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DINO M. CREMONESE
GEOPHYSICAL REPORT ON AN
AIRBORNE MAGNETIC AND VLF-EM SURVEY
LANCE 1-4 CLAIMS
SKEENA MINING DIVISION
LATITUDE: 56° 38'N LONGITUDE: 130° 19'W
NTS: 104B/9W

AUTHORS: Richard G. Hermary, B.Sc.,
Geophysicist
Dennis V. Woods, Ph.D., P.Eng.
Consulting Geophysicist

DATE OF WORK: 21 April 1988
DATE OF REPORT: 18 July 1988

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,626

TABLE OF CONTENTS **PAGE**

ILLUSTRATIONS

INTRODUCTION

On April 21, 1988 an airborne magnetic and VLF-EM survey was conducted over the **Lance 1-4** claims for **Dino M. Cremonese.** The claims are situated 80 kilometers north and slightly west of Stewart, B.C.

The intention of this survey is to direct further exploration to any favorable anomalous zones for ground targets and assist in the geological mapping of the area. Approximately 78 line kilometres of magnetic and VLF-EM data was gathered over the claims. The airborne magnetic and VLF-EM data has been examined in detail to evaluate the subject property.

PROPERTY

The **Lance 1-4** claims are owned by **Chris Pepperdine** and operated by **Dino M. Cremonese.** The claims are described in the table below and illustrated in Figure 2.

Claim Name	Units	Record No.	Expiry Date
Lance 1	20	6106	April 28, 1989
Lance 2	20	6107	April 28, 1989
Lance 3	18	6108	April 28, 1989
Lance 4	18	6109	April 28, 1989

LOCATION AND ACCESS

The **Lance 1-4** claims are located in the Unuk River area some 80 kilometers northwest of Stewart, B.C. and approximately 950 kilometers north-northwest of Vancouver, B.C. The claims lie 18 kilometers north of the Sulphurets and Brucejack gold deposits. The claims are situated at the headwaters of Storie Creek, 4 kilometers southeast of the Unuk River, and 8 kilometers northeast of John Peaks. The claims are located within the Skeena Mining Division of B.C. The NTS map co-ordinates of the **Lance 1-**

DINO M. CREMONESE

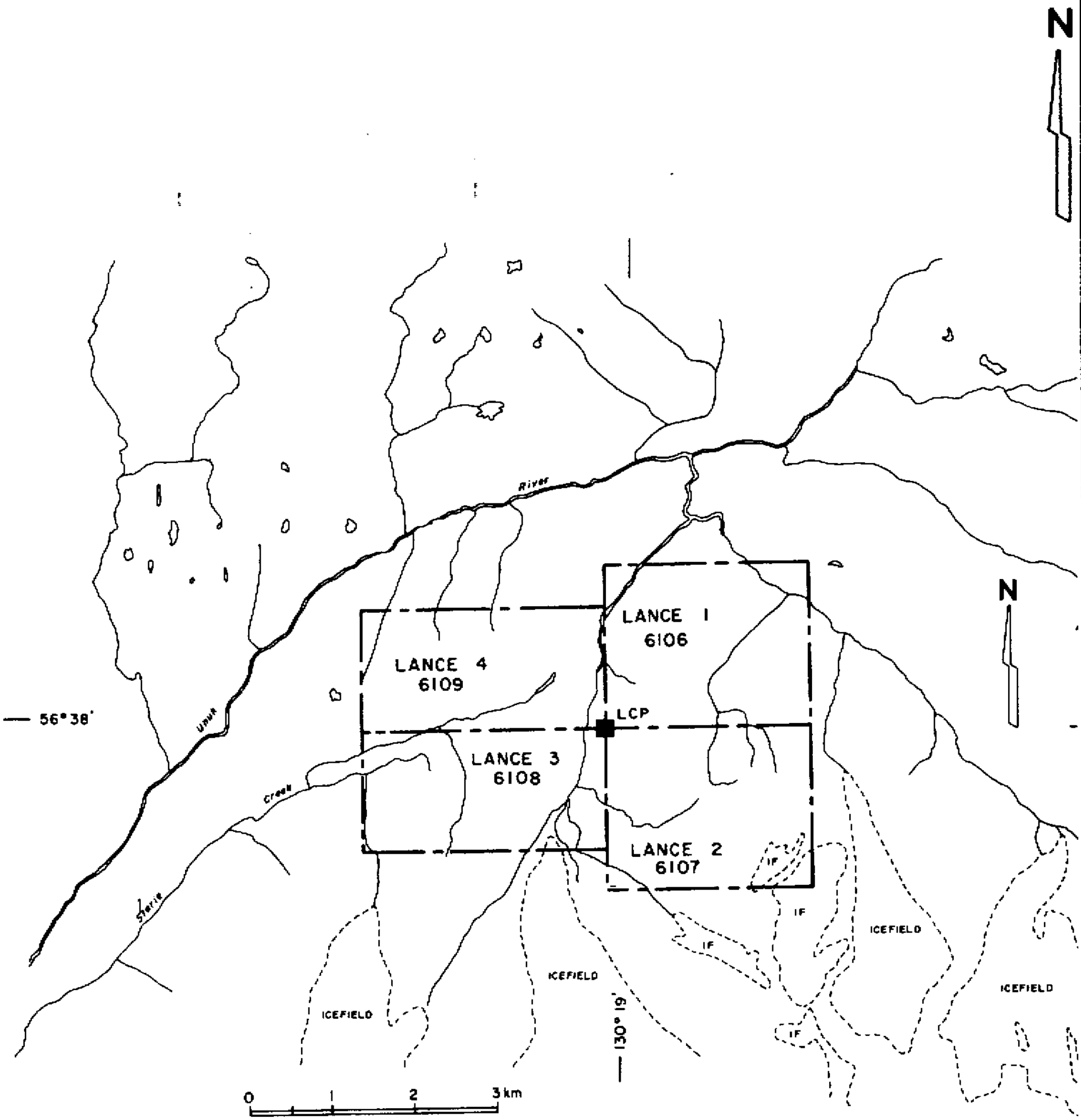
LANCE 1-4 CLAIM GROUP

LOCATION MAP

N.T.S. 104B/9W

FIG. 1

Scale = 1:2000000



DINO M. CREMONESE
LANCE 1-4 CLAIM GROUP
CLAIM MAP
N.T.S. 104 B/9W

FIG. 2

4 claims is 104B/9W. The approximate geographical coordinates are a latitude of 56° 38'N and a longitude of 130° 19'W.

