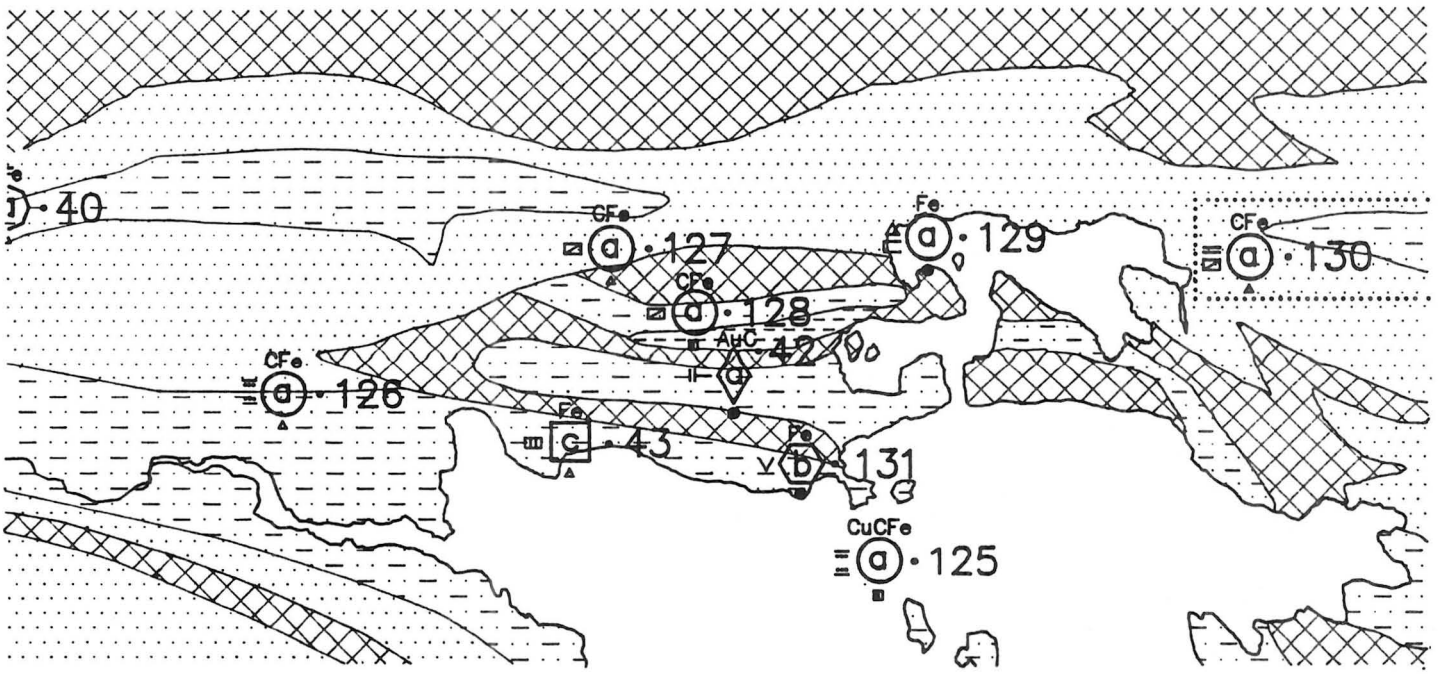
Mineral Deposit Series Report No. 20



Mineral Deposits and Occurrences in the Naosap Lake area, NTS 63K/14

by G.H. Gale and L.I. Norquay

Manitoba
Energy and Mines
Geological Services

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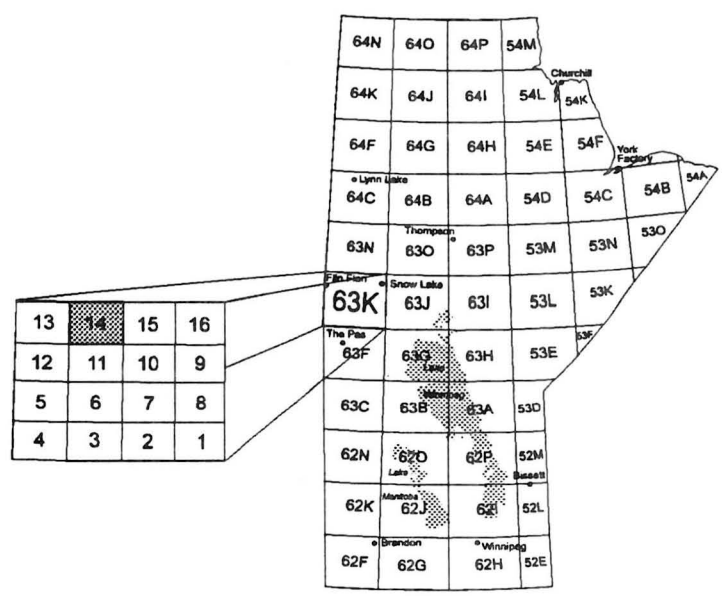

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INTRODUCTION

This report and accompanying map are part of a Mineral Deposit Series presenting a uniformly organized and up-to-date collation and analysis of information on mineral occurrences in the Province of Manitoba. The series is intended: (1) to provide explorationists with a geoscientific data base that can be used in mineral exploration; and (2) to provide a technical data base for other government users in resource evaluations, formulation of mineral and land use policies and the initiation of regional development programs.

METHODOLOGY

The documentation program was initiated in the main mining districts of the province under the 1984-1989 Canada-Manitoba Mineral Development Agreement. Compilation of the manuscripts has continued with funding provided through the Canada-Manitoba Partnership Agreement on Mineral Development. Under this project mineral deposit geologists of the Geological Services Branch have attempted to inspect and evaluate each known mineral occurrence. These site visits ranged from a preliminary half day or less search of an area for old workings, to extensive geological mapping of selected occurrences for a week or more. In addition, for each occurrence the geologists have attempted to synthesize available data from published and unpublished sources. The Manitoba Mineral Inventory Card Index and the cancelled Assessment Files have been used extensively in the preparation of the report. Mineral occurrence documentations representing only cancelled assessment file compilations are identified as such under the heading 'Name'. Information for all other occurrences was acquired primarily by field examination and is commonly supplemented by cancelled assessment file compilations.

The locations of all mineral deposits and occurrences are presented in Figure 1.

Deposit versus Occurrence

Throughout this report mineralization is referred to as a deposit if tonnage and grade figures are known; all other mineralization is referred to as an occurrence.

Massive Sulphide versus Solid Sulphide

The use of 'massive sulphide' in the geological literature is confusing in that it is not always clear whether the authors are referring to a 'massive sulphide deposit' (*cf.* Sangster, 1972) or a section of sulphide-rich rock. In this publication 'massive sulphide' will be used in reference to a deposit type, *i.e.*, a volcanogenic massive sulphide deposit type, rather than the nature of the mineralization. A volcanogenic or sedimentogenic massive sulphide deposit can contain a sulphide lens that locally contains as little as 10% sulphide minerals by volume. The alteration zones that are an integral part of many massive sulphide deposits rarely contain more than 50% sulphide minerals. Consequently, the use of 'solid sulphide' for 75%-100% and 'near solid sulphide' for 50%-75% sulphide minerals is adopted in place of the commonly used term 'massive' to describe the textural aspects of a sulphide mineralization.

FORMAT OF MINERAL DEPOSIT MAPS

Location:

One of the incentives spurring the mineral deposit documentation was the absence of accurate location maps for known mineral occurrences. Inaccurate land bases have previously resulted in failure to find old workings, surveys carried out in wrong areas, and even cancellation of intended surveys by explorationists. Consequently, considerable field time has been spent in establishing occurrence locations and attempts have been made to display exact locations both on the map and in the accompanying report.

The location number on the map is a unique reference number that will be used both in the report and the geologists' unpublished data base. These numbers are consecutive within each 1:50 000 NTS map area (but not within portions of a map sheet such as Map MDS87-1). Where the density of data warrants the publication of a 1:100 000 map sheet, location numbers are consecutive within each 1:50 000 area.

Deposit Types:

In order to maintain a mineral deposit classification, which will be useful to both explorationists and metallogeneticists, a simplified descriptive classification was selected. This classification is based on the use of common deposit types for the classification of both deposits and occurrences. The classification of mineralization is based on the premise that the mineral explorationist requires information on metals and types of mineralization in an area as well as on the economic deposits (past, present and future producers).

All deposits and occurrences are classified according to the Deposit Type classification in Table 1.

The deposit type displayed on the map represents mineralization with the greatest economic potential, for example a disseminated narrow chalcopyrite layer is emphasized rather than a much thicker solid pyrite-graphite layer.

Mineralization:

A symbol is used to denote the percentage and/or type of mineralization present. At some localities more than one type of mineralization is present. The type of mineralization displayed in the symbol represents the mineralization with the greatest economic potential as indicated by the deposit type symbol. It should be noted that in the context of this report a "sulphide facies iron formation" is equivalent to a "sulphide stratum". For a discussion of sulphide stratum the reader is referred to Gale *et al.* (1980).

Host Rocks:

In general, this description refers to the immediately underlying and overlying rock types. When a number of rock types are present in an extensive zone of mineralization, the most common rock types are indicated.

Elements:

This description allows for a maximum of three metals present in increasing order of abundance by volume. The precious and base metals are indicated in preference to elements such as iron and carbon.

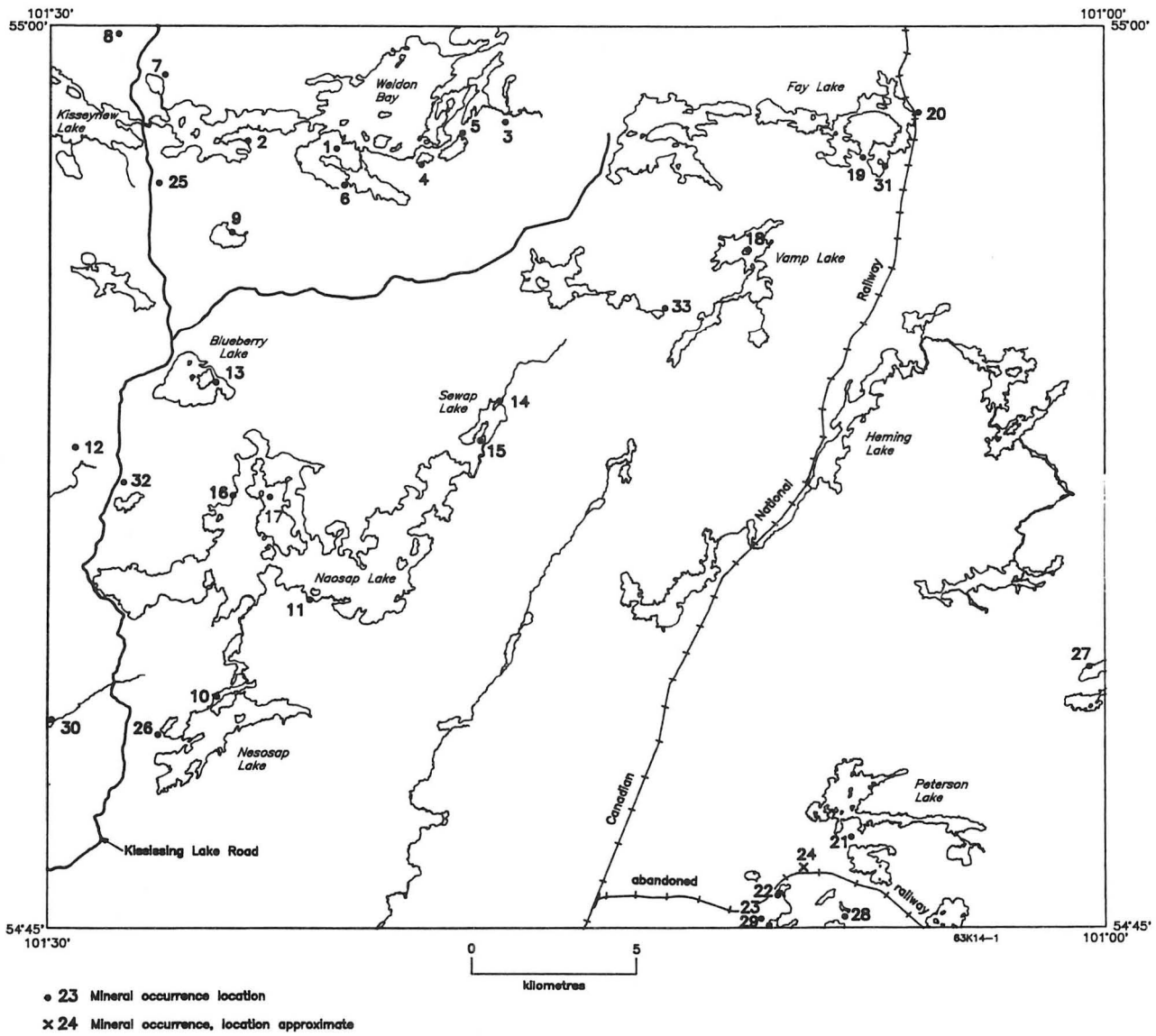

Figure 1: Mineral Deposits and occurrences in the Naosap Lake area (NTS 63K/14).

In some instances it has been more efficient on the map and in the report to make reference to an area of mineralization rather than individual deposits or occurrences. All mineralization in the area delineated by a dotted line on the map is referenced in the report under the location number within that area.

TABLE 1: MINERAL DEPOSIT TYPES

STRATABOUND MASSIVE SULPHIDE TYPE DEPOSITS
- a) Volcanic rock-associated
- b) Sedimentary rock-associated
- c) Alteration zone associated with a or b

CHEMICAL SEDIMENT TYPE DEPOSITS
- a) Sulphide facies iron formation
- b) Oxide facies iron formation
- c) Carbonate facies iron formation
- d) Silicate facies iron formation
- e) Other chemical sediments

VEIN TYPE DEPOSITS
- a) Singe vein
- b) Multiple veins or lenses
- c) Stockwork

MAGMATOGENIC TYPE DEPOSITS ASSOCIATED WITH MAFIC/ULTRAMAFIC ROCKS
- a) Disseminated
- b) Layered
- c) Net textured
- d) Podiform

DEPOSITS WITH PORPHYRY AFFINITIES
PEGMATITE TYPE DEPOSITS
CLASTIC SEDIMENT TYPE DEPOSITS
REPLACEMENT TYPE DEPOSIT
DISSEMINATED MINERALIZATION - NOT CLASSIFIED

FORMAT OF MINERAL DEPOSIT REPORTS

Location:

Each deposit or occurrence description will contain the unique deposit reference number, deposit or claim name where applicable, UTM coordinates, general area description, the reference number of the airphoto on which the deposit can be located and a brief description of method(s) of access.

Exploration Summary:

This section provides a summary of the extent of exploration. Information for this section was compiled from Mineral Inventory Cards, cancelled Assessment Files, and maps and files from the Mining Recording Office.

Geological Setting:

In this section the general geology of a deposit or occurrence is described. The information levels of the descriptions vary considerably and depend largely upon the extent of geological mapping during the documentation project. For further details the reader should consult the references cited.

Mineralization:

A detailed description of the mineralization provides the reader with the opportunity to make his own evaluation of the significance of a mineral occurrence or deposit.

Geochemical Data:

In addition to detailed geological mapping around individual mineral occurrences, rock samples were collected from trenches and outcrops in the vicinity of the occurrences. The assay and geochemical data are included in this section. Extensive geochemical data bases are referenced but not reproduced here.

Classification:

In this section the geologist may indicate the reasons for the classification appearing on the Mineral Deposit Map. For those localities containing more than one deposit type, the deposit types not shown on the map are documented here.

References:

These include both published and unpublished sources. For published and assessment report information the reader should obtain desired material directly from the source. The mineral deposit geologists will endeavour to supply copies of unpublished material on a deposit by deposit basis. References listed at the end of each occurrence description may also include sources of additional information not directly cited in the text.

ABBREVIATIONS

The following abbreviations are used throughout the deposit and occurrence descriptions:

AEM	airborne electromagnetic
A.F.	assessment file
AMAG	aeromagnetic
bt	biotite
CB	claim block
c.g.	coarse grained
cp	chalcopyrite
EM	electromagnetic
f.g.	fine grained
g/t	grams per tonne
gr	garnet
HBMS	Hudson Bay Mining and Smelting Company Limited
HBED	Hudson Bay Exploration and Development
HLEM	horizontal loop electromagnetic
m.g.	medium grained
M.I. Card	Mineral Inventory Card
NSS	near solid sulphide
po	pyrrhotite
py	pyrite
qz	quartz
sc	sericite
SS	solid sulphide
t	tonne
tr	trace
VLEM	vertical loop electromagnetic
VLF-EM	very low frequency electromagnetic

ACKNOWLEDGMENTS

A number of summer assistants conducted various facets of the field work for this report. Mark Cooper, Tony Butt, and Rudy Schmidtke were especially helpful during the hunt for old trenches. Dave Parbery assisted in the documentation of mineral deposits during the 1984 and 1986 field seasons. A.L. Parres, P. Bachnik and W. Hanna provided valuable information on the locations of old trenches. The manuscript was typed by Kelly Dunn and Anne Schiltroth, desktopped by Shirley Henrie, and reviewed by Mark Fedikow and Karen Ferreira. Dave Baldwin edited the manuscript.

The base map accompanying this report was prepared in part by Len Chackowsky using PAMAP. Malcolm Cameron, Mark Timcoe and Bonnie Lenton assisted in the preparation of figures using Autocad software.

NOTE:

This mineral deposit report and the accompanying map are intended to be active documents that can be updated as new information becomes available. Although revisions of the publication are anticipated, any additional unpublished information may be obtained by contacting the authors or the Director, Geological Services Branch.

GENERAL GEOLOGY OF THE NAOSAP LAKE AREA (NTS 63K/14)

The geology base for the Naosap Lake area (NTS 63K/14) mineral deposit map (MDS Map No. 20, in pocket) is derived mainly from the one inch to one mile maps of Kalliokoski (1952) and McGlynn (1959). The recent studies of Froese and Gall (1981), Zwanzig and Seneshen (1984) and Schledewitz (1990) were used to revise the northern portion of the map area. The map area, which is underlain by rocks of the Flin Flon greenstone belt and the Kisseynew gneiss belt, contains supracrustal rocks of the Amisk, Burntwood River and Missi groups (Schledewitz, 1993) that have been intruded by abundant mafic and felsic rocks (Kalliokoski, 1952; McGlynn, 1959).

The Amisk Group rocks are composed predominantly of basaltic rocks and amphibolitic rocks of volcanic(?) derivation. Rhyolitic rocks are present at Vamp Lake (Wadien, 1987, 1993) and Weldon Bay (Froese and Gall, 1981). The Burntwood River Group (Schledewitz, 1993), which was formerly referred to as the Nokomis Group (Robertson, 1953), consists predominantly of greywacke derived garnet-biotite-quartz paragneiss. The Missi Group rocks consist of a thin basal conglomeratic unit and meta-arkose (Schledewitz, 1993).

