, including a bankruptcy, several failed efforts to restart production and a bond too small to cover cleanup costs.

Reclamation -- the industry term for cleanup and shutdown -- officially wrapped up at the heap-leach mine in October, said Harry Noah, of American Reclamation Group, on Thursday. Noah is a former Alaska commissioner of natural resources.

The Illinois Creek experience taught state mining officials some hard lessons about the risks involved with mining projects and how to avoid leaving taxpayers with the tab of mine closure, said Bob Loeffler, former state director of mining, land and water. In Illinois Creek's case, no public funds were needed for reclamation. But for a long time, it wasn't clear that would happen.

"I believe I'll live two years less because of this mine," said Loeffler, who announced his resignation from the Alaska Department of Natural Resources last week.

Loeffler, who permitted the mine, sweated through the whole Illinois Creek fiasco.

"I woke up a lot of nights, worrying," he said Thursday over a beer in the bar of the Sheraton Anchorage Hotel where the Alaska Miners Association is holding its annual conference this week. Earlier, he gave a speech about the lessons learned at Illinois Creek.

The mine, located about 50 miles southwest of Galena, started producing gold in 1997. It was supposed to yield 340,000 ounces of gold over six to eight years. But within months of getting its permits in 1996, the operator, USMX of Alaska Inc., ran into construction delays and other troubles. USMX, a subsidiary of Dakota Mining Corp. of Denver, declared Chapter 11 bankruptcy in 1998.

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<sup>1</sup> Bob Loeffler, Director, Division of Mining, Land & Water, ADNR, e-mail to David Chambers, 8/8/02

<sup>2</sup> Alaska Reclamation Group (ARG), Illinois Creek Mine Final Reclamation Plan, Jun 2000, p. 13.

The mining company had posted a reclamation bond of \$1.6 million, intended to cover the costs of closing the mine and putting the land back in order should the firm become insolvent. The amount should have been twice that, Loeffler said. In 1999, the state told the operators to increase the bond to \$2.6 million. It never happened, he said.

The bankruptcy reorganization failed and attempts by a bank to take over and operate Illinois Creek also dead-ended.

The state was left to run the mine for a time while it sought a new operator that would produce gold or reclaim the site.

It was a bleak time for Loeffler. Not only was the mine lacking sufficient bonding and the operator insolvent, liens on the equipment and 60 million gallons of cyanide-laden waste water had to be dealt with.

DNR officials asked the attorney general's office to pass an emergency regulation to allow the agency to lease Illinois Creek to new operators. The Department of Law balked, saying there was no emergency, Loeffler said.

John Shively, resources commissioner at the time, went nuts and harangued the attorney general's office until they declared an emergency, Loeffler recalled.

But the new company that took over in 1999, Viceroy Resources, abandoned the mine the next year.

Noah and business partner Ken Pohle stepped in and struck an agreement with DNR to run the mine. The two took a substantial risk to do so, contributing private capital and mortgaging houses and other assets, Loeffler said. The key for the state was that Noah and Pohle's American Reclamation Group would reap no profit until the state's reclamation requirements were fulfilled.

The firm used hydrogen peroxide to neutralize the cyanide-laden water, capped the processing reservoir and revegetated the area. The company also contributed \$200,000 to a trust fund to monitor Illinois Creek in the future. The fund totals \$838,000 and is more than adequate, Loeffler said.

Although what happened at Illinois Creek is not uncommon in the Western United States, it was Alaska's first experience dealing with a large mine bankruptcy. As a result, DNR learned that the size of reclamation bonds matters and that government must act quickly when bankruptcies occur, Loeffler said.

"It's too bad that they had to go through that, but they made it work," said Steve Borell, executive director of the Alaska Miners Association.

## **RED DOG MINE - Failure of the Permitting Process to Predict Significant Environmental Problems**

Red Dog is the largest zinc mine in the western world. Cominco Alaska, a wholly-owned subsidiary of Cominco Ltd., leases the property and operates the mine under an agreement from the NANA Corporation, an Alaskan Native for-profit corporation. Cominco markets the concentrate.