Access to the area is usually achieved by fixed wing aircraft from Terrace or Stewart, B.C. to various airstrips in the area and then via helicopter to the claim area. Two such airstrips, with helicopter bases during the mineral exploration field season, are the Bronson Creek and Brucejack Lake airstrips. Alternately, the claims may be accessed directly by helicopter from Stewart on the Stewart-Meziadin Lake highway or Bob Quinn Lake on the Stewart-Cassiar-Terrace Highway 37.

HISTORY AND PREVIOUS WORK

Mineral exploration in the Stewart-Unuk River area began in the early 1890's when placer miners on their way out of the Cariboo prospected the Unuk River and its tributaries. In 1898, an expedition of placer miners landed at the head of Portland Canal and proceeded to explore the Bear River and Salmon River valleys. The discovery of mineralized float and vein material led to an influx of "hard-rock" prospectors. The townsite of Stewart was established (named after the prospecting family of "Pop", John and Bob Stewart), and by 1910 most of known mineral occurrences in the Stewart area, including the future Silbak Premier mine, had been discovered.

Mine development over the next three decades resulted in slow but steady growth of the Stewart area. In particular, the discovery of high-grade silver and gold ore at Premier in 1918 led to the development of one of the richest mineral deposits in British Columbia and the incentive for intensive exploration and development in the Salmon River basin.

Most of the small mines in the Stewart region were worked out by the 1940's except for the Silbak Premier mine which continued through to the 1970's. Total production of the Premier group consisted of 4 million ounces of gold, 41 million ounces of silver, 4 million pounds of copper, 52 million pounds of lead and 19 million pounds of zinc, making it the second largest silver producer (after Sullivan) and the third largest gold producer (after Bralorne-Pioneer and Rossland) in B.C. The development of the Granduc massive sulphide orebody in the Unuk River area northeast of Stewart and construction of the Cassiar-Stewart-Terrace highway maintained the growth and exploration activity of the Stewart area during the 1960's and 1970's. Significant discoveries in the Iskut River - Stikine River areas north of Stewart have led to an increased intensity of mineral exploration activity in recent years.

Almost all of the early mineral discoveries in the Stewart-Unuk River area have been found by prospecting gossans sighted from accessible stream or river valleys in areas of negligible vegetation. Recent discoveries have results from prospecting mineralized showings revealed by ablating glaciers (i.e. Granduc Mine). Exploration is hampered by a dense vegetation at low elevations and snow cover at high elevations. Soil geochemistry is impractical in most areas due to a lack of suitable soil cover. Hence, the best approach to mineral exploration in the Stewart-Unuk River area is a combination of geological and geophysical surveying to discover unknown hidden deposits, and detailed reappraisal of known showings using geophysical and geochemical techniques together with modern geologic concepts of ore genesis.

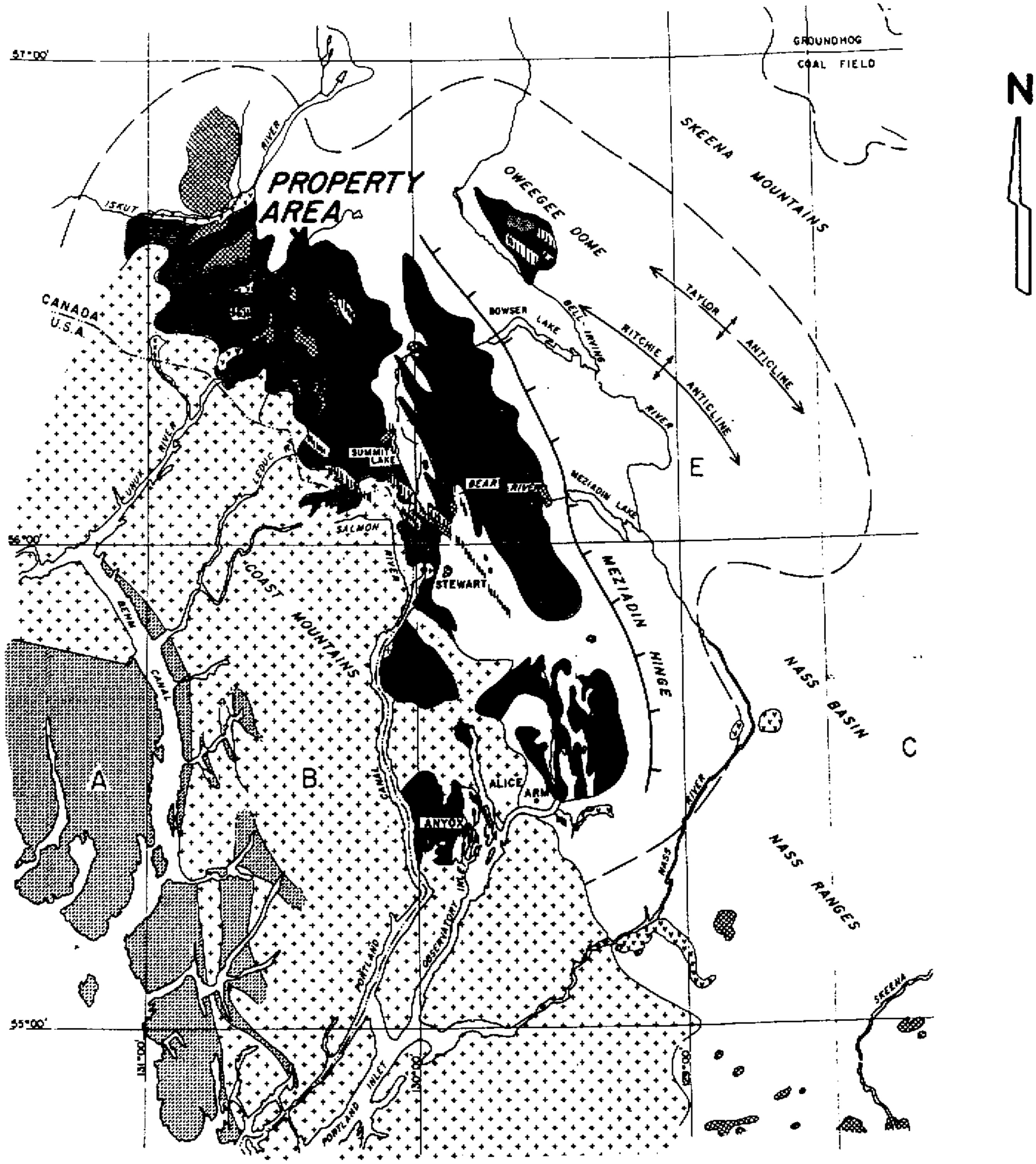
Grove (1971, 1986) has located a few prospects within 10 to 20 kilometers of the **Lance 1-4** claims. The prospects are the MacKay syndicate, Tag and Treaty Creek mineral showings. The MacKay Syndicate, to the west, contains gold, silver, lead and zinc. The Tag, to the south, contains iron. The Treaty Creek, to the east, contains silver, lead and zinc. No previous work or mineral showings are known on the **Lance 1-4** claims.

