

**DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM**

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Re: No Further Remedial Action Determination
Icy Bay-West Camp # 2
Database ID Number 1993110111001

The Alaska Department of Environmental Conservation (DEC) has reviewed the findings and recommendations presented in the DMC Technologies report titled *Icy Bay West Camp # 2 Final Cleanup Report*, dated January 5, 2004. This letter presents DEC's decision regarding site closure under 18 AAC 75.380.

Background

Icy Bay is located on the Alaska mainland along the coastal margin of the Gulf of Alaska and the Wrangell-St.Elias Mountains near the foot of Mt. St. Elias.

Timber harvest at Icy Bay has been conducted from the late 1960s on State of Alaska lands through State timber sales planned and administered by the Division of Forestry and as result of the University of Alaska settlement that transferred timber rights to the University. Additionally, timber harvest has occurred on land owned by the Alaska Mental Health Trust. Various logging facilities stretch along 35 miles of road, including a solid waste incinerator, woodwaste disposal site, heavy equipment shops, generators, bulk fuel storage, residential facilities and a remote maintenance shop at the far west end of the road. Spills and leaks common to the logging industry resulted in significant petroleum contamination in and around the various facilities over the years.

The main facilities are divided into two camps (both are currently inactive). Camp # 1 (15 – 75 man) was constructed to support logging operations and has been used by various operators including SCTD, Sullivan, CAC, Wasser-Winter Corp., and Citifor. Camp # 1 has undergone enlargements and changes as logging activities varied over the years.

In early 2000, Camp # 2 (30 – 70 man) was constructed immediately to the northwest of Camp # 1. Camp # 2 was used to process timber on Alaska Mental Health Trust land administered by the Department of Natural Resources (DNR) Mental Health Trust Land Office (TLO). Camp # 2 has been primarily used by Citifor but is currently vacant. It is divided into three general working areas including: 1) residential and shop area with generator and equipment storage and parking; 2) fuel depot near the runway; and 3) an 11 acre sort yard and log transfer facility located 4.5 miles east of the camp (shared with Camp # 1).

Soil Cleanup Levels

On February 14, 2003 DEC approved a site-specific alternative cleanup level for diesel range organics (DRO) based on the site characterization results provided by Southeast Management Services in two reports: *5/13/02 – 6/6/02 Site Assessment: Trust Land Office's Icy Bay West Logging Camp & Its Related Facilities, Icy Bay, Alaska, September 2002* and *6/7/02 Soil Sample Results Along the Icy Bay – West 5-Mile Logging Road Ditch Lines, Icy Bay, Alaska, October 2002*. Gasoline range – and residual range organics (GRO and RRO) were set at the default migration to groundwater levels found in 18 AAC 75.341, Table B2. Approved petroleum cleanup levels are summarized below.

Area	GRO	DRO	RRO
Residential and shops	260	843	8,300
Fuel Depots	260	718	8,300
Sortyard and LTF	260	1,420	8,300

Chemicals other than the petroleum ranges noted above were required to meet 18 AAC 75.341 method two, Table B1 levels for soils, and 18 AAC 75.345 Table C levels for groundwater.

2002 - 2003 Soil Cleanup Summary

In 2001 a joint determination was reached by owners and operators that Camp # 2 would undergo a comprehensive site characterization in accordance with DEC standards to identify the extent and nature of contaminated soil or water. DEC approved interim action soil removal at Camp # 2 in December 2002. The cleanup plan, prepared by GeoEngineers on behalf of Citifor, estimated 1,000 – 1,400 cubic yards of petroleum-contaminated soil from six areas around the camp. The interim removal action was completed at the equipment repair shop and around the generator on December 8, 2002. Petroleum-contaminated soil totaling approximately 290 cubic yards was excavated from above and below the shop liner and stockpiled on the west side of the shop for treatment at a later date.

In February 2003 Citifor contracted with DMC Technologies as the new Camp # 2 remediation contractor. DMC's workplan was finalized and approved by DEC in May 2003.

Camp # 2 cleanup was completed July 2003. Petroleum-contaminated soil totaling approximately 1,853 cubic yards was excavated from the following source areas. Nearly one-half of the total volume (772 cubic yards) came from the fuel depot adjacent to the runway. In June 2003 the original stockpile was recontoured, outside berms constructed, and the top cover repaired.

Location	Excavated Soil Volume (CY)	No. Of Confirmation Samples
Sawshop	45	9
Generator Tank Containment	3	3
Generator Trailers	41	2
Shop Floor Above Liner	292	6
Shop Floor Below Liner	145	12
Shop Middle Back Door	6	2
Shop Culvert Sections	34	3
Shop Repair Bays Exterior	75	4
SW Corner Equipment Parking	132	23
NE Corner Equipment Parking	4	8
West Equipment Parking	52	15
South Equipment Parking	91	19
SE Corner Equipment Parking	161	19
Fuel Depot	772	61
Sort Yard Sawyers Shack	0	1
Sort Yard Primary Log Sort Station	0	0
TOTAL	1,853	

In addition to the petroleum-contaminated soils, an estimated 230 cy of soil contaminated with Stoddard Solvent* was excavated from a small area north of the back exit road near the southeast corner equipment parking area. An area south of the larger stockpile was developed to store and treat this material.

