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1996 ASSESSMENT REPORT

prepared for

DR. Norman Haimila of Calgary, AB.

Holder of
Metallic and Industrial Mineral Permits

Nos: 9394110001 to 9394110004 inclusive

ACKNOWLEDGMENTS

Consultant and Scientific Authority

Dr. Norman Haimila, President of Aurora Projects International Inc., Brithish Virgin Islands and Houston, Texas

Explorarion Research and Program Co-ordination
Dr. N. Haimila, Houston, Texas; Raymond Haimila, Canmore, AB. and Dr. T. Yoshida, Calgary,AB.

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Staff at Earth Sciences Bldg. and Library at the University of Calgary.
Ashton Mining of Canada Inc., Jeff Ward, Project Geologist

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Born: [redacted]

Citizenship:

Social Insurance:

EDUCATION

Primary through High School, Canmore Alberta.
B.A. Sc (1960) University of British Columbia
Ph.D. (1974) Michigan State University

AREAS OF EXPERTISE

PROSPECT GENERATION, INTERNATIONAL AND FRONTIER PROSPECT EVALUATIONS, REGIONAL STUDIES, RESOURCE ASSESSMENT, STRUCTURAL GEOLOGY, REMOTE SENSING, GEOPHYSICAL INTERPRETATIONS, BASINAL STRATIGRAPHY.

PROFESSIONAL EXPERIENCE

1994 to Present — President of AURORA PROJECTS INTERNATIONAL INC.

Generated drillable prospects in Argentina and the Middle East. Of three prospects generated, one is producing oil, one was a dry hole with shows and one remains to be drilled in the winter of 1995-1996.

1980 - 1994 — President of ZI CONSULTING LIMITED, Cochrane, Alberta

Consulted for the oil and mineral industries and government agencies.

From 1991 to 1994 consulted for an independent oil company in Canada. On my recommendation this company acquired two exploration blocks and two exploitation blocks in Argentina. Prospects have been generated on these and other subsequently acquired blocks. To date, four wells with various levels of hydrocarbon recoveries and four dry wells have been drilled. Outside Argentina blocks have been evaluated for their hydrocarbon potential in Venezuela, Colombia, Ecuador, Peru, Bolivia, Europe and Asia.

From 1987 to 1991 was the Senior Geologist on the Sub-Andean Cooperative Hydrocarbon Studies Project managed by Meneley Enterprises, Ltd. and directed by Petro Canada International Assistance Corporation, the World Bank and Assistance Reciproca Petrolera Estatal Latin America. This project consisted of basin analyses and hydrocarbon endowment studies in Colombia, Ecuador, Peru, Bolivia, Paraguay, Argentina and adjacent areas utilizing all the pertinent data held by the national oil companies.

From 1980 to 1987 consulted for independent and major oil companies in Canada in addition to governmental agencies and research institutes. Evaluated the hydrocarbon potential for areas throughout Canada and other international areas.

1978 - 1980	CDC Oil and Gas Ltd. (renamed Canterra and now part of Husky Oil and Nova Corp.) Calgary, Alberta.
	Held the positions of Geological Specialist and Consultant responsible for prospect generation, structural analyses and regional studies in the Canadian Foothills Belt from latitudes 49°N to 60°N.
1974 - 1978	Energy Subdivision (Petroleum Resource Appraisal Secretarial) of the Institute of Sedimentary and Petroleum Geology (GSC). Calgary Alberta.
	Responsible for evaluating hydrocarbon endowment in Canada, especially in the Arctic, the Western Canada Basin and the Foothills Belt.
1967 - 1974	Atlantic Richfield Company, Dallas, Texas
	Held the position of Senior Research Geologist in the Geosciences Section. Worked in applied research in remote sensing, structural analyses, regional and basinal studies, in addition to engineering and petrological studies related to oil and mineral industries.
1966 - 1967	Consulted for small independent oil and mining companies in Michigan and Indiana.
1964 - 1967	Michigan State University. East Lansing, Michigan
	Graduate Assistant and Assistant Instructor. Taught undergraduate Introductory Geology and Mineralogy.
1963 - 1966	British Columbia Department of Mines and Petroleum Resources, Victoria, British Columbia.
	Worked on special mineral projects in Central Vancouver Island and the Stewart Area of British Columbia.
1961 - 1963	External Aid Office, Ottawa, Ontario
	Technical Advisor to the Ministry of Industries in Ghana under the Special Commonwealth Africa Assistance Program.
1960 - 1961	Geological Survey of Canada, Ottawa, Ontario
	Technical Officer — mapping and conducting laboratory research in Manitoba and the Northwest Territories.

PROFESSIONAL ASSOCIATIONS

American Association of Petroleum Geologists — #0132516
American Institute of Professional Geologists — #4293
Association of Professional Engineers, Geologists and Geophysicists of Alberta — #28333
Canadian Society of Petroleum Geology.

RESEARCH AND REPORTS

Gold Distribution, Structure and Sedimentology of the Banket Deposit in the Vicinity of the Fanti Gold Mine.

Demonstration Equipment and Procedures for Exploiting Small Scale Alluvial Diamond Workings.

The Asuboni Limestone.

Structure and Oil Potential of the Trenton Limestone, Wabash County, Indiana.

Structure and Oil Potential of the Trenton Limestone, Eaton County, Michigan.

Secondary Recovery from the Trenton Limestone of the Lima-Indiana Trend.

Structure and Oil Prospects of the Canadian Maritime Provinces and Offshore Areas.

Gravity Interpretation of a Salt Dome, Offshore Texas.

Gravity and Magnetic Interpretation of a Concession in Libya.

Structural and Seismic Interpretation of a Hydrocarbon Prospect in Nevada.

Gravity, Magnetic, Seismic and Structural Analysis of West Texas and the Permian Basin, including Hydrocarbon Prospects.

Review and Training Manual for Gravity and Magnetic Interpretation.

Structural Interpretation of the Laguna Madre Field, South Texas.

Structural Analysis and Hydrocarbon Prospects in the Montana Thrust Belt.

Structural Analysis of the Eastern Brooks Range of Alaska.

Permafrost in the Subsurface of the Northslope of Alaska.

Permafrost and Pleistoscene Stratigraphy of Copper River Basin, Alaska for Routing of the Trans Alaska Pipeline.

Fracture Analysis Utilizing Fourier Transforms.

Structural Analysis of the Eastern Arctic Islands, Canada.

Borehole Fracture Analysis for Secondary Recovery Projects.

Fracture Analysis for Massive Hydraulic Fracturing in Low Productivity Gas Sands.

Side Looking Radar Study of East Kalimantan, Indonesia.

Remote Sensing Applicability to Exploration in Alaska, Eastern Canada, Arizona, Peru and Indonesia.

Miscellaneous Petrographic and Mineralogical Investigations.

Hydrocarbon Potential of the Mackenzie Valley and the Great Bear Basin in the Vicinity of Norman Wells, Northwest Territories.

Hydrocarbon Potential of the Sverdrup Basin of the Arctic Islands.

Hydrocarbon Potential of the Arctic Islands Fold Belt.

Hydrocarbon Potential of the Stable Platform of the Arctic Islands.

Hydrocarbon Potential of the Lower Manville Interval in Alberta.

Hydrocarbon Potential Reviews of East Coast Offshore Areas.

Hydrocarbon Potential of the British Columbia Offshore Areas.

Hydrocarbon Potential of Third World Countries.

Structural Style and Hydrocarbon Potential of the Alberta and British Columbia Foothills.

Review and Training Manual of Structural Styles in Canadian Petroleum Provinces.

Geology and Hydrocarbon Potential of the Canadian Beaufort Sea and Environs.

Hydrocarbon Potential of Arctic North America and Greenland.

Hydrocarbon Potential, Geology and Exploration History of Selected Third World Countries.

Hydrocarbon Potential and Undiscovered Prospects of Several Hydrocarbon Exploration Plays in Alberta and Northeastern British Columbia.

Deltas of the World and their Potential for Containing Giant Hydrocarbon Accumulations.

Characteristics of Hydrocarbon Accumulations in Four North Sea Sub-basins.

Characteristics of Hydrocarbon Accumulations for Typical Exploration Plays in West Texas and Offshore Louisiana.

Hydrogen Sulphide and Sulphur Occurrences in Petroleum Accumulations of Western Canada.

Sedimentary Basins and Petroleum Resource Potential of the Arctic Ocean Region.

Geology and Hydrocarbon Potential of the Sub-Andean Basins of Columbia, Ecuador, Peru, Bolivia, Paraguay, and Argentina.

Geology and Prospects in the Cuyana Region of Argentina.

Geology and Hydrocarbon Potential of the Neuquen Basin of Argentina.

General Review of the Gulfo San Jorge Basin.

Geology and Hydrocarbon Potential of the Chaco-Parana and Loma Del Omeda Regions of Argentina.

Hydrocarbon Prospects within Selected Blocks in the Neuquen Basin.

Hydrocarbon Prospects within Selected Blocks in the Austral Basin.

Hydrocarbon Prospects within a Selected Block in the Golfo San Jorge Basin.

Hydrocarbon Prospects within Selected Blocks in Bolivia.

Hydrocarbon Prospects within a Disturbed Belt in the Middle East.

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INTRODUCTION

In 1992 a diamond exploration program was implemented to find the source of diamonds that had been found in the sedimentary bedrock near the Cretaceous-Tertiary boundary along the Red Deer River. (Science City News-vol. 2, 4th issue, 1992) This exploration program discovered an area near the Red Deer River site that has surface indications of high concentrations of hypabyssal basic to ultra basic material along with metamorphic and various volcanic rocks including flow breccias. Surface samples from this area contain an abundance of diamond indicator minerals.

Ground magnetic surveys have confirmed the presence of a northwest-southeast trend of near-surface magnetic anomalies. This field or zone of anomalies appears to be at least 40kms in length and upto 8 to 10kms in width. Published aeromagnetic and gravity mapping have confirmed the presence of a deep seated, near-vertical anomaly directly under this northwest trend of surface anomalies. (Lithoprobe Workshops-1995 &1996) This deep seated anomaly is situated over an Archean (Hearne >2.6 Ga) Craton. Tectonic and deep-continental seismic reflection studies have confirmed the presence of a deep mantle root. ..(Diamonds-Theory and Exploration, GAC, !995.) (see Figs. 10 & 11)

The block of diamond claims that are the subject of this assessment report are located in and around this area of " northwest-southeast trending near-surface magnetic anomalies". They are registered as Metallic and Industrial Mineral Permits Nos. 9394110001 to 9394110004 inclusive, and are located to the north and west of the Town of Hanna. (see Location Map and Table 1)

The holder of said permits is Dr. Norman Haimila, of Calgary,AB.

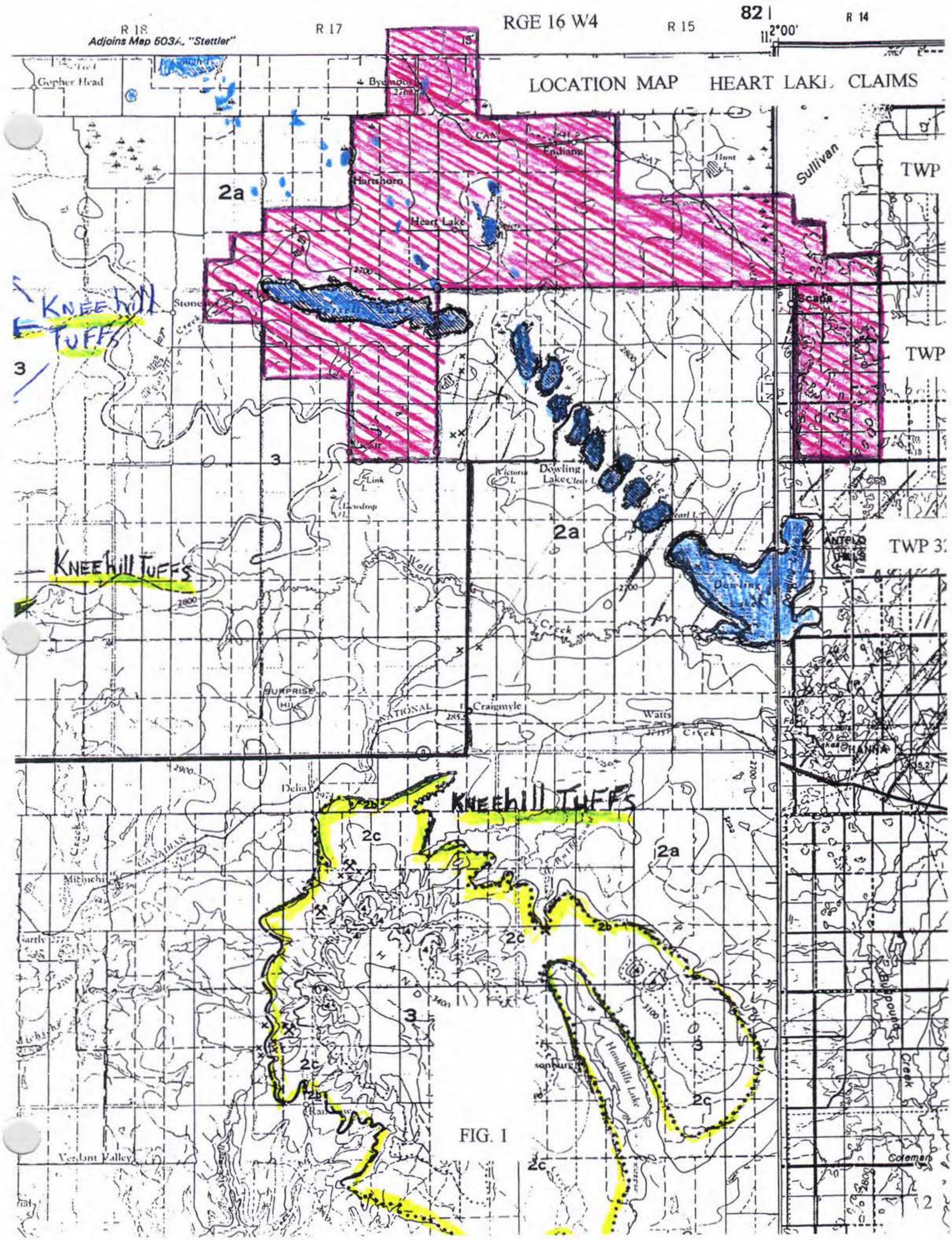

R 18
Adjoins Map 503A "Stettler"
R 17
RGE 16 W4
R 15
82 I
112°00'
R 14
LOCATION MAP HEART LAKE CLAIMS
Gopher Head
Endiang
Hartshorn
Heart Lake
Sullivan
TWP
2a
KNEEhill TUFFS
3
Stone
Creek
Chain Lakes
Dowling Lake
Scapa
Victoria L.
Link L.
2a
TWP 3
Wolf
Creek
Dowling Lake
2800
2700
SURPRISE HILL
Craigmyle
Watts
Creek
Hanna
2900
Delia
KNEEhill TUFFS
2c
2a
Michichi
2b
2c
3
Handhills Lake
3
2c
2c
Verdant Valley
Coleman
Bullpound Creek
2

FIG. 1

MINERAL AGREEMENT DETAIL

KEY ID: 093 9394110004   METALLIC AND INDUSTRIAL MINERALS PERMIT
SPECIFIC WELL ID (OPTIONAL) ==>   /   -   -   -   W   /

----------------- L A N D / Z O N E   D E S C R I P T I O N -----------------

LAND DESCRIPTION:
4-16-034: 4-7;9;16-21;30
4-17-034: 1-4;9-17;22-25;26NE;27;34-36

KEY ID: 093 9394110001   METALLIC AND INDUSTRIAL MINERALS PERMIT
SPECIFIC WELL ID (OPTIONAL) ==>   /   -   -   -   W   /

----------------- L A N D / Z O N E   D E S C R I P T I O N -----------------

LAND DESCRIPTION:
4-14-033: 4-7;9;16-21;28-33
4-14-034: 4-7
4-15-034: 1-4;9-17

KEY ID: 093 9394110002   METALLIC AND INDUSTRIAL MINERALS PERMIT
SPECIFIC WELL ID (OPTIONAL) ==>   /   -   -   -   W   /

----------------- L A N D / Z O N E   D E S C R I P T I O N -----------------

LAND DESCRIPTION:
4-17-033: 1-3;10-15;19-25;26NWP
PORTION(S) DESIGNATED AS FARRELL LAKE.,
NE;27-36
4-17-034: 5-7;18
4-18-033: 35;36
4-18-034: 1;2;12

KEY ID: 093 9394110003   METALLIC AND INDUSTRIAL MINERALS PERMIT
SPECIFIC WELL ID (OPTIONAL) ==>   /   -   -   -   W   /

----------------- L A N D / Z O N E   D E S C R I P T I O N -----------------

LAND DESCRIPTION:
4-15-034: 5-7;18
4-16-034: 1-3;10-15;22-25;26NE;27-29;31-36
4-16-035: 5-7;18
4-17-035: 12

METALLIC AND INDUSTRIAL MINERALS

TABLE 1

STAKING

The block of diamond claims registered as Metallic and Industrial Mineral Permits Nos. 9394110001 to 9394110004 inclusive (the Heart Lake Claims) were applied for because:
(1) their proximity to the deep seated magnetic anomaly (see location map andFigs.12,13,14,15)
(2) their proximity to the lineament of near surface magnetic anomalies (see Figs. 16,17,18)
(3) their proximity to the diamonds found near the Red Deer River.