REGIONAL GEOLOGY

The Stewart-Unuk River area is composed of three distinct tectonic zones of Mesozoic to Cenozoic age along the western margin of the Cordilleran (Figure 3). From west to east they are: the Coast Plutonic Complex or Crystalline Belt, the Stewart Complex and the Bowser Basin. The Stewart Complex is a deformed belt of volcanic, volcaniclastic and sedimentary rocks of Upper Triassic to Middle Jurassic age which extend from Alice Arm in the south to the Iskut River in the north. These rocks are in intruded contact with Middle Jurassic to Eocene felsic plutonic rocks of the Coast Plutonic Complex to the west, and unconformably underlay the Upper Jurassic to Cretaceous marine clastic sedimentary rocks of the Bowser Basin to the east. The Stewart Complex is one of the most important metallogenic regions in British Columbia.

Stratigraphic nomenclature of the Stewart Complex and Bowser Basin has been adopted from Grove (1986) following modifications from Grove (1971). The oldest rocks of the Stewart-Unuk River area are the Upper Triassic volcanic conglomerates, sandstones and siltstones comprising the Takla Group near Unuk River. In the absence of correlatable fossil evidence, the distinction between these Takla Group volcaniclastics and the overlying Hazelton Group volcaniclastics in not conclusive.

The lowest member of the Jurassic Hazelton Group is the Lower Jurassic Unuk River Formation consisting of green, red and purple volcanic breccia, conglomerate, sandstone and siltstone, pillowed lava and volcanic flows, and minor crystal tuff, limestone and chert. The Unuk River Formation is unconformably overlain by the Middle Jurassic Betty Creek Formation of predominantly volcanic breccia, conglomerate, sandstone and siltstone, which, in turn, is unconformably overlain by siltstone, greywacke, sandstone and



SEDIMENTS - VOLCANICS

- Stewart Complex - Triassic and Jurassic (undivided)
- Palaeozoic
- Tertiary and Recent Volcanics
- Bowser Assemblage - Middle Jurassic to Upper Jurassic (undivided)

INTRUSIVES

- Coast - undivided
- Skeena - undivided
- Dyke swarms - undivided

MAJOR FEATURES

- A Wrangell - Revillagigedo Belt
- B Coast Crystalline Belt
- C Bowser Basin
- E Bear River Uplift
- Wrangell - Revillagigedo Metamorphics

SCALE 0 8 16 24 32 MILES

DINO M. CREMONESE

LANCE 1-4 CLAIM GROUP

REGIONAL GEOLOGY

N.T.S. 104 B/9 W

FIG. 3

argillite of the Salmon River Formation. Grove (1971) referred to the Unuk River Formation as the Hazelton assemblage, and the Betty Creek and Salmon River Formations as the Bowser assemblage.

The Upper Jurassic Nass Formation overlies the Salmon River Formation to form the uppermost constituent of the Bowser Basin. The Nass Formation consists of a thick sequence of marine clastic sedimentary rocks (siltstones, greywackes, sandstones).

In addition to the volcanic epiclastic and sedimentary rocks of the Unuk River, Betty Creek and Salmon River Formations, the Stewart Complex is also partially composed of their cataclastic and metamorphic equivalents. Cataclasite and mylonite are found near the intruded contact of the Late Jurassic Texas Creek granodiorite. Phyllites, schists and gneisses are confined to the intruded contact areas with the Tertiary Hyder quartz monzonite and Boundary granodiorite.

The Coast Plutonic Complex is composed of multiple phases of intrusion from Upper Triassic quartz diorite in the Unuk River area to Middle Jurassic granodiorites and Tertiary quartz monzonites in the Stewart area. Plutonic satellites of quartz monzonite, quartz diorite and granodiorite are also found toward the centre of the Stewart Complex. Dykes and sills of similar composition are found throughout the Stewart Complex but particularly in well defined zones cutting across the regional geologic trends.

Mineralization in the Stewart-Unuk River area is confined primarily to the Lower and Middle Jurassic Stewart Complex: Unuk River, Betty Creek and Salmon River Formations. Grove (1986) recognizes four classes of mineral deposits in the Stewart Complex: fissure and replacement vein deposits such as the Silbak Premier Mines, stratiform massive sulphide deposits such as the Hidden Creek Mine in the Anyox area, discordant massive sulphide deposits such as the Granduc Mine, and Tertiary porphyry copper-molybdenum deposits such as the Mitchell-Sulphurets property. The most important of these, in terms of number of deposits and quantity of ore, are the fissure and replacement vein deposits. However, in terms of exploration potential, all types of deposits have equal importance.

LOCAL GEOLOGY

The **Lance 1-4** claims straddle a regional northeast trending and plunging syncline of Middle Jurassic Salmon River and Betty Creek Formations volcanic, volcaniclastic and sedimentary rocks. The Salmon River Formation underlies the majority of the **Lance 1, 2,** and **4** claims and the southeastern half of the **Lance 3** claim. The formation is mapped as siltstone, greywacke, sandstone, some calcerenite, minor limestone, argillite, conglomerate and littoral deposits. The Middle Jurassic Betty Creek Formation underlies the Salmon River sedimentary sequence and forms a band which bisects the property from the southwest corner of **Lance 3**, northeast through the **Lance 1** and **4** claims. The formation is mapped as green, red, purple and black volcanic breccias, conglomerates, sandstones and siltstones. Volcanic rocks of the Unuk River Formation are found in the southwest corner of the **Lance 3** claim, and bounded by faults along the eastern edge of the **Lance 1** claim. The Unuk River Formation is mapped as green, red and purple volcanic breccias, conglomerates and sandstones associated with crystal and lithic tuff. Eocene granodiorite and feldspar porphyry intrusive stocks occur to the east and south of the property and may underlie the sedimentary and volcanic rocks within the **Lance 1-4** claims. Two faults are mapped along the eastern edge of the **Lance 1** claim with one trending east-west and the other northwest-southeast.

