



## ENVIRONMENTAL BASELINE STUDIES

### PRELIMINARY SUMMARY STUDIES PERFORMED BY BRISTOL ENVIRONMENTAL & ENGINEERING SERVICES CORPORATION

#### **1. GROUNDWATER QUALITY—TRANSPORTATION CORRIDOR**

Bristol Environmental & Engineering Services Corporation (BEESC) sampled groundwater from drinking-water wells for four villages along the proposed transportation corridor between the Newhalen River and Cook Inlet. The four villages are Iliamna, Newhalen, Nondalton, and Pedro Bay (Figure BEESC-1). Most of the population in the area of the transportation corridor resides within these villages with a few isolated outlying individual residences, most of which are occupied on a seasonal basis only. One drinking water well in each village in the study area was selected for groundwater sampling. In each community, a representative well was identified from discussions with local village corporations and governments. In each case, a well with high usage was chosen. Wells currently included in the groundwater program are the Nondalton city well, the Newhalen Public Well #2, the Iliamna Weathered Inn well, and the Pedro Bay Tribal Council well. Wells were sampled in July and October 2004 and in March, July, and October 2005.

#### **2. SURFACE-WATER QUALITY AND HYDROLOGY— TRANSPORTATION CORRIDOR**

In 2004 through 2006 BEESC sampled water quality and measured discharge at over twenty stations (Figure BEESC-1). The stations were established on stream crossings along the proposed transportation corridor in 2004. Targeted for sampling were freshwater streams along the transportation corridor which are listed in the State of Alaska Title 41 catalog of anadromous fish streams. The focus of the surface-water baseline study for the transportation corridor is to document the existing surface-water conditions in critical habitat streams. To meet this objective, gauges were installed on accessible Title 41 streams.

Sample locations were determined in conjunction with locations chosen for fish studies. Sampling locations for water quality also were collocated with monitoring stations used for the hydrology study to allow correlation of flow conditions to water quality observations.

The surface-water quality studies are intended to define the chemical characteristics of freshwater surface streams that could be affected by development of the proposed road and port facility. The baseline data will be used to monitor potential effects associated with construction, operation, and maintenance of road and port facilities; transportation of concentrate along the road; and handling of concentrates and materials at the port site. Information generated in this baseline study will be used in evaluating potential environmental impacts associated with project alternatives.

The objectives of the surface-water hydrology studies were to identify and describe the existing surface-water hydrological characteristics near the proposed road crossings and port site, to identify and describe the processes that control the hydrologic balance within the project watersheds, and to provide baseline information to characterize the existing environment.

### **3. TRACE ELEMENTS: SEDIMENT, SOIL, AND VEGETATION— TRANSPORTATION CORRIDOR**

BEESC sampled sediment along the transportation corridor in 2004 through 2006 as part of the trace elements baseline program (Figure BEESC-2). Stream sediments were collected at the same locations where surface water was sampled and which coincide with monitoring stations used for the hydrology study and with fish sampling areas (Figure BEESC-1). Six tundra ponds along the transportation corridor were sampled for sediment.

Soil and vegetation along the transportation corridor were sampled in 2004 and 2006 (Figure BEESC-2). Vegetation was sampled and analyzed to define the species present and to determine baseline concentrations of trace elements in/on vegetation, particularly in/on vegetation that may be a food source for upland mammals, birds, or humans. In addition, vegetation traditionally used for medicinal purposes was sampled.