The Vamp Lake massive sulphide type deposit (Location 18) is the only known base metal deposit in the map area, but other base metal occurrences of interest occur in the Weldon Bay-Fay Lake area and south of Weldon Bay near Ham Lake (Location 9). Minor amounts of gold were produced from sulphide-rich mineralization at the Redwin deposit (Location 19). Quartz vein type gold occurrences have been explored throughout the map area. At Lobstick Narrows (Location 8), trace amounts of gold are associated with amphibolites that are stratigraphically similar to the Nokomis Lake and Puffy Lake deposits (Gale and Ostry, 1984; Ostry and Trembath, 1992).

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MINERAL DEPOSITS AND OCCURRENCES: NAOSAP LAKE AREA (NTS 63K/14)

LOCATION: **1**

NAME: Weldon Bay
UTM: 6093394N/348672E
ACCESS: Via boat from Lobstick Narrows (NTS 63 K/13).

AREA: Weldon Bay, Kisseynew Lake
AIRPHOTO: A26331-203

EXPLORATION SUMMARY:

Exploration was undertaken in the area prior to 1929 (Wright, 1929, 1931). The property was staked in 1950 by W. Yakushaveck as part of the Kay claims and 17 holes totalling 330 m were drilled in 1951 (A.F. 90479). The property was optioned by HBED who conducted a HLEM survey during 1952-53 (A.F. 90480) and drilled 10 holes totalling 1958 m in 1953 (A.F. 90481, A.F. 90486). HBED optioned the claims from A.F. Olesen in 1973.

GEOLOGICAL SETTING:

The Weldon Bay area (Fig. 1-1) is underlain by volcanic and sedimentary rocks of the Amisk Group, gneissic rocks of the Missi Group and intrusive rocks (Zwanzig, 1984). Kalliokoski (1952), Froese and Gall (1981) and Zwanzig, (1983; 1984) have mapped the area. The boundary between the Amisk and Missi Group rocks is not exposed, but is covered by a low swampy area north of the mineralization. A detailed study of the area (Fig. 1-2) and drill core logs (A.F. 90486) indicate that the mafic rock (gabbro?) occurring immediately north of the mineralized zone (Fig. 1-3), is a regionally conformable, but internally complex unit. In the vicinity of the mineralization this unit varies from fine grained garnet amphibolite near its northern margin, to fine-, medium-, and coarse-grained gabbro towards its centre and southern margin. Fine grained amphibolite occurs at the southern margin of, and throughout, this mafic rock; locally, it exhibits distinct to vaguely defined layers (Gale, 1980). Froese and Gall (1981) interpreted this unit as mafic volcaniclastic rocks.

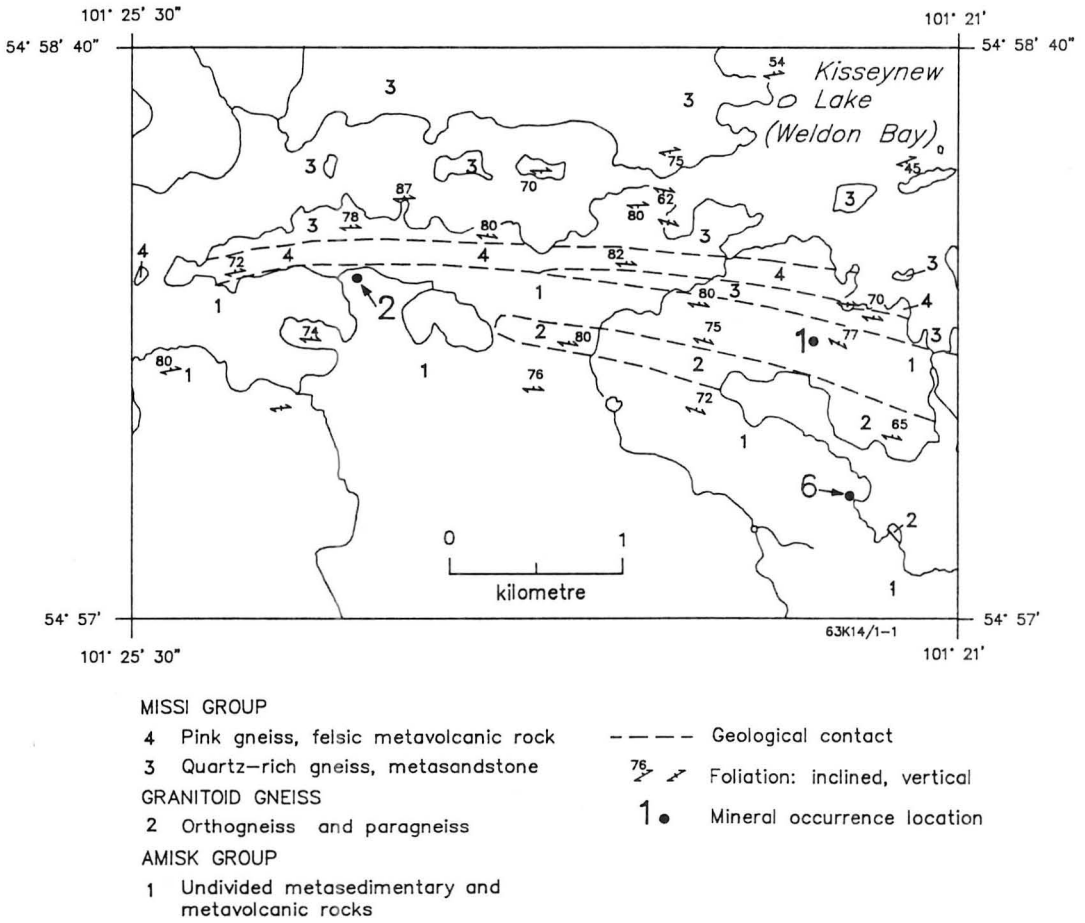

Figure 1-1: Geological setting of occurrences 1 and 2, Weldon Bay, Kisseynew Lake. Geology after Zwanzig and Seneshen (1984) and Zwanzig (1984).

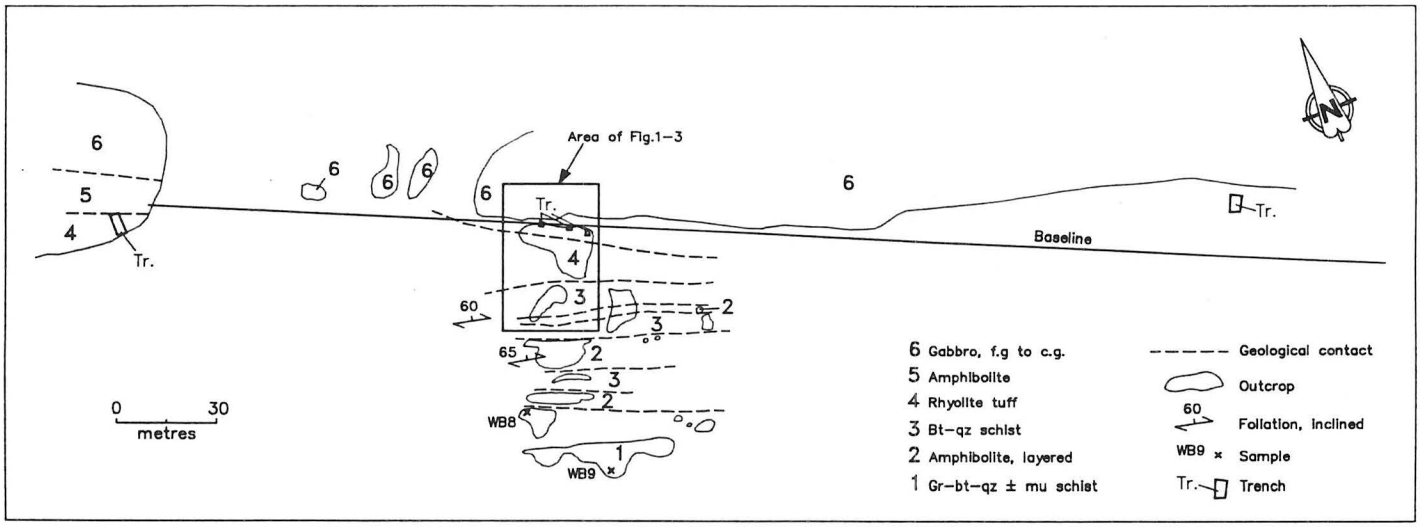

Figure 1-2: General geology at occurrence 1.

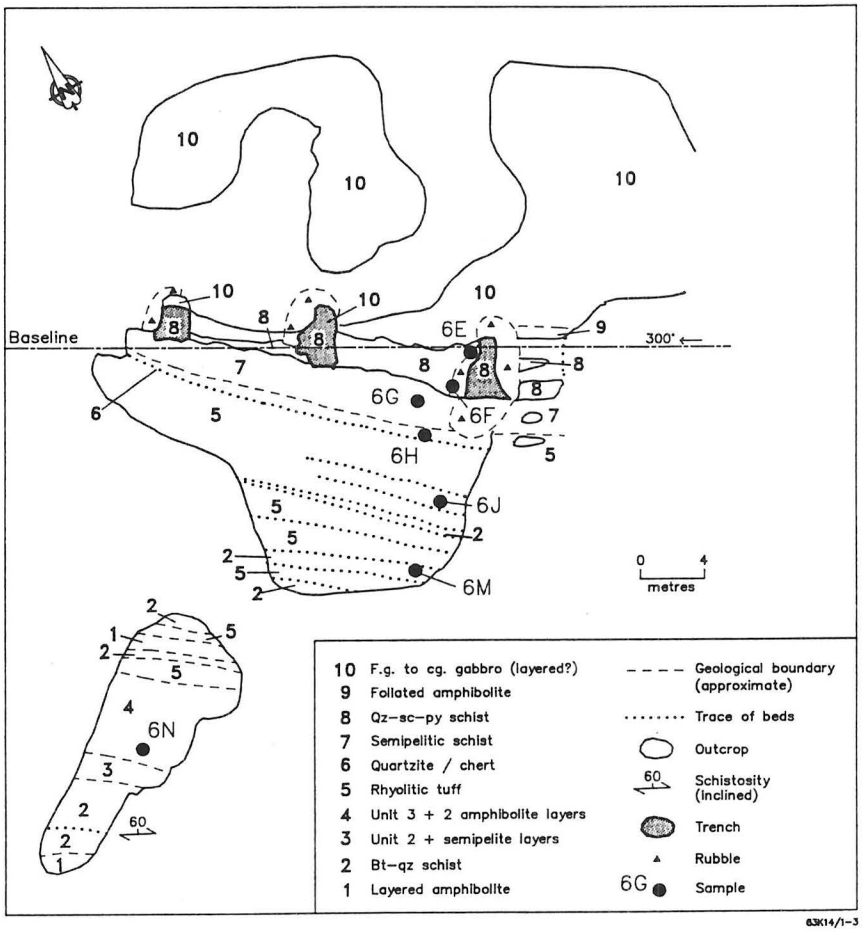

Figure 1-3: Detailed geology in the vicinity of the trenches at occurrence 1.

Rocks south of the trenches (Figs. 1-2, 1-3) include semipelitic schists, rhyolite tuff with sparse quartz phenocrysts, semipelite, pelite, layered amphibolite and biotite-quartz ± muscovite ± garnet schists. The rhyolite tuff layers at this site are probably stratigraphically equivalent to the massive rhyolitic rocks at Location 4 (Gale, 1980). The semipelitic and pelitic rocks resemble some of the greywacke-derived gneisses mapped as the Nokomis Group (Robertson, 1951, 1953), but Zwanzig (1984) has included these pelitic and rhyolitic rocks with the Amisk Group. The biotite-quartz schists and garnet-biotite-quartz schists are separated from the Amisk Group rocks to the south by a medium grained granodiorite (Kalliokoski, 1952), which is identified as orthogneiss and paragneiss by Zwanzig (1984).

MINERALIZATION:

The sulphide zone, which is approximately 2 m thick in the trenches (Fig. 1-3), has been traced in drill core from DDH 5 to DDH 19 (Fig. 1-4). Grains, veinlets and veins of pyrite, sphalerite, chalcopyrite, pyrrhotite and arsenopyrite occur in a quartz-sericite schist within a layer of semipelitic rocks at the margin of the gabbro (Fig. 1-3). The overall sulphide content of rocks exposed in the trenches is less than 30%, but veins of near solid sulphide are present.

The sulphide veins and veinlets commonly cut the schistosity in the quartz-sericite schist and are interpreted as mobilized sulphides.

GEOCHEMICAL DATA:

Core samples assayed for Cu, Zn, Au and Ag indicate erratic metal distributions. Copper contents were generally less than 1%, but range up to 5.7%/20 cm (DDH 19) and Zn contents were commonly over 1% and range up to 21%/25 cm (DDH 17). Au contents are generally less than 0.7 g/t, but the Ag contents of high (>1%) Cu- and Zn- bearing samples are commonly between 10 and 29 g/t.

Major element and selected trace element analyses of various lithologies in the area are presented in Table 1-1, and sample locations are shown on Figures 1-2 and 1-3. Although there is some depletion of sodium in the quartz-sericite schist, extensive sodium depletion or magnesium enrichment in the tuff and schists south of the trenches were not detected. The sericite-quartz schist, semipelite and rhyolite tuff layers have 3-5% K_2O; this may represent either a regional potassium metasomatism or a local high-potassium felsic volcanic magmatism.

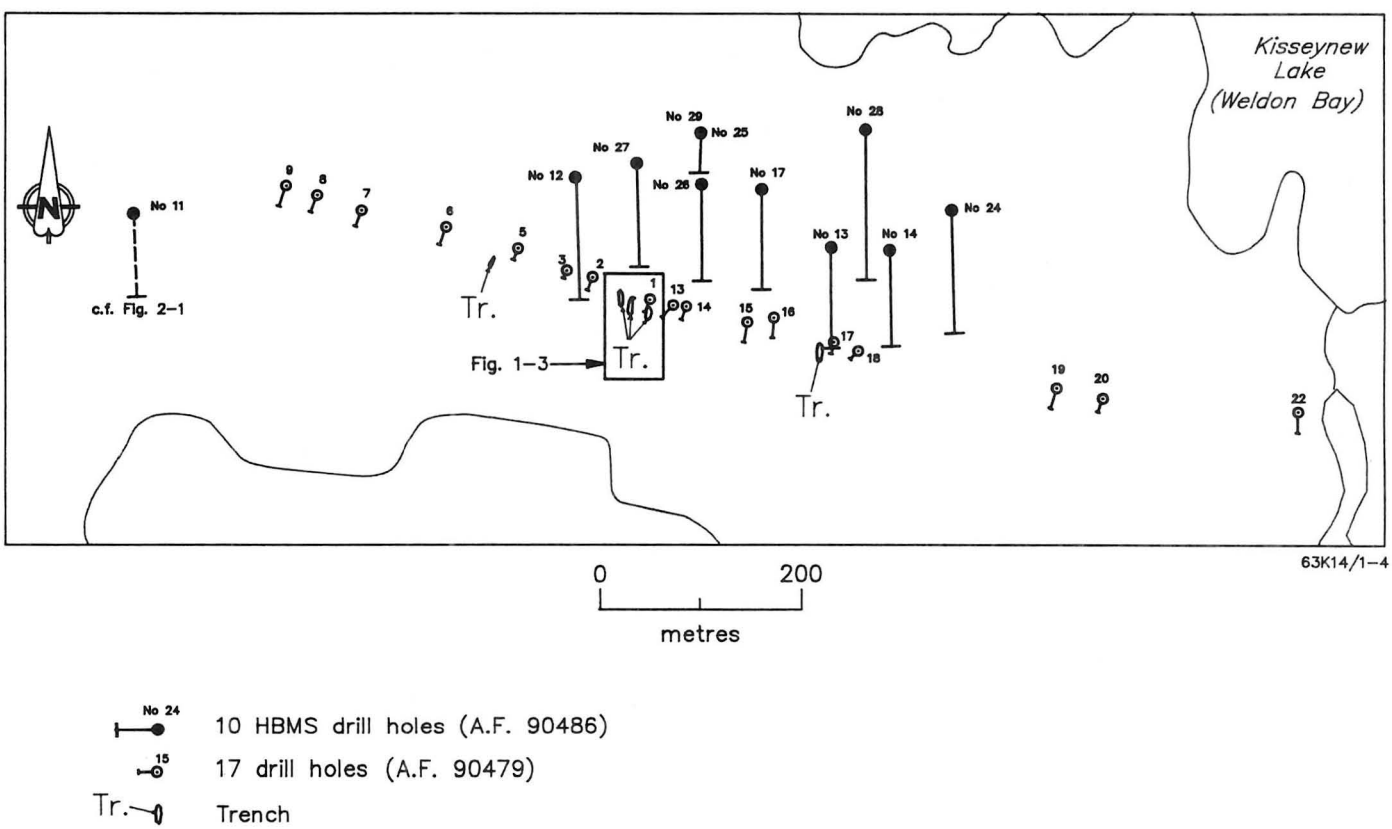

Figure 1-4: Distribution of drill holes and trenches at occurrence 1.

Table 1-1

Major and trace element analyses of samples from the Weldon Bay occurrence. Analyses performed at Manitoba of Energy and Mines Analytical Laboratory using gravimetric and atomic absorption techniques. Sample locations shown on Figures 1-2 and 1-3.

Sample	%														
	SiO_2	Al_2O_3	Fe_2O_3	FeO	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	H_2O	S	CO_2	Other
42.0.WB6E	73.40	11.26	2.37	1.92	0.18	2.30	0.47	3.11	0.15	0.01	0.02	2.08	1.56	0.10	0.65
42.0.WB6F	69.25	14.93	2.40	0.81	0.06	2.24	0.38	4.07	0.20	0.02	0.02	2.68	0.92	0.09	0.39
42.0.WB6G	74.10	13.06	0.96	1.20	0.86	1.83	1.18	4.75	0.21	nil	0.02	1.28	0.04	0.10	0.09
42.0.WB6H	75.65	12.49	0.21	1.20	1.08	1.05	3.49	3.35	0.11	nil	0.02	0.72	0.02	0.26	0.12
42.0.WB6J	70.40	14.04	0.69	2.12	1.13	1.98	2.48	5.19	0.16	nil	0.04	1.09	tr	0.34	0.11
42.0.WB6M	71.50	14.06	0.48	1.80	1.86	1.74	2.63	4.45	0.19	0.01	0.04	0.89	0.02	0.26	0.11
42.0.WB6N	76.05	12.05	0.54	1.20	0.75	2.14	1.41	3.43	0.07	nil	0.03	1.26	tr	0.21	0.07
42.0.WB8	63.60	14.75	1.00	6.24	4.21	2.78	2.08	2.74	0.36	0.16	0.13	1.26	0.02	0.34	0.14
42.0.WB9	68.35	13.23	1.08	4.25	1.55	3.89	2.22	3.32	0.30	0.10	0.12	1.47	nil	0.08	0.12

Sample	ppm							
	Cu	Ni	Pb	Zn	Cr	Rb	Sr	Ba
42.0.WB6E	2000	11	333	2580	<3	72	30	240
42.0.WB6F	396	<2	2480	172	<3	108	35	310
42.0.WB6G	15	<2	41	95	<3	120	80	460
42.0.WB6H	13	<2	18	102	<3	86	110	720
42.0.WB6J	11	<2	12	130	<3	153	105	540
42.0.WB6M	18	<2	12	87	16	108	220	540
42.0.WB6N	4	4	6	90	<3	114	40	400
42.0.WB8	33	2	<3	134	10	80	205	760
42.0.WB9	4	2	6	134	10	96	95	670

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. It is possible that this mineralization represents a distal massive sulphide type deposit. This occurrence has many features of a vein type deposit produced by mobilization of sulphides from another source rock.