LEGEND

SEDIMENTARY AND VOLCANIC ROCKS

MESOZOIC

JURASSIC

HAZELTON GROUP

MIDDLE JURASSIC

SALMON RIVER FORMATION

16 — SILTSTONE, GREYWACKE, SANDSTONE, SOME CALCARENITE, MINOR LIMESTONE, ARGILLITE, CONLOMERATE, LITTORAL DEPOSITS

BETTY CREEK FORMATION

13 — GREEN, RED, PURPLE, AND BLACK VOLCANIC BRECCIA, CONLOMGERATE, SANDSTONE, AND SILTSTONE (a); CRYSTAL AND LITHIC TUFF (b); SILTSTONE (c); MINOR CHERT AND LIMESTONE [INCLUDES SOME LAVA (+14)] (d)

LOWER JURASSIC

UNUK RIVER FORMATION

12 — GREEN, RED, AND PURPLE VOLCANIC BRECCIA, CONGLOMERATE, SANDSTONE, AND SILTSTONE (a); CRYSTAL AND LITHIC TUFF (b); SANDSTONE (c); CONGLOMERATE (d); LIMESTONE (e); CHERT (f); MINOR COAL (g)

PLUTONIC ROCKS

CENOZOIC

OLIGOCENE AND YOUNGER

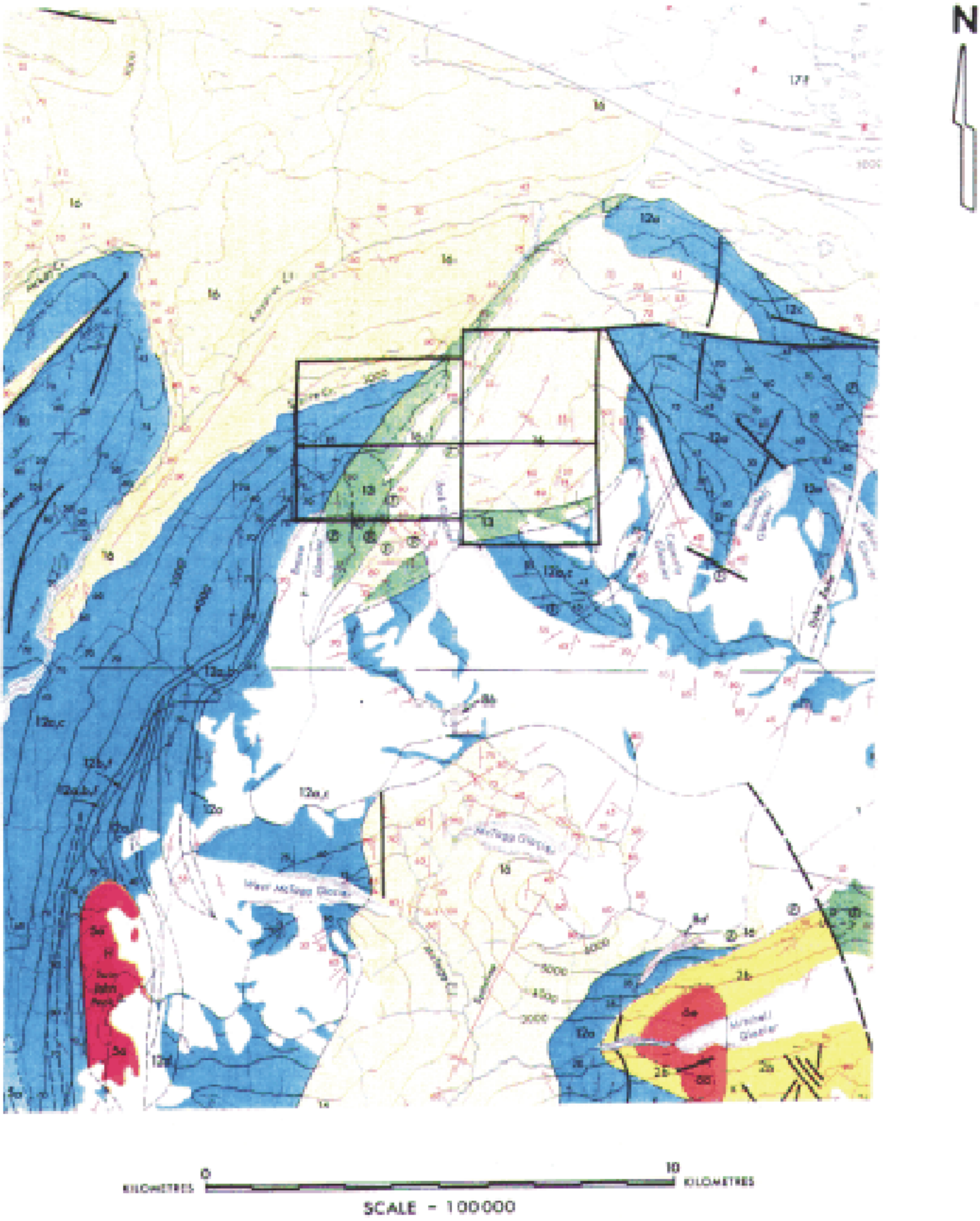
EOCENE (STOCKS, ETC.) AND OLDER

8 — QUARTZ DIORITE (a); GRANODIORITE (b); MONZONITE (c); QUARTZ MONZONITE (d); AUGITE DIORITE (e); FELDSPAR PORPHYRY (f)

SYMBOLS

- ADIT
- ANTICLINE (NORMAL, OVERTURNED)
- BEDDING (HORIZONTAL, INCLINED, VERTICAL, CONTORTED)
- BOUNDARY MONUMENT
- CONTOURS (INTERVAL 1,000 FEET) — 5000
- FAULT (DEFINED, APPROXIMATE)
- FAULT (THRUST)
- FAULT MOVEMENT (APPARENT)
- FOLD AXES, MINERAL LINEATION (HORIZONTAL, INCLINED)
- FOSSIL LOCALITY — Ⓕ
- GEOLOGICAL CONTACT (DEFINED, APPROXIMATE)
- GLACIAL STRIAE
- GRAVEL, SAND, OR MUD
- HEIGHT IN FEET ABOVE MEAN SEA LEVEL — •6234′
- INTERNATIONAL BOUNDARY
- JOINT SYSTEM (INCLINED, VERTICAL)
- MARSH
- MINING PROPERTY
- RIDGE TOP
- SCHISTOSITY (INCLINED, VERTICAL)
- SYNCLINE (NORMAL, OVERTURNED)
- TUNNEL
- VOLCANIC CONE

Compilation and geology by E. W. Grove, 1964 to 1970, with assistance by N. H. Haimila and R. V. Kirkam, 1966 and James T. Fyles, 1967
Geology of the Alice Arm area by N. C. Carter, 1964 to 1968.