The Red Dog lies in the foothills of the DeLong Mountains of the Brooks Range, approximately 90 miles north of Kotzebue, Alaska, and 52 miles from the Chukchi Sea. The lead/zinc/silver ore deposit was discovered in the 1970's. The land encompassing the mine was selected by the NANA Regional Corporation under the Alaska Native Claims Settlement Act and the Alaska National Interest Lands Conservation Act.

The US Congress passed legislation authorizing a transportation easement for a road from the mine to the port site through Cape Krusenstern National Monument. The Alaska Industrial Development and Export Authority, a state agency, agreed to construct the haul road, and receives a fee for use of the road.

Low, rolling mountains typify the terrain in the area. The mountains are mainly tundra-covered, and permafrost lies only a few feet below the surface. The mine is located high in the drainages, and numerous small streams feed into Red Dog Creek, the main stream system draining the area of the mine. The Middle Fork of Red Dog Creek actually cuts through the ore body, and the water quality of this stream was degraded before any mining started due to natural acid contamination from the ore body. There was no previous development on the site.

The South Fork of Red Dog Creek has been converted into a tailings impoundment, and the North Fork of Red Dog Creek is relatively pristine. Red Dog Creek flows into Ikalukrok Creek, which in turn flows into the Wulik River, a major salmonid spawning stream in the area.

### **Significant Regulatory Problems:**

The Red Dog Mine is often touted as a model for a social and environmentally responsible mining development. However, the Red Dog Mine has experienced some significant environmental problems during its operating history. Two of these issues are outlined below. Each issue, one related to water quality problems, the other to dust contamination, led to fines and modifications to the operating facilities required by consent agreements with the regulatory agencies.

### **1. Water Quality Problems**

In 1989 water in the streams below the mine, which was under construction, began to show dramatic increases in zinc. An orange-colored flow was seen entering the Middle Fork of Red Dog Creek near the mine, and continuing on as Red Dog Creek entered Ikalukrok Creek five miles further downstream. A Cominco representative "... maintained that the company had nothing to do with the zinc in the water."<sup>3</sup>

In 1990 the mine began mining ore. That summer the seepage problem got worse. Zinc contamination levels, which were approximately ten times the state water quality standards in 1989, rose to as much as 200 times higher than the standard. Levels of other metals were also of concern in the stream. Dead fish from the Wulik River, approximately 25 miles downstream from the mine, were discovered by the public.<sup>4</sup> Zinc levels in Ikalukrok Creek, which empties into the Wulik River, exceeded 40 mg/l.<sup>5</sup>

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<sup>3</sup> "Zinc levels in creek concern state officials," Anchorage Daily News, October 7, 1989.

<sup>4</sup> "Aquatic Biomonitoring at the Red Dog Mine, 2003," Al Ott, ADNR Technical Report No. 04-02, April 2004, p. 102.

<sup>5</sup> Ibid.

The State of Alaska was convinced that seepage from the mine into Red Dog Creek was causing this problem, and asked Cominco to divert Red Dog Creek around the mine to stop the seepage. Cominco refused this request,

This whole process culminated in an Administrative Complaint and penalty from EPA on February 28, 1991. The complaint cited 134 violations of effluent limitations for metals and pH. Cominco had also failed to follow the 24-hour phone notification and five-day written notification reporting requirements for any violation of the permit limitations. Cominco was penalized \$125,000 for these violations.<sup>6</sup>

Cominco agreed to fix the seepage problem, while still contending "... there is no clear connection between the mine and the seepage into Red Dog Creek."<sup>7</sup> Cominco spent \$11 million in 1991 to build a lined ditch to route Red Dog Creek around the mine, and to isolate the creek from seepage. This was done partially at the urging of the mine's owner, the NANA Corporation, which declared it wanted the problem fixed, no matter who or what was at fault.<sup>8</sup> Metal values in Red Dog Creek have returned to pre-mining levels.

