STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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June 28, 2012

Mr. Michael Wilcox
United States Forest Service
Post Office Box 21628
Juneau, Alaska 99802

RE: Cleanup Complete
Mineral King Mine, near Whittier, Alaska, Hazard ID 3348

Dear Mr. Wilcox:

In a letter dated February 3, 2004, the Alaska Department of Environmental Conservation (DEC) notified you as to its approval of the *Engineering Evaluation/Cost Analysis Report* and of concurrence with the preferred No Action alternative. A copy of this letter is enclosed.

As outlined in this letter, the concurrence with the No Action Alternative was based upon the future land use remaining recreationally used. The only requirement that the US Forest Service needed to complete so that DEC could make a closure determination was the inclusion of this area on the US Forest Service's geographic-information system (GIS)-land management system as needing to remain designated as recreational use in order to ensure the appropriate usage of the area in the future. To date, DEC has not been informed that this has occurred.

On July 24, 2009, DEC adopted a new policy for site closure. A copy of the memorandum is located on our website at http://dec.alaska.gov/spar/csp/guidance.htm. According to our new policy, DEC is able to issue a closure determination without the US Forest Service having previously placed the site on its land management system; however, this does not obviate the responsibility for the US Forest Service to perform this action.

DEC has determined that cleanup is complete at this site. Some soil is present at the site that contains contaminants at levels above the most stringent cleanup levels in 18 AAC 75.341, Table B1, however those are likely naturally-occurring background levels. However, please note that if in the future additional contamination is found to be present that may pose an unacceptable risk to human health, safety, welfare or the environment, it must be reported to DEC and cleanup may be required.

If you have any questions regarding these comments, please feel free to contact me at (907) 766-3184.

Sincerely,

Anne Marie Palmieri
Environmental Specialist

Enclosure: Letter to US Forest Service dated February 2, 2004

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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February 3, 2004

Mr. Ken Maas
United States Forest Service
Post Office Box 21628
Juneau, Alaska 99802

FILE COPY

RE: *Final Engineering Evaluation/Cost Analysis (EE/CA)*
Mineral King Mine, near Whittier, Alaska

Dear Mr. Maas:

The Alaska Department of Environmental Conservation (department) has received and reviewed the *Final Engineering Evaluation/Cost Analysis (EE/CA)* for the Mineral King Mine site, prepared by Tetra Tech dated January 2002, and forwarded to the department on June 23, 2003.

The Mineral King Mine is located in a remote area of the Chugach National Forest. The site is approximately 28 miles north of Whittier and is accessible by sea or air. Gold mining operations were conducted from 1912 until 1938. Remnants of these activities include a mine adit, a waste rock pile, a tailings impoundment, and miscellaneous debris associated with the buildings and the tailings.

Site Characterization

The waste rock and tailings at the site contain elevated levels of several heavy metals. The waste rock pile is located downgradient from Eaton Creek and the tailings impoundment is adjacent to a small creek which flows into a 600' long unnamed stream that joins Eaton Creek and empties into Bettles Bay. Potentially-impacted media are surface and subsurface soil, freshwater sediments and surface water.

Samples were collected of the waste rock, tailings, surface and subsurface soil adjacent to the waste rock and tailings, and stream surface water and sediments. Waste rock, tailings, and soil concentrations were screened against plant phytotoxicity levels from the Oak Ridge National Laboratory (ORNL). In the table below, the highest metal concentration detected in each medium is shown along with the respective default cleanup level from 18 Alaska Administrative Code (AAC) 75 and detected background ranges. The default cleanup levels are very conservative at this site as they are based upon a residential exposure scenario and protective of groundwater as a drinking water source whereas the appropriate exposure scenario for this site is recreational and groundwater is not used for drinking water. All sampling results are reported in milligrams per kilogram (mg/kg).