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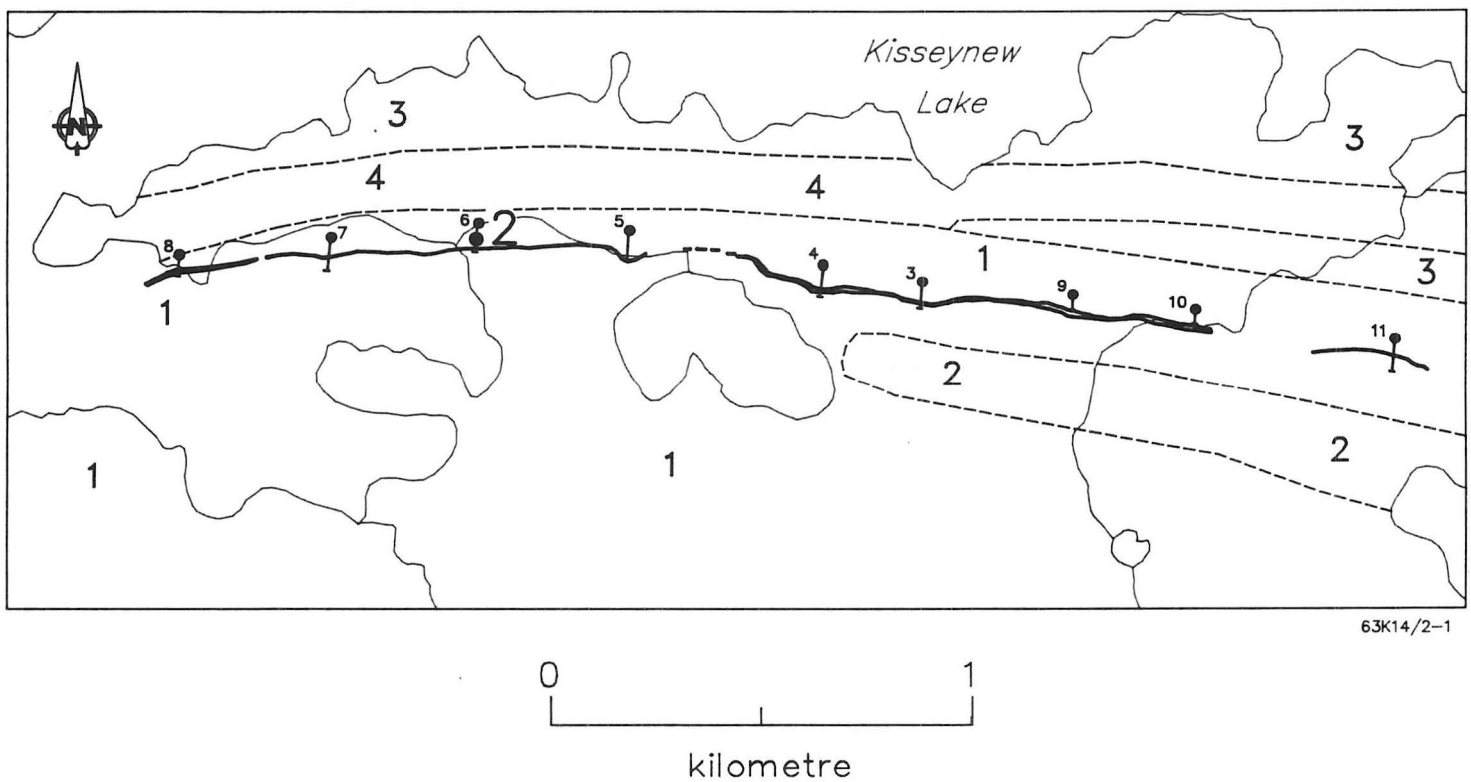


MISSI GROUP

4 Pink gneiss, felsic metavolcanic rock

3 Quartz–rich gneiss, metasandstone

GRANITOID GNEISS

2 Orthogneisss and paragneiss

AMISK GROUP

1 Undivided metasedimentary and metavolcanic rocks

--------- Geological contact

——— Geophysical conductor (EM) (A.F. 90480)

Geology after Zwanzig (1984).

11 9 drill holes (A.F. 90481, 90486)

•2 Mineral occurrence location

Figure 2-1: Drill hole locations and EM conductors in the vicinity of occurrence 2. Geology after Zwanzig (1984).

LOCATION: **2**

NAME:
UTM: 6093690N/346013E
ACCESS: Via boat from Lobstick Narrows (NTS 63K/13)

AREA: Weldon Bay, Kisseynew Lake (Fig. 1-1)
AIRPHOTO: A26331-230

EXPLORATION SUMMARY:

The Kay claims were staked in 1950 by W. Yakushaveck and optioned to HBED who conducted a HLEM survey during 1952-53 (A.F. 90480). Nine holes, totalling 787 m were drilled to test a regional EM anomaly in 1953 (A.F. 90481, 90486). The claims were optioned from A.F. Olesen by HBED in 1973.

GEOLOGICAL SETTING:

The Weldon Bay area (Fig. 1-1) is underlain by volcanic and sedimentary rocks of the Amisk Group, gneissic rocks of the Missi Group and intrusive rocks (Zwanzig, 1984). Kalliokoski (1952), Froese and Gall (1981) and Zwanzig, (1983; 1984) have mapped the area. The boundary between the Amisk and Missi Group rocks is not exposed, but is covered by a low swampy area north of the mineralization. The gabbroic rocks at Location 1 (Fig. 1-3) extend westwards as a 10 to 30 m thick continuous body of amphibolite and calc-silicate rocks that occur immediately north of the conductor shown in Figure 2-1 (*cf.* Froese and Gall, 1981; Kalliokoski, 1952; and Zwanzig, 1984). Fine grained amphibolite occurs at the southern margin of, and locally throughout, this amphibolite, which exhibits distinct to vaguely defined layers (Gale, 1980). Froese and Gall (1981) interpreted this amphibolite as mafic volcaniclastic rocks. Rocks south of the conductor (Fig. 2-1) are probably the same units of rhyolite tuffs with sparse quartz phenocrysts, semipelite, pelite, layered amphibolite and biotite-quartz ± muscovite ± garnet schist that were mapped at Location 1 (this volume). Zwanzig (1984) has included these rocks with Amisk volcanic rocks.

Rocks structurally overlying the mineralized zone were logged mostly as granodiorite, whereas the rocks below the mineralized zone were logged predominantly as granodiorite or garnet-mica-quartz schist (A.F. 90481).

MINERALIZATION:

DDH 3, 4, 6, 7 and 8 intersected near solid pyrrhotite; the longest intersection of near solid pyrrhotite was 2.4 m in DDH 6 and the shortest was 15 cm in DDH 3. The mineralization varies considerably from drill hole to drill hole as documented below:

DDH 3: 15 cm of near solid pyrrhotite; and, 10 cm of diorite with moderate amounts of pyrrhotite and minor amounts of pyrite;

DDH 4: 15 cm of granodiorite gneiss with moderate amounts of pyrrhotite; 20 m of diorite, locally with a trace of pyrrhotite; 15 cm of diorite with moderate amounts of pyrrhotite; and 60 cm of near solid pyrrhotite with quartz lenses;

DDH 5: 1.2 m of sheared rhyolitic quartz porphyry with moderate amounts of pyrrhotite and a trace of pyrite and chalcopyrite;

DDH 6: 1.1 m of sheared granodiorite with moderate amounts of pyrrhotite and pyrite; and, 2.5 m of near solid pyrrhotite with quartz lenses up to 2.5 cm in diameter;

DDH 7: 45 cm of near solid pyrrhotite with a trace of pyrite and rounded quartz grains. A trace of pyrite was present in two other parts of this drill core;

DDH 8: 20 cm of near solid pyrrhotite with round quartz grains; 12 cm of granodiorite with moderate amounts of pyrite; 65 cm of sheared micaceous quartzite with a trace of pyrrhotite; 1.2 m of near solid pyrrhotite with rounded quartz grains; 45 cm of sheared micaceous quartzite with pyrrhotite and pyrite; 10 cm of near solid pyrrhotite; and, 25 cm of sheared granodiorite with pyrite and pyrrhotite.

The relationship of the mineralization to the gabbroic rocks exposed at Location 1 cannot be determined from the drill records. The 20 m section of diorite that occurs between the two solid sulphide sections in DDH 4 may represent a younger dyke because the drill core up hole from the mineralized zone was logged as granodiorite (A.F. 90486).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90479, 90480, 90481, 90486
Manitoba Energy and Mines, Mines Branch.

Froese, E. and Gall, Q.
1981: Geology of the eastern vicinity of Kisseynew Lake, Manitoba; **in** Geological Survey of Canada, Current Research, Part A, Paper 81-1A, p. 311-313.

Gale, G.H.
1980: Mineral deposit studies - Flin Flon/Kisseynew; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1980, p. 51-64.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Mineral Inventory Card 63K/14 Cu3
Manitoba Energy and Mines, Geological Services Branch.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 38-45.

LOCATION: 3

NAME: Bar
UTM: 6094010N/353838E
ACCESS: Via boat from Lobstick Narrows (NTS 63K/13).

AREA: Weldon Bay, Kisseynew Lake
AIRPHOTO: A26362-146

EXPLORATION SUMMARY:

Several trenches at this location probably date from the 1920's because exploration was undertaken in the area prior to 1929 (Wright, 1929; 1931). The Star claims were drilled by Sherritt Gordon Mines Limited in 1948 (A.F. 90484). HBED conducted a HLEM survey in 1953 (A.F. 90480) and an APEX Max-Min survey in 1982 (A.F. 92696).

Diamond drill programs were conducted in 1953 and 1969 by HBED (A.F. 90486). Soil and rock geochemical surveys conducted by Catear Resources Limited on the Weld 1 claim in 1985 covered a portion of this area (A.F. 92652).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group and Missi Group rocks that are the stratigraphic equivalents of the rocks at Location 1 (Froese and Gall, 1981). The unit of biotite-garnet schist (unit 1 of Fig. 3-1) includes white weathering felsic rocks that are probably equivalent to the rhyolite tuff mapped at Location 1. The amphibolite and calc-silicate rocks, which are generally fine grained and layered in this area, are considered to be volcaniclastic rocks (Froese and Gall, 1981). Zwanzig (1983, 1984) mapped the area and included units 1 and 2 (Fig. 3-1) in the Amisk Group.

MINERALIZATION:

The trench near DDH 23 (Fig. 3-3) exposed rusty weathered rocks, a 70 cm near solid pyrrhotite layer and several lenses/layers of near solid pyrite (Gale, 1980). Amphibolitic rocks exposed 9 m northeast of the trench and 3 m of near solid pyrrhotite and pyrite were intersected by DDH 23.

DDH 22 intersected 1 m of near solid pyrrhotite with a trace of pyrite in an amphibolite host that contains trace to moderate amounts of pyrite (A.F. 90486).

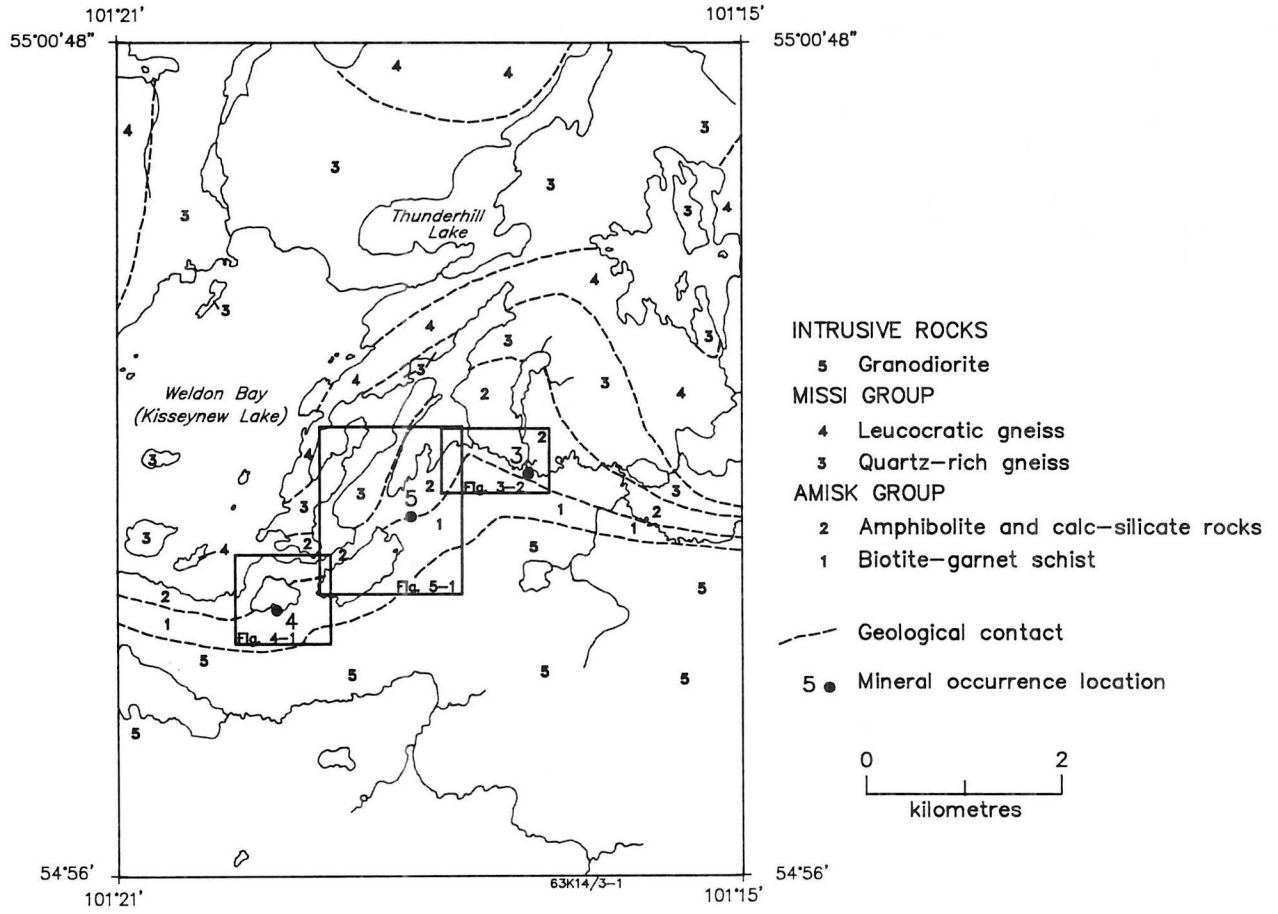


Figure 3-1: Geological setting of occurrences 3, 4 and 5 (after Froese and Gall, 1981).

DDH 20 intersected 75 cm of near solid pyrrhotite. Kalliokoski (1952) indicates that graphite was found in association with the pyrrhotite, but none was observed in the trenches (Fig. 3-2). Wright's (1931) description of the mineralization is as follows:

"Bar Group. Pyrrhotite bodies have been trenched at several points on the Bar group south of the creek from Syme lake to the small lake east of Weldon bay of Kisseynew lake. Andesite with interbedded quartzite outcrops south of the sulphide bodies, which are in a bed of quartzite. The bedding of the quartzite strikes north 55° east and dips 75° northwest. About 1,200 feet south of the sulphide bodies is the edge of a large body of granite intruding the lavas and sediments lying north of it.

Two long trenches on the north side of a hill south of the creek about 2,000 feet east of the lake, expose jointed and brecciated, grey quartzite and black, micaceous quartzite. Pyrrhotite is distributed in grains, veinlets, and masses up to 3 feet thick, across widths of 12 and 18 feet of the jointed and schistified sediment. The pyrrhotite is bronze coloured and the grains average 0.04 mm in diameter. Small bits of chloritic material, bleached biotite, feldspar, quartz, epidote, and grey carbonate, occur in the bodies of massive pyrrhotite. This sulphide deposit has not been traced under the drift beyond the two trenches, which are about 350 feet apart. About 175 feet to the northwest across a depression, a large trench on the side of a low knoll exposes about 10 feet of jointed,bedded quartzite with disseminated pyrrhotite and one body of massive pyrrhotite 6 feet thick. A trench about 225 feet farther west, exposed 90 feet of jointed and schistified quartzite, some beds of which carry disseminated pyrrhotite. Chalcopyrite and sphalerite occur only in small quantities in a few specimens of pyrrhotite. A few veinlets of quartz cut the pyrrhotite and the schistose quartzite and some chalcopyrite is present within or near the quartz stringers."(Wright, 1931, p. 39c).

GEOCHEMICAL DATA:

The soil geochemical survey conducted by Catear Resources Ltd. consisted of 100 samples analyzed for Cu, Zn, Ag, As, and Au. Three rock samples from the trench at site A (Fig. 3-2) contained <230 ppm Zn, <50 ppm Cu, 0.1 ppm Ag, <23 ppm As and <5 ppm Au (A.F. 92652).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90480, 90484, 90486, 92652, 92696
Manitoba Energy and Mines, Mines Branch.

Froese, E. and Gall, Q.
1981: Geology of the eastern vicinity of Kisseynew Lake, Manitoba; **in** Current Research, Part A, Geological Survey of Canada, Paper 81-1A, p. 311-313.

Gale, G.H.
1980: Mineral deposit studies - Flin Flon/Kisseynew; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1980, p. 51-64.

Wright, J.F.
1929: Kississing Lake area, Manitoba; Geological Survey of Canada, Summary Report 1928, pt. B, p. 73-104.
1931: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 38-45.