## **2. Air Emissions - Particulates and Lead**

In the first few years of the mine's operation, there were several significant problems related to air quality. The Environmental Impact Statement for the mine had predicted that dust generation would be a serious concern from the traffic of haul and supply trucks, but that other pollutant emissions would have an insignificant impact on the area.<sup>9</sup> Notably, it predicted that approximately 9 to 12 daily truck trips on the haul road would occur.<sup>10</sup>

In addition, in the modelling for the air quality permit application to the State of Alaska, Cominco's consultant, Dames & Moore, had assumed that the haul truck speed would be 18 mph.<sup>11</sup> As a result of these and other concerns, the draft air quality permit from the State of Alaska placed some significant restrictions on Cominco's operations in order to control dust emissions. Cominco, in its written comments on the draft permit of March 3, 1988, indicated that "... it is not possible to comply with the required standards because of the characteristics of the surface coarse material available, climatic conditions, acceptable vehicle operating practices, and economic considerations." Cominco sought a trial period of 5 years in which to test dust control on the haul road, and objected to the requirement that the coarse ore stacker and stockpile be covered. It proposed an average haul truck speed of 34 – 38 mph, with a maximum speed of 55 mph, and therefore rejected a proposed permit condition of 15 mph maximum speed.<sup>12</sup>

In 1990 Cominco reported violations of the total suspended particulates (TSP) limit of the air permit, including sites at the mine and the haul road. ADEC staff, in report from a site inspection held on May 8 and 10, 1991, noted that there were approximately 30 truck trips per day, with a 50 mph speed limit.<sup>13</sup>

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<sup>6</sup> United States Environmental Protection Agency Region 10, Administrative Complaint, Docket No. 1091-02-16-309(g), February 28, 1991.

<sup>7</sup> "Toxic metals foul stream near mine," Anchorage Daily News, August 18, 1990.

<sup>8</sup> "Toxic metals foul stream near mine," Anchorage Daily News, August 18, 1990.

<sup>9</sup> Final Environmental Impact Statement for the Red Dog Mine (Final EIS), September 6, 1984, p. V-66.

<sup>10</sup> FEIS, p. II-11.

<sup>11</sup> In a letter from ADEC to Cominco, February 17, 1987.

<sup>12</sup> Permitting Research Project, Michael Frank, Dan Easton and Theresa Svancara, for the Citizen's Oversight Council on Oil and Other Hazardous Substances, July 1992, p. 3-29.

<sup>13</sup> Permitting Research Project, p. 3-43.

Air quality monitoring reports submitted for the second and third quarters of 1991 also showed TSP exceedances at the port site, and TSP and lead exceedances at the mine.<sup>14</sup> In a letter to ADEC dated July 25, 1991, Cominco had indicated that it felt full enclosure of the port conveyor system was not required due to the lack of any appreciable dust emissions.<sup>15</sup>

On December 18, 1991, ADEC issued a Notice of Violation to Cominco. Cominco continued to report air quality violations into 1992. On June 26, 1992, Cominco agreed enter into a Compliance Order by Consent with ADEC. The Consent Order stipulated a \$10,000 payment to ADEC, and that Cominco would, among other projects: construct a rigid, windproof structure around the crushed rock ore stockpile at the mill site, and; enclose the entire length of the port site conveyor system.<sup>16</sup>

Although there have been no air quality violations since the terms of the Consent Order were completed in 1994, significant metals contamination was recently documented to undisturbed soils in the vicinity of the minesite.<sup>17</sup> Fugitive dust from the minesite, probably related to winter operations, is the source of this contamination. Teck Cominco stated that “More extensive work is required to better understand the nature of mining related fugitive dust.”<sup>18</sup>

Cominco initiated a Risk Assessment<sup>19</sup> for lead dust in 2005 that has been circulated for comment, but has not been finalized. How to address lead and cadmium contamination along the haul road and at the minesite remain issues of concern to the residents of Kivalina, who use the area for subsistence gathering.