EXPLORATION PROGRAM

The exploration program was based on:
Remote Sensing (air photos)
Geotectonic Research (Lithoprobe workshops and seismic tomography)
Aeromagnetic Research (magnetic HGV lineaments)
Gravity Research (gravity HGV lineaments)
Existing 1995 Assessment report of adjacent claims held by Dr. Yoshida (open file)
Prospecting for diamond indicator minerals and related rocks
Reviewing well logs and core samples
A Ground Magnetic Survey

PROSPECTING

Eleven trips (totalling 14 days) were made to the Heart Lake claims between Nov./94 and Nov/ 96. Eleven days were spent prospecting and three days were spent on ground magnetic surveys. Approximately 100kgs. of rock samples as well as 110 kgs of sand (4-5gal. buckets) were collected on the claims over this two year period..

Twent-nine thin-sections were prepared from the rock samples and one from surface sand from Farrel Lake.The petrological discriptions and photomicrographs of some of the thin sections are included in this report and appear on pages 7-13.. Thin section 7A is quite interesting-showing olivine grains in a diabase or gabbro. (Fig3) The breccia in thin sections 12 and 12A (Fig.5 and6) is also quite interesting. Fig. 6 shows surface sand to be very angular with numerous garnets.

A whole rock analysis (see Table 2) shows three samples-R1,R2,and R4 to have compositions similar to compositions of lamproites worldwide (Fipke et al 1995). R2 is from Farrel lake on the Heart Lake claims.

Sand was sieved and concentrated on site in many of the locations sampled (many unnamed water bodies as well as Sullivan Lake, Farrel Lake and Spiers lake)-.see sample-site location map on page 45. Spiers Lake, Farrel Lake and some of the smaller bodies of water that coincided with the " Gough Lake-Dowling Lake magnetic HGV lineament " (Fig.17,18) appeared to have the greatest number of garnets (with visual kimberlitic morphology, i.e. color, orange peel texture, etc.) and pyroxenes. A qualitative analysis on several garnets by Beth Haverslew showed them to be pyropes.

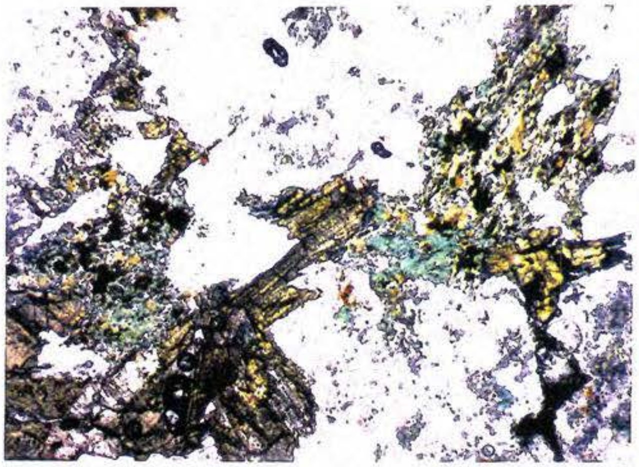
One bucket of sand from the northeast side of Spiers Lake was sent to Loring Labs of Calgary to be concentrated and magnetically separated .There was an abundance of garnets and pyroxenes in all magnetic separations. Thiry-five grains were picked from this concentrate. Of these, 5 were sent for quantitative probes-1 chromite, 1 chrome diopside, and 3 rutiles.(see pages 14-20)
The chromite falls in the diamond inclusion field for Al_2O_3 vs TiO_2
The chrome diopside falls in the diamond inclusion field for both high and low chrome plots.
The 3 rutiles are of similar composition to diamond inclusion rutiles (tables 4 and 5)

THIN SECTIONS

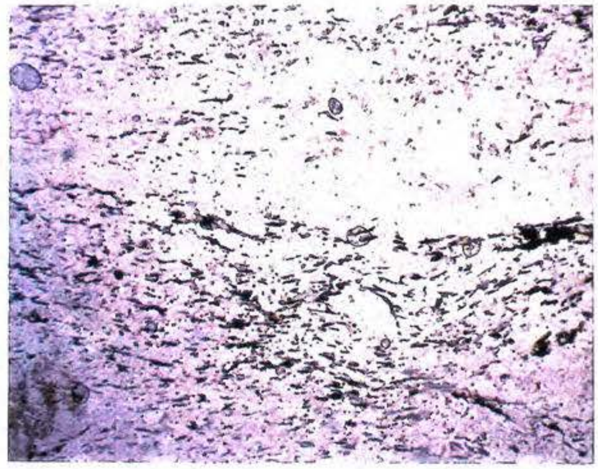
Photomicrographs

and

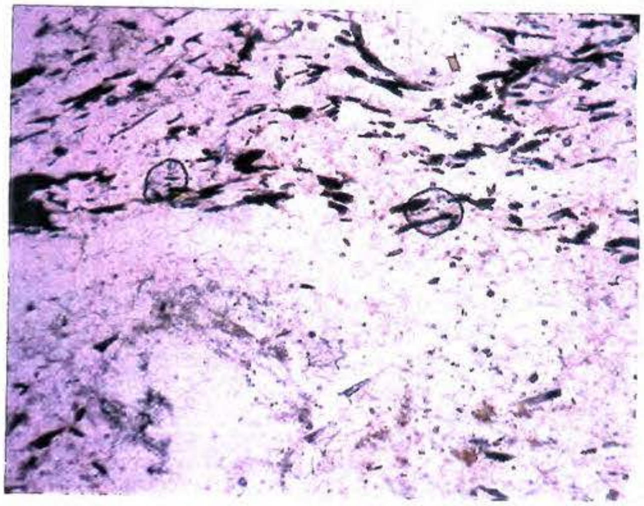
Descriptions



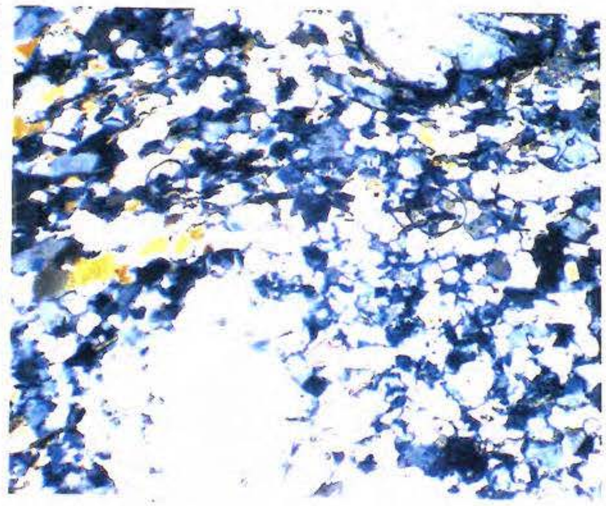
T.S. 1. objective lens X2.5
feldspar, biotite, epidote and amphibole



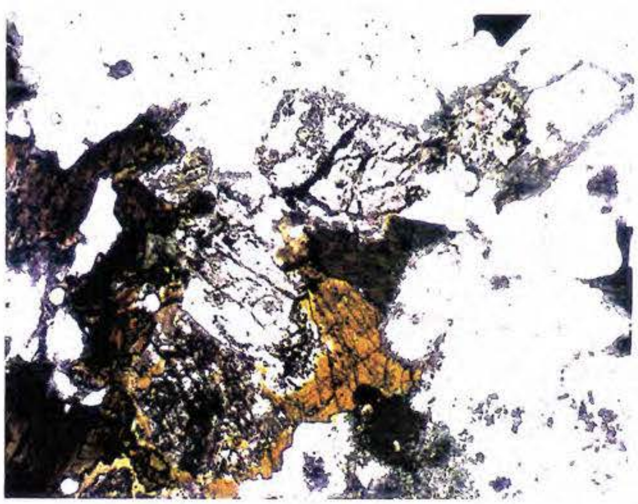
T.S. 2A. objective lens X2.5
feldspar porphyroblastic and quartz-biotite porphyroblastic,
-relict phenocrysts



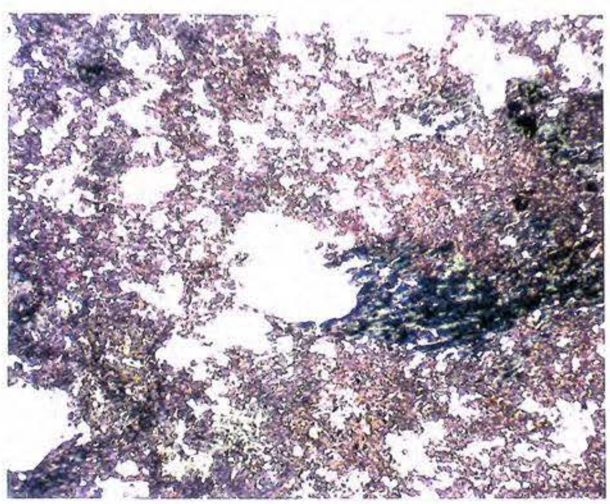
T.S. 2A. objective lens X6.5



T.S. 2A. crossed polars

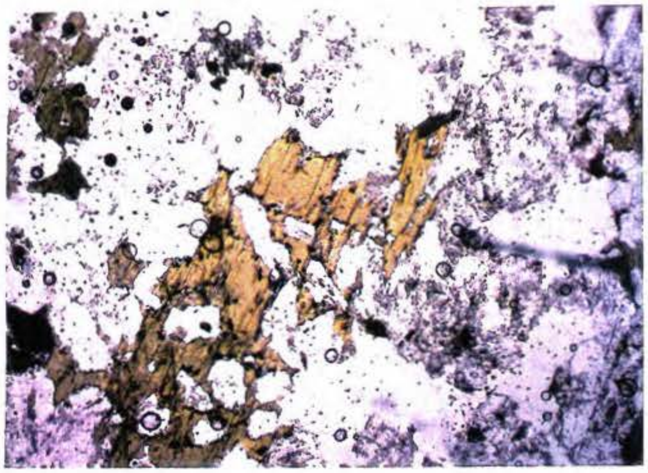


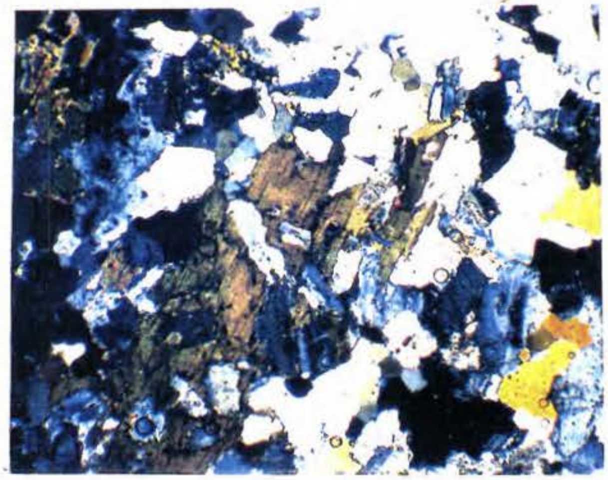
T.S.3. objective lens X2.5
altered horneblende, biotite, and albite-chlorite



T.S. 4A objective lens X2.5
metamorphic rock- chlorite, epidote, zoisite and quartz

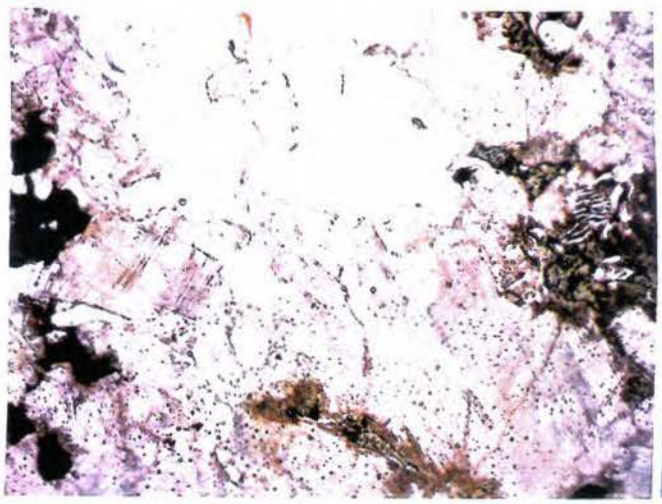
FIG. 2

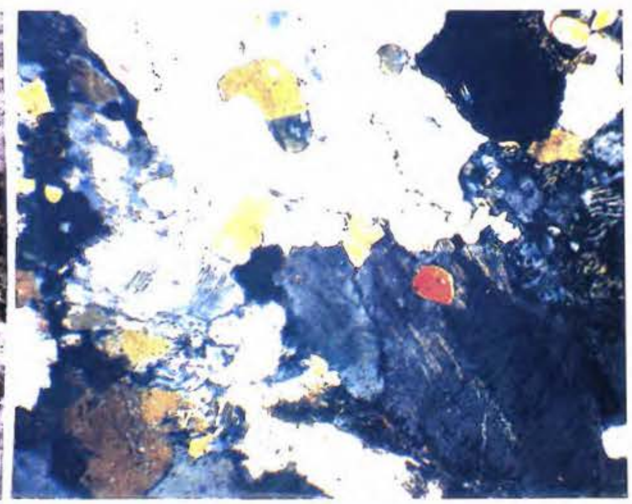




T.S. 5. objective lens X2.5
granodiorite with alkali feldspar; amphibole and green biotite

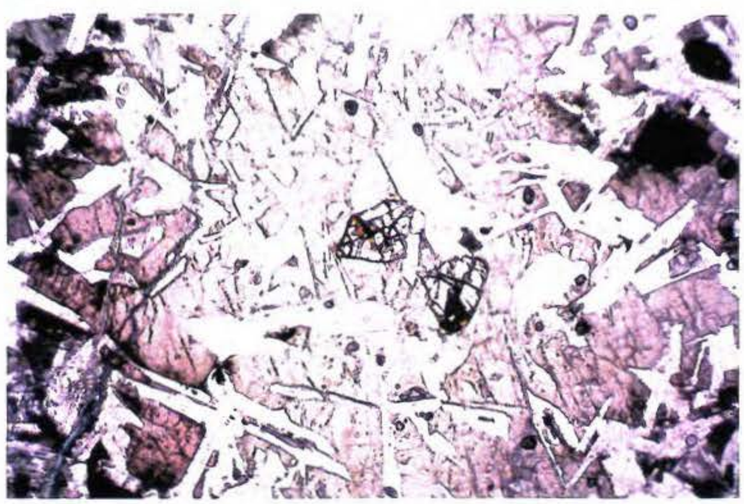
T.S. 5. crossed polars





T.S. 6. objective lens X2.5
myrmekitic texture with altered biotite, amphibole, quartz
feldspar and magnetite

T.S. 6 crossed polars

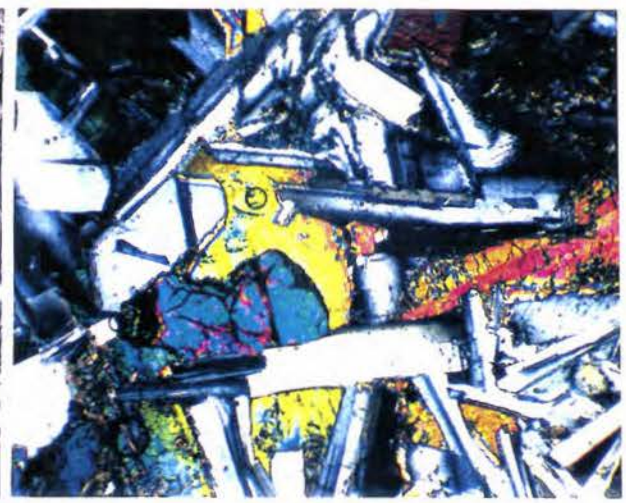


T.S. 7A objective lens X2.5
diabase or gabbro with aphitic texture clinopyroxene,
olivine and calcic plagioclase

FIG. 3

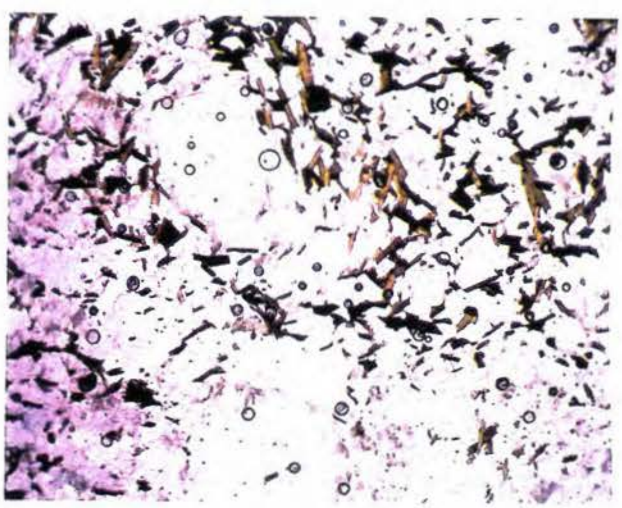
T.S. 7. objective lens X2.5
diabase or gabbro