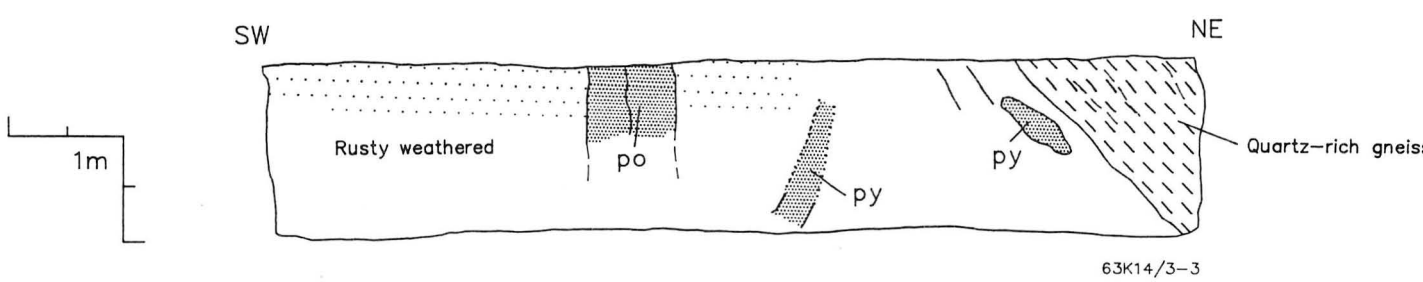
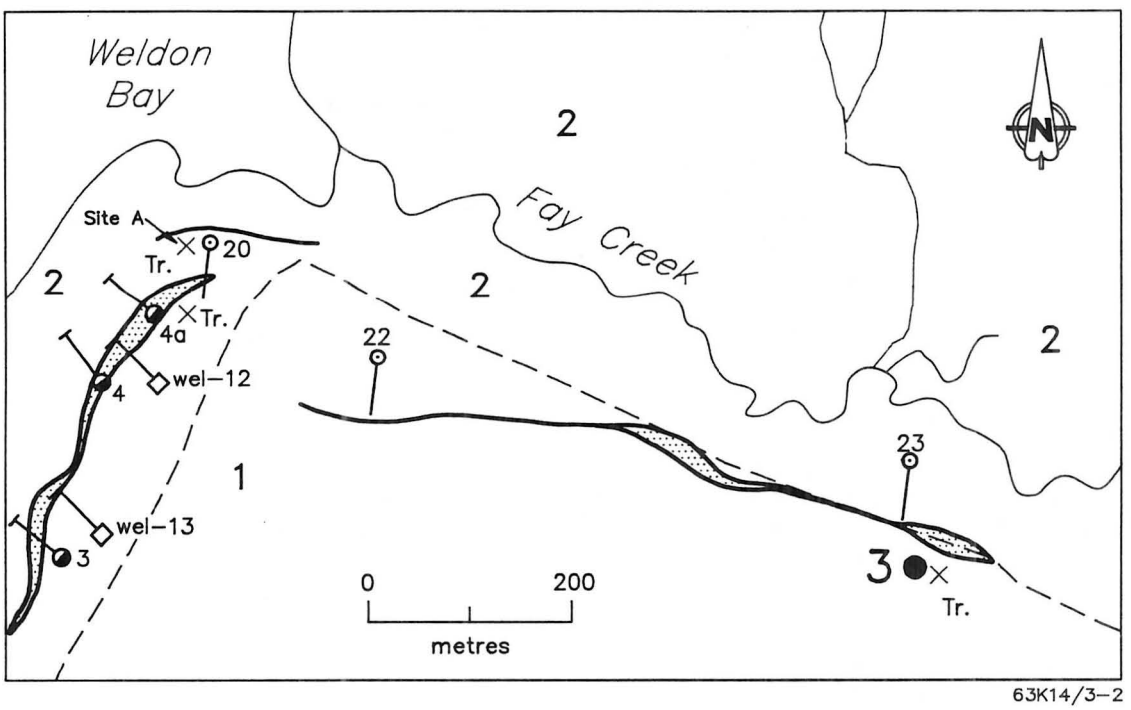


Figure 3-2: Schematic cross section of northwest wall of trench at location 3.



AMISK GROUP

2 Amphibolite and calc–silicate rocks

1 Biotite–garnet schist

Geological contact

Geophysical conductor (EM) (A.F. 90480)

Geology after Froese and Gall (1981).

23 3 drill holes (A.F. 90486)

3 3 drill holes (A.F. 90484)

wel–12 2 drill holes (A.F. 92696)

Tr. × Trench

Figure 3-3: ***Location of drill holes, trenches and EM conductors in the vicinity of occurrence 3. Geology after Froese and Gall (1981).***

LOCATION: 4

NAME:
UTM: 6092757N/351252E
ACCESS: Via boat from Lobstick Narrows (63K/13)

AREA: Weldon Bay, Kisseynew Lake (Fig. 3-1)
AIRPHOTO: A26362-86

EXPLORATION SUMMARY:

An EM survey of the Try claims was conducted by HBED in 1953 (A.F. 90480, 90484) and four holes, totalling 375 m, were drilled to test several conductors (A.F. 90486). An Apex Max-Min survey was conducted for HBED in 1982 and a 73 m hole was drilled in 1986 (A.F. 92696).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group and Missi Group rocks that are the stratigraphic equivalents of the rocks at Location 1 (Froese and Gall, 1981). The unit of biotite-garnet schist (unit 1 of Fig. 4-1) includes white weathering felsic rocks that are probably equivalent to the rhyolite tuff mapped at Location 1. The amphibolite and calc-silicate rocks, which are generally fine grained and layered in this area, are considered to be volcaniclastic rocks (Froese and Gall, 1981). Zwanzig (1983; 1984) mapped the area and included units 1 and 2 (Fig. 4-1) in the Amisk Group.

DDH 15 and 16 intersected hornblende diorite gneiss, andesite and quartz-biotite ± garnet-, biotite-, and quartz-muscovite gneisses. DDH 1 and 2 intersected mafic rocks ('Hornblende Schist and andesite'), and 'sericitic dacite' (A.F. 90486). DDH Yes-3 core was logged as felsic gneiss, biotite-garnet gneiss and greywacke (A.F. 92696).

MINERALIZATION:

Near solid pyrrhotite ± pyrite sections up to 2 m thick were intersected in DDH 15 and 16. DDH 1 intersected trace to minor amounts of pyrite and pyrrhotite and trace chalcopyrite. DDH Yes-3 intersected two sections, 6 m and 20 m in length, with trace to 5% graphite, trace to 10% pyrite and trace to 10% pyrrhotite (A.F. 92696).

GEOCHEMICAL DATA:

Twenty-three samples from DDH Yes-3 were analyzed for Au, Ag, Cu, and Zn. All values were below the limits of detection.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment Files 90480, 90484, 90486, 92696
Manitoba Energy and Mines, Mines Branch.

Froese, E. and Gall, Q.
1981: Geology of the eastern vicinity of Kisseynew Lake, Manitoba; **in** Geological Survey of Canada, Current Research, Part A, Paper 81-1A, p. 311-313.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 38-45.

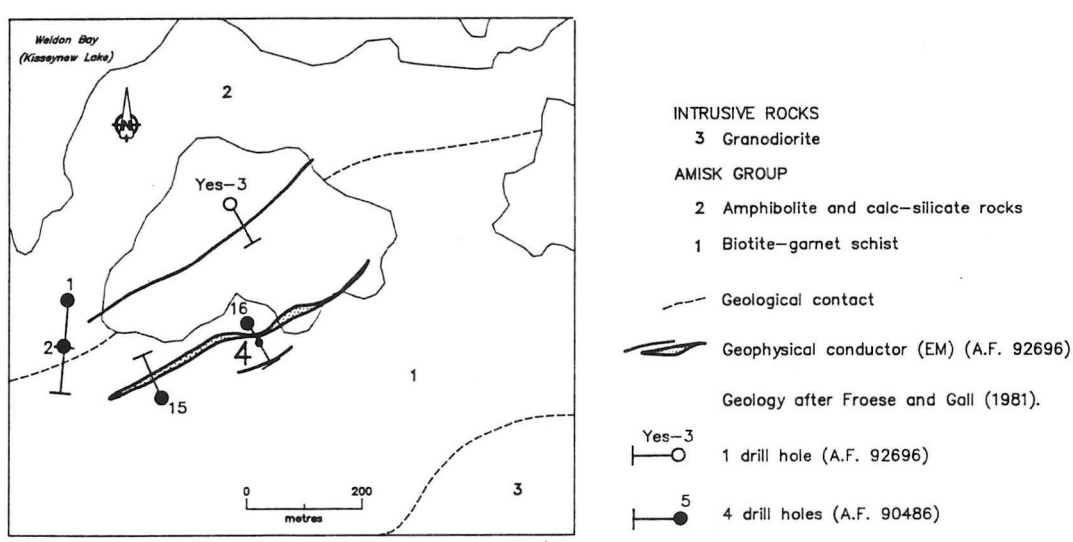


Figure 4-1: Location of drill holes and EM conductors in the vicinity of occurrence 4. Geology after Froese and Gall (1981).

LOCATION: **5**

NAME:
UTM: 6093735N/352547E
ACCESS: via logging road and boat from Lobstick Narrows (63K/13).

AREA: Weldon Bay, Kisseynew Lake (Fig. 3-1)
AIRPHOTO: A23632-145

EXPLORATION SUMMARY:

Exploration was undertaken in the area prior to 1929 (Wright, 1929, 1931). In 1948 Sherritt Gordon Mines Ltd. drilled 6 holes (439 m) on the Star claims to investigate a known copper occurrence (A.F. 90484). HBED conducted EM surveys over the area in 1953 (A.F. 90480) and in 1982 (A.F. 92696). HBED drilled 4 holes in the vicinity in 1953 (A.F. 90486) and conducted additional drilling in 1967 and 1986 (A.F.92696). A 10 x 1 x 1 m trench is present at Site A (Fig. 5-1) and several trenches were noted by Kalliokoski (1952).

GEOLOGICAL SETTING:

The area is underlain by Amisk Group and Missi Group rocks that are the stratigraphic equivalents of the rocks at Location 1 (Froese and Gall, 1981). The unit of biotite-garnet schist (unit 1 of Fig. 3-1) includes white weathering felsic rocks that are probably equivalent to the rhyolite tuff mapped at Location 1. The amphibolite and calc-silicate rocks, which are generally fine grained and layered in this area, are considered to be volcaniclastic rocks (Froese and Gall, 1981). Zwanzig (1983, 1984) mapped the area and included units 1 and 2 (Fig. 3-1) in the Amisk Group.

A felsic gneiss at the south end of the trench at Site A resembles rhyolite tuffs present at Location 1 (Fig. 1-3). A massive rhyolitic rock (flow?) is separated from the tuffs at Site A by amphibolite. These rocks may be startigraphically equivalent to the rhyolite tuffs at Location 1.

DDH H1 intersected hornblende gneiss, quartz ± garnet-mica gneiss, and amphibole-biotite gneiss. DDH 18 and 19 intersected hornblende diorite gneiss, andesite and quartz-biotite, biotite, and quartz-muscovite gneisses. DDH 21 intersected andesite, quartz-biotite gneiss, quartz porphyry, quartz-mica gneiss, and biotite ± garnet diorite gneiss (A.F. 90486).

MINERALIZATION:

DDH H1 intersected a 20 m section with disseminated chalcopyrite and pyrite (A.F. 90484). Kalliokoski (1952) indicates that sphalerite was also present at this occurrence. The trench at Site A exposes a 5 m thick anthophyllite-bearing layer with 10-15% pyrite that occurs between rhyolitic tuff and garnet-biotite-quartz gneiss (Gale, 1980).

DDH 18 and 19 each intersected several sections of andesitic rock with "mineralized pyrite". DDH 21 intersected 1 m of moderate to near solid pyrrhotite and several sections with moderate amounts of pyrite and pyrrhotite (A.F. 90486). DDH H5 intersected 1.5 m of quartz mica schist with 50% pyrrhotite adjacent to amphibole-biotite gneiss (A.F. 90484).

GEOCHEMICAL DATA:

A 20 m section of DDH H1 contained 0.29% Cu/2.1 m, 0.59% Cu/1.1 m, 0.35% Cu/1.5 m, l.59% Cu/1.2 m, 0.31% Cu/0.6 m, 0.50% Cu/l.2 m, and 0.52% Cu/1.5 m (A.F. 90484).

CLASSIFICATION:

Massive sulphide type deposit - alteration zone associated with volcanic rocks. In addition, DDH 21 intersected a chemical sediment type deposit, sulphide facies iron formation, which is probably the stratigraphic equivalent of mineralization at Location 3.

REFERENCES:

Assessment Files 90480, 90484, 90486, 92696
Manitoba Energy and Mines, Mines Branch.

Froese, E. and Gall, Q.
1981: Geology of the eastern vicinity of Kisseynew Lake, Manitoba; **in** Current Research, Part A, Geological Survey of Canada, Paper 81-1A, p. 311-313.

Gale, G.H.
1980: Mineral deposit studies - Flin Flon/Kisseynew; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1980, p. 51-64.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Wright, J.F.
1929: Kississing Lake area, Manitoba; Geological Survey of Canada, Summary Report, 1928, Part B, p. 73-104.
1931: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report, 1930, Part C, p. 1-124.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; **in** Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p. 38-45.

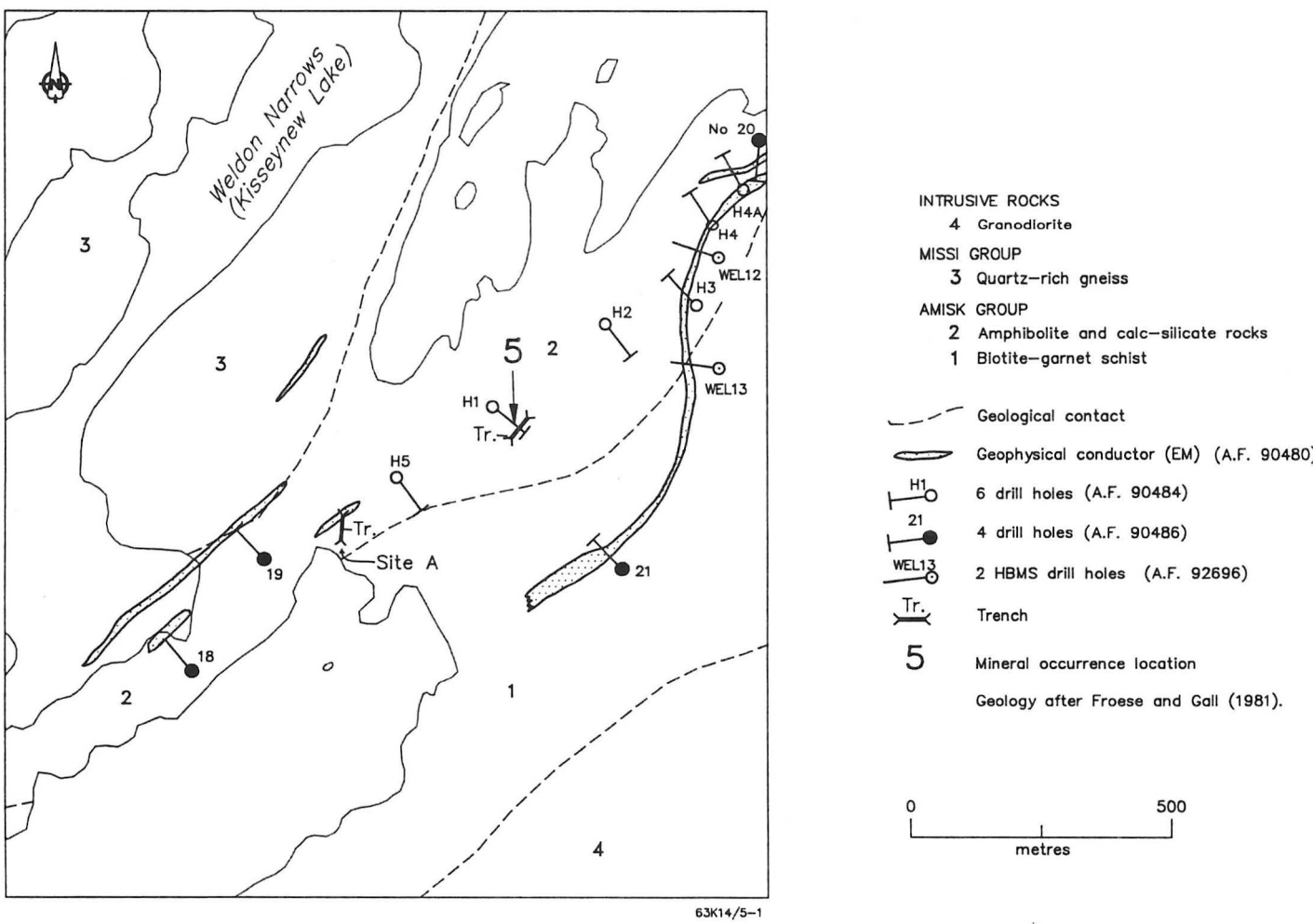


Figure 5-1: Drill holes, EM conductors and trench locations in the vicinity of occurrence 5. Geology after Froese and Gall (1981).

LOCATION: **6**

NAME:
UTM: 6092236N/348840E
ACCESS: Via Sherridon road and boat from Lobstick Narrows (63K/13).

AREA: Weldon Bay, Kisseynew Lake
AIRPHOTO: A26362-87, A26331-203

EXPLORATION SUMMARY:

Kalliokoski (1952) indicated the presence of two mineralized zones. Three old trenches were located near Location 6 (Fig. 6-1) in 1980. At Site A a trench with dimensions of 2 x 3 x 0.5 m was excavated on a sulphide-bearing zone approximately 15 m from the lake shore. The 3 x 1 m trench at Site B was excavated on the side of an outcrop at the edge of a swamp.

GEOLOGICAL SETTING:

The immediate area of the occurrence is underlain by layered amphibolite and interlayered garnet-biotite ± hornblende-quartz gneiss (Figs. 6-1, 6-2), which have been interpreted as part of the Amisk Group (Zwanzig, 1983; 1984). These rocks have been intruded by granitic and dioritic rocks (Kalliokoski, 1952). The rocks at Site A appear to be the stratigraphic equivalent of those shown in Figure 6-2. The host rock at Site B is a coarse grained hornblende and quartz pegmatitic phase within a medium grained gabbroic rock that has intruded amphibolite. Kalliokoski (1952) referred to these rocks as "pseudo-diorite".

MINERALIZATION:

The sulphide-bearing zone is 160 cm thick and contains 5 to 20% pyrite ± chalcopyrite in a siliceous garnetiferous rock. Chalcopyrite and pyrrhotite occur as veinlets and disseminations in the adjacent layered amphibolite host rocks (Fig. 6-2). At Site A a 30 cm thick sulphide zone in garnetiferous amphibolite contains veinlets and lenses of chalcopyrite (<2%) in a quartz-garnet gangue. At Site B veinlets and lenses of chalcopyrite occur in the pegmatitic phase of the gabbroic rock and in the rubble around the trench.

GEOCHEMICAL DATA:

Three samples were collected from the trench and four from the rubble around the trench at occurrence 6. One grab sample was collected from Site B. The analyses are given in Table 6-1.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization at Site A is either a continuation of the mineralization at occurrence 6 or part of a massive sulphide type alteration zone. Site B mineralization represents a vein type deposit - single vein.