DINO M. CREMONESE
LANCE 1-4 CLAIM GROUP
LOCAL GEOLOGY
N.T.S. 104B/9W

FIG. 4

AIRBORNE VLF-ELECTROMAGNETIC AND MAGNETIC SURVEY

This survey simultaneously monitors and records the output signal from a Delvco tri-axis ringcore magnetometer and a Herz Totem 2A dual frequency VLF-EM receiver. The sensors are installed in an aerodynamically stable bird which is towed thirty metres below a helicopter. A shock and gimbal mounted TV camera, fixed to the helicopter skid, provides an input signal to a video cassette recorder allowing for accurate flight path recovery by correlation between the flight path video cassette and air photographs of the survey area. A KING KRA-10A radar altimeter allows the pilot to continually monitor and control terrain clearance along any flight path.

Continuous measurements are made of the earth's magnetic field and of two VLF-EM fields of two different frequencies. These measurements provide the magnitude of the earth's total magnetic field, the magnitude of the two VLF-EM fields, and the quadrature component of the two VLF-EM fields. This data and other pertinent survey information are recorded in three independent modes: as printed text or profiles, on three and a half inch magnetic diskettes in ASCII format, and superimposed on the video image and recorded on video cassettes.

Control of data quality is maintained by the operator scanning a printed output of direct and unfiltered recordings of all the geophysical instrumentation output signals. A portable Compaq computer acts as a system controller for a Hewllet-Packard 3852A data acquisition unit. The computer also processes all the incoming data and survey information and records it on three and a half inch diskettes. Furthermore, the magnetic and very low frequency electromagnetic data is superimposed along with the flight line number, fiducial number, date, time and terrain clearance upon the actual flight path video recording to allow exact correlation between geophysical data and ground location. The input signals are continuously updated on the video display twice a second.

Correlation between the printed output, the ASCII data diskettes and the video flight path recovery tape is controlled via fiducial marks common to all systems. Line identification, flight direction and pertinent survey information are also recorded on the audio track of the video recording tape and in the operator's field notes.

DATA PROCESSING

Field data is digitally recorded, with the line number, fiducial number, date, time and the data, on magnetic diskettes in a format compatible with the Compaq Portable II computer. The recovered flight path locations are digitized and the field data is processed to produce plan maps of each of the parameters. A variety of formats are available in which to display the data.
All the survey data is routinely edited for spurious noise spikes. The total field intensity magnetic information is also corrected for any diurnal variations recorded on a base magnetometer located in the survey area.

Both the total field and quadrature components of the VLF-EM signal are sensitive to topographic changes and sensor oscillation. Oscillation effects are reduced by filters tuned to the dominant period. Long period effects attributable to topography can be removed by high pass filtering of the planimetric data.

All pertinent geophysical data is processed and plotted by computers. The processing and plotting is done in such a manner as to maximize the amount of information and detail allowed by the original data.

DISCUSSION OF RESULTS

The **Lance 1-4** claims were surveyed on April 21, 1988. Approximately 78 line kilometers of airborne magnetic and VLF-EM survey data has been recovered and examined in detail to evaluate the **Lance 1-4** claims.

Survey lines were flown east-west on 300 meter centres with data being digitally recorded at half second intervals, providing an average sample spacing of 15 metres. The sensors were towed beneath the helicopter and maintained a terrain clearance of approximately 60 meters. The magnetic data is presented in contour form on a photomosaic base map of the area as Figure 5. The total field VLF-EM data is presented in contour form along with the quadrature VLF-EM data in profile form as Figures 6 and 7 representing the Cutler and Hawaii frequency information respectively.

The magnetic data is a useful tool for mapping both regional and local geological structures. Many localized magnetic variations are observed which are attributed to lithological changes.

The VLF-EM data is useful for mapping conductive zones. These conductive zones usually consist of argillaceous graphitic horizons, conductive clays, water saturated fault and shear zones, or massive conductive mineralized bodies.

There are two distinctive magnetic features observed across the survey area. Firstly, Eocene granodiorite and feldspar porphyry intrusive stocks appear as magnetic highs; typically with a relative intensity of greater than 100 to 500 nT than the surrounding magnetic data. Secondly, major faults, fractures and shear zones appear as steep magnetic gradients. The combination of these two signatures are observed on the **Lance 1-4** claims.

The magnetic response is interpreted as reflecting only the general geological environment of the area and does not map any mineralization directly.

The magnetic data indicates three areas of possible intrusives and some major faults. One broad and large magnetic high predominates the magnetic map. The high is found in the centre of the survey area along the ablating glacier. The high amplitude magnetic response probably reflects a recently uncovered Eocene granodiorite and feldspar porphyry plug or stock as geologically mapped just south of the survey area. Two other magnetic highs on the west and east side of the large magnetic may represent satellite plugs or dykes of the larger intrusive.

Several faults are interpreted from the magnetic data, the known geology and the aerial photographs as illustrated on Figure 5. Most of the faults, probably normal, trend northwest-southeast and parallel th regional geology. Two other inferred faults trend generally east-west. One of the faults follows Storie Creek and the other is geologically mapped along the eastern edge of the survey area. The faults appear to form contacts between different geologic units in the area.

The magnetic data does not readily distinguish between the various geological units in the survey area because of their relative similarity lithologies.

The VLF-EM data is presented on Figures 6 and 7 representing the Cutler and Hawaii frequency information respectively. Anomalous conductive responses have been marked on the appropriate maps.

Long wavelength VLF-EM anomalies have been indicated on the maps as being caused by topographic features like ridges and hill tops. Four VLF-EM conductive zones are mapped. They generally trend north-south with one exception trending northwest. Most of the VLF-EM conductive zones parallel or are adjacent to faults.

SUMMARY AND CONCLUSIONS

On April 21, 1988 an airborne magnetic and VLF-EM survey was conducted over the **Lance 1-4** claims. Approximately 78 line kilometres of geophysical data was gathered and processed to evaluate the **Lance 1-4** claims.

The magnetic data indicates three areas of possible intrusives and some major faults. One broad and large magnetic high predominates the magnetic map in the centre of the survey area along the ablating Jack Glacier. The high amplitude magnetic response probably reflects a granodiorite and feldspar porphyry plug or stock as geologically mapped just south of the survey area. Two other magnetic highs on the west and east side of the large magnetic may represent satellite plugs or dykes of the larger intrusive.

Interpreted northwest-southeast trending faults parallel the regional geology and appear to form contacts between different geological units in the area. Other inferred faults generally trend east-west. One of these follows Storie Creek and the other is geologically mapped along the eastern edge of the survey area. The magnetic data does not readily distinguish between the various geological units in the survey area because of their relative similar lithologies.