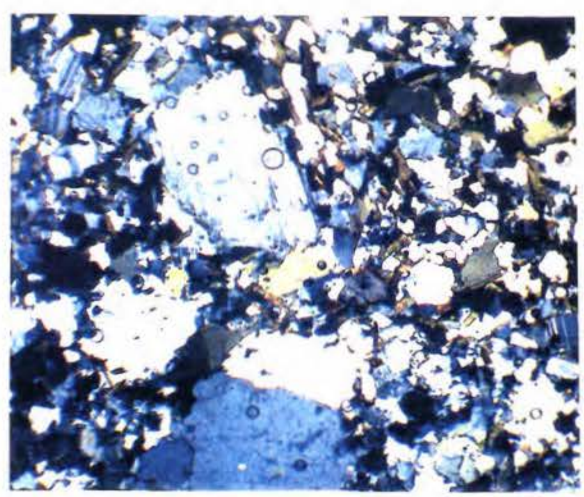
T.S. 7. crossed polars



T.S. 7 objective lens X2.5
clinopyroxene, olivine and calcium-plagioclase

T.S. 7. crossed polars

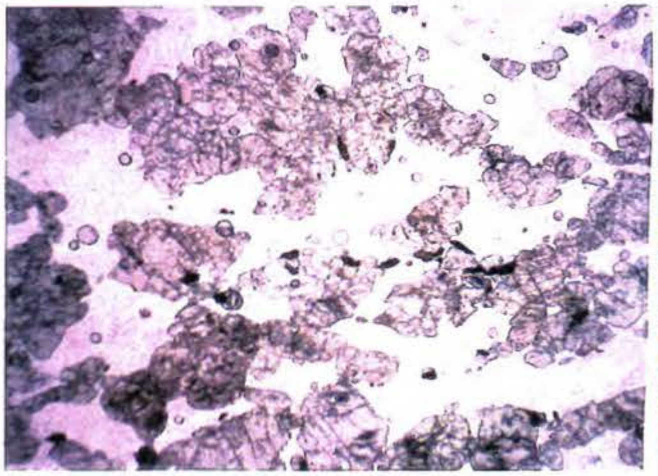




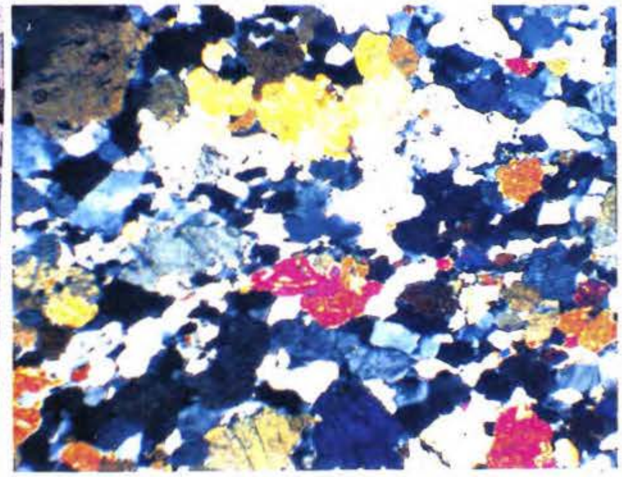
T.S. 8A. objective lens X2.5
metamorphic rock- albite-biotite-quartz

T.S. 8A. crossed polars

FIG. 4

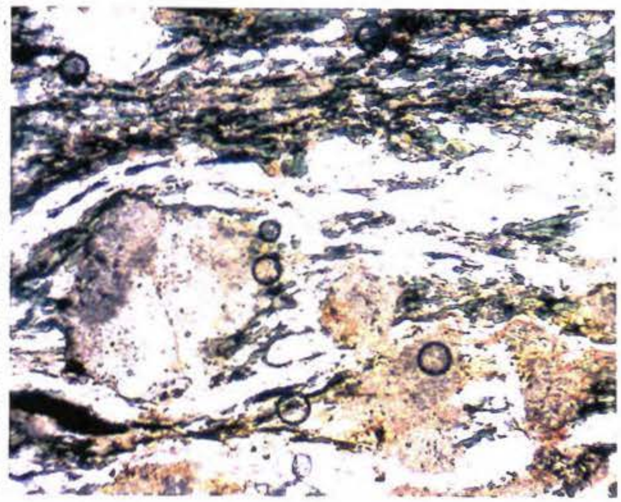


T.S. 9A. objective lens X2.5
potassium feldspar, pyroxene, and sphene

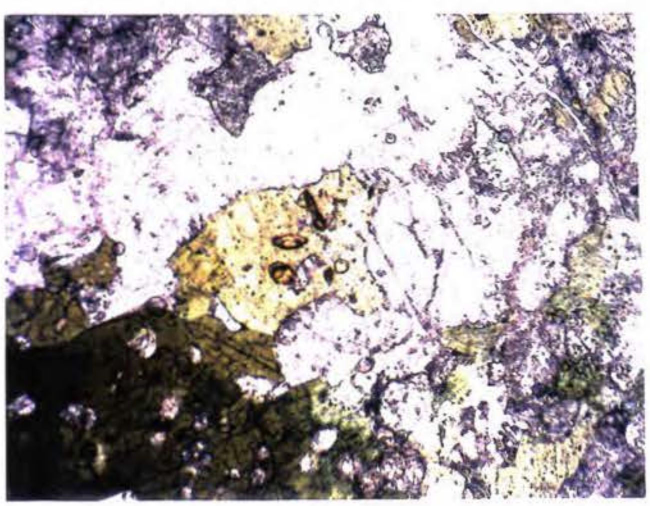


T.S. 9A crossed polars

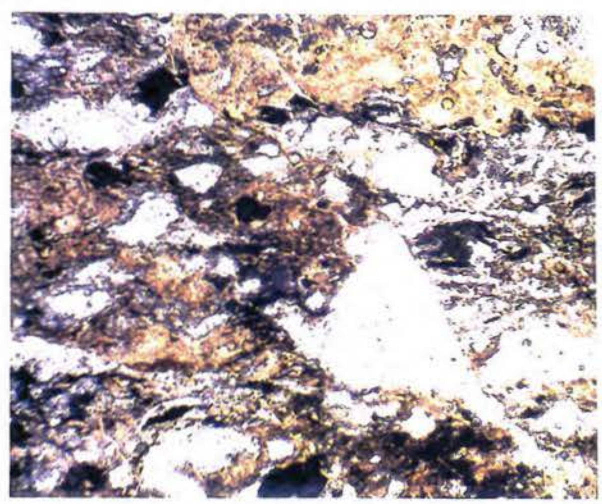
T.S. 10. objective lens X2.5
altered metamorphic



T.S. 10A. objective lens X6.3
gneiss-altered metamorphic

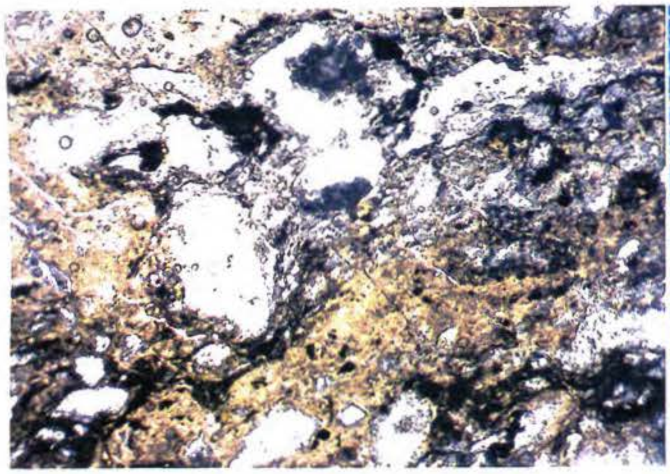


T.S. 11 objective lens X2.5
amphibole and altered feldspar (both fractured)
zoisite, epidote, sphene; horneblende replaces
clinopyroxene at one end of sample

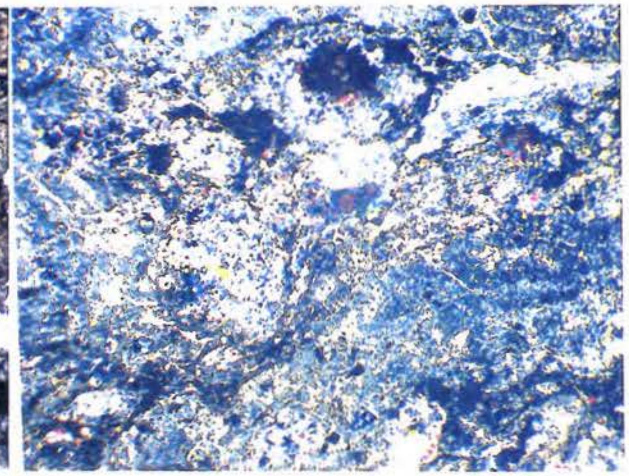


T.S. 12. objective lens X2.5
breccia (epidotized)

FIG. 5

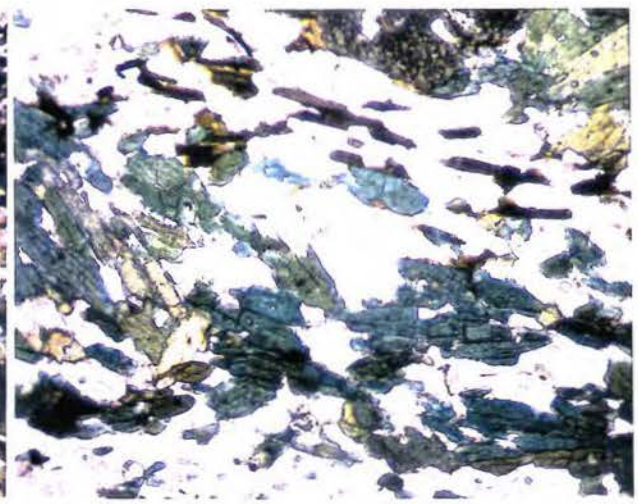


T.S.12A. objective lens X2.5
altered breccia

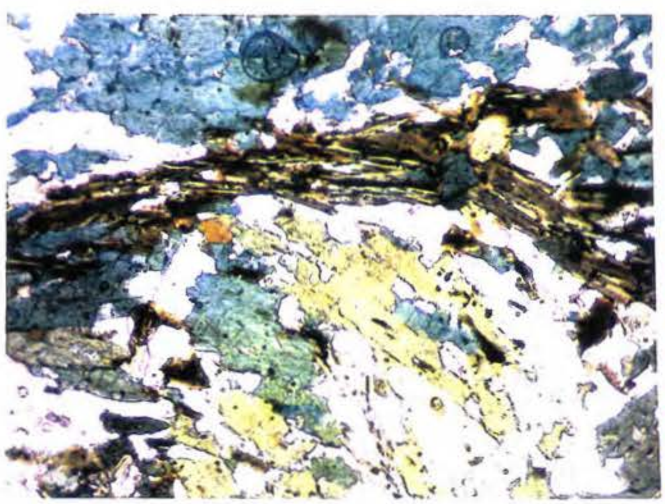


T.S. 12A crossed polars

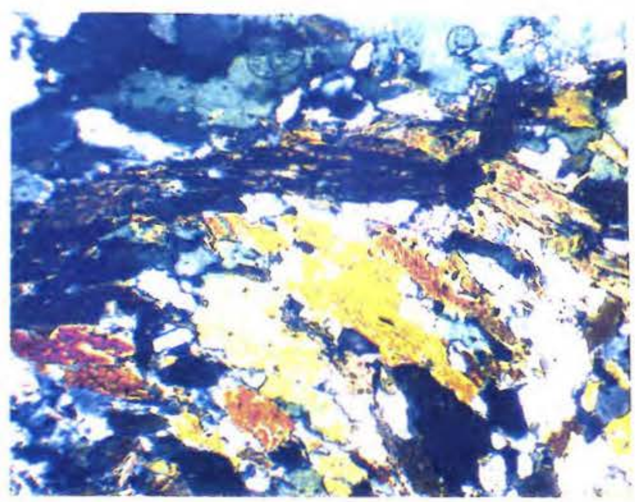
T.S.13. objective lens X2.5
amphibolite



T.S. 13A objective lens X6.3
amphibolite (biotite, quartz, and albite)



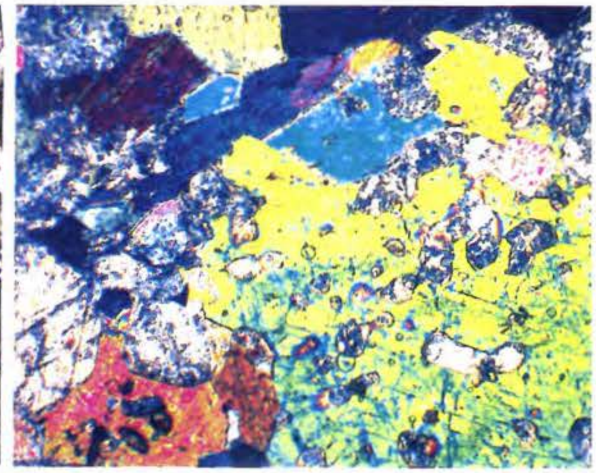
T.S. 13A objective lens X6.3
amphibolite



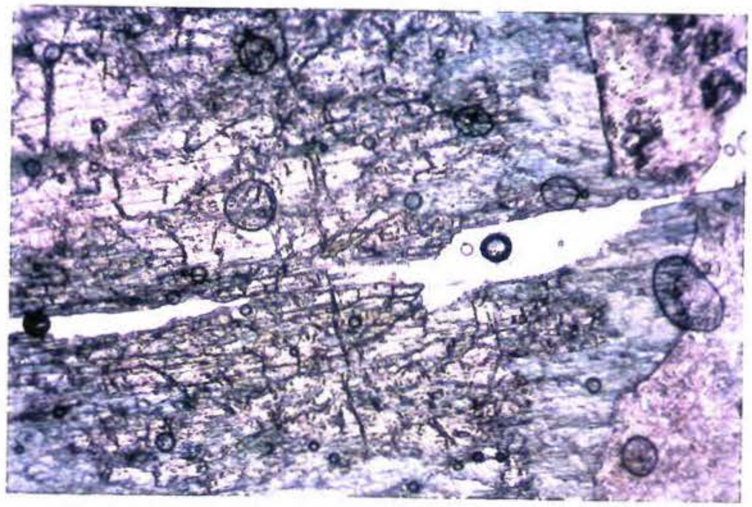
T.S.13A crossed polars

FIG. 6

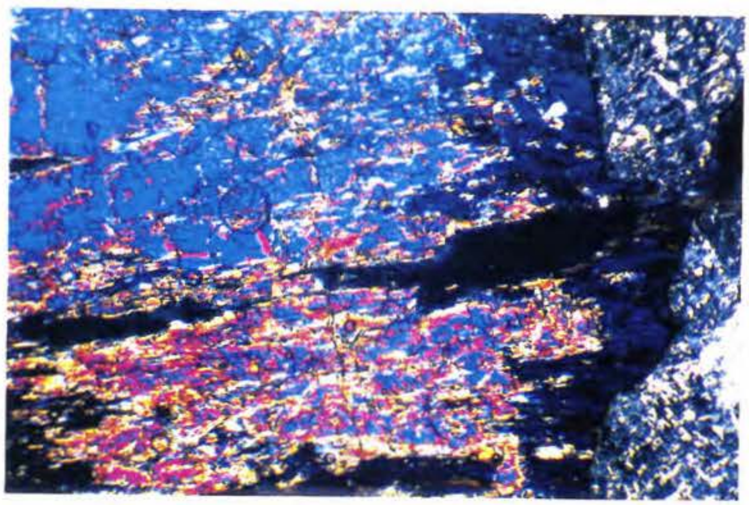
T.S. 14 objective lens X2.5
horneblende with rounded inclusions of plagioclase(?)
and quartz (?)