REFERENCES:

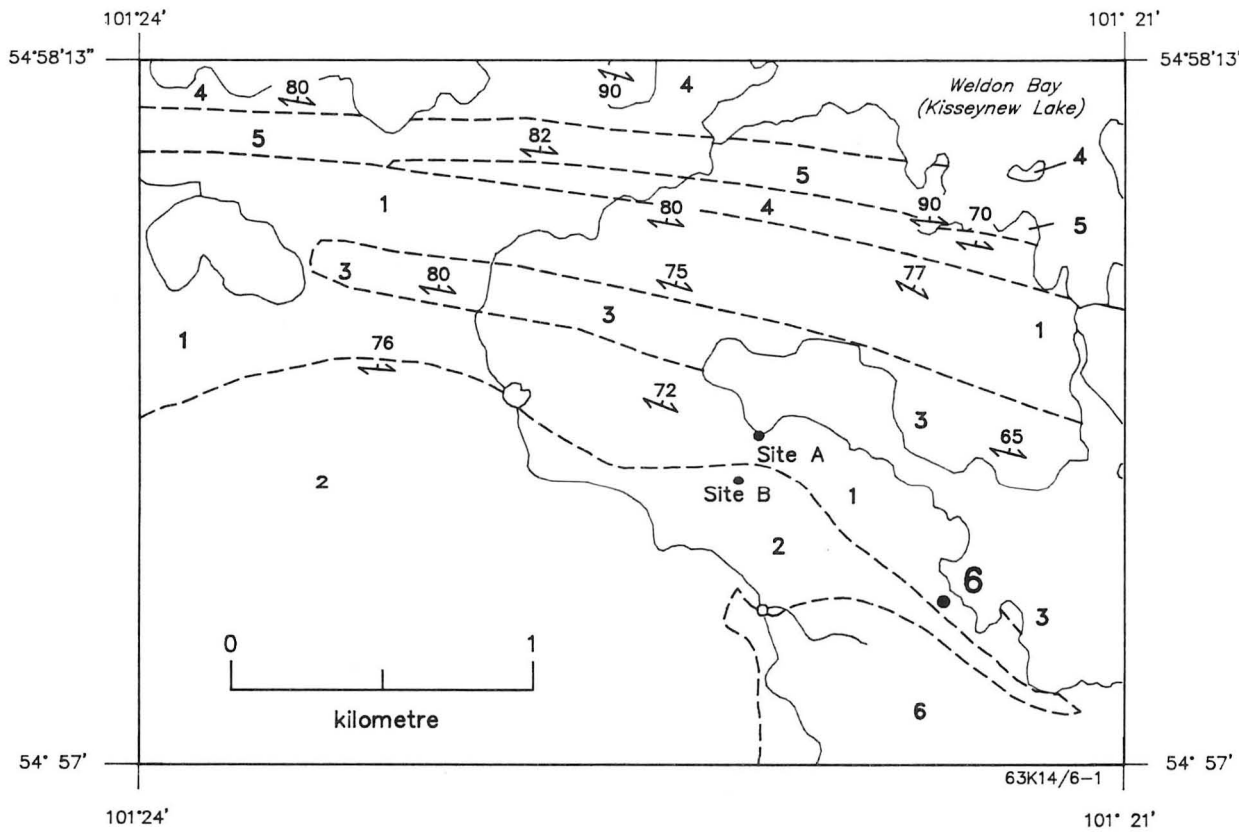
Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 38-45.

Table 6-1
Analyses of samples collected at occurrence 6 and site B

Sample	Cu	Zn	Pb	Ni	Cr	Rb	Sr	Ba	%Fe	%MnO	%CaO	%Na_2O
42-80-17	2650	250	-	-	-	-	-	-	25.1	0.32	-	-
42-80-17A	26	210	<3	133	430	50	320	1320	-	-	-	-
42-80-17B	1215	190	-	-	-	-	-	-	22.65	-	-	-
42-80-17C	1785	260	<20	-	-	-	-	-	22.0	0.39	2.19	.07
42-80-17D	745	300	<20	-	-	-	-	-	16.6	0.52	1.69	0.16
42-80-17E	43	387	<3	68	470	26	165	220	-	-	-	-
42-80-17F	59	123	6	<2	6	112	170	680	-	-	-	-
Site B	13900	4650	-	-	-	-	-	-	6.27	0.30	-	-

Samples 17, 17A, 17E and 17F from rubble in vicinity of trench (Fig. 6-2). Analyses performed at Manitoba Energy and Mines Analytical Lab using atomic absorption and colour spectrophotometer methods.



INTRUSIVE ROCKS

6 Hornblende granodiorite

MISSI GROUP

5 Pink gneiss, felsic metavolcanic rock

4 Quartz–rich gneiss, metasandstone

GRANITOID GNEISS

3 Orthogneiss and paragneiss

AMISK GROUP

2 Pseudo–gabbro and pseudo–diorite

1 Undivided metasedimentary and metavolcanic rocks

76 Foliation, inclined

Geological contact

6 ● Mineral occurrence location

Figure 6-1: Geological setting of occurrence 6. Geology after Zwanzig and Seneshen (1984) and Kalliokoski (1952).

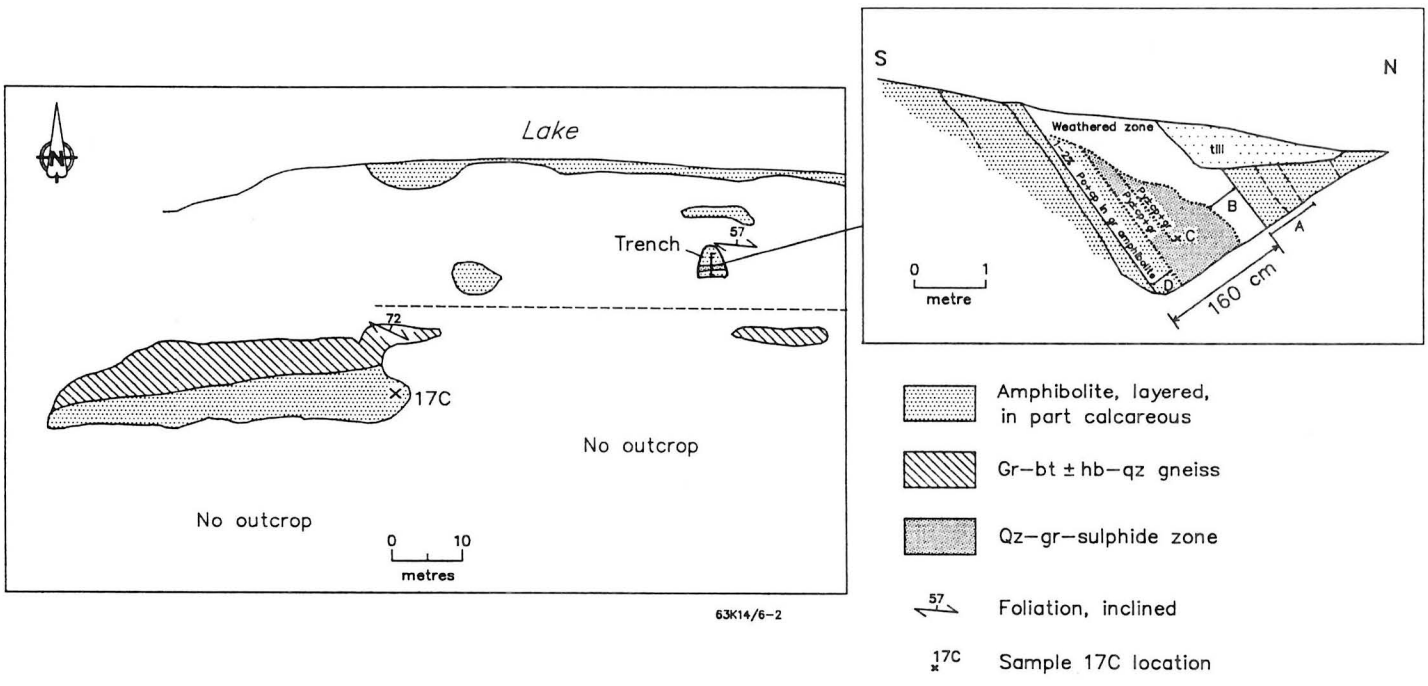
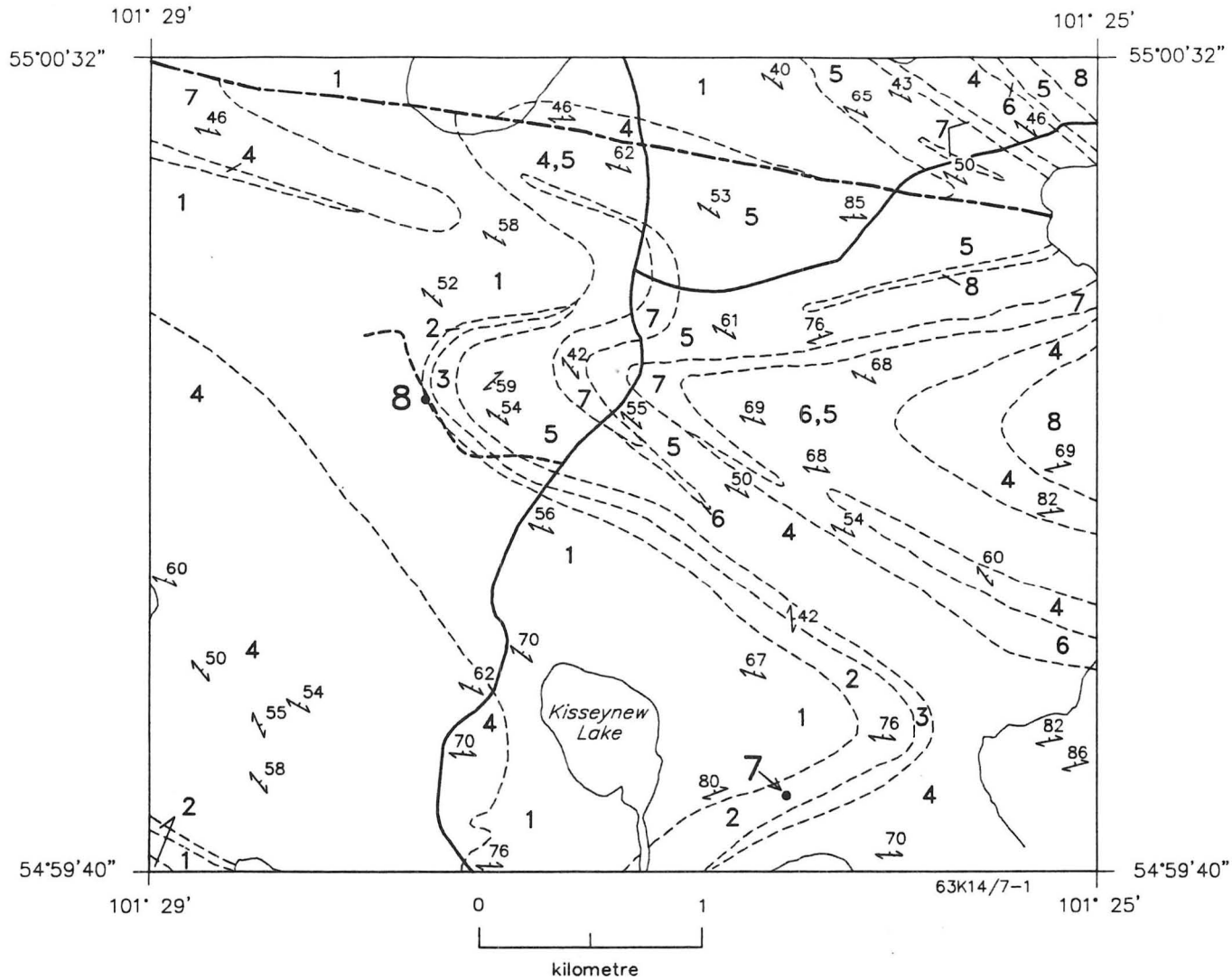


Figure 6-2: Geology and cross section of trench at occurrence 6.



MISSI GROUP

8 Pink gneiss, felsic metavolcanic rock
7 Amphibolite, mafic metavolcanic rock
6 Hornblende–biotite–rich metasedimentary rock
5 Quartzofeldspathic gneiss
4 Quartz–rich gneiss, metasandstone
3 Metaconglomerate

AMISK GROUP

2 Amphibolite
1 Greywacke gneiss

76 Foliation, inclined
Geological contact
Fault
Road
Trail
7 • Mineral occurrence location

Figure 7-1: ***Geological setting of occurrences 7 and 8. Geology after Zwanzig and Seneshen (1984).***

LOCATION: 7

NAME:
UTM: 6095200N/343900E
ACCESS: Via all-weather road and traverse

AREA: Lobstick Narrows
AIRPHOTO: A26331-17

EXPLORATION SUMMARY:

Kalliokoski (1952) indicated a mineral occurrence at this location. Three trenches, 20 x 3 x 1 m, 20 x 5 x 1m, and 15 x 4 x 1 m were excavated over a strike of approximately 30 m. Exploration of the area included airborne EM surveys by HBED in 1960 and Cominco in 1980 (A.F. 90396, 92423) and prospecting and mapping programs by Falconbridge Ltd. in 1987.

GEOLOGICAL SETTING:

Regional maps were produced by Kalliokoski (1952) and Zwanzig (1984). A layered amphibolite with minor quartz lenses and several quartz-feldspar layers occurs between metagreywacke on the west and quartzofeldspathic gneiss (meta-arkose), conglomerate and hornblendic metasandstone on the east (Fig. 7-1; Zwanzig, 1983; 1984). The layered amphibolite consists predominantly of garnetiferous hornblendite and garnet-plagioclase-hornblende rock, and minor amounts of plagioclase-hornblende rock (metagabbro ?) and gneissic amphibolite with quartz-feldspar lenses in a matrix of 60% of hornblende.

MINERALIZATION:

Lenses of rusty weathered and pyritic amphibolite occur throughout the layered amphibolite rock unit (Gale, 1980). Mineralization exposed in the trenches is associated with a folded garnet-biotite-quartz-feldspar gneiss. Rusty weathered zones, several tens of cm by several metres in area, occur throughout the felsic gneiss. Disseminated pyrite occurs in all of the rusty zones and minor grey quartz veins/lenses are associated with several zones. The rusty weathered zones occur principally along the structural base of the felsic gneiss, but also in late shears within it. Minor mineralization in the amphibolite adjacent to the felsic gneiss indicates that the primary mineralization was probably stratigraphically controlled.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. Probably related to the stratabound mineralization at Location 8 (this volume). (*Edgar Froese (pers. comm., 1996) reports that several trenches have been cut, presumably by Falconbridge, in mineralized rocks within the amphibolite unit at a site approximately 500 m south of the location shown on Figure 7-1.

REFERENCES:

Assessment Files 90396, 92423
Manitoba Energy and Mines, Mines Branch.

Gale, G.H.
1980: Mineral deposit studies - Flin Flon/Kisseynew; **in** Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1980, p. 51-64.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; **in** Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p. 38-45.

Zwanzig, H.V. and Seneshen, D.
1984: Lobstick Narrows-Cleunion Lake; Manitoba Energy and Mines, Mineral Resources Division, Preliminary Map 1984K-1, 1:20 000.

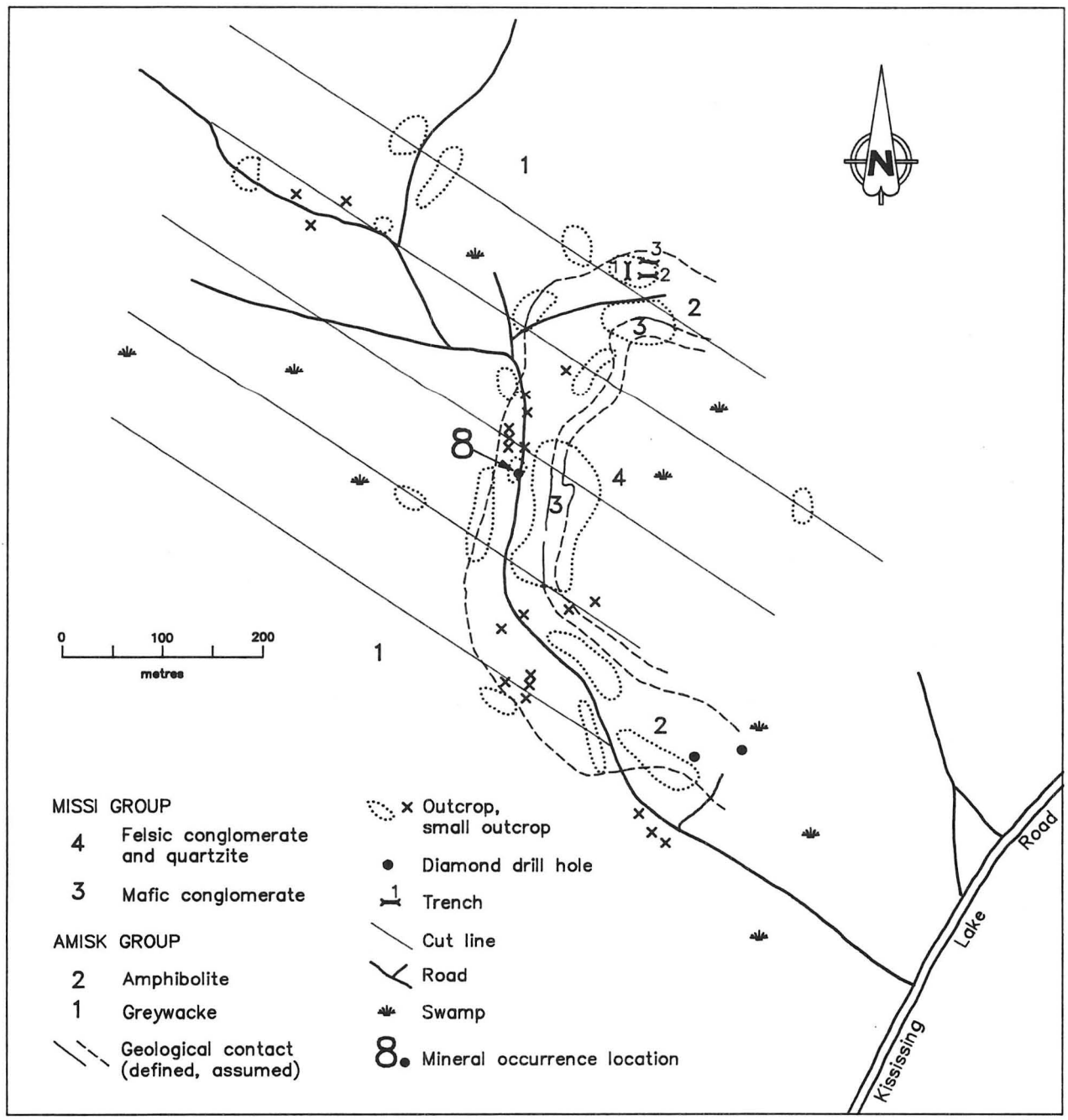


Figure 8-1: Geology and trench locations at occurrence 8. Geology after Parbery (1990).

LOCATION: 8

NAME:
UTM: 6097107N/342115E
ACCESS: Via all weather road from Lobstick Narrows (63K/13) and traverse along four-wheel drive logging road.

AREA: North of Kisseynew Lake (Fig. 7-1)
AIRPHOTO: A24682-77

EXPLORATION SUMMARY:

Sulphide-bearing blocks, disturbed during road building, occur at the western edge of the logging road. Airborne EM surveys were conducted in 1960 by HBED (A.F. 90396) and Cominco in 1980 (A.F. 92423). The area was staked by Kidd Creek Mines Limited in 1984. A rock geochemistry program and trenching was conducted by Falconbridge Ltd. in 1987. Parbery (1990) noted two old diamond drill hole sites (Fig. 8-1).

GEOLOGICAL SETTING:

A band of amphibolitic rocks (Figs. 7-1, 8-1) is structurally underlain by metagreywacke to the west and overlain by protoquartzite, metaconglomerate, meta-arkose and hornblendic meta-arkose (Zwanzig, 1983; 1984). Parberry (1990) interpreted the amphibolite to be a tuff and the siliceous layers within it to be chemical sedimentary rocks.