Groundwater

Concentrations of several metals including arsenic, beryllium, chromium, lead, and nickel were found above cleanup levels in groundwater monitoring wells. In the Camp # 2 workplan, approved March 20, 2003, DEC did not require background sampling to delineate the concentration of heavy metals in groundwater due to the documented mineralogy in the area. Dissolved metals have been present on an infrequent basis at other logging camps throughout Southeast Alaska; however, it is unlikely that the suite of metals present in groundwater monitoring wells throughout the Icy Bay site would be from anthropogenic sources.

* Stoddard solvent is a clear petroleum mixture with a kerosene-like odor. It is also known as dry cleaning safety solvent, petroleum solvent, varnoline, and mineral spirits. Its registered trade names are Texsolve S® and Varsol 1®.

Groundwater samples from the monitoring wells and test pits in and around contaminant sources did not indicate the presence of petroleum hydrocarbons.

The drinking water well located next to the cook house in Camp # 2 was not sampled as it is not located within the zone of influence of any contaminant sources.

Surface Water

There are no surface water concerns at Camp # 2.

Soil Treatment Results

Treatment Cell Cleanup Levels

The approved cleanup levels for both treatment stockpiles are 18 AAC 75.341 method 2 migration to groundwater.

Overview

The bioremediation system used at Camp # 2 is a natural blend of nine, non-genetically engineered bacterial strains cultured from petroleum contaminated environments. This “bioaugmentation” process achieves clean-up goals at a fast rate, an important consideration at remote sites where it may be difficult and expensive to monitor treatment results over longer periods of time. The addition of a specially formulated fertilizer base that won’t quickly leach away with heavy rain helps stimulate microbial activity. Cultured microbe populations die after their petroleum hydrocarbon energy source no longer exists.

A treatment cell adjacent to the contaminated stockpile in Camp # 2 was created by developing a gravel berm rectangle with 10-mil bottom liner material. The soil was treated from June 20, 2003 to July 21, 2003 before sampling occurred. Ten samples were collected along each side of the stockpile using a stainless steel coring device. The corer was inserted at an angle from the side of pile to a depth of six feet into the pile. This location in the pile is the mid-depth point, top to bottom, and represents the average treated material in the pile.

The data set for the petroleum stockpile was checked for “best fit” and calculations made to determine normal or log normal distribution. The data set was determined to be log normally distributed. A student H-test was performed and an upper confidence limit calculated at 201 mg/kg DRO. This is less than the approved cleanup level (230 mg/kg). A student H-test was performed and an upper confidence limit calculated at 430 mg/kg for RRO. This is less than the approved cleanup level (8,300 mg/kg).

The adjacent solvent stockpile was treated from June 27, 2003 to July 21, 2003. Five samples were then collected along each side of the stockpile using a stainless steel coring device. Composite samples were formed at each discrete location at eight inch intervals from the top of the pile to the liner.

All samples collected from the solvent stockpile were less than the approved cleanup levels. Therefore, no statistical calculations were conducted.

Soil Use Restrictions

Treatment cell soils may be used in an unrestricted manner because the most stringent method 2 cleanup levels have been met.

Cumulative Human Health Risk

For contamination that remains on-site above cleanup levels, a chemical that is detected at one-tenth or more of the Table B1 inhalation or ingestion values set out in 18 AAC 75.341(c), the Table B2 values set out in 18 AAC 75.341(d) or the Table C values set out in 18 AAC 75.345 must be included when calculating cumulative risk under 18 AAC 75.325(g). A number of specific indicator chemicals, such as benzene, are used to determine cumulative risk from petroleum contamination. Petroleum fractions (gasoline-, diesel- and residual range hydrocarbons), which may consist of hundreds of individual chemicals, are not considered in cumulative risk calculations.

No remaining petroleum indicator contaminants are above the 1/10th threshold at any of the Camp # 2 cleanup sites. Therefore, cumulative risk calculations were not performed.

Ecological Risks

Contaminant migration is not expected to impact any streams, wetlands or other sensitive environments. Wildlife may occasionally encounter the treated stockpiled soils but the risks are minimal considering the short-term exposure at the low remaining contaminant concentrations.

Institutional Controls

No institutional controls are required. Cleanup levels have been met and no residual contamination remains. A final inspection by DMC Technologies on September 21, 2003 identified a number of small areas of surface staining. These stains were raked and treated in place.

Determination

The investigation and cleanup of the Icy Bay-West Camp # 2 site has met all requirements specified in 18 AAC 75 Article 3 - Discharge, Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances. No further remedial action is required. This decision will be noted on DEC's contaminated sites database, and the site will be closed, following expiration of the right to an adjudicatory hearing as set forth herein.

In accordance with 18 AAC 75.380(d)(1), additional investigation and cleanup may be required if new information is discovered which leads DEC to make a determination that the cleanup described in this decision is not protective of human health, safety, and welfare or the environment. If the conditions in this decision are not met, additional requirements may be imposed and/or enforcement action initiated by ADEC.

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195- 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801 within 15 days of the decision date. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of

Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the decision date. The right to appeal is waived if a hearing is not requested within 30 days.

William Janes

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cc: Doug Campbell, Trust Land Office