T.S. 14 crossed polars

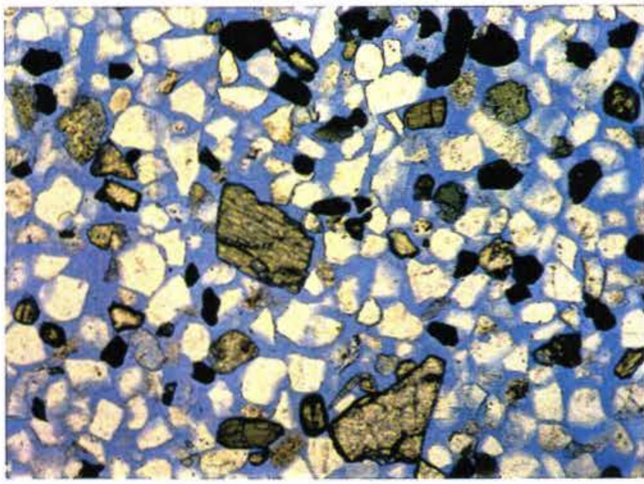


T.S. 14A objective lens X6.3
orthopyroxene rimmed by horneblende; altered feldspar

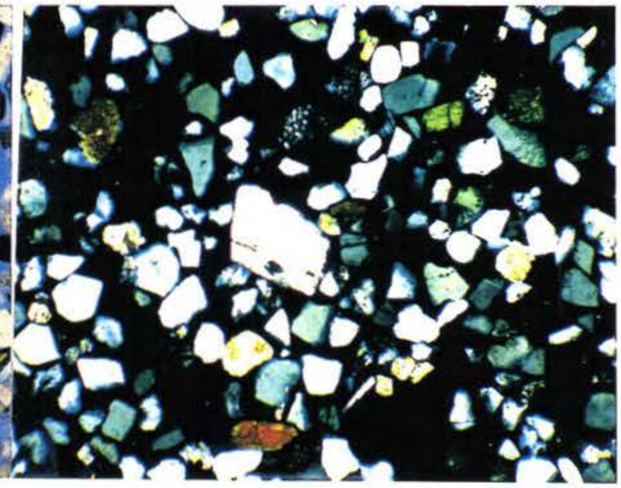


T.S. 14A crossed polars

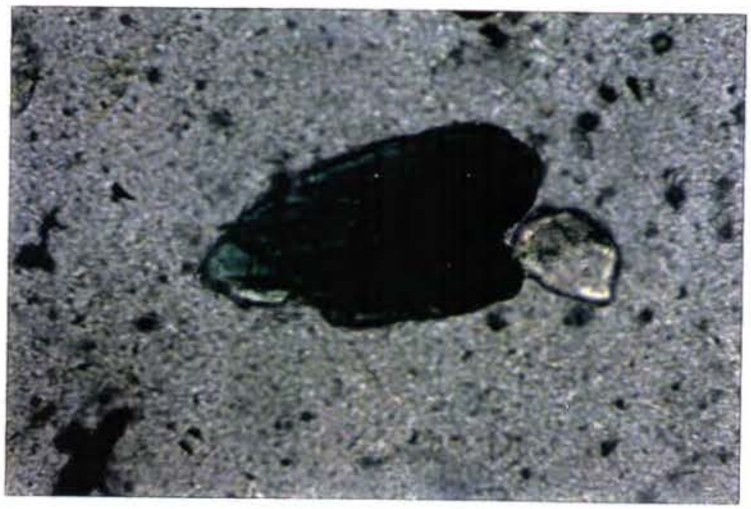
FIG. 7



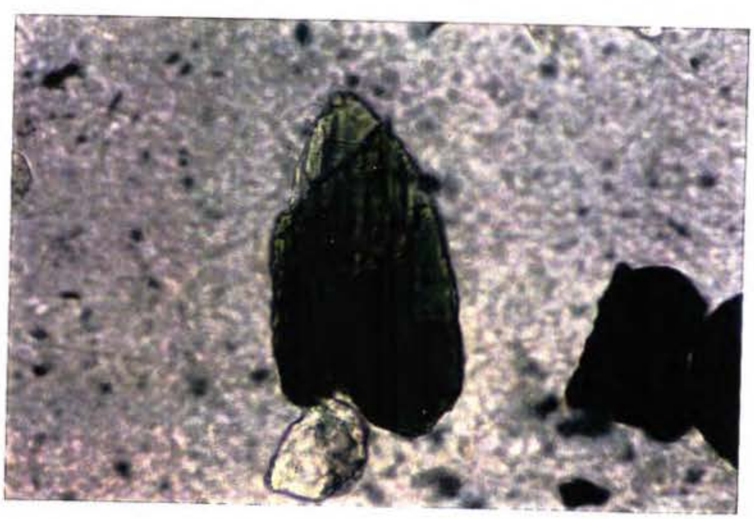
T.S. 15. objective lens X2.5
surface sample of sand-angular grains
many garnets and pyroxenes



T.S. 15 crossed polars
garnets extinct; pyroxene - cleavage



T.S. 15 objective lens X10
amphibole



T.S. 15 at 90 degrees
shows pleochronic color-yellow-green

FIG. 8

ANALYSIS

REPORTS

COMP: ASHTON MINING OF CANADA INC. **MIN-EN LABS — WHOLE ROCK ANALYSIS** FILE NO: 5V-0228-RL1
PROJ: 1210 N.AMERICA GENERAL 8282 SHERBROOKE ST., VANCOUVER, B.C. V5X 4E8 DATE: 95/07/18
ATTN: JEFF BRENDON TEL:(604)327-3436 FAX:(604)327-3423 high high * ROCK * (ACT:F26)

SAMPLE NUMBER	AL2O3 %	BA %	CAO %	FE2O3 %	K2O % high	MGO % low	MNO %	NA2O % high	P2O5 %	SIO2 %	SR % wt	TIO2 %	LOI %
RH-R1	10.72	.520	5.82	6.36	6.40	7.05	.09	2.71	.95	55.16	.040	.83	2.20
+ RH-R2 —	10.88	.350	6.06	6.36	6.40	5.95	.10	2.57	1.25	56.83	.065	.66	1.40
RH-R3	12.85	.180	3.20	4.90	3.93	.81	.09	3.84	.17	67.35	.030	.81	1.10
RH-R4	12.05	.035	7.55	15.42	2.50	4.00	.19	1.95	.36	51.33	.035	2.77	.70
RH-R5	8.02	.055	1.48	5.55	2.42	2.42	.11	1.56	.04	74.41	.020	.46	2.50
KIMBERLITE MEAN	4.4	0.11	7.6	–	0.98	27.9	0.11	0.32	0.7	35.2	0.09	2.3	–

Representative average compositions of lamproites (after Bergman, 1987)

	Leucite Hills USA (24)	Murcia-Almeira Spain (51)	West Kimberley Australia (98)	Average lamproite (worldwide) (309)
		Volatile Free (wt%)		
SiO_2	52.7±3.8	51.3±6.6	57.4±5.2	52.5±6.6
TiO_2	2.4±0.3	5.1±1.5	1.5±0.2	3.0±1.7
Al_2O_3	10.8±1.4	7.2±2.4	10.5±1.8	9.0±2.5
FeO^*	5.1±1.4	7.1±1.1	5.3±1.1	6.8±2.2
MnO	0.9±.03	.09±.03	.08±.05	0.10±.05
MgO	8.4±2.3	11.7±7.5	10.5±4.7	12.3±6.6
CaO	6.7±3.8	6.0±8.0	4.9±2.4	6.1±4.4
Na_2O	1.3±0.5	0.5±0.3	2.0±1.0	1.4±1.0
K_2O	10.4±2.4	8.3±2.9	6.6±2.2	6.9±2.8
P_2O_5	1.5±0.6	1.1±0.6	1.1±0.5	1.3±0.7
BaO	0.67±0.3	1.2±0.8	0.3±0.2	0.7±0.6
ZrO_2	0.22±0.7	0.15±0.4	.08±.04	0.13±.07
		Volatile Content (wt%)		
H_2O+	2.6±1.2	3.0±1.8	2.8±1.7	2.6±1.8
CO_2	1.0±1.0	1.9±5.5	1.7±2.3	2.7±3.9

( ) = number of samples

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Diamond Exploration Techniques
Fipke,Gurney, Moore

TABLE 2

+ R2 is FROM North side of FARREL LAKE

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541

File #: 38801-1-D
Client: Ray Haimila

Pyroxene Classification (after Stephens and Dawson, 1977)

		Location			Data in wt %							ORTHOPYROXENE					CLINOPYROXENE									
G#	Sample #	P#	C#	R#	TiO2	Al2O3	Cr2O3	FeO	MgO	CaO	Na2O	1	2	3	4	5	1	2	3	4	5	6	7	8	9	10
1	Ray 1	119	B	2	0.23	3.27	2.04	2.68	14.95	20.77	2.02										5					

		ORTHOPYROXENE					CLINOPYROXENE									
		1	2	3	4	5	1	2	3	4	5	6	7	8	9	10
Total Pyroxene =	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

TABLE 3

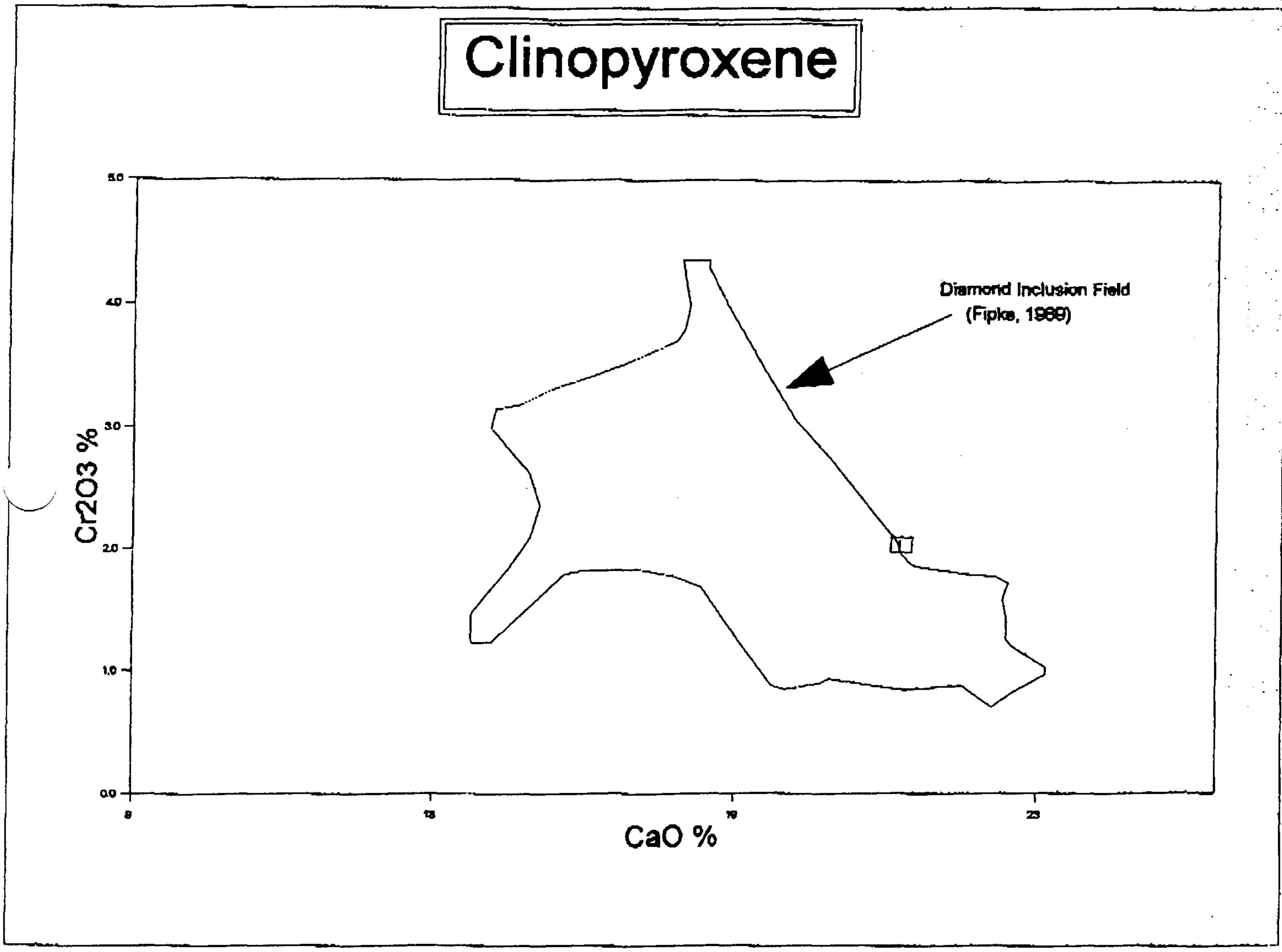
Clinopyroxene
Diamond Inclusion Field
(Fipke, 1989)
Cr2O3 %
CaO %
5.0
4.0
3.0
2.0
1.0
0.0
1

FIG. 9

Loring Laboratories Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax 275-0541

File No. : 38801
Client : Ray Haimila
Microprobe Data

Grain	Sample	Location Plug	C#	R#	SiO2	TiO2	Al2O3	Cr2O3	FeO	MnO	MgO	CaO	Na2O	K2O	Nb2O5	Total	Mineral
1	Ray 1	119	B	2	53.61	0.23	3.27	2.04	2.68	0.03	14.95	20.77	2.02	0.03	–	99.63	pyroxene
2	Ray 1	119	C	2	0.09	97.89	0.11	0.14	0.40	0.01	0.01	0.00	–	–	1.11	99.77	rutile
3	Ray 1	119	D	2	0.03	99.62	0.02	0.19	0.47	0.00	0.00	0.01	–	–	0.27	100.60	rutile
4	Ray 1	119	E	2	0.05	98.11	0.04	0.25	0.64	0.02	0.00	0.01	–	–	0.51	99.62	rutile

Data in wt %

TABLE 4

TABLE 5

Table 20

Diamond inclusion compositions. Data from literature sources

ID	Grain	Min	SiO_2	TiO_2	Al_2O_3	Cr_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	NiO	Nb_2O_3	ZrO_2	References
									Ilmenites Intergrowths/Inclusions							
Argyle	163	IL	0.03	51.83	0.01	0.01	46.63	0.68	0.47	0.04	0.01	0.01	0.01	0.01	0.05	Jaques et al., 1986
Brazil	1	IL	0.22	50.10	0.15	0.03	48.00	0.74	0.16	0.01	0.00	0.00	0.00	–	–	Meyer et al., 1973
Kim. S. Am.	5	IL	0.12	51.90	0.21	0.00	47.60	0.64	0.14	0.03	0.00	0.00	0.00	–	–	Meyer et al., 1976
Monastery	22	IL	–	39.49	2.53	0.18	51.83	0.23	3.15	–	–	–	–	–	–	Moore, 1989 (41KC)
Finsch	1	PIL	0.04	52.10	0.78	0.01	33.80	0.26	11.80	0.04	0.03	0.01	0.03	–	–	Tsai, 1978
Mir	2	PIL	0.01	52.90	0.47	0.44	36.50	0.27	9.10	–	–	–	–	–	–	Sobolev et al., 1976a
Zaire	3	PIL	0.16	52.50	0.48	2.54	29.50	0.29	13.00	0.04	0.17	0.00	0.05	–	–	Ntanda et al., 1982
									Rutile Intergrowths with Diamond							
Mir	2	RUT	0.00	95.10	0.46	0.07	1.47	0.00	0.02	0.00	–	–	–	–	–	Sobolev, 1977
Mir	3	RUT	0.00	97.40	0.53	0.07	1.20	0.00	0.02	0.00	–	–	–	–	–	Sobolev, 1977
Mir	4	RUT	0.06	95.60	0.51	0.13	1.46	0.00	0.06	0.00	–	–	–	–	–	Sobolev, 1977
Mir	9	RUT	0.04	95.00	0.53	0.09	1.46	0.00	0.00	0.00	–	–	–	–	–	Sobolev, 1977
									Rutile Diamond Inclusions							
Argyle	84	RUT	0.05	97.85	nd	0.05	0.82	nd	nd	0.04	nd	nd	nd	0.26	0.90	Jaques et al., 1986
Argyle	150	RUT	0.05	98.53	nd	nd	0.04	nd	nd	0.03	nd	nd	nd	1.77	0.04	Jaques et al., 1986
Ellendale 9	919	RUT	–	99.00	–	0.65	0.35	–	0.00	–	–	–	–	–	–	Hall and Smith, 1984
Ellendale 9	8	RUT	0.06	99.16	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.13	0.15	Jaques et al., 1986
Brazil	2	RUT	0.06	99.80	0.03	0.16	0.19	–	0.02	0.01	–	–	–	–	–	Meyer, 1973
Brazil	4	RUT	0.09	99.60	0.27	0.11	0.24	0.01	0.06	0.01	–	–	–	–	–	Meyer, 1975
Sloan	1	RUT	nd	97.80	0.06	0.08	0.25	nd	nd	0.10	–	–	–	–	–	Otter, 1989
Sloan	2	RUT	nd	96.00	0.35	nd	0.32	nd	nd	0.05	–	–	–	–	–	Otter, 1989
Sloan	3	RUT	nd	97.00	0.50	0.10	0.37	nd	nd	0.10	–	–	–	–	–	Otter, 1989
Sloan	4	RUT	nd	97.00	0.50	0.10	1.00	nd	0.10	0.06	–	–	–	–	–	Otter, 1989
Sloan	5	RUT	nd	96.90	0.67	nd	0.58	nd	nd	0.09	–	–	–	–	–	Otter, 1989
Sloan	6	RUT	nd	98.70	0.30	0.08	0.19	nd	nd	0.06	–	–	–	–	–	Otter, 1989
Sloan	7	RUT	nd	95.90	2.45	0.08	0.29	nd	nd	nd	–	–	–	–	–	Otter, 1989
Sloan	8	RUT	nd	97.40	0.45	nd	0.30	nd	nd	0.08	–	–	–	–	–	Otter, 1989
Sloan	9	RUT	nd	98.10	0.45	0.08	0.24	nd	nd	0.08	–	–	–	–	–	Otter, 1989
Sloan	10	RUT	nd	95.90	0.41	0.05	0.31	nd	nd	0.10	–	–	–	–	–	Otter, 1989
Sloan	11	RUT	nd	98.40	0.20	0.08	nd	nd	nd	0.05	–	–	–	–	–	Otter, 1989
Sloan	12	RUT	nd	98.80	0.48	0.06	0.45	nd	nd	0.06	–	–	–	–	–	Otter, 1989
Unknown	3	RUT	0.24	96.70	1.35	0.34	1.03	0.05	0.01	0.26	–	–	–	–	–	Prinz et al., 1975
Unknown	4	RUT	0.08	90.00	1.91	0.17	6.48	0.11	0.07	–	–	–	–	–	–	Prinz et al., 1975
Unknown	1	RUT	0.20	95.00	2.30	0.04	0.27	0.10	–	0.10	–	–	–	–	–	Ntanda et al., 1982
									Corundum							
Monastery	1	COR	nd	3.05	96.42	nd	nd	nd	0.09	nd	0.02	nd	–	–	–	Moore, 1986
Sloan	52	COR	nd	1.14	98.00	nd	nd	nd	0.04	0.03	–	–	–	–	–	Otter, 1989
Sloan	114	COR	nd	2.01	96.20	nd	nd	nd	0.05	0.04	–	–	–	–	–	Otter, 1989
Unknown	6	RUB	0.29	0.09	97.40	1.30	0.22	0.02	0.13	0.02	0.04	0.00	0.01	–	–	Otter, 1989
									Kyanite							
Argyle	1318	KYA	36.84	nd	63.16	nd	nd	nd	nd	nd	nd	nd	–	–	–	Hall and Smith, 1985
Finsch	4	KYA	36.40	0.11	62.80	nd	0.16	–	0.00	–	–	–	–	–	–	Gurney et al., 1979
Premier	2	KYA	37.00	0.10	62.87	0.05	0.34	–	0.17	0.04	nd	–	–	–	–	Gurney et al., 1986
Sloan	1	KYA	37.20	0.12	61.60	nd	0.35	nd	0.08	nd	nd	nd	–	–	–	Otter, 1989
Zaire	5	KYA	36.70										–	–	–	Ntanda et al., 1982
Zaire	6	KYA	36.80										–	–	–	Ntanda et al., 1982
Zaire	1	KYA	37.00										–	–	–	Ntanda et al., 1982
Zaire	2	KYA	37.30	0									0.00	–	–	Ntanda et al., 1982
Unknown	3	KYA	36.60	0									–	–	–	Prinz et al., 1975