Several conductive lineations are mapped in the survey area. They trend in a north-south direction with the exception of one VLF-EM conductor which trends west-northwest. The VLF-EM conductive zones produce moderate anomalies adjacent to or parallel with the interpreted faults.

The interpretation of the magnetic data and VLF-EM data does not confirm the geological mapping by E. W. Grove, (1986). However, the airborne geophysical survey has indicated possible Eocene intrusives and extensive faulting. In this geological setting, of faulting and possible intrusives this property has potential for economic mineralization.

RECOMMENDATIONS

The airborne survey has given an indication where mineralization may occur on the **Lance 1-4** claims. Specifically along the VLF-EM conductors associated with fault-contact systems or along magnetic highs.

The initial follow-up work should be a detailed ground magnetic and VLF-EM survey to precisely locate the ground targets. Following the ground magnetics and VLF-EM, a geological mapping, rock and soil sampling program along with geochemical analysis for precious and base metals should be carried out. Contingent upon encouraging results from the geochemistry and preliminary ground geophysics, advanced geophysical programs utilizing induced polarization, resistivity, and conventional EM techniques would assist in delineating anomalous zones. Eventually trenching and drilling may be justified.

Respectfully submitted,

R. Hermary

Richard G. Hermary, B.Sc.,
Geophysicist

PROFESSIONAL PROVINCE OF D. V. WOODS ENGINEER

Dennis V. Woods, Ph.D., P.Eng.
Consulting Geophysicist

REFERENCES

Grove, Edward W.,1971 — Geology and Mineral Deposits of the Stewart Area Northwestern B.C., Bull. 58, BCMEMPR

Grove, Edward W.,1986 — Geology and Mineral Deposits of the Unuk River-Salmon River-Anyox Area B.C., Bull. 63, BCMEMPR

INSTRUMENT SPECIFICATIONS

DELVCO RINGCORE MAGNETOMETER

Model:	1210
Sensor:	3-axis ringcore fluxgate
Orthogonality:	±1° degree with respect to other axes and reference surface
Sensitivity:	0.0025 Milligauss (0.25 gamma)
Range:	±1000, ±300, ±100, ±30, ±10, ±3 mG
Analog Output:	±5V dc for above ranges
Output Impedance:	600 ohms
Zero Field Offset:	< ±7 mG absolute
Linearity:	±0.5%
Noise:	0.1 to 1 Hz, 0.0025 mG peak-to-peak 1.0 to 10 Hz, 0.0025 mG peak-to-peak 1.0 to 100 Hz, 0.01 mG peak-to-peak
Gain Stability:	±3%, 0 to +60° C
Field Nulling:	±0.04 mG to full scale
Low-Pass Filtering:	Switch selectable 1, 10, 100 and 500 Hz (-3 dB with -18 dB/octave roll-off, Butterworth response)
High-Pass Filtering:	Dc, 0.1, and 1Hz (-3 dB with -18 dB/octave roll-off, Butterworth response)
Notch Filter:	40-dB notch at 60 Hz, switch selectable, in or out
Battery Life:	25-hour minimum, rechargeable
AC Power:	115-230V; 1/4 A
Size:	Sensor: 3.2 cm x 3.5 cm x 10.16 cm Control Unit: 43 cm x 13 cm x 41 cm
Weight:	Sensor Probe: 0.62 kg Control Unit: 13.6 kg

INSTRUMENT SPECIFICATIONS

CONTROLLER AND RECORDING SYSTEM

Type:	Compaq Portable II
	An 80286 microprocessor
	640 Kbytes of RAM
	2 three and a half inch 720 Kbyte drives
	one 20-Megabyte fixed disk drive
	Monochrome, dual-mode, 9-inch internal monitor
	Asynchronous communications interface
	Parallel interface
	Composite-video monitor interface
	RGB monitor interface
	RF modulator interface
	Two expansion slots
	Real-time clock
	An 80287 coprocessor
	A HPIB Interface Card
Data Storage:	3 1/2 inch diskettes in ASCII
	Roland 1012 printer for printed output
	Beta I video cassettes
Power Requirements:	115 Volt AC at 60 Hz
Weight:	11 kg
Dimensions:	45 cm x 25 cm x 30 cm

INSTRUMENT SPECIFICATIONS

DATA ACQUIISITION UNIT

Model:	HP-3852A
Mainframe Supports:	Eight function module slots
	Data acquisition operating system
	System timer
	Measurement pacer
	Full alphanumeric keyboard, command and result displays
Number of Channels:	20 channel relay multiplexer HP44708A/H
Voltmeter:	5 1/2 to 3 1/2 digit intergrating voltmeter HP44701A measures:

DC voltage
resistance
AC voltage
Range ±30V, ±0.008%, +300uV
Intergration Time 16.7 msec
Number of converted digits 6 1/2

Reading rate (readings/ sec)	57
Min-Noise rejection (dB) Normal Mode Rejection at 60 Hz ±0.09%	60
DC Common Mode Rejection with 1 KΩ in low lead	120
Effective Common Mode Rejection at 60 Hz ±0.09% with 1 KΩ in low lead	150

Communication:	HPIB interface with Compaq
Power Requirements:	110/220 Volts AC at 60/50 Hz
Dimensions:	45.7 cm x 25.4 cm x 61.0 cm
Weight:	9.5 kg.

STATEMENT OF QUALIFICATIONS

NAME:	HERMARY, Richard G.
PROFESSION:	Geophysicist
EDUCATION:	University of British Columbia - B.Sc. - Major Geophysics
PROFESSIONAL	B.C. Geophysical Society
EXPERIENCE:	Six months as field geophysicist, A & M Exploration Ltd. Two years with Western Geophysical Aero Data.

STATEMENT OF QUALIFICATIONS

NAME: WOODS, Dennis V.

PROFESSION: Geophysicist

EDUCATION:

B.Sc. Applied Geology
Queen's University

M.Sc. Applied Geophysics
Queen's University

Ph.D. Geophysics
Australian National University

PROFESSIONAL ASSOCIATIONS:

Registered Professional Engineer
Province of British Columbia

Society of Exploration Geophysicists

Canadian Society of Exploration Geophysicists

Australian Society of Exploration Geophysicists

President, B.C. Geophysical Society

EXPERIENCE:

1971-79
- Field Geologist with St. Joe Mineral Corp. and Selco Mining Corp. (summers).
- Teaching assistant at Queen's University and the Australian National University.

1979-86
- Professor of Applied Geophysics at Queen's University.
- Geophysical consultant with Paterson Grant & Watson Ltd., M.P.H. Consulting Ltd., James Neilson and Assoc. Ltd., Foundex Geophysics Ltd.
- Visiting research scientist at Geological Survey of Canada and the University of Washington.