## **GREENS CREEK MINE - Failure to Protect Water Quality in Greens Creek**

### **Miscalculations in the EA/EIS Process that Mischaracterized the Tailings and Waste Rock:**

The original EIS in 1983 describes the “stable chemical nature of the tailings.”

A 1988 environmental assessment (EA) states that the “tailings would not be acid producers” and that “acid production and acid leaching potential are low.”

The 1992 EA for additional waste rock disposal capacity at Greens Creek assumed that “[t]here would be low potential for metals to reach groundwater due to the low infiltration of water through the waste rock and the lack of oxygen in the waste rock pile which would promote metals leaching.”

In 2000, the Forest Service concluded that additional environmental analysis was unnecessary to approve the expansion of the Greens Creek tailings pile within the footprint approved in the 1988 Decision Notice. (Memo from Assistant Forest Supervisor Salinas to Greens Creek Project File, April 4, 2000).

However, more recent monitoring data demonstrates that acid mine drainage and heavy metals leaching is occurring from the tailings and waste rock dumps.

“Geochemical characterization conducted before and during mine operation indicate that production rock and tailings have the potential to form acidic conditions .... At a neutral pH, water contacting

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<sup>14</sup> Permitting Research Project, p. 3-45.

<sup>15</sup> Permitting Research Project, p. 3-44.

<sup>16</sup> State of Alaska, Department of Environmental Conservation, Northern Regional Office, Compliance Order by Consent #92320610001, June 26, 1992.

<sup>17</sup> Summary of Mine Related Fugitive Dust Studies, Teck Cominco Alaska, March 14, 2005

<sup>18</sup> *Ibid*, p. 15.

<sup>19</sup> Draft Delong Mountain Transportation System (DMTS) Fugitive Dust Risk Assessment Volume I, prepared for Tech Cominco Alaska Incorporated by Exponent Inc., Bellevue, WA.

some production rock may contain soluble metals, especially zinc.” [Technical Review ARD/Metals Leaching and Freshwater Monitoring Plan Greens Creek Mine. Shepherd Miller, Inc. February 18, 2000. p. 26]

“Additionally, (*waste rock*) Site D contains production rock with ARD and metals leaching potential.” [DEC Memorandum dated March 8, 2002 concerning January 16, 2002 Site Visit, page 8]

“Information gathered to date indicate the likely explanation for ARD observed ... oxidation of pyretic rock used to construct a previous access road in the area ...” [DEC Memorandum dated March 8, 2002 concerning January 16, 2002 Site Visit, page 11]

In January 2003, DEC issued a report substantiating the existence of acid mine drainage at waste rock sites in Greens Creek Mine. [DEC Memorandum dated January 28, 2003 concerning Solid Waste Permit Number 0111-BA001]

### **Stormwater Issues:**

During mine exploration and construction small waste rock piles were left near the main and exploration portals. Visual inspection clearly showed these piles to be leaking oxidized iron. When David Chambers approached both company officials asking that these waste piles be moved to a protective waste disposal location, he was told that because they were not causing a problem moving the waste would be done when it was convenient. When David Chambers expressed the same concern to an ADEC mine inspector, he was told that there was no problem associated with metals leaching from the waste piles, and that the company would not be required to move the waste. These discussions went on for several years.

However, in the Fact Sheet Fact Sheet for NPDES Permit Number AK-004320-6, USEPA, October 28, 2004, for the renewal of the NPDES permit, EPA noted:

“...some of the storm water monitoring showed that the storm water exceeded WQS...”

and;

“It is not apparent from the past storm water monitoring that the BMPs currently utilized by KGCMC are protecting the receiving water quality...”

These waste piles have now been removed by the company.