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Diamond Exploration Techniques
Fipke,Gurney, Moore

Loring Laboratories Ltd.
629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 274-2777 Fax: 275-0541

TABLE 6

File No. 38801-D
Client: Mr. Ray Haimila

Microprobe Data

	Location			Data in wt %											
Sample#	P#	C#	R#	SiO_2	TiO_2	Al_2O_3	Cr_2O_3	FeO	MgO	CaO	NiO	ZnO	MnO	Total	Mineral
Ray 1	119	H	2	--	0.09	10.12	54.39	24.39	8.55	0.00	0.05	0.23	0.44	98.26	Chromite

REVIEWING WELL LOGS AND CORE SAMPLES

One day was spent reviewing well logs from areas that were drillled within the Heart Lake claim area. This was done at Mt. Royal College, Calgary AB.
One well-Sec 4-Twp 34 Rge 16; appeared to show igneous material at a depth of 344 meters on the well log. This was followed-up by a search of drill cuttings at the Core Lab in Calgary. Nothing of significance was identified.

Research has shown that a well drilled into a magnetic high (Rio Bravo Ronald -100/01-06-038-15W4) just to the north of the Heart Lake Claims encountered pale pink zircons . These zircons were age dated at approximately 2.7 Ga. Their morphology as described in Geological Survey of Canada Bulletin 447-page 33; appear to be quite similar to the pink zircons that have been observed in the non-magnetic separation of sand concentrate from Spiers Lake sampling. If this was the age of the basement rock in this area of the Loverna Block, it could be quite significant to the diamond exploration being done in this area of Alberta.

The Heart Lake Claims are located in the Loverna Block of the Hearne Craton (see Fig.10)

The Heart Lake Claims are located in an area that has a deep mantle root.This is an important factor for diamond preservation. (see Fig. 11)

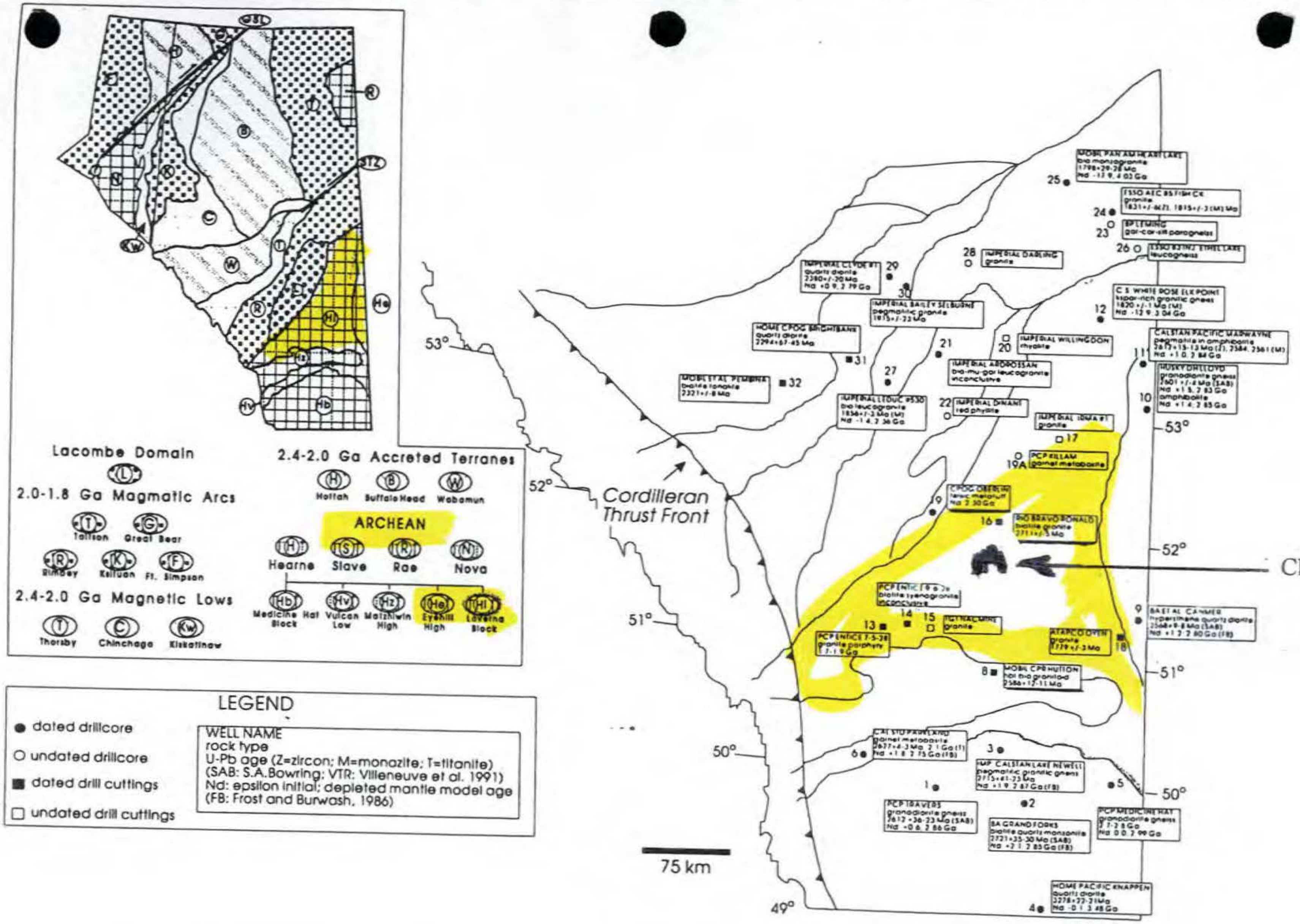

Figure 3A. Location, name and lithology of the basement intersections utilized in this study. Summary geochronology of well material is also provided. (M = monazite, T = titanite, Z = zircon, SAB = dated by S.A. Bowring, Washington University, St. Louis, Missouri – no detailed geochronological data is provided in the text).
Figure 3B. Summary map of the domain boundaries as mapped by this study. The domain boundaries are based upon the combination of aeromagnetic and gravity potential fields and U-Pb geochronology of material recovered from crystalline basement by hydrocarbon exploration wells. GSL = Great Slave Lake shear zone; STZ = Snowbird Tectonic Zone.

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FIG. 10

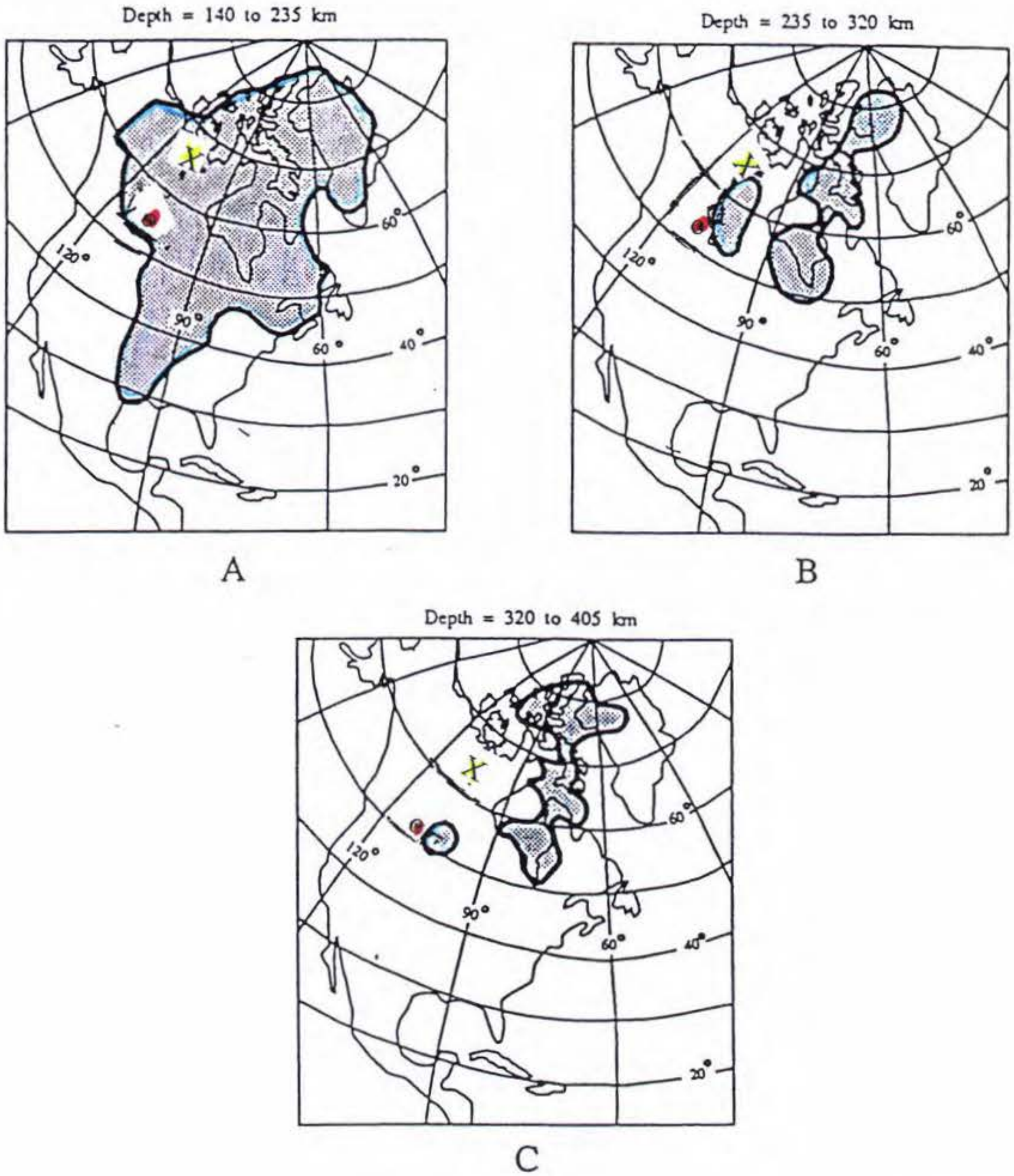


Figure 29. Shear wave velocity perturbations under North America from seismic tomography (after Grand, 1987). For clarity, only the +3% contour is indicated for depths of 140-235 km (A) and 235-320 km (B). Contour for 320-405 km (C) is +1.5%. Note that deep mantle roots exist under the Archean Slave and Superior Provinces, but not under the Nain and Wyoming provinces (see Helmstaedt and Gurney, 1992).

reprinted from "DIAMONDS- THEORY and EXPLORATION"
Geological Association of Canada, 1995

X Lac de Gras ● Heart Lake Claims

FIG. 11

REMOTE SENSING, GEOTECTONIC RESEARCH, AEROMAGNETIC RESEARCH, & GRAVITY RESEARCH

Comparing magnetic and gravity horizontal gradient vector (HGV) maps of central Alberta with air photos was very productive. Gravity HGV maps show basement structure. Figures 12-15 show a deep seated, near-vertical anomally that appears to have influenced or was the cause of the basement faulting specific to this area.(red lineaments).(Fig. 13)

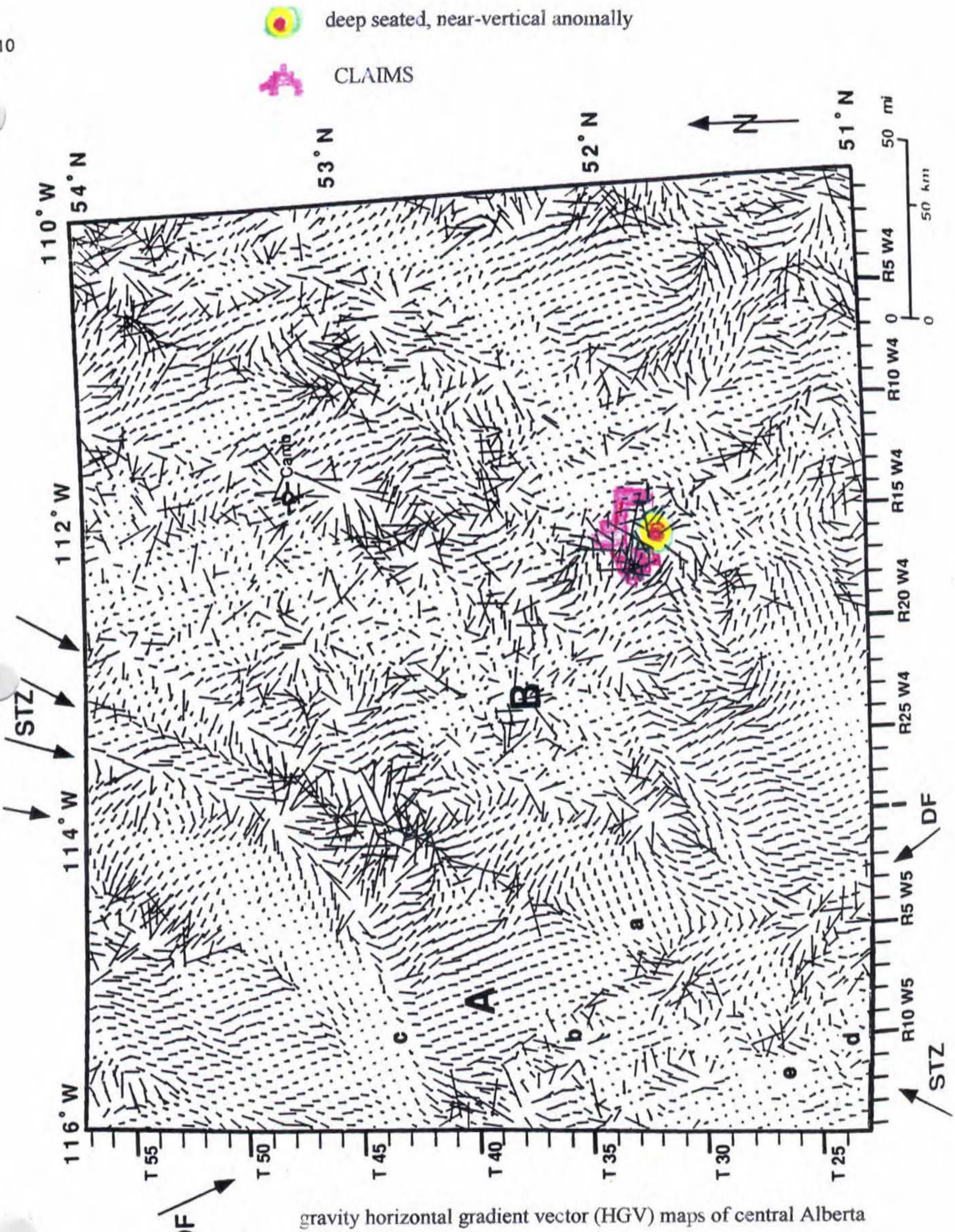
Darran Edwards and R. James Brown refer to this area quite specifically in Lithoprobe Report #51, February 29 and March 1, 1996; page 148....." at latitude 51degrees 30' N, longitude 112 degrees 40'W to 113degrees 20' W, the Leduc shelf edge deviates away from its NNE trend to become oriented ENE-WSW. A pronounced HGV gravity lineament closely follows this arrangement." (see Figs.12,13)

The magnetic HGV lineament maps (see Figs.16-18) shows a magnetic line (green lineament) that extends from Dowling Lake in Twp 32 R15W4 to Gough Lake in Twp 35 R18W4. This magnetic HGV lineament coincides with the northwest-southest trend of near surface magnetic anomalies discovered in ground magnetic surveys conducted on the Heart Lake claims.Some of the anomalies discovered appear in Figs.19-24. .