Soil Data

	Sb	As	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn
Waste Rock	5	40			74			55		95
Tailings	6	41		18		162	4		5	67
Soil	8	116	6	47	239	390	10	40	2.1	104
Soil Background		4-49	Nd-1.5	15-63	4-55	5-60	0.05-2.7	7-45	Nd-1.2	13-131
Phytotoxicity	5	10	4	1	100	50	0.3	30	2	50
18 AAC 75	3	1.8	4.5	23	3320	400	1.24	78	19	8100

- analytical results shown as mg/kg
- Nd – non detected
- 18 AAC 75 – levels shown are the most conservative of the method two levels in Table B1 and are based on the migration to groundwater pathway

Sediments concentrations were screened against the State of Washington Sediment Management Standards (SMS). In the table below, the highest metal concentration detected in the stream is shown along with the results of a sample at the mine adit upgradient from the waste rock and tailings, the higher detected concentration from two background samples collected in Eaton Creek upgradient from all mine activities, and the respective SMS levels. All results are reported in mg/kg.

Sediment Data

	As	Cd	Cr	Cu	Pb	Hg	Ni
Stream Sediment	43	6	47	46	55	2.8	60
Adit	58	0.67	21	na	16	0.16	na
Background	21	Nd	46	23	13	0.04	41
Washington freshwater SMS	6	5.1	260	270	218	0.2	16

- analytical results shown as mg/kg
- Nd – non detected
- na – not analyzed
- SMS – Sediment Management Standards

Freshwater samples were screened against the Alaska Water Quality Standards (WQS) of 18 Alaska Administrative Code (AAC) 70. None of the freshwater samples exceeded the WQS.

The land use at the site is currently recreational. Human receptors include hikers and tourists and ecological receptors include terrestrial animals, waterfowl, aquatic animals, and benthic organisms. Streamlined risk evaluations (SRE) were conducted for both human health and ecological receptors in this EE/CA. The human health exposure scenario selected appropriate for this site was recreational. The HHSRE focused on soil ingestion of, inhalation of, and dermal contact with arsenic. The exposure frequency was set to be 15 days per year for a duration of 12 years. The carcinogenic risk was calculated to be 1.1×10^{-6} and the non-carcinogenic hazard quotient (HQ) was calculated to be 0.03. The EcoSRE compared detected levels of metals with wildlife, aquatic

and plant phytotoxicity screening values. The EcoSRE showed that aquatic life was adversely affected by exposure to contaminated in-stream sediments with a calculated ecological impact quotient (EQ) of 14.5. The plant phytotoxicity from the tailings was calculated to be an EQ of 53, however vegetation in the area appears healthy.

Applicable or Relevant and Appropriate Requirements (ARARs)

The department concurs with the ARARs provided in this EE/CA, specifically the inclusion of 18 AAC 75 for the development of soil cleanup values and 18 AAC 70 for sediment and surface water. The State of Washington SMS should be included as a To Be Considered (TBC).

Preferred Removal Action Alternative

Two (2) removal action alternatives were analyzed in the EE/CA, including 1) No Action, and 2) Reclaim in Place. The Forest Service's preferred alternative is No Action. Under this alternative, no removal actions or monitoring will take place.

The department concurs with the selection of No Action as the preferred removal action alternative for this site. Under the recreational risk scenario, the risk to human health is below the department's cumulative risk guidelines for both carcinogenic and non-carcinogenic risk. Although the EcoSRE shows an elevated risk to aquatic life, the department believes that this risk largely attributable to background concentrations. Sediment samples collected in Eaton Creek upstream from the mine contain similar levels of metals to those downstream of the waste rock and tailing piles. Soil and sediment samples collected immediately adjacent to the waste rock and tailings piles contained elevated levels of some inorganics. However, sediment samples collected downstream, between the waste piles and the bay were within background levels or below screening levels. Surface water samples in all locations were either nondetect or less than 10% of the freshwater standards in 18 AAC 70.

This concurrence is contingent upon the future land use of the site remaining recreational. Therefore, the department will require that the Forest Service place a notation on its Geographic Information System (GIS) database as to the presence of the mine and a restriction that this site remains recreational land use.

If you have any questions regarding these comments, please feel free to contact either myself at 907-269-7545, or Anne Marie Palmieri of my staff at 907-766-3184.

Sincerely,

John Halverson
Acting Section Manager

cc: Anne Marie Palmieri
Ken Marcy, EPA Region X