MINERALIZATION:

Up to 20% pyrite and minor arsenopyrite occur as disseminations, veinlets and centimetre-thick layers within the layered amphibolite. A trace of gold have been reported from this occurrence (M. Morrice, Kidd Creek Mines Ltd., pers. comm., 1984). The sulphide-bearing zone, which is exposed in upturned blocks beside the logging road, is considered to be less than a metre thick. Parbery (1990) reports that several trenches, which occur along strike and north of this occurrence in NTS area 63N/3 (Fig. 8-1), expose three rusty weathered layers, 0.75 to 3 m thick. These rusty weathered layers contain more quartz towards their centres than at their margins and have minor sericite and up to 5% arsenopyrite *cf.* the Nokomis Lake gold deposit (Location 2, Ostry and Trembath, 1992).

GEOCHEMICAL DATA:

Anomalous gold assays in the parts per billion range were reported from this location (M. Morrice, Kidd Creek Mines Ltd., pers. comm., 1984).

CLASSIFICATION:

Chemical sediment type deposit: sulphide facies iron formation.

REFERENCES:

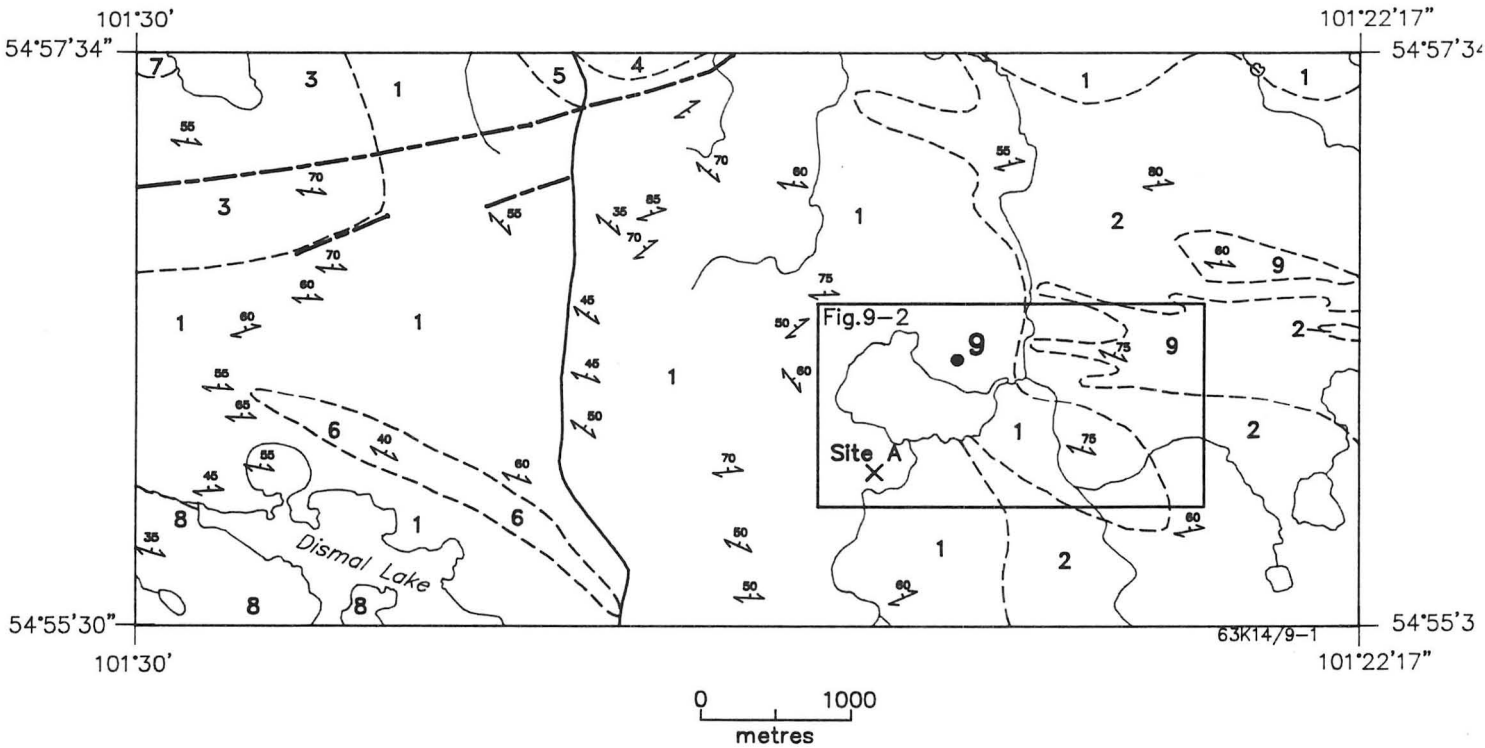
Assessment File 90396, 92423
Manitoba Energy and Mines, Mines Branch.

Gale, G.H.
1980: Mineral deposit studies - Flin Flon/Kisseynew; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1980, p. 51-64.

Ostry, G. and Trembath, G.D.
1992: Mineral Deposits and Occurrences in the Batty Lake area, NTS 63N/2; Manitoba Energy and Mines, Mineral Deposit Series Report 19, 264p.

Parbery, D.
1990: Mineral occurrence investigations in the Lobstick Narrows and Elbow Lake areas (NTS 63K/14, 63K/15 in Manitoba Energy and Mines, Minerals Division, Report of Activities, 1990, p. 87-90.

Zwanzig, H.V.
1983: Kisseynew Project; Lobstick Narrows; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 15-22.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p. 38-45.



INTRUSIVE ROCKS

9 Hornblende granodiorite
8 Biotite granodiorite
7 Gneissic granodiorite
6 Hornblende gabbro

MISSI GROUP

5 Pink gneiss, felsic metavolcanic rocks
4 Quartz–rich gneiss, metasandstone
3 Granitoid gneiss, orthogneiss and paragneiss

AMISK GROUP

2 Pseudo–gabbro
1 Amphibolite, basalt

Geological contact
Foliation, inclined
Fault
Road
9 Mineral occurrence location

Figure 9-1: Geological setting of occurrence 9. Geology after Kalliokoski (1952), Zwanzig (1984) and Zwanzig and Seneshen (1984).

LOCATION: 9

NAME: Ham
UTM: 6090918N/345404E
ACCESS: Via all weather road and traverse.

AREA: South of Weldon Bay
AIRPHOTO: A26331-148

EXPLORATION SUMMARY:

The area was staked in 1958 by HBED. A HLEM survey was conducted in 1958-1959 (A.F. 90398) and 15 holes, total length of core unknown, were drilled in the immediate area in 1959; additional holes were drilled east of the occurrence (A.F. 90398, 90483). Kalliokoski (1952) indicates the presence of garnet at Site A (Fig. 9-1).

GEOLOGICAL SETTING:

Garnetiferous amphibolite and basalt (Fig. 9-1) are intruded by mafic and felsic plutons (Kalliokoski, 1952). Amphibolite, hornblendic granodiorite, biotitic granodiorite, hornblendic gabbro, andesitic rocks and garnetiferous hornblende-plagioclase gneiss were present in the drill cores (A.F. 90483).

MINERALIZATION:

Chalcopyrite, pyrite and pyrrhotite are present in drill core as disseminations, veinlets, veins and lenses in amounts that vary from minor to solid sulphide (A.F. 90398, 90483). Minor amounts of chalcopyrite and pyrite are common in core lengths that vary from a few centimetres (DDH Sap 13) to several metres (DDH Sap 15). DDH Sap 15 (Fig. 9-2) also intersected a 48 cm section of near solid to solid pyrite with a trace of chalcopyrite and a 10 cm section of chalcopyrite and pyrite. A 40 cm section of core from DDH Sap 21 consisted of near solid pyrrhotite and pyrite. In general, most of the sulphides occur as disseminations in andesitic rocks or hornblende-plagioclase gneiss.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit, multiple veins or lenses. The solid sulphide and near solid sulphide sections probably represent sulphide veins (mobilizate?) in a zone of more widely distributed disseminated mineralization within a xenolith of volcanic rocks. However, interpretation of this occurrence as sulphide mobilizate related to a massive sulphide type deposit cannot be ruled out on the basis of the information available.

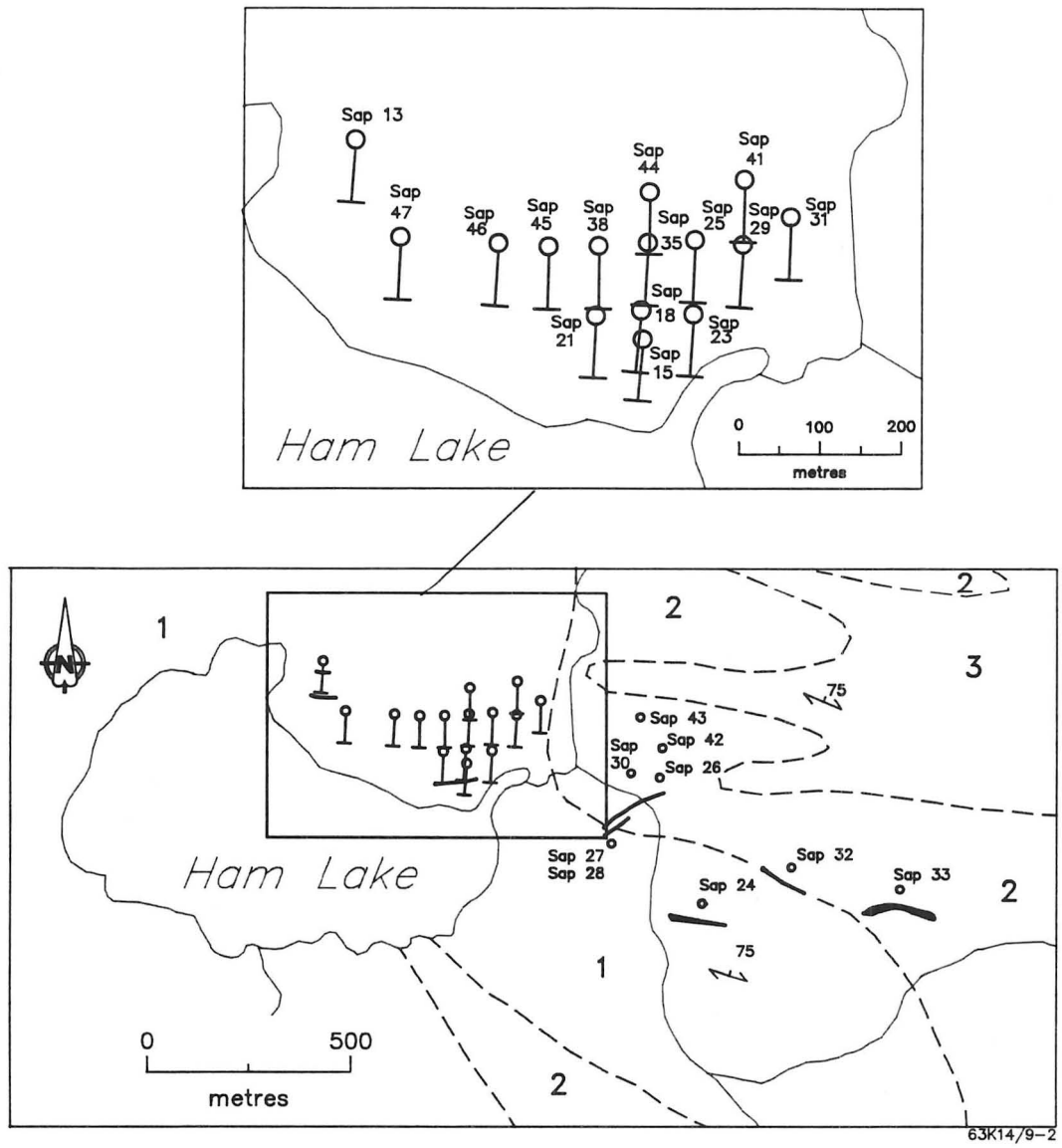
REFERENCES:

Assessment File 90398, 90483
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Zwanzig, H. V.
1984: Kisseynew Project: Lobstick Narrows-Cleunion Lake, Puffy Lake and Nokomis Lake areas; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 38-45.

Zwanzig, H.V. and Seneshen, D.
1984: Lobstick Narrows-Cleunion Lake; Manitoba Energy and Mines, Mineral Resources Division, Preliminary Map 1984K-1, 1:20 000.



INTRUSIVE ROCKS

3 Hornblende granodiorite

AMISK GROUP

2 "Pseudo-gabbro"

1 Amphibolite, basalt

Geological contact

60 Foliation, inclined

Geophysical conductor (EM) (A.F. 90398)

Sap 41 Sap 24 24 HBED drill holes, inclined, vertical (A.F. 90398)

Figure 9-2: Drill hole locations and EM conductors in the vicinity of occurrence 9.

LOCATION: **10**

NAME:
UTM: 6076507N/344483E
ACCESS: Via all-weather road to Sherridon and boat on Nesosap Lake.

AIRPHOTO: A26331-159
AREA: Nesosap Lake

EXPLORATION SUMMARY:

A HLEM survey was conducted on CB 9494 for HBED in 1980. DDH Yap 3 was drilled in 1981 (log not available) and DDH Yap-11 was drilled in 1985 (A.F. 92655).

GEOLOGICAL SETTING:

The geophysical conductors drilled occur within a narrow band of amphibolite (Fig. 10-1) that occur between large bodies of granodiorite and hornblende granodiorite (Kalliokoski, 1952). Feldspar-quartz-biotite gneiss, quartz-chlorite breccia, felsic tuff, gabbro, quartz-feldspar porphyry and greywacke were intersected in DDH Yap-11 (A.F. 92655).

MINERALIZATION:

DDH Yap-11 intersected 5.0 m of "near massive" pyrite. Within this zone there is a 1.0 m section with a trace of chalcopyrite in a slightly graphitic, carbonaceous greywacke matrix. A 1.8 m section of graphitic greywacke contained 15-30% pyrite. Up to 3% pyrite and a trace of chalcopyrite occur as disseminations and filled fractures in a 5.3 m section of chloritic rhyolite tuff (A.F. 92655).

GEOCHEMICAL DATA:

The highest assay values recorded for 26 samples from Yap-11 drill core were 1.1 g/t Au and 4.5 g/t Ag (A.F. 92655).

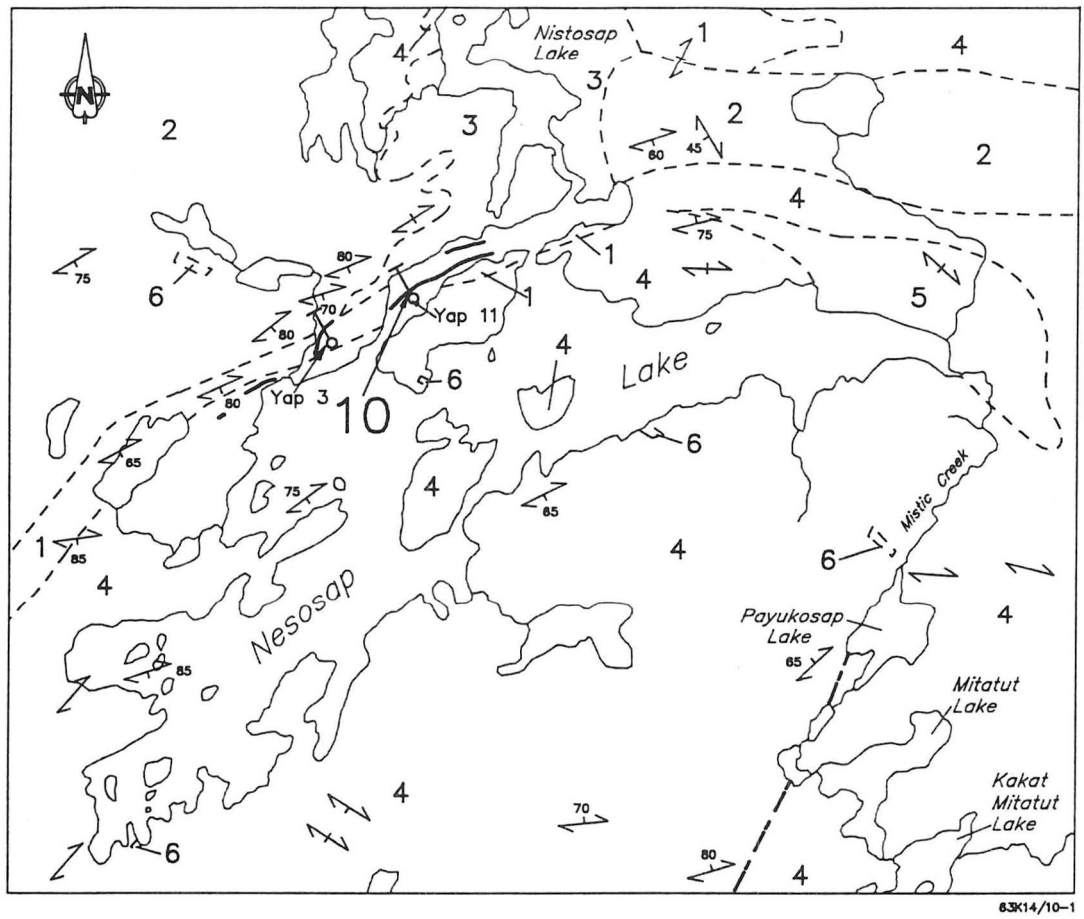
CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92655
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.



PROTEROZOIC

Intrusions

6 Porphyritic quartz latite, quartz latite, dacite; granite–pegmatite

5 Porphyritic latite

4 Hornblende granodiorite; some hornblende quartz diorite and biotite granodiorite; diorite and gabbro

3 Rocks of uncertain relations; all or part may be equivalent to 2,4

2 Granodiorite, quartz diorite, quartz diorite–gneiss

Amisk Group

1 Amphibolite derived from mafic flows

------ Geological contact

— — Fault

75 Foliation (inclined, vertical, dip unknown)

——— EM conductors (A.F. 92655)

⊢o Drill holes (A.F. 92655)

10 Mineral occurrence location

Geology after Kalliokoski (1952).

Figure 10-1: Geological setting of occurrence 10.

LOCATION: **11**

NAME:
UTM: 6079456N/347389E
ACCESS: via boat on Naosap Lake.

AREA: South shore of Naosap Lake
AIRPHOTO: A26331-194

EXPLORATION SUMMARY:

A mineral occurrence was indicated at this locality by Kalliokoski (1952). An old trench (5 x 2 x 2 m) was excavated approximately 3 m from the shoreline; although the area has been staked a number of times, there is no other evidence of exploration activities. Regional AMAG and AEM surveys were conducted over the area by Sherritt Gordon Mines Limited in 1973-74 (A.F. 92020).

GEOLOGICAL SETTING:

Mineralization occurs in an area underlain predominantly by hornblendic granodiorite (Fig. 11-1; Kalliokoski, 1952). Grey to grey pink dioritic to granodioritic rocks are exposed along the shoreline of the lake near the trench. A 60 cm thick dyke of medium- to coarse-grained granodiorite intrudes the diorite exposed in the trench.