This HGV magnetic lineament also coincides with the northwest-southeast trend of surface anomalies that align themselves with the Chain Lakes. (1995 Assessment Report prepared for Dr. Yoshida of Calgary, AB..... holder of Metallic and Industrial Mineral Permits Nos: 9393080543 to 939080547 inclusive.)

The high concentrations of hypabyssal basic to ultrabasic material, volcanic breccias and diamond indicator minerals found to date are also concentrated along this HGV magnetic lineament (Fig. 18)

Numerous surface fearures (depressions and small lakes) also coincide with this magnetic HGV lineament. that occurs between Dowling Lake and Gough Lake (see location map & Fig.18)



gravity horizontal gradient vector (HGV) maps of central Alberta

reprinted from LITHOPORBE report #47, April 10, 1995-Alberta Basements Transects

FIG. 12

Figure 7
Lineament line drawing ('*stick map*') of gravity horizontal gradient vector (HGV) data in central Alberta.

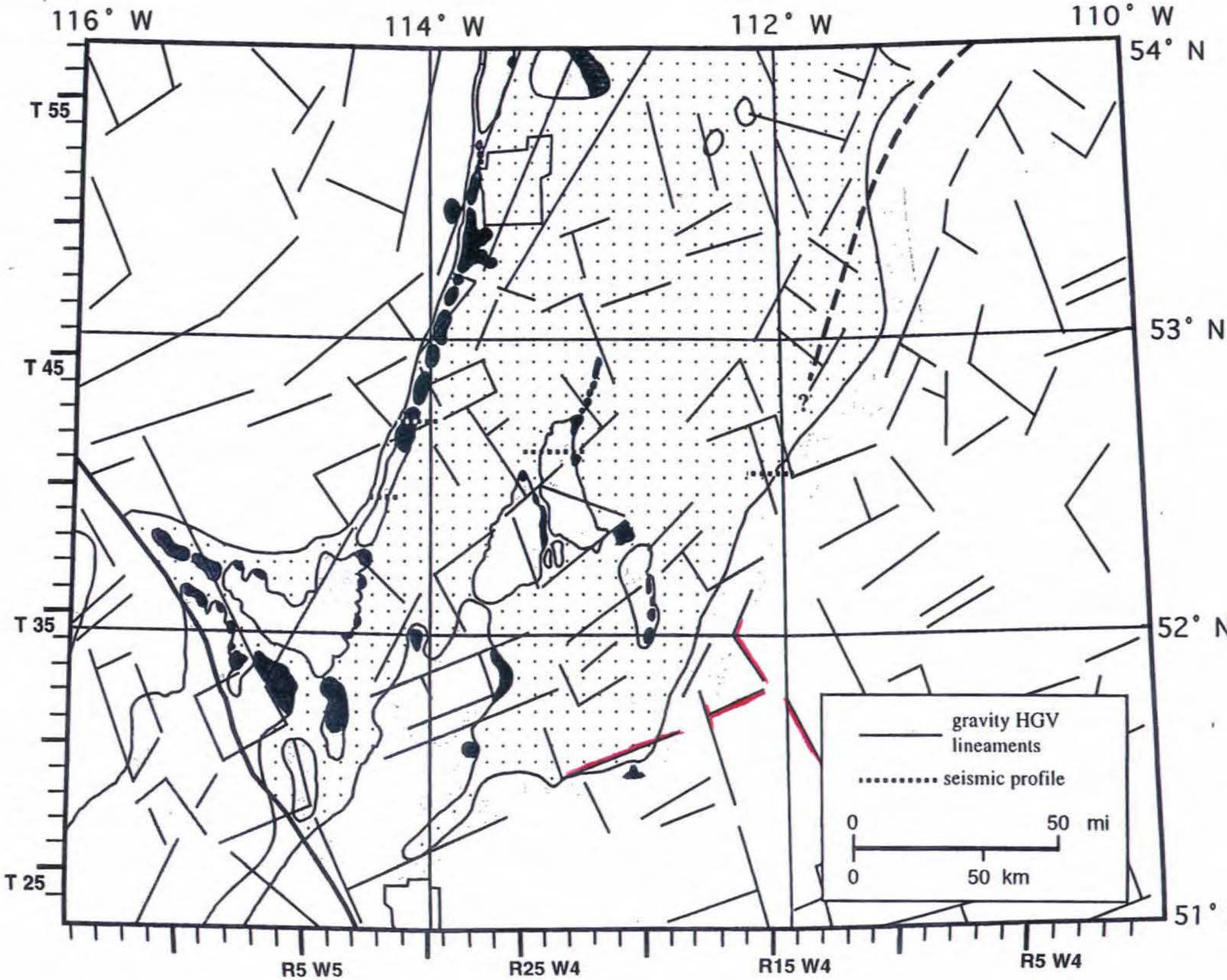


Figure 7.

reprinted from LITHOPROBE report #47, April 10, 1995-Alberta Basement Transects

FIG. 13

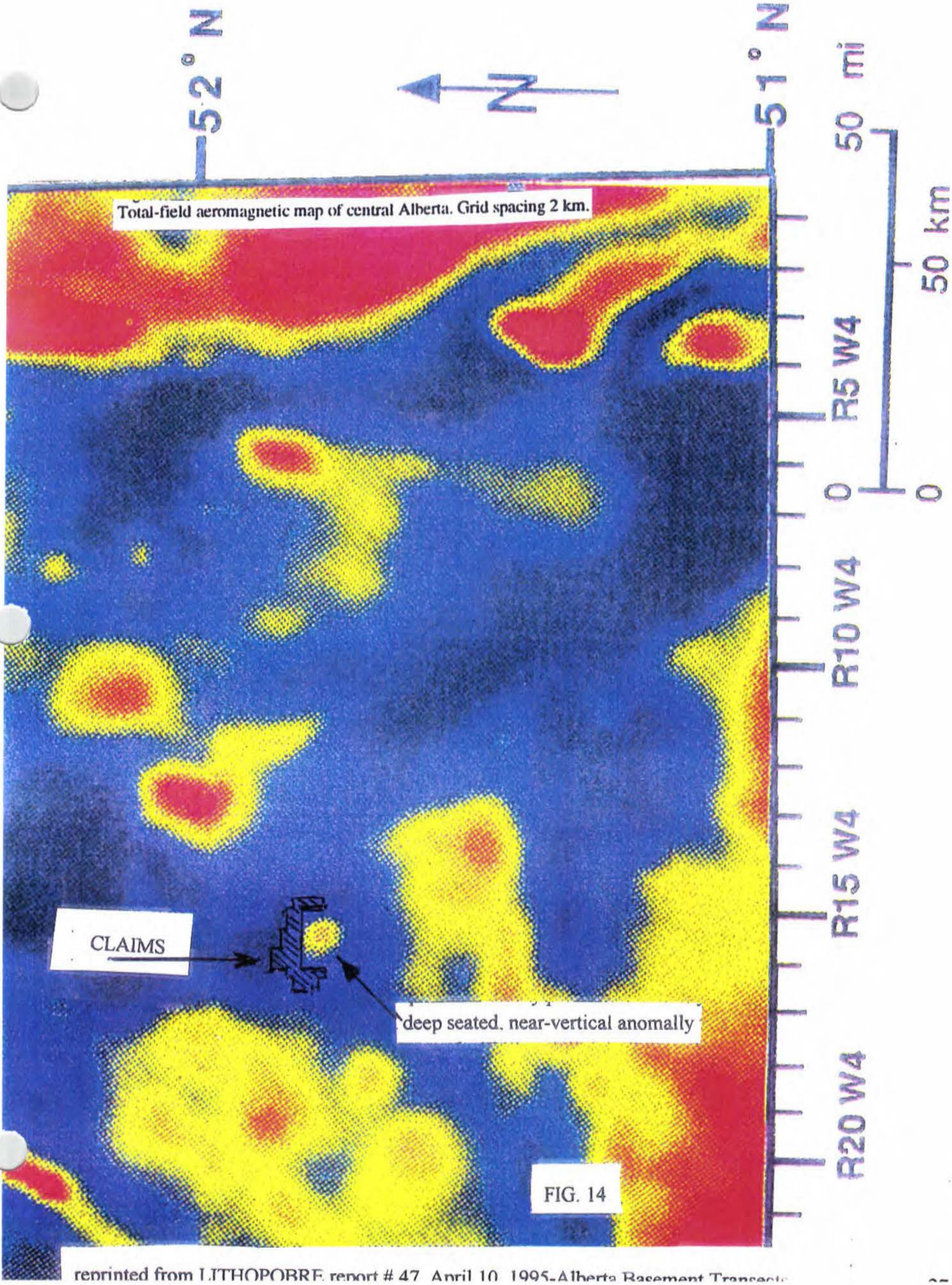


FIG. 14

reprinted from LITHOPOBRE report # 47 April 10 1995-Alberta Basement Transect

reproduced aeromagnetic anomaly map from a 2km grid of
regional data by Warner Miles (National Geophysical Data Centre, Ottawa)

reprinted from LITHOPROBE report #47, April 10, 1995-Alberta Basement Transects

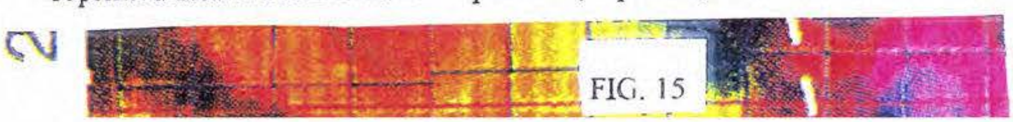


FIG. 15

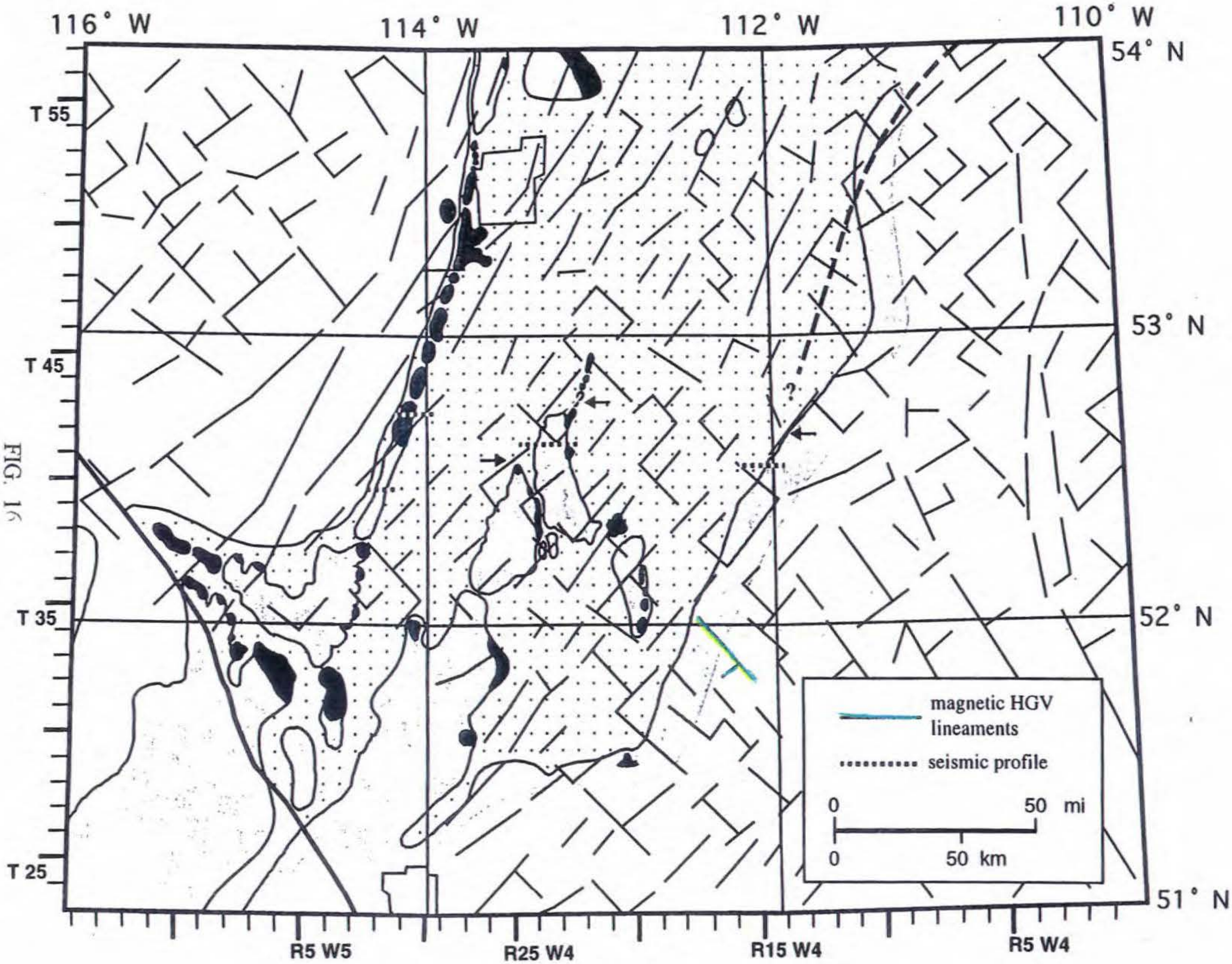


Figure 6.

Lineament line drawing ('*stick map*') of magnetic horizontal gradient vector (HGV) data in central Alberta.

FIG. 16

reprinted from LITHOPROBE report #47, April 10, 1995-Alberta Basement Transects

Present-day drainage pattern, Leduc Formation reefs and shelf edge in the Stettler area, central Alberta (modified from Anderson and Brown, 1991), with magnetic HGV lineaments from Figure 6. Annotated lineaments are discussed in text.

