FINAL STUDY PLAN
Mineral potential of the Blue Lake Area
With particular emphasis on the area to be inundated by raising of the Blue Lake dam

Prepared for the City of Sitka
by
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Introduction

The City of Sitka proposes to raise the Blue Lake dam in order to increase the capacity of the Blue Lake Reservoir. This action would result in inundation of 430 acres around the lake periphery and along Blue Lake Creek entering the lake from the east. (Figure 1). As part of the permitting process, the City is tasked with describing the mineral activity in the area and any mineral potential that may be foregone by the proposed action.

Study area

Three nested areas will be studied. The geology of the general region bounded by Katlian Bay and River, Glacier Lake, Mount Bassie and Silver Bay [the Region] will be generally characterized. The watershed of Blue Lake as well as the Sawmill Creek valley to Silver Bay [the Watershed] will be described in greater detail and minerals-related activity characterized. The mineral potential and activity on and in the immediate vicinity of the 430 acres to be inundated [the Subject Area] will be described in as great a detail as available information allows.

Objectives

The City proposes to:

- Characterize the geology of the Region and Watershed, with particular reference to its mineral potential.
- Describe past and present minerals-related activities in the Watershed and Subject Area
- Estimate the mineral potential of the Subject Area, to include: fossil fuels (oil, gas), geothermal, metallic minerals (gold, silver, heavy metals), alkali metals (sodium, potassium), radioactive minerals (uranium, thorium), nonmetallic and industrial materials (sand, gravel, etc.).

Figure 1. Potential Inundation Area, Blue Lake Project Expansion

Methods

- Provide from the published US Geological Survey literature a background overview of Regional geology, including: a general description, rock units, structural features, and tectonic history.
- Describe in more detail the lithology, surficial geology and structural characteristics of the Watershed and Subject Area, using published USGS and Bureau of Mines literature, unpublished Territorial Department of Mines literature, and unpublished sources as available.
- List, locate and describe minerals claims within the study area, from records maintained by the state of Alaska Department of Natural Resources, Division of Mining and Water Management, providing information available regarding activity on them, output, and present status.

Estimate the potential for undiscovered minerals in the Watershed and Subject Area by reference to the pertinent literature, notably:

- USGS compendium of "Undiscovered Locatable Mineral Resources of the Tongass National Forest, and Adjacent Lands, Southeastern Alaska, Open-file Report 91-10; and

- Bradley, D.C., Kusky, T.M., Haeussler, P.J., Goldfarb, R.J., Miller, M.L., Dumoulin, Julie, Nelson, S.W., and Karl, S.M., 2003, Geologic signature of early Tertiary ridge subduction in Alaska: Geological Society of America Special Paper 371, p. 19-49.

Timeline

A draft report will be prepared no later than 30 days after acceptance of a study plan by the agencies. A final report will be submitted no later than 60 days after acceptance the study plan.

Investigators

The City intends to engage Icy Strait Environmental Services to carry out these studies. G.P. Streveler, M.Sc., ISES principal investigator, has a 40-year record of geologic and environmental work, much of it related to development proposals in northern SE Alaska. His most recent pertinent work includes:

- Principal investigator of environmental studies related to the Falls Creek Hydroelectric project east of Gustavus.
- Co-author, with Dr. Daniel Mann, of two reports on the bedrock and surficial geology of the Falls Creek area, near Gustavus, Alaska.
- A paper on Holocene sea level changes in the Icy Strait region, recently published in the journal Quaternary Research.
- A paper on Collaborative geologic/ethnohistoric characterization of the last 1500 years in lower Glacier Bay, with several co-authors, recently published in the journal Holocene.

The investigation will be overseen by Dr. Daniel Mann, University of Alaska Fairbanks, who in addition to the abovementioned work, has a long record of geologic investigations in Alaska.