MINERALIZATION:

Approximately 5% disseminated pyrite occurs in a fine grained dark coloured siliceous rock at one end of the trench and in the enclosing diorite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 92020
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

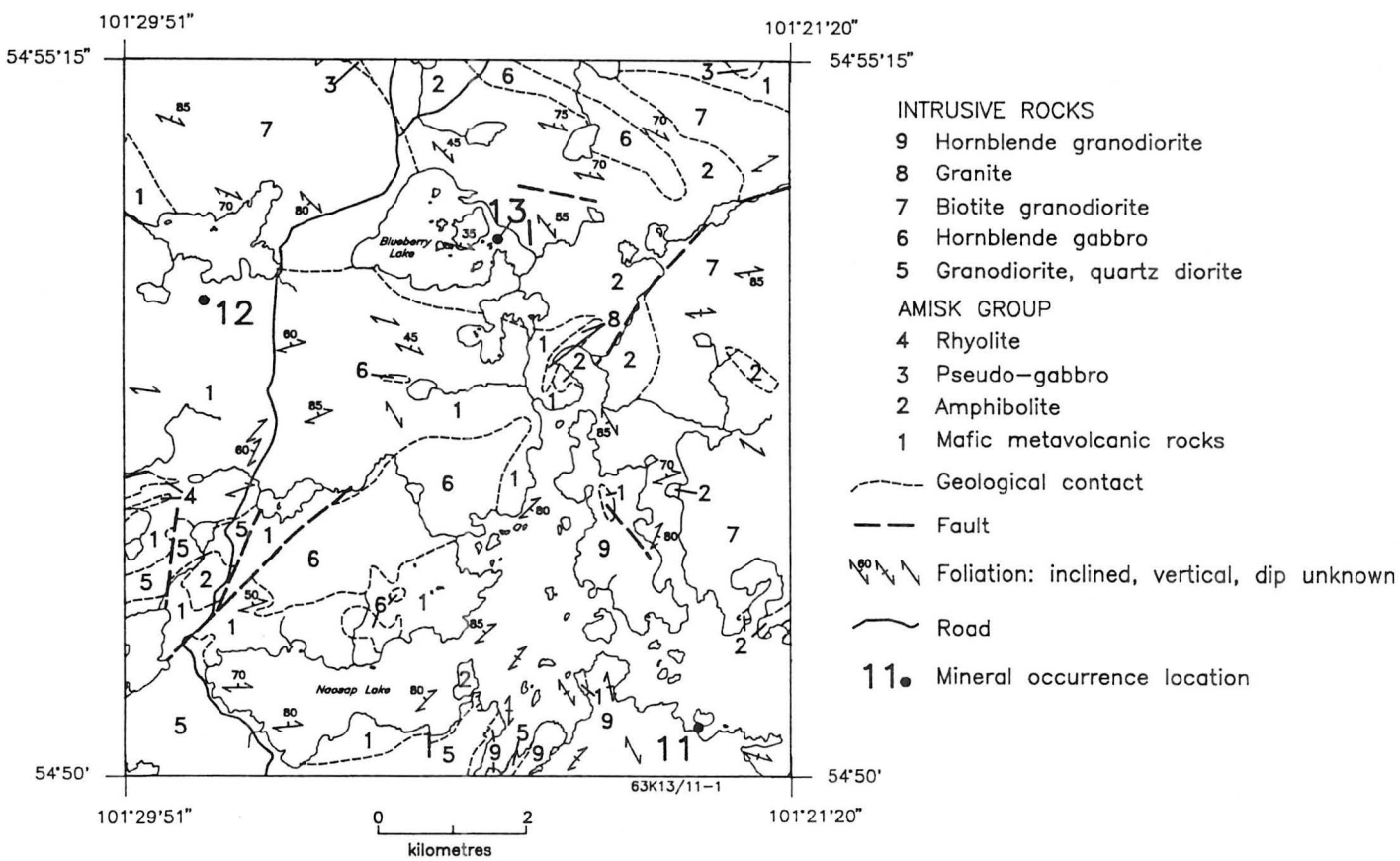


Figure 11-1: Geological setting of occurrences 11, 12 and 13. Geology after Kalliokoski (1952).

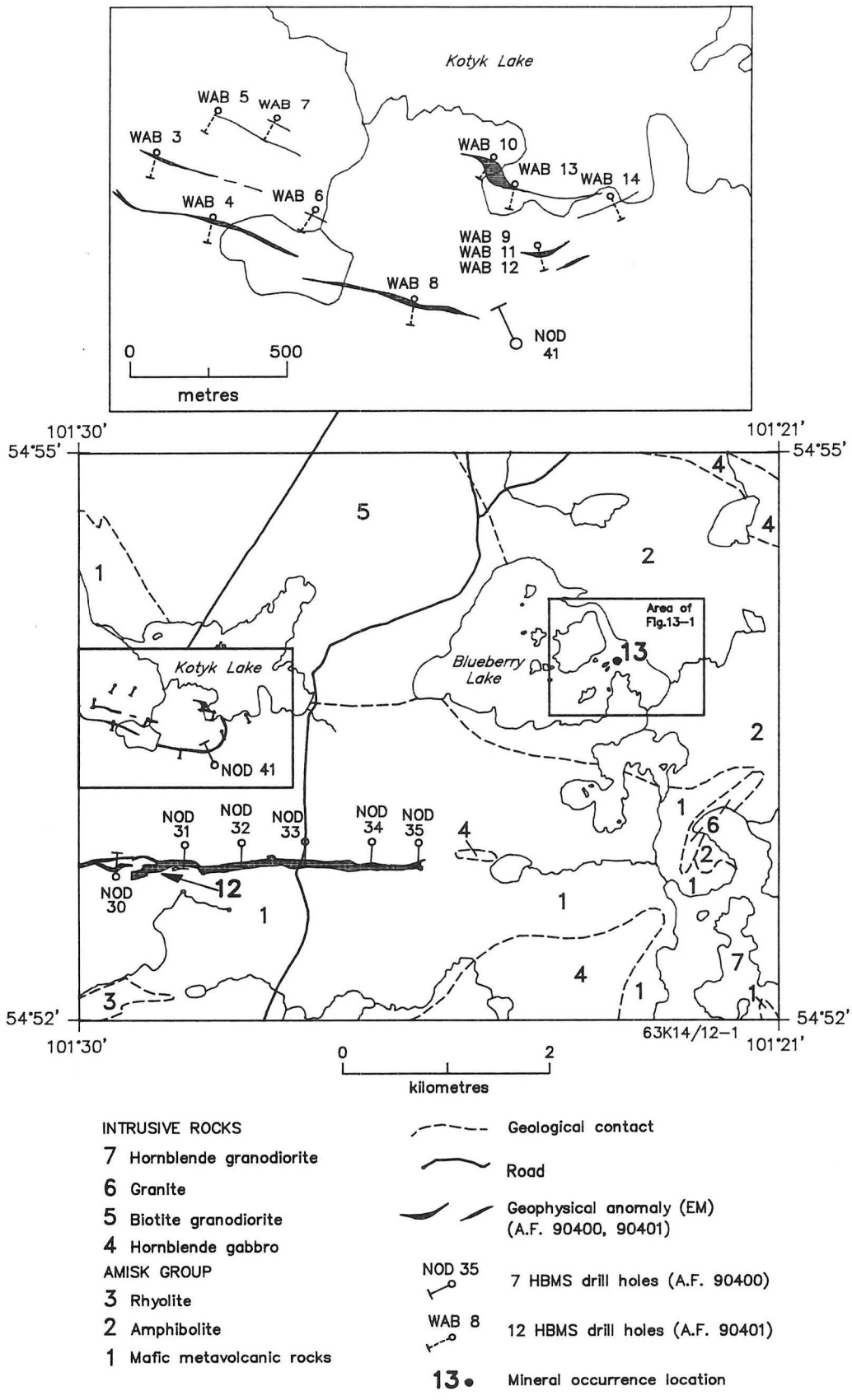


Figure 12-1: Drill hole locations and EM conductors in the vicinity of occurrence 12. Geology after Kalliokoski (1952).

LOCATION: **12**

NAME:
UTM: 6084311N/340427E
ACCESS: Via logging trail from the all-weather road to Sherridon.

AREA: southwest of Blueberry Lake (Fig 11-1)
AIRPHOTO: A26330-270

EXPLORATION SUMMARY:

The NOD group of claims was staked in 1951 by HBED, who drilled seven holes totalling 1569 m (A.F. 90400).

The Web group of claims was staked in 1966 and assigned to HBED. A HLEM survey was conducted during 1966-1967 (A.F. 90487) and 12 holes were drilled in 1968 (A.F. 90401), but drill logs are not available.

The area was included in regional AMAG and AEM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-74 (A.F. 92020). Claim CB 9217 was staked in 1978 for Granges Exploration Aktiebolag and a HLEM survey was conducted in 1980 (A.F. 92376). A 2 x 1 x 1 m trench near the northern edge of a swamp and between drill holes NOD 30 and NOD 31 exposes layered pyrrhotite and graphite.

GEOLOGICAL SETTING:

Mafic volcanic rocks in this area are intruded by mafic and felsic intrusions (Fig. 12-1). Amphibolitic and andesitic rocks, the most common rock types intersected in the drill holes, are intruded by gabbroic dykes that range from several metres to several tens of metres in thickness. Dacitic rocks and graphitic schists were also noted in several drill cores (A.F. 90400).

MINERALIZATION:

DDH NOD 30 intersected trace to minor amounts of pyrrhotite and pyrite in sheared and chloritic andesite. Veinlets of quartz and carbonate were noted throughout the core.

DDH NOD 31 intersected a trace of chalcopyrite, and trace to minor amounts of pyrrhotite and pyrite in sheared andesite, gabbro and dacite. Quartz, common as veinlets throughout the core, also occurs as veins with core lengths of 20 cm and 50 cm. A 11.3 m core interval of silicified fault breccia contained a trace of chalcopyrite and pyrite.

DDH NOD 32 intersected a 14.9 m section of sheared andesite with trace to minor amounts of pyrrhotite that included a 15 cm section of near solid pyrrhotite; a 10.4 m section of dacite and sheared dacite that contained trace amounts to near solid pyrrhotite; a zone of fault breccia with trace amounts to near solid pyrrhotite; quartz veins (0.3 to 1.0 m core lengths) and pyrrhotite; and a 30 cm section of near solid pyrrhotite. One 1.4 m section of dacitic rock contained graphitic schist.

DDH NOD 33 intersected a 100 m section of sheared andesitic and dacitic rocks with trace to minor amounts of pyrrhotite and chalcopyrite. A 1.5 m section of sheared dacite contained segments of graphitic schist.

DDH NOD 34 intersected trace to minor amounts of pyrrhotite in sheared andesite, dacite, gabbro, and a dacitic fault breccia. Quartz veinlets with pyrrhotite and a 35 cm section of near solid pyrrhotite were also intersected.

DDH NOD 35 intersected trace to minor amounts of pyrrhotite ± chalcopyrite in sheared andesite and dacite.

DDH NOD 41 intersected two sections of near solid pyrrhotite (75 cm and 45 cm in length), several intervals with a trace of pyrrhotite ± chalcopyrite ± pyrite, and two quartz veins with core lengths of 25 cm and 60 cm (A.F. 90400).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. In addition, there are multiple veins and veinlets of sulphides and quartz in a broad zone that is sheared and faulted.

REFERENCES:

Assessment Files 90400, 90401, 90487, 92020, 92376
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

LOCATION: **13**

NAME:
UTM: 6086177N/344761E
ACCESS: Via all-weather road to Sherridon and boat.

AREA: Blueberry Lake (Fig. 11-1)
AIRPHOTO: A26331-152

EXPLORATION SUMMARY:

The property was staked in 1954 by John Murray as the Tam group of claims. The claim was optioned to Cove Uranium Mines Ltd. in 1955, who conducted a magnetometer survey (M.I. Card 63K/14 Cu4; A.F. 90485). Two holes, totalling 364 m, were drilled in 1960 by Prospector Airways Co. Ltd. (A.F. 90485). A partly filled trench was located near the southeast corner of Blueberry Lake (Fig. 13-1).

GEOLOGICAL SETTING:

The area is underlain by amphibolitic rocks derived in part from mafic volcanic rocks (Fig. 11-1). The drill holes intersected andesitic rocks that are amygdaloidal in part, and banded rhyolitic tuff that locally contain angular siliceous fragments (A.F. 90485).

MINERALIZATION:

DDH T-1 intersected a 75 cm section of graphitic tuff with near solid pyrrhotite and pyrite and minor amounts of chalcopyrite. Quartz ± carbonate veinlets and veins are common, and a trace of pyrite and chalcopyrite occur in chloritic ± garnetiferous andesite.

DDH T-2 intersected a 1.5 m section of rhyolitic tuff with 40% pyrrhotite, 40% quartz and minor amounts of pyrite and chalcopyrite and a 1.8 m interval with 30 cm of near solid pyrrhotite. In addition, one 45 cm section contained 40% quartz and 2-3% pyrite ± pyrrhotite, and another 45 cm section contained near solid pyrrhotite with minor amounts of chalcopyrite. Quartz ± carbonate ± pyrite veinlets and veins occur throughout the drill core (A.F. 90485).

GEOCHEMICAL DATA:

Ten core samples were assayed and contained up to 0.3 g/t Au, 0.16% Cu, and 0.31 to 0.98% Zn (A.F. 90485).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 90485
Manitoba Energy and Mines, Mines Branch.

Mineral Inventory Card 63K/14 Cu4
Manitoba Energy and Mines, Geological Services Branch.

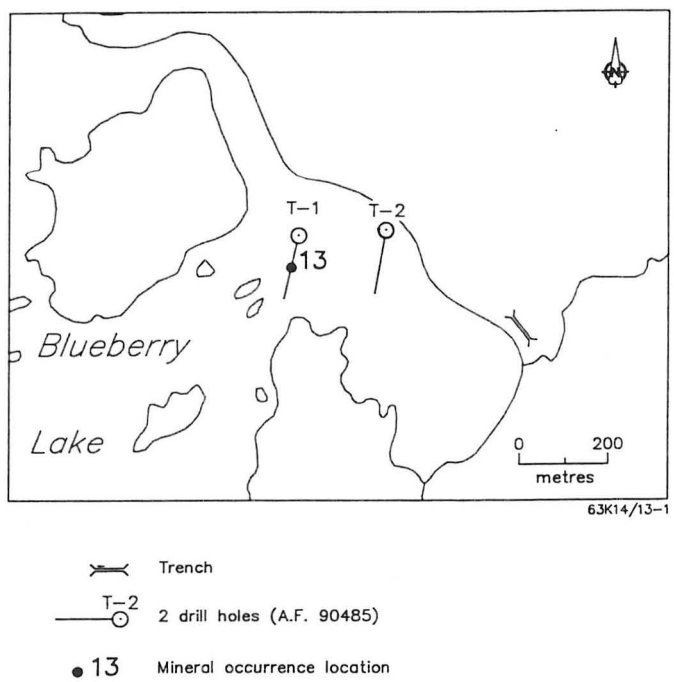


Figure 13-1: Trench and drill hole locations in the vicinity of occurrence 13.

LOCATION: **14**

NAME: Leo
UTM: 6085338N/353353E
ACCESS: Via boat on Naosap Lake.

AREA: Sewap Lake
AIRPHOTO: A26362-139, -140

EXPLORATION SUMMARY:

The property was staked in 1948 by T. Wyckstendt (M.I. Card 63K/14 Pyr1) who drilled ten holes totalling 163 m in 1950 (A.F. 90482). The property was restaked in 1963 and assigned to HBED, who conducted a HLEM survey and drilled five holes in 1964; there are drill logs for three of these holes (A.F. 90478). Kalliokoski (1952) indicated the presence of mineralization at two sites on Sewap Lake. Three trenches were found at one site, but there was no evidence of exploration activity at site A (Fig. 14-1).

GEOLOGICAL SETTING:

Sulphide mineralization occurs in a wedge of amphibolite derived from volcanic rocks that are intruded by hornblende granodiorite and biotite granodiorite plutons and minor diorite (Fig. 14-1; Kalliokoski, 1952).

Drill holes intersected quartzite, biotite-hornblende schist, biotite ± chlorite schists, and hornblende-biotite granodiorite (A.F. 90478).

MINERALIZATION:

Approximately 1% pyrite is present in rock exposures near the trenches (Figs. 14-2, 14-3). Near solid pyrrhotite with 1 cm lenses of chalcopyrite occurs in the rubble at the east end of the southernmost trench (Fig. 14-3). DDH 1, 2, 4 and 8A (Fig. 14-2) intersected near solid to solid pyrrhotite with 5-20% pyrite. Minor amounts of chalcopyrite and sphalerite were present in the drill cores from DDH 2 and 8A. DDH 5, 6, 7, and ASP 5 intersected 3-10 m sections of mineralization that consisted of variable amounts of pyrrhotite and pyrite (0-100%) in veinlets, veins and lenses(?) (A.F. 90478; 90482).

GEOCHEMICAL DATA:

None.

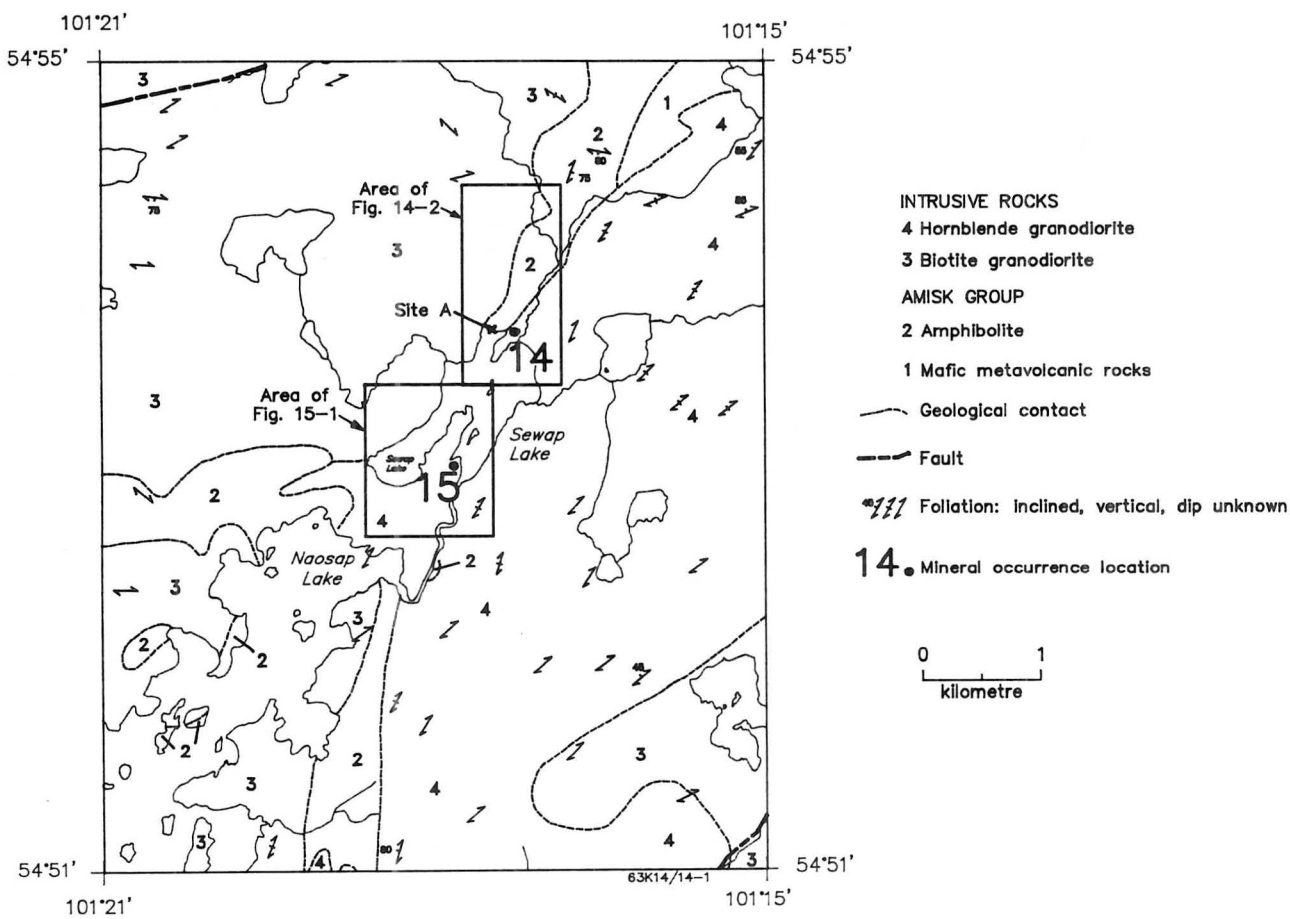


Figure 14-1: Geological setting of occurrences 14 and 15. Geology after Kalliokoski (1952).