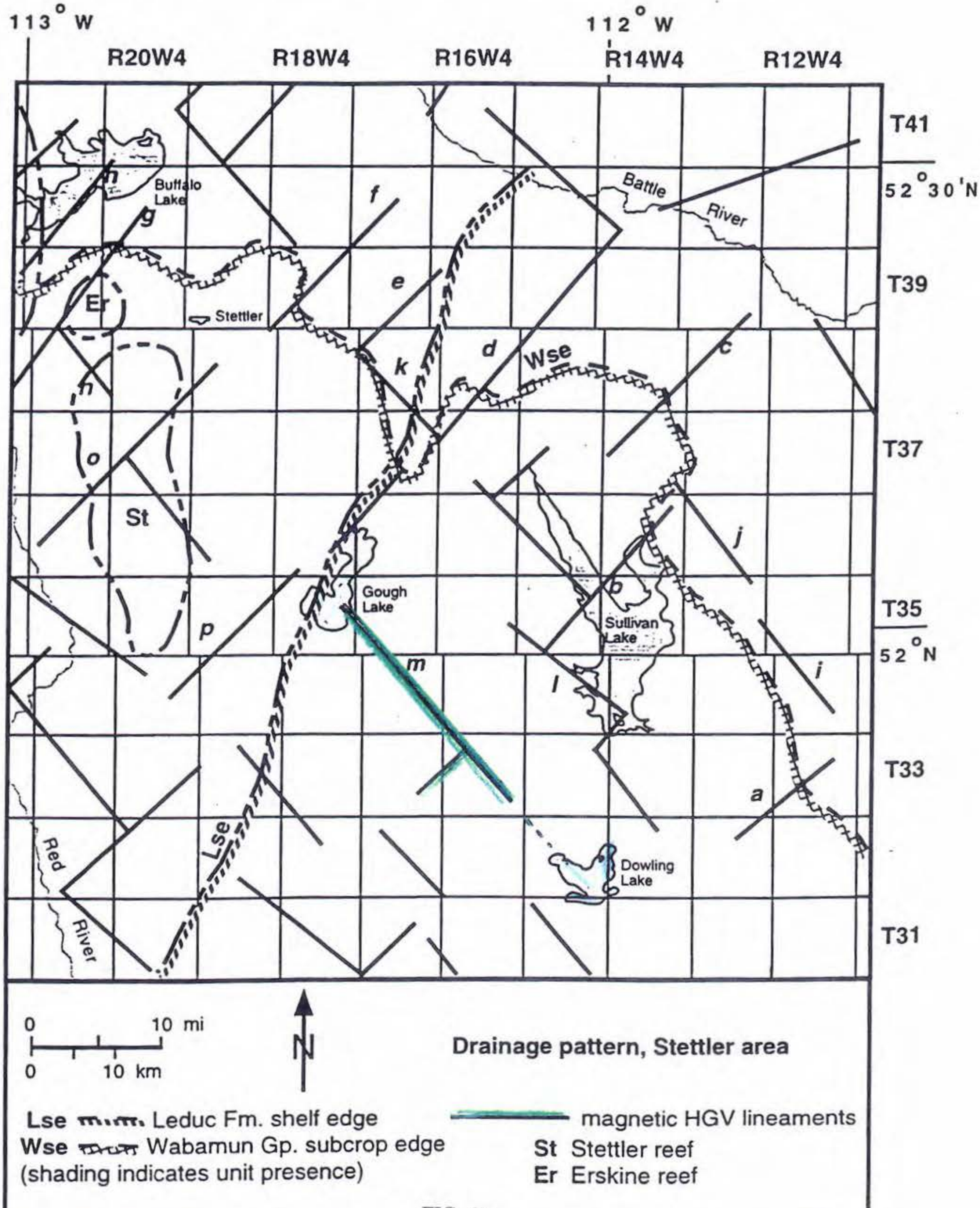
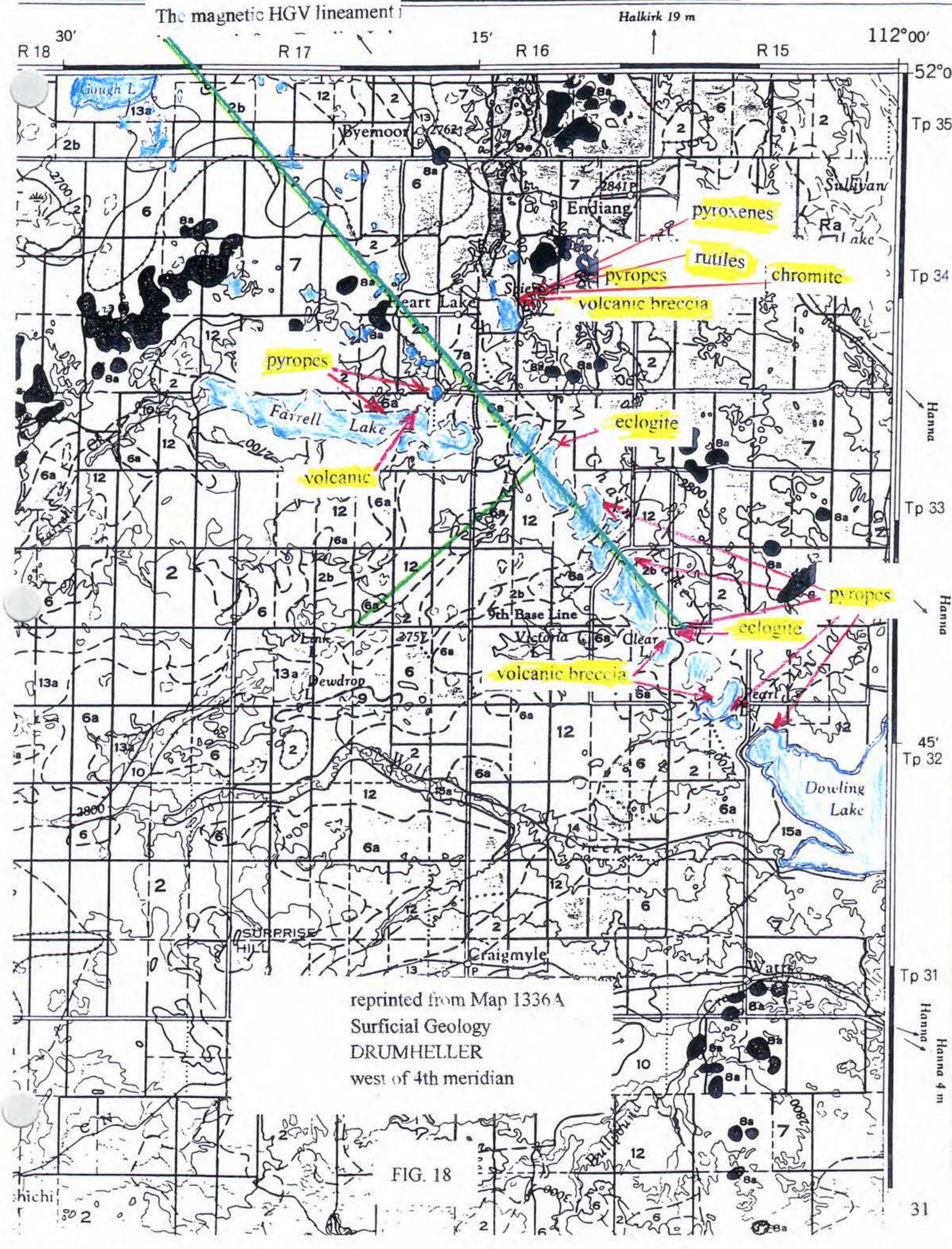


FIG. 17


The magnetic HGV lineament
Halkirk 19 m
30′
15′
112°00′
52°00
R 18
R 17
R 16
R 15
Tp 35
Tp 34
Tp 33
Tp 32
Tp 31
45′
Gough L.
Byemoor
Endiang
Sullivan
Heart Lake
Farrell Lake
pyroxenes
rutiles
pyropes
chromite
volcanic breccia
pyropes
eclogite
volcanic
pyropes
eclogite
volcanic breccia
9th Base Line
Victoria
Clear L.
Dewdrop
Dowling Lake
Hanna
Wolf Creek
SURPRISE HILL
Craigmyle
Watts
Hanna 4 m
reprinted from Map 1336A
Surficial Geology
DRUMHELLER
west of 4th meridian
FIG. 18

RECONNAISSANCE

MAGNETIC

SURVEY

RECONNAISSANCE MAGNETIC SURVEY

The reconnaissance ground magnetic survey was carried out over the southern parts of Twp 34 Rge's 16W4 and 17W4. This survey incorporated values that had been previously acquired in the northern parts of Twp 3 Rge's 15W4 and 16W4. The area surveyed consists of a magnetic low that appears to be part of the deep negative dipole moment associated with the large magnetic high located to the south at the intersection of Twp's 32 and 33 Rge's 15W4 and !6W4. Supperimposed over the magnetic low are a number of smaller magnetic highs that probably represent shallow intrusions into the near surface sedimentary section.

The magnetic background in this survey area is approximately 58500 gammas. The larger negative dipole response is an anomaly, roughly circular in shape over 8 km in diameter with a central low value of less than 58440 gammas (Fig. 19). Two elongate positive anomalies of more than 30 gammas trend northwest across the magnetic low. These elongate anomalies may be offset in a dextral sense by a fault that trends ENE across the centre of the low anomaly.

The localized positive anomalies are more easily seen on the Contour Smoothed Magnetic Residual Map (Fig.20) that was produced by subtracting a circular anomaly from the Reconnaissance Magnetic Map. Six or more positive anomalies may be seen on the residual map. These highs are located at the following locations: along the northern boundary between Sec's 4 and 5 Twp 34 Rge 16W4, in the western part of Sec 5 Twp 34 Rge 16W4, along the western boundary of Sec 6 Twp34 Rge 16W4 and extending into Rge 17W4, between Sec's 7 and 8 Twp 34 Rge 16W4, along the boundary between Sec's 8 and 9 Twp 34 Rge 16W4 and along the southern boundary of Sec 20 Twp 34 Rge 16W4.

Four magnetic profiles (Fig.21) were constructed across portions of the Reconnaissance Magnetic Map. The positive anomalies at the northeast end of Profile I (Fig. 22) appear to be caused by magnetic bodies located approximately 350m to 430m below the surface. All anomalies along Profile II (Fig. 23) appear to be caused by magnetic bodies located 300m to 375m below the surface of the profile. The eastern anomaly along this profile appears to be offset by approximately 600m in a right-lateral (dextral) sense by a fault that is situated parallel to the profile and located between Profile's II and III. The extension of the body causing the elongate anomaly on Profile III (Fig.24) appears to be located over 400m below the surface and the other anomaly appears to be caused by a body 380m below the surface. The north-south Profile IV (Fig. 24) shows that the bodies causing the anomalies on either side of the fault are 350m to 380 m below the surface. The deeper values of 560m to 680m are the result of the profile obliquely crossing the contours and are caused by the same bodies located at 350m to380m below the surface.

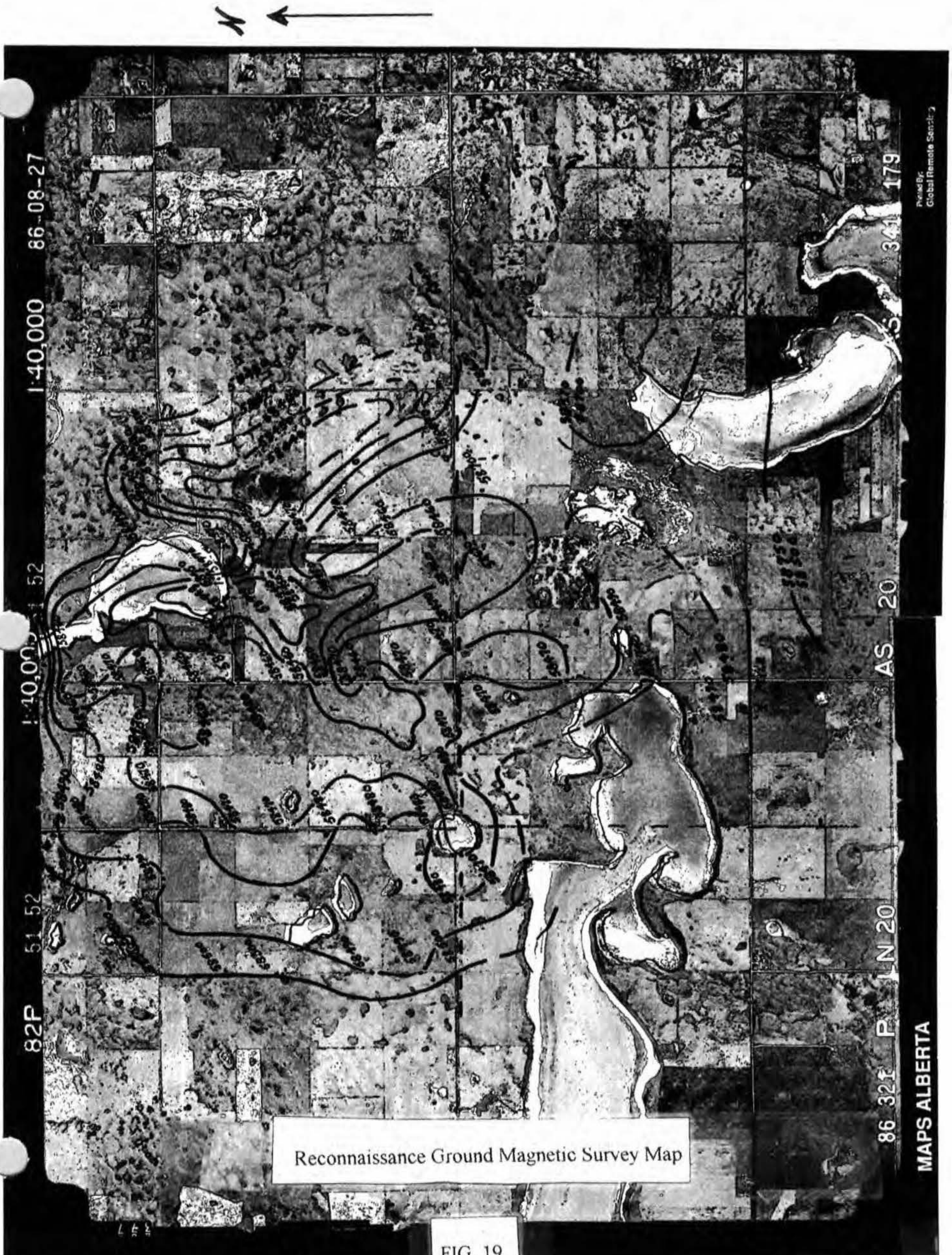


FIG. 19

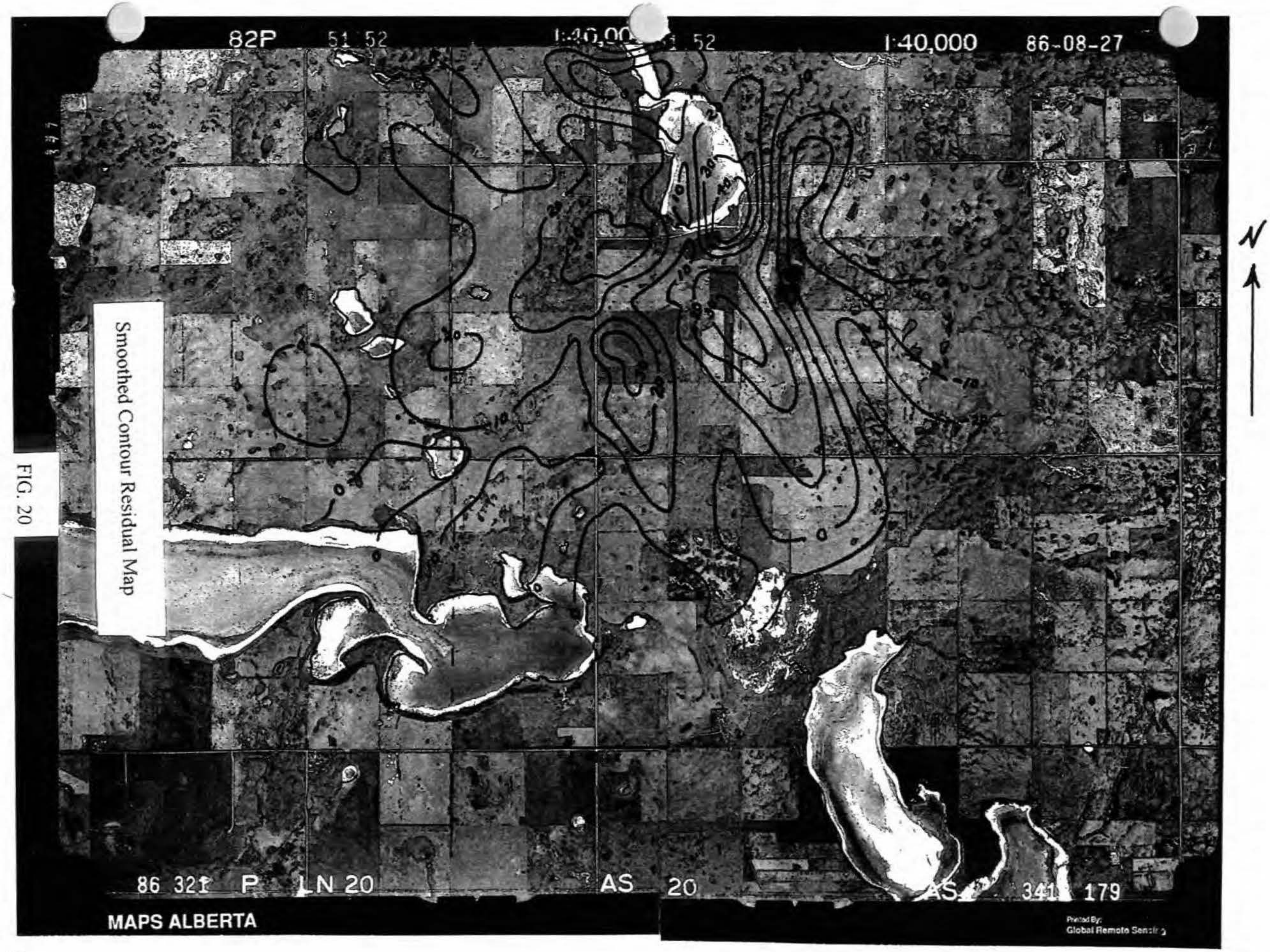


FIG. 20

Smoothed Contour Residual Map


N
82P
51 52
1:40,000
51 52
1:40,000
86-08-27
MAPS ALBERTA
86 321 P LN 20
AS 20
AS 341 179
FOUR Magnetic Profiles