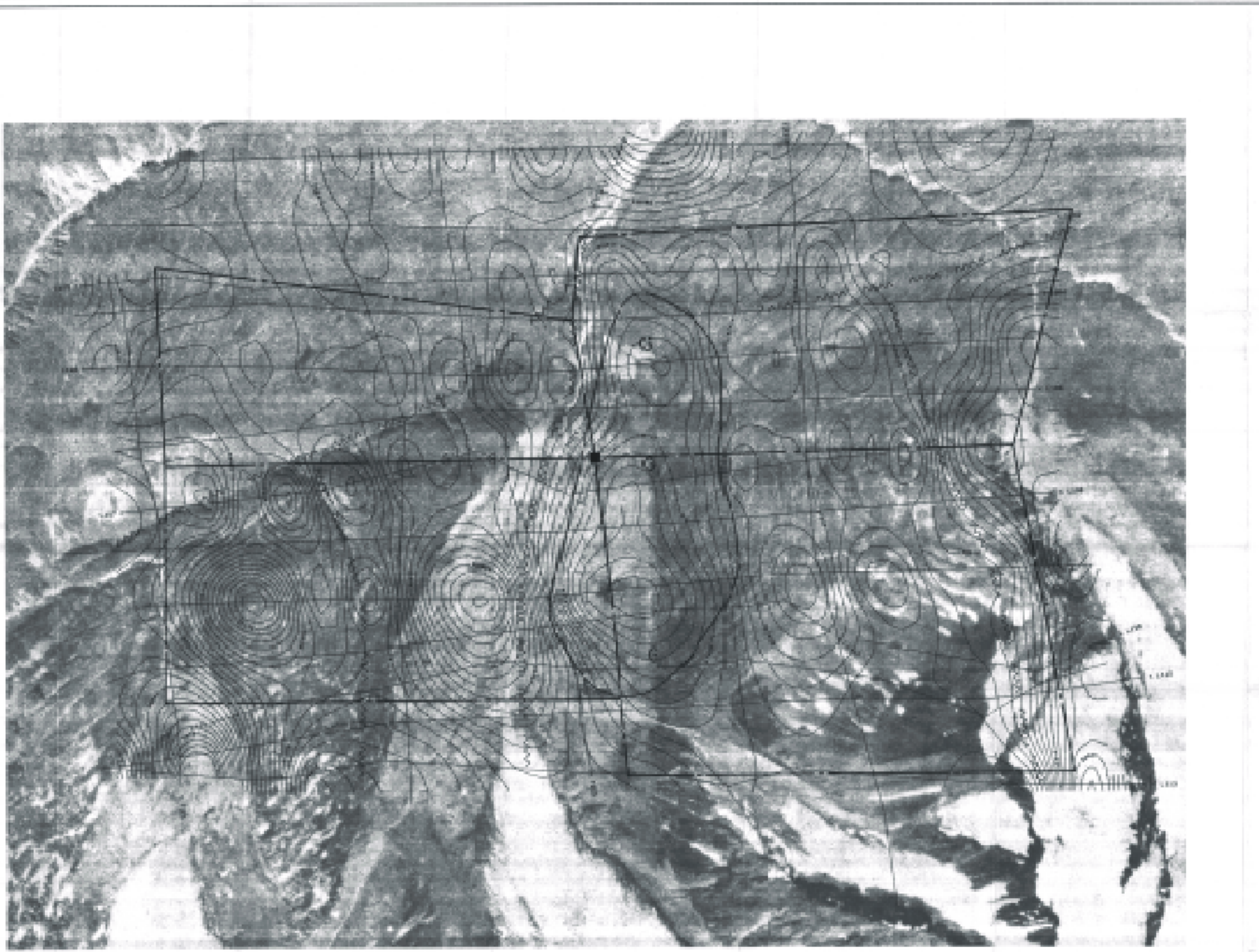
1986-88
- Project Geophysicist with Inverse Theory and Applications Inc.
- Chief Geophysicist with White Geophysical Inc.

COST BREAKDOWN

The geophysical data was analyzed, geological information researched and compiled, and this report prepared for an all inclusive fee of $6,166.00. This total is based on a cost of $47/km for total field magnetic data and two stations of VLF-EM data. The survey was carried out by Ian Braidek and Bob Acheson.

Mob/Demob - truck rental,helicopter ferry	$ 500.00
Survey - 78 km of magnetics and 2 stations of VLF-EM data at $47/km	$3,666.00
Report/Interpretation	$2,000.00
TOTAL	**$6,166.00**

