

Division of Geological & Geophysical Surveys

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**WHOLE-ROCK MAJOR OXIDE AND TRACE ELEMENT ANALYSES
FOR ROCK SAMPLES FROM THE DELTA MINERAL BELT,
TOK MINING DISTRICT, ALASKA**

by

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assembled in cooperation with
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INTRODUCTION

This report presents major oxide and trace element geochemical data and sample locations for 827 samples (Plate 1) collected by American Copper and Nickel Company, Inc. (ACNC) during the years 1994 through 1998. These samples were collected principally for the purposes of protolith determination and delineation of target stratigraphic horizons hosting volcanogenic massive sulfide deposits.

The massive sulfide deposits of the Delta mineral belt were discovered in 1976 by geologists and prospectors working for Resource Associates of Alaska (RAA) under contract to Cook Inlet Region Inc. (CIRI), an Alaska Native Corporation. Extensive exploration, mapping and drilling of deposits in the Delta mineral belt was done by RAA on behalf of CIRI and their joint venture partners during the eleven years from 1976 through 1987. In 1994, ACNC commenced exploration in the belt and implemented a comprehensive program of geological, geochemical and geophysical surveys, as well as diamond drilling. ACNC's work expanded the tonnage of the previously-discovered deposits and resulted in the discovery of several high-grade base metal occurrences. A strong understanding of the geologic context of the massive sulfide deposits was developed.

At the time of this writing, all data and geologic materials produced by ACNC, RAA and CIRI in their exploration of the Delta mineral belt are the sole property of Grayd Resource Corporation of Vancouver, British Columbia. These data are being released to the public by Grayd Resource Corporation and Northern Associates, Inc. in cooperation with the Alaska Department of Geological & Geophysical Surveys (DGGS). These data and their interpretation will be an integral part of an interpreted bedrock geologic map of the Delta mineral belt scheduled for release in 2001 by Northern Associates, Inc. through the DGGS at a scale of 1:63,360.

METHODOLOGY

Sampling and Analysis

Rock samples for protolith determination were collected in the field as narrow selective samples from outcrop in an attempt to measure a single time-stratigraphic bed and minimize dilution by adjacent fractionated or interbedded units. A total of 1,440 whole rock analyses were performed by ACNC on surface samples in the course of their exploration and mapping in the Delta mineral belt. The 827 samples presented in this report were selected on the basis of their distribution across the full map area without causing congestion at the scale of 1:63,360.

Whole rock major oxide analyses were done by X-ray fluorescence following a lithium metaborate fusion at Chemex Labs in North Vancouver, British Columbia (method A413). XRF analyses of trace elements barium, niobium, strontium, yttrium and zirconium were done on raw (non-fused) sample pulps under stringent standards at Inco Limited's laboratory in Copper Cliff, Ontario. Broader spectrum multi-element analyses were done at Chemex Labs using a standard aqua-regia (partial digestion) leach and Induced Coupled Plasma (method ICP G32) technique. Gold determinations were done at Chemex Labs using a 30-gram fire assay with an atomic absorption finish.

Prepared laboratory standards of mafic or felsic composition, or a local field standard, were routinely inserted as control samples in each batch of 20 samples shipped from the field to monitor quality control of laboratory analyses.

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The opportunity to disseminate this information is only possible through the generosity of Grayd Resource Corporation, owner of the proprietary data presented, and the collaboration of DGGS.