FIG. 21

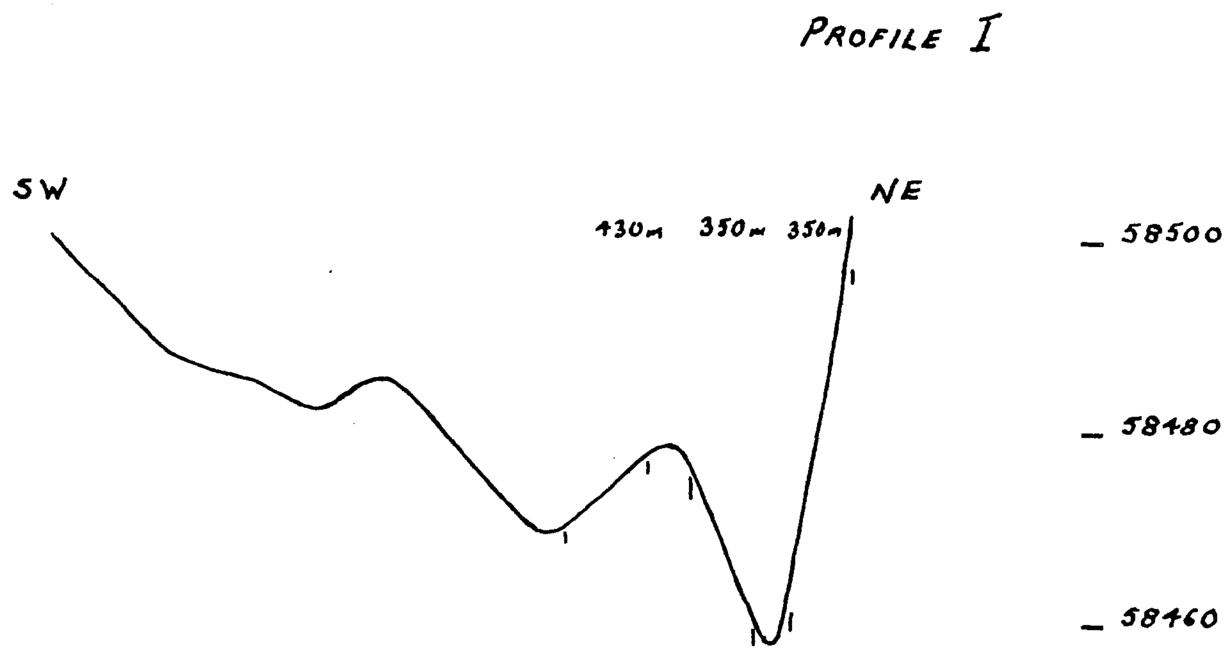


FIG. 22

PROFILE II

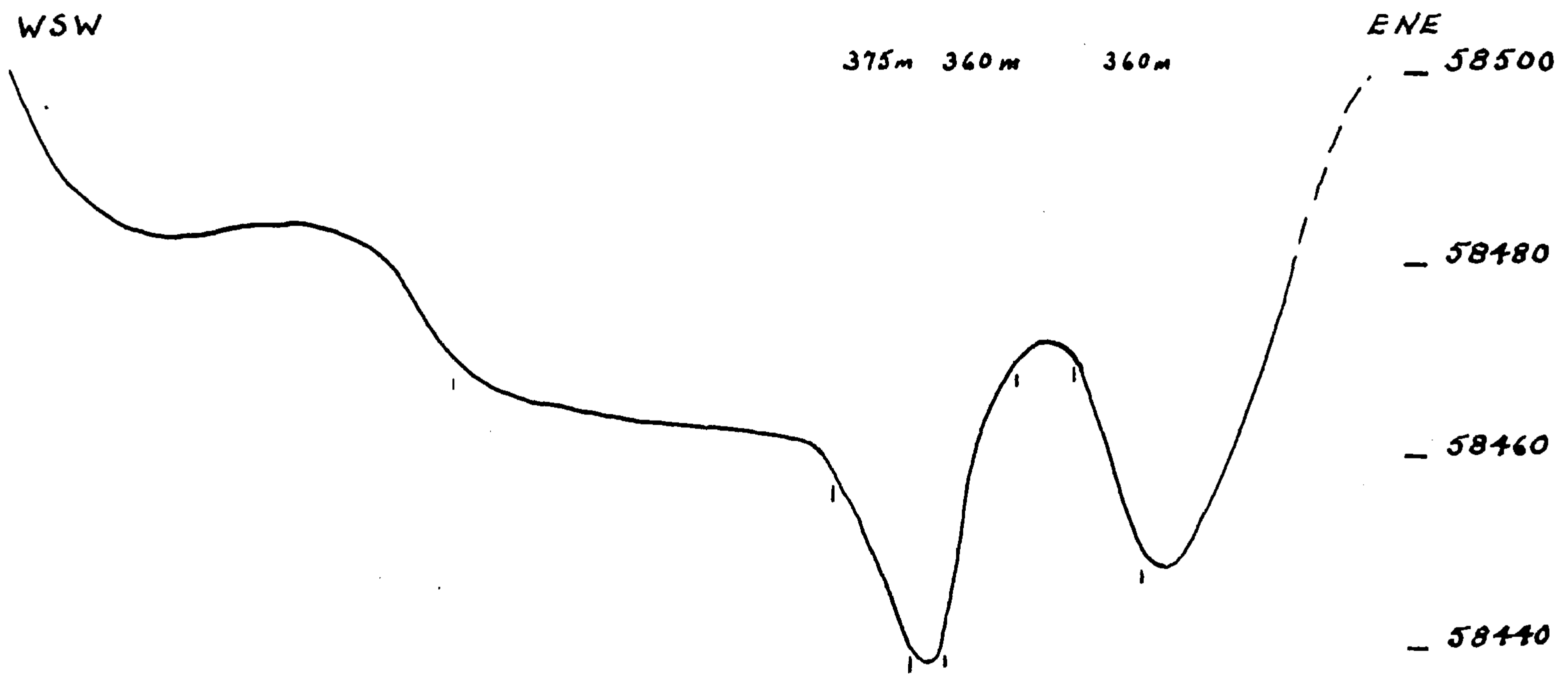


FIG. 23

PROFILE III

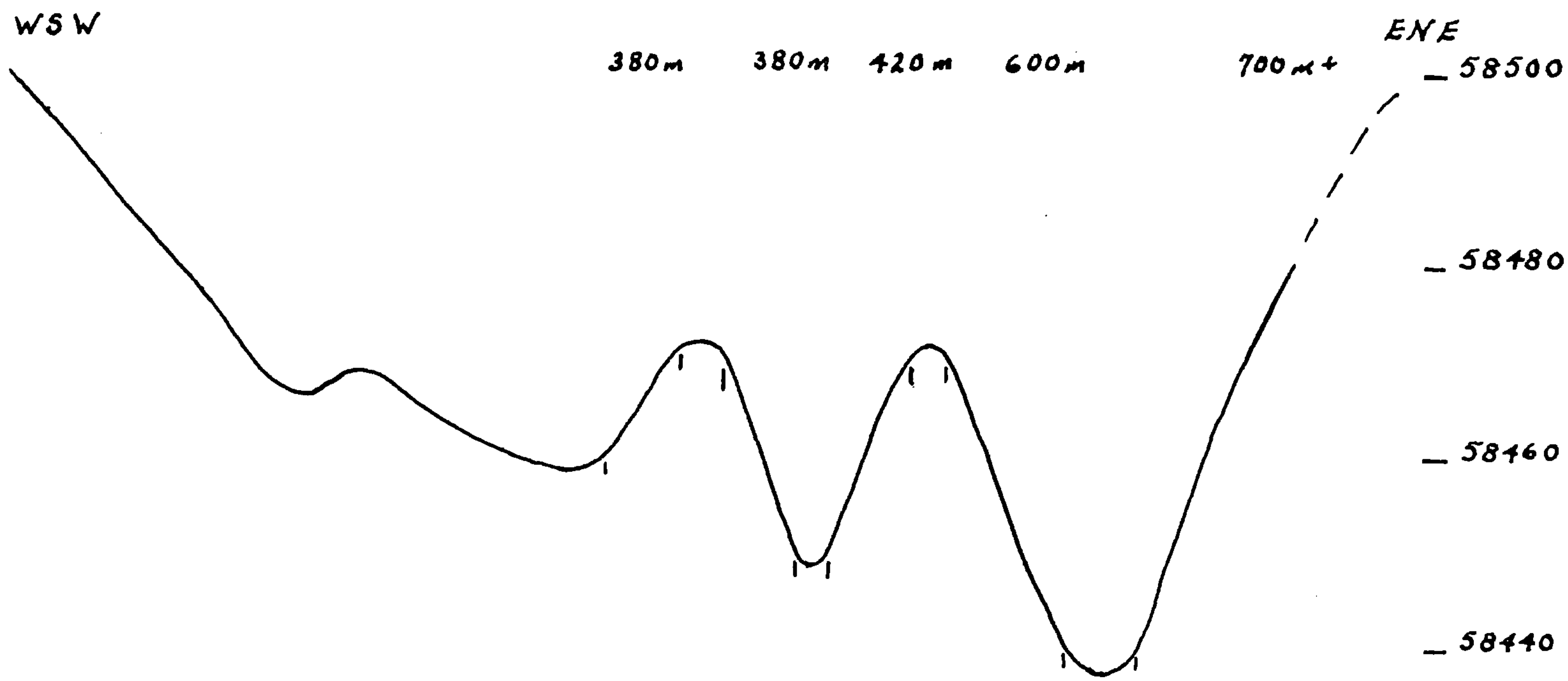


Fig. 24

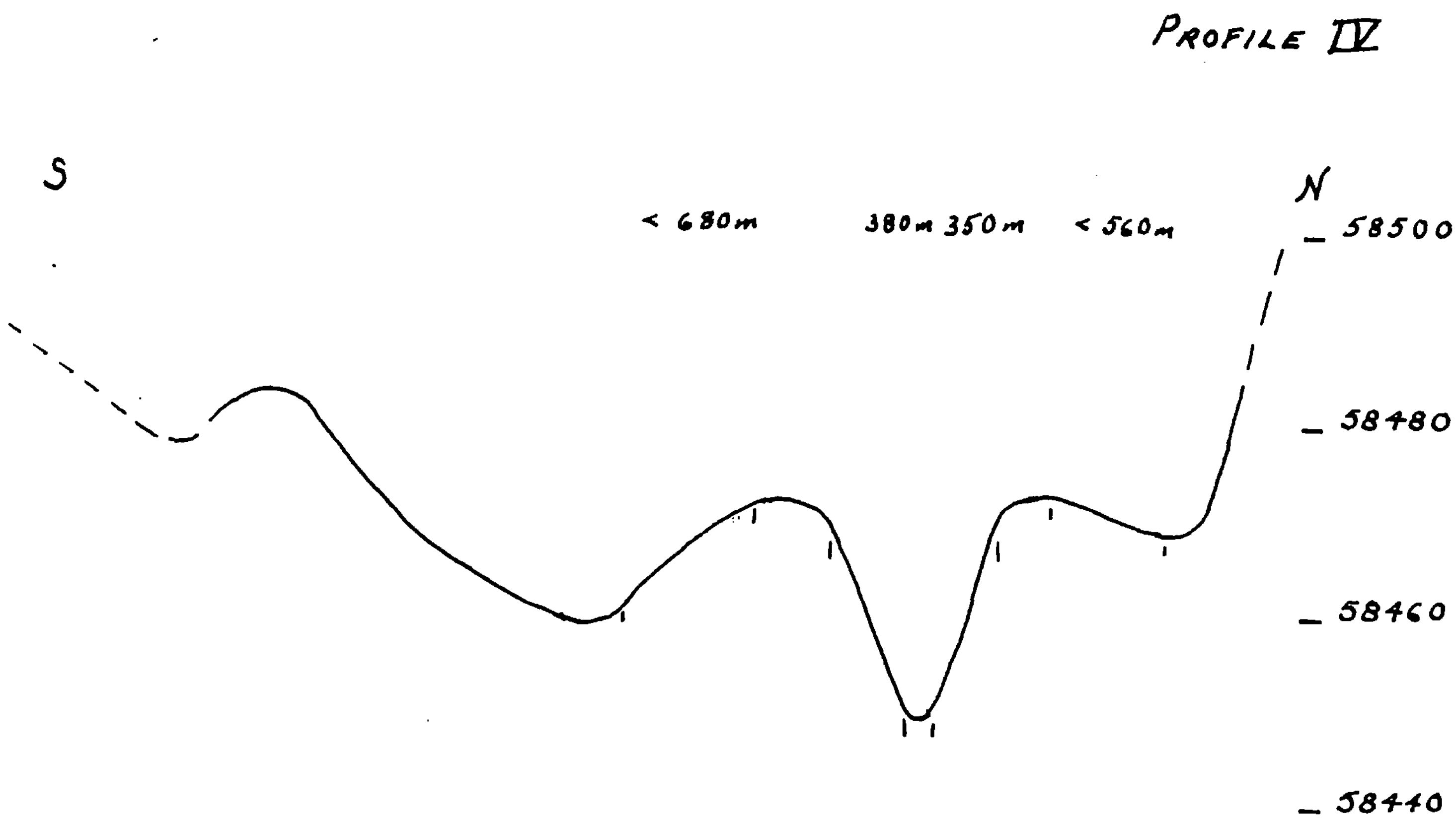


Fig. 25

CONCLUSION

It is interpreted that the magnetic anomalies are caused by diatremes and feeder-dykes that penetrate both the deeper large igneous body and the overlying sedimentary section. These diatremes and feeder - dykes may be the conduits for the Kneehill Tuffs in this area. Because of the presence of abundant ultrabasic and other deep-seated igneous rocks as boulders at the surface and the presence of unweathered diamond-indicator minerals.......... it is likely that the diatremes and feeder-dykes are related to the kimberlite-family of intrusions.

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STATEMENT OF COSTS to November 5, 1996

Prospecting- 2 men, equipment, and 4x4 vehicle
(eleven days @ $400.00 per day)..$4400.00

Ground Magnetic Survey- 2 men, magnetometer, equipment and 4x4 vehicle
(three days @ $800.00 per day)..$2400.00

Thin section preparation, descriptions and photomicrographs
(thirty thin sections @ $230.00 per section)..$6900.00

Assays and electron probes.. $600.00

Transportation of samples, thin sections, etc.,
(to consultants, petrologists and laboratories)..$800.00

Research (searching of well logs, core research, meetings with scientists, mining and scientific conferences, discussions with Mining Companies)
(nine days @ $150.00 per day)..$1350.00

Equipment costs..$250.00

Consultant Fees...$3600.00

Business Supplies (office supplies, phone, fax, copying, etc.)..........................$600.00

Report Cost (digital color printing, preparation time, and binding costs)..........$1200.00

TOTAL COSTS...$22,100.00

January 27, 1997

VALUE OF TIME SPENT ON MINERAL CLAIMS
9394110001 through 9394110004 inclusive

Geological Reconnaissance of Claims.........1.0 days

Plotting and Contouring Ground Magnetic
Data over the Properties....................2.0 days

Constructing and Recontouring Contour
Smoothed Magnetic Maps......................2.0 days

Reviewing Thin Section Photomicrographs.....1.0 days

Total time..................................6.0 days
@$600.00 per day................$3600.00

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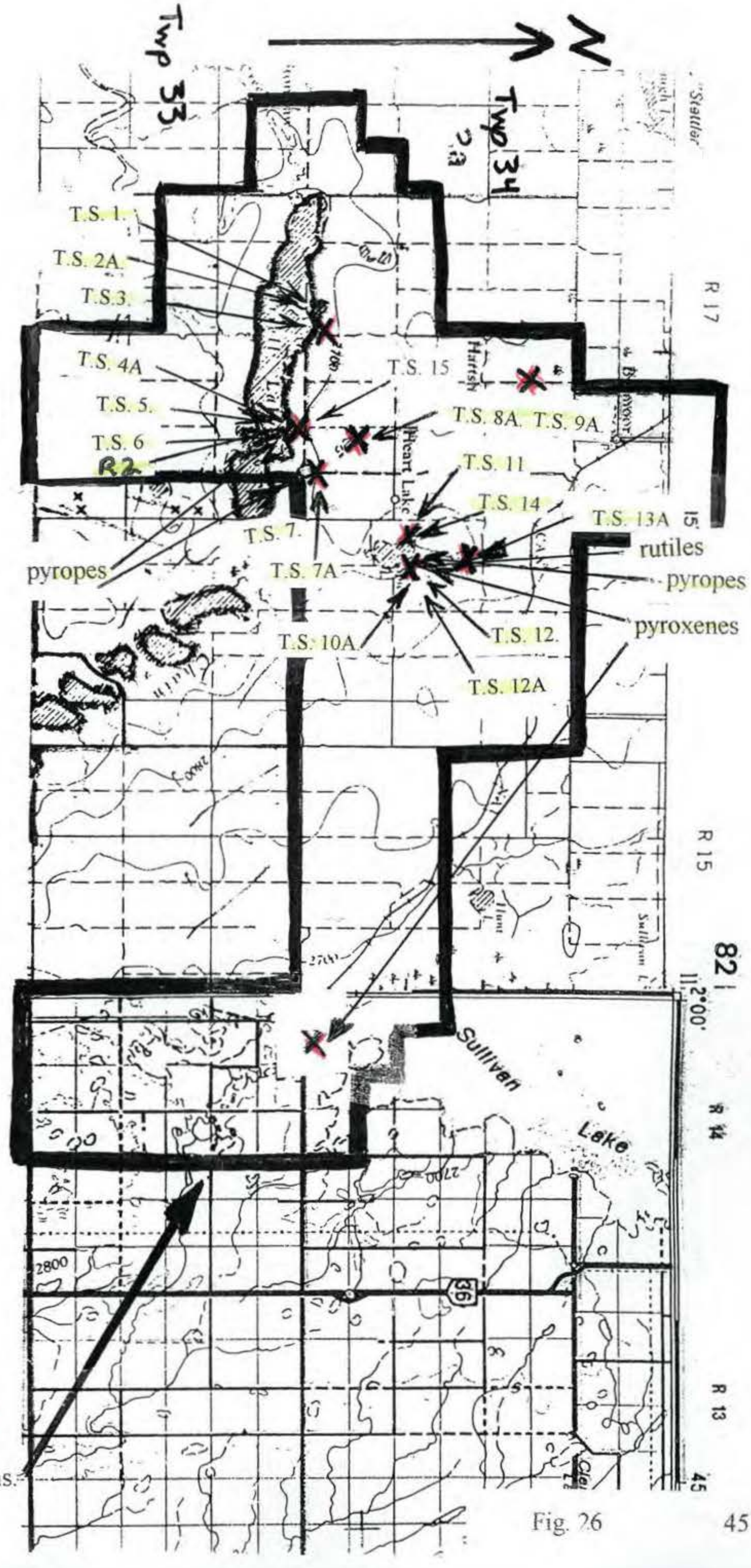
Dr. Norman E. Haimila



sites sampled X

the Heart Lake claims.

Fig. 26