TOTAL ASSESSMENT VALUE OF THIS REPORT **$6,166.00**



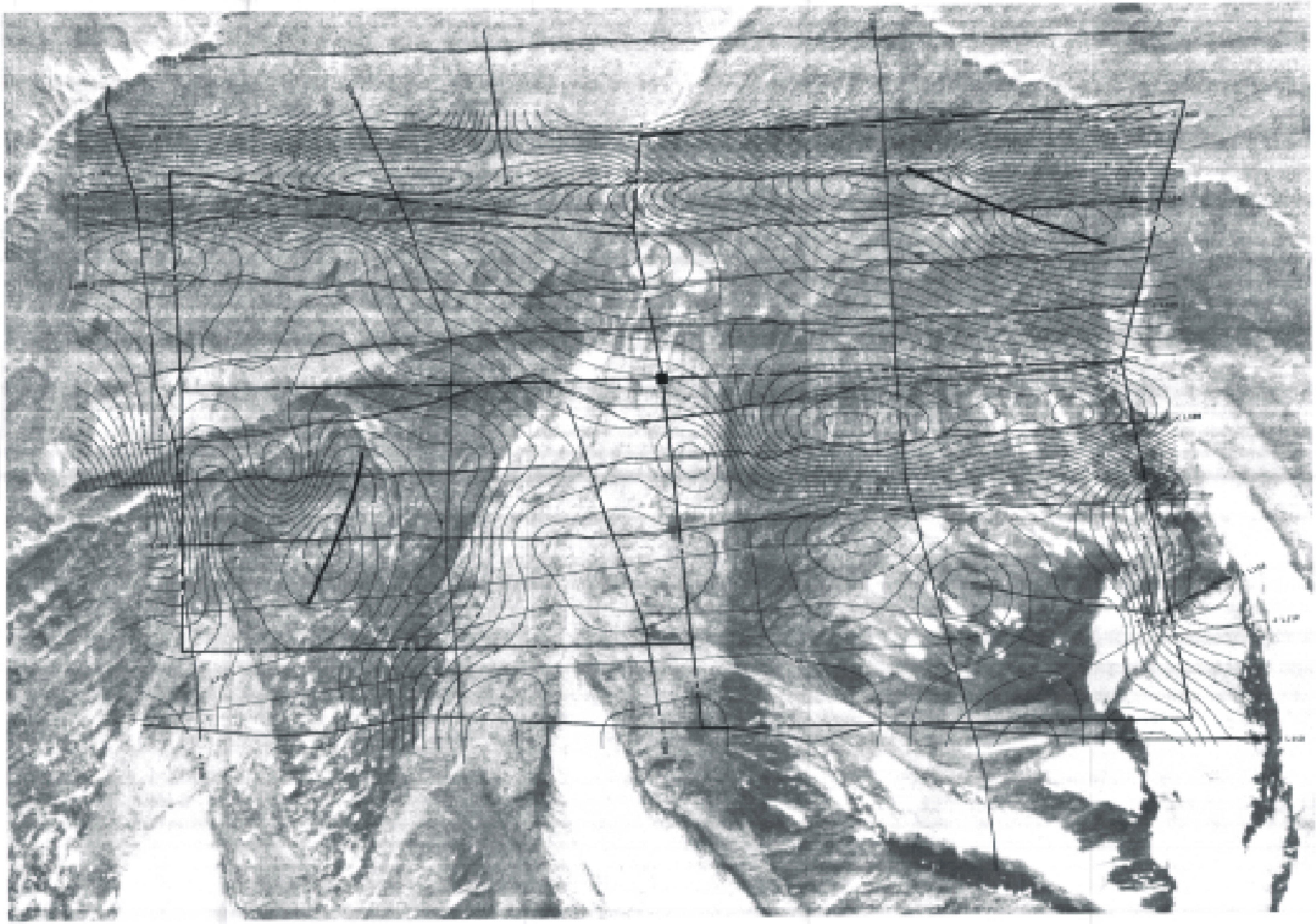
DINO M. CREMONESE

LANCE 1-4

AIRBORNE MAGNETIC AND VLF-EM SURVEY

CONTOURED TOTAL FIELD MAGNETICS

WESTERN GEOPHYSICAL AERO DATA LTD.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

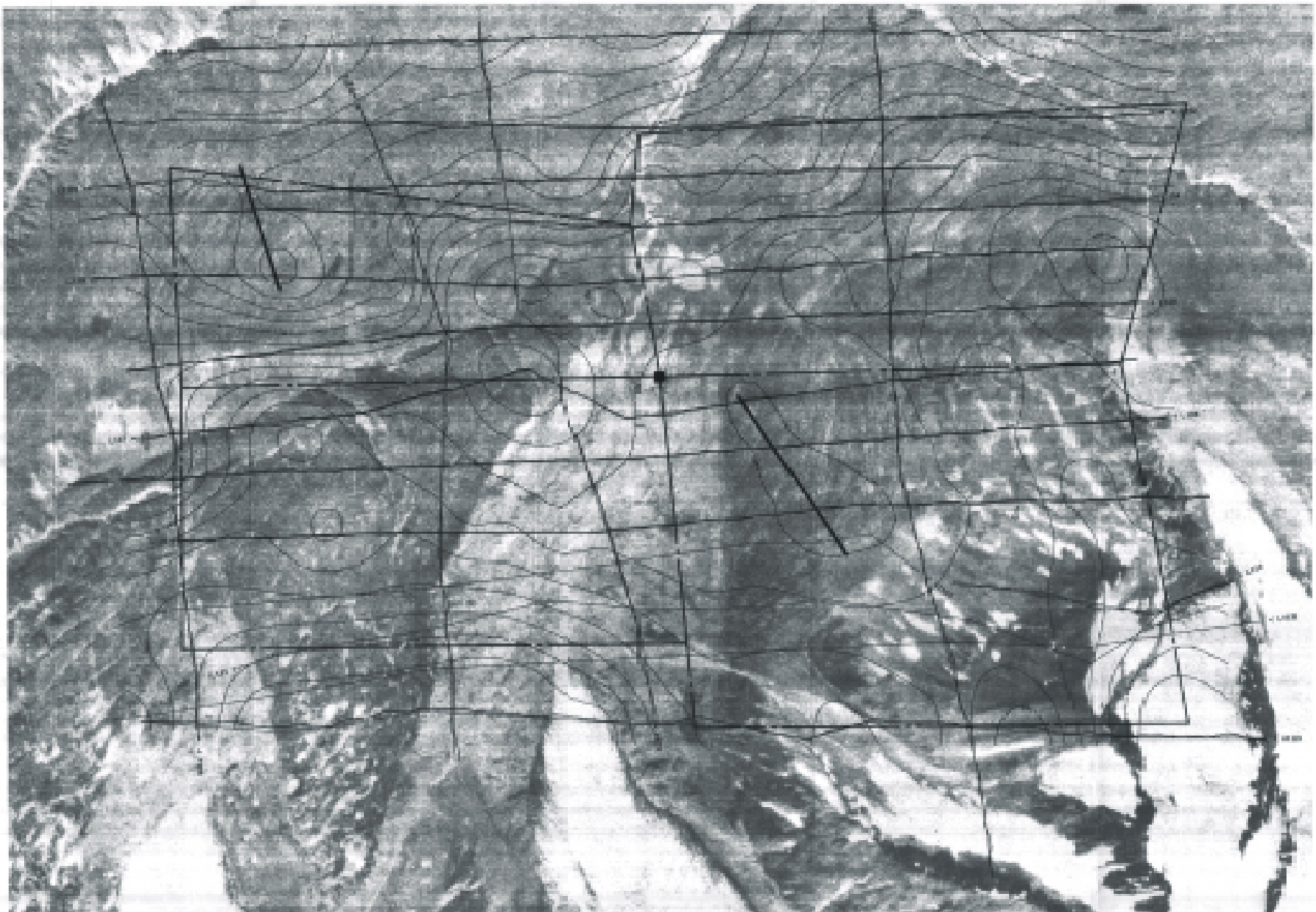
17,626

DINO M.CREMONESE

LANCE 1-4

Scale 1: 10000.0

WESTERN GEOPHYSICAL AERO DATA LTD.



LEGEND:

VLF-EM conductor

VLF-EM conductor profile

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,626

DINO M.CREMONESE

LANCE 1-4

AIRBORNE MAGNETIC AND VLF-EM SURVEY

Scale 1: 20000.0

WESTERN GEOPHYSICAL AERO DATA LTD.