# ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

## REPORT OF INVESTIGATIONS 95-5 SHEET 1 OF 2

#### DESCRIPTIVE NOTE

Geophysical data were acquired with a DIGHEM Electromagnetic (EM) system, a Scintrex cesium CS2 magnetometer, and a Herz VLF system installed in an AS350B-1 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately three miles.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of less than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 147 degrees, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m with respect to the UTM grid.

#### TOTAL FIELD MAGNETIC

The magnetic total field contours were produced using digitally recorded data from a Scintrex cesium CS2 magnetometer, with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) levelled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The background trend removal consisted of subtracting a 1st order polynomial surface from the data grid. This surface approximates the regional gradient in the survey area.

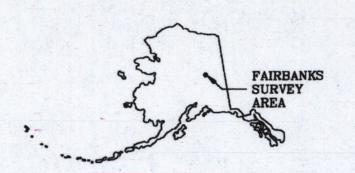
Akima, H., 1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589-602.

### SURVEY HISTORY

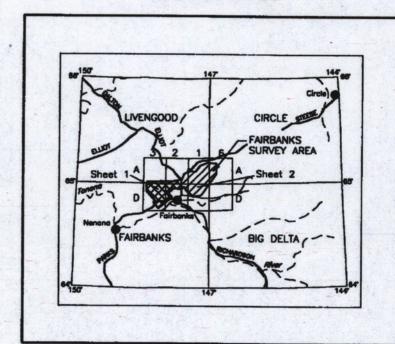
This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, and WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area was acquired by DIGHEM, a division of CGG Canada Ltd., in 1994. Other products from this survey are available from the Alaska Division of Geological & Geophysical Surveys, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709.

### LIABILITY

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## LOCATION INDEX



Section outlines from Geological Survey topographic bases: Big Delta D-6, 1975; Circle A-6, 1954; Fairbanks D-1, D-2, 1975; Livengood A-1, 1952; A-2, 1975; Quadrangles, Alaska



Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System

SCALE 1:63 360

1 1/2 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

# TOTAL FIELD MAGNETICS OF THE WEST FAIRBANKS MINING DISTRICT

BACKGROUND TREND REMOVED

1995

amls: /files2/geophys/fbnx/amls/wfmagext.aml plot: /files2/geophys/fbnx/plots/wfbxmagtest2.

March 06, 1995