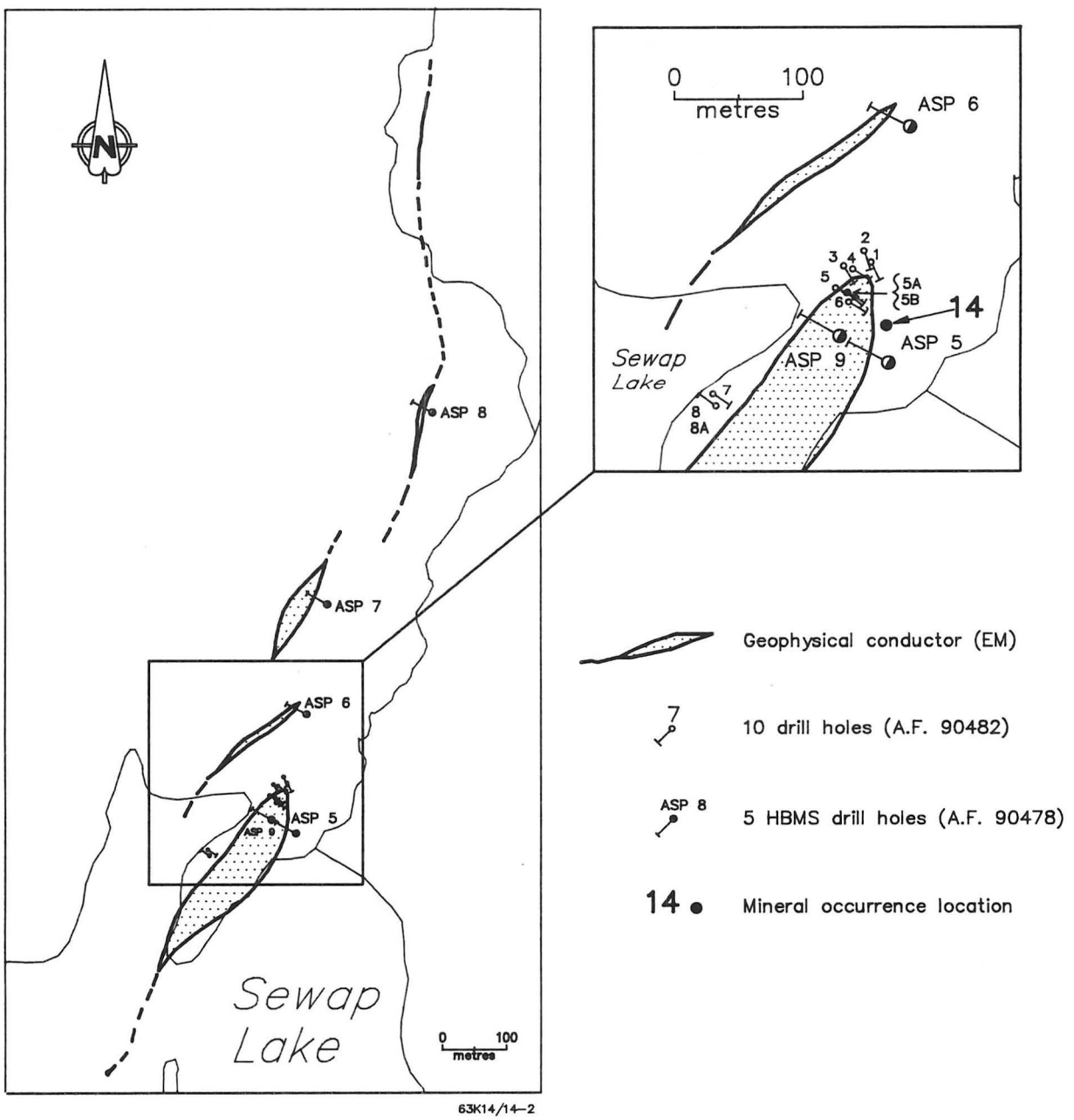


Figure 14-2: Drill hole locations and EM conductors in the vicinity of occurrence 14.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses. The solid sulphide intersections are probably sulphides mobilized from a sulphide facies iron formation similar to that exposed at Location 15.

REFERENCES:

Assessment File 90482, 90478
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

Mineral Inventory Card 63K/14 Pyr1
Manitoba Energy and Mines, Geological Services Branch

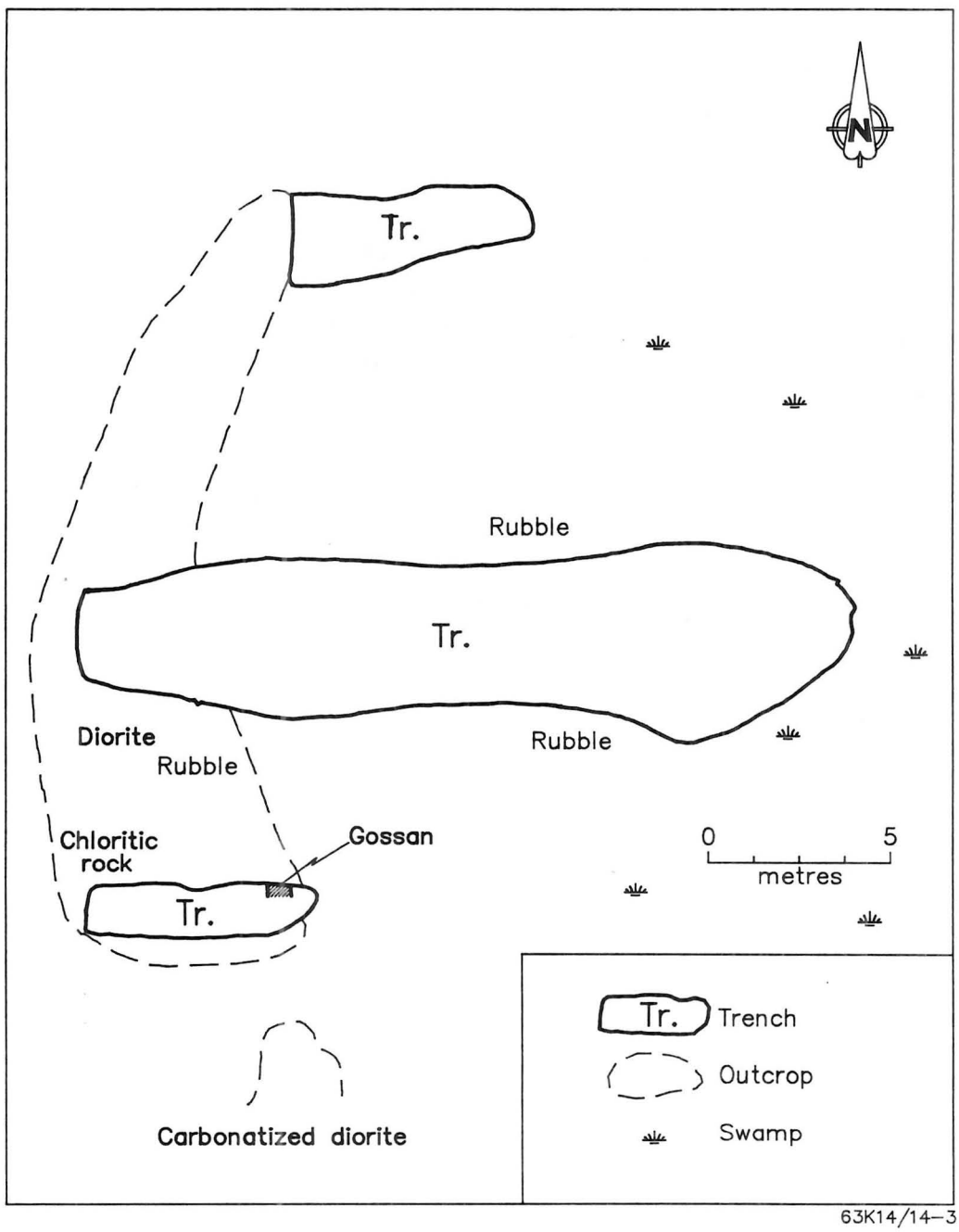
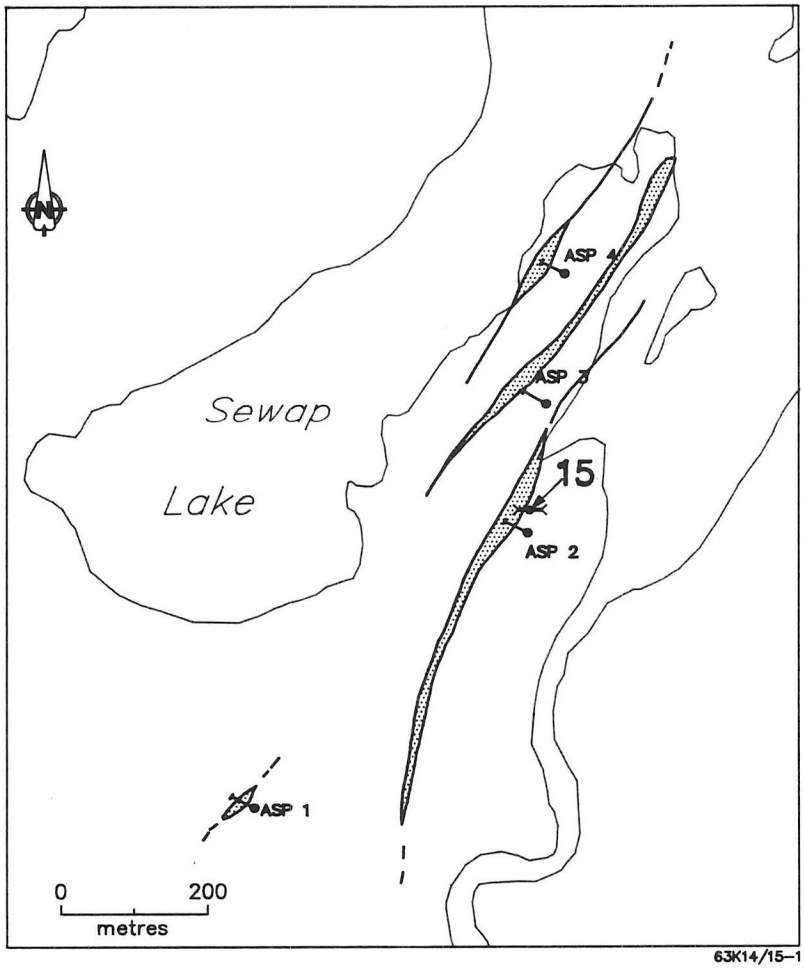


Figure 14-3: Outline of trenches at occurrence 14.



Trench

Geophysical conductor (EM) (A.F. 90478)

ASP 2 — 4 HBED drill holes (A.F. 90478)

.15 — Mineral occurrence location

Figure 15-1: Drill hole locations and geophysical conductors in the vicinity of occurrence 15.

LOCATION: **15**

NAME:
UTM: 6084128N/352717E
ACCESS:

AREA: Sewap Lake (Fig. 14-1)
AIRPHOTO: A26362-132

EXPLORATION SUMMARY:

T. Wyckstendt staked the Leo claims in this area in 1948 (M.I. Card 63K/14 Pyr1). The property was staked in 1963 and assigned to HBED who conducted a HLEM survey and drilled four holes totalling 316 m in 1964 (A.F.90478). The old trench (17 x 3 x 2 m) at this Location (Fig. 15-1) was probably excavated by T. Wyckstendt.

GEOLOGICAL SETTING:

The mineralization occurs in a wedge of amphibolite derived from volcanic rocks within a pluton of hornblende granodiorite (Fig. 14-1; Kalliokoski, 1952).

The drill holes intersected quartzite, biotite-hornblende schist, biotite ± chlorite schists, and hornblende-biotite granodiorite (A.F. 90478).

The host rocks to the mineralization appear to be fine grained biotite diorite and fine grained siliceous (?) granodiorite.

MINERALIZATION:

A zone of pyrrhotite and siliceous rock exposed in the trench includes a vein(?) of near solid pyrrhotite and a lense of 10-60% pyrrhotite and pyrite in a quartz-rich rock of uncertain origin (Fig. 15-2). DDH ASP 4, which was drilled close to the trench, intersected (1) a 30 m 'mineralized zone' that included mica schist with 20-100% pyrrhotite and a trace of chalcopyrite and sphalerite (1.5 m), 2-90% pyrrhotite (1.15 m), 5-40% pyrrhotite, and a trace of chalcopyrite along fractures and foliations; (2) a 3 m section with a trace of gold and pyrite; and (3) a 20 m section of `schists and quartzites' with 0-100% pyrrhotite, 0-5% pyrite and a trace of chalcopyrite. The "mineralized" zones intersected in DDH ASP 2 and ASP 3 had core lengths of 27.4 m and 18.6 m respectively and were similar to that intersected in DDH ASP 4. DDH ASP 1 intersected a 22.9 m mineralized section with 2-100% pyrrhotite, 5-10% pyrite and a 3 mm chalcopyrite vein (A.F. 90478).

GEOCHEMICAL DATA:

Two samples of rubble from the trench with approximately 50% pyrrhotite contained 0.15% Cu and 0.20% Zn and 0.10% Cu and 0.15% Cu and 0.15% Zn, respectively.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

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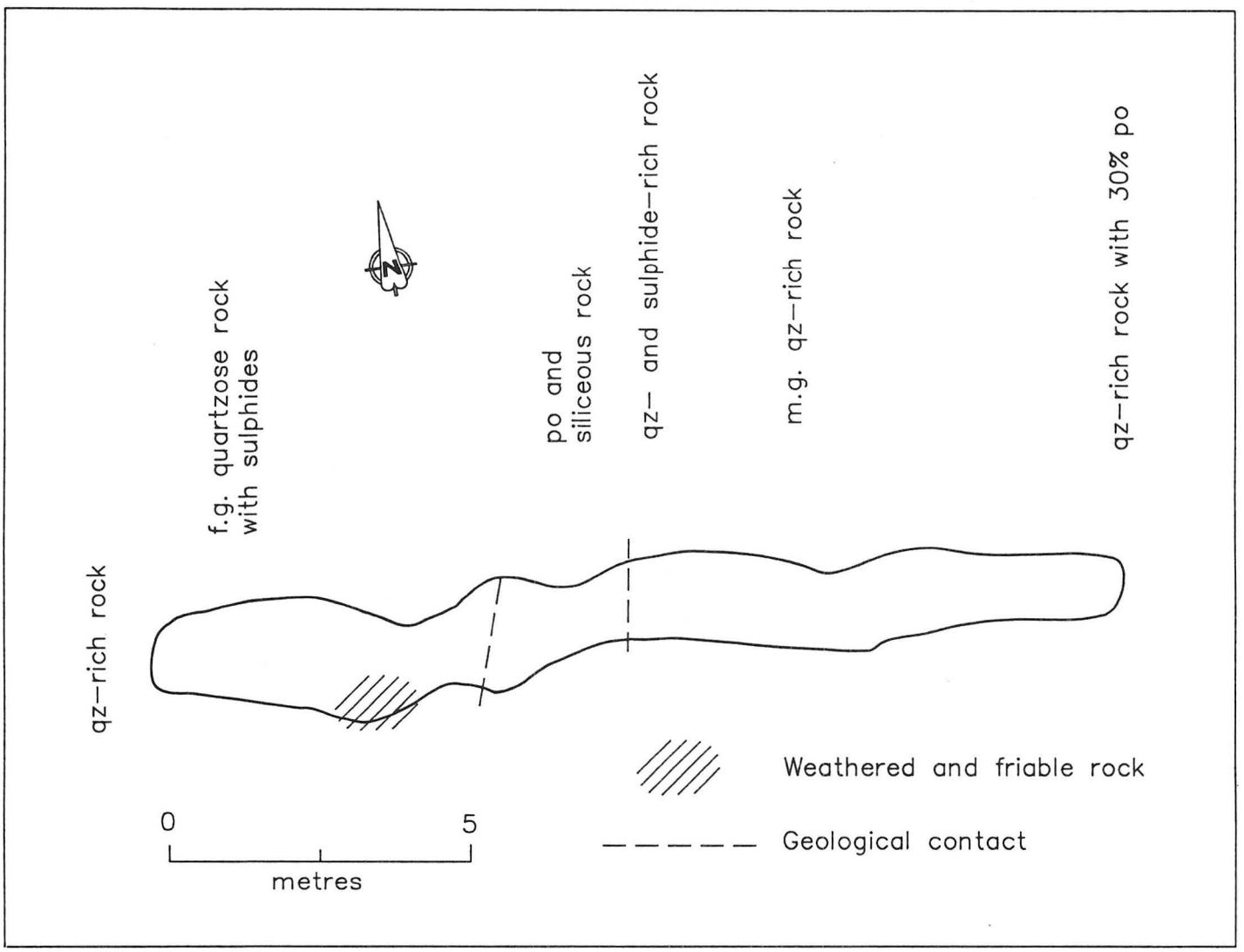


63K14/15–2

Figure 15-2: Outline of trench at occurrence 15.

LOCATION: **16**

NAME: Naosap
UTM: 6082728N/345150E
ACCESS: Via boat on Naosap Lake.

AREA: Naosap Lake
AIRPHOTO: A26331-154

EXPLORATION SUMMARY:

The property was staked in 1948 by T. Wyckstendt who dug a trench and drilled three holes totalling 54 m in 1950 (A.F. 90477). The property was staked in 1958 for HBED who conducted a HLEM survey in 1959 (A.F. 90397). The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-74 (A.F. 92020).

GEOLOGICAL SETTING:

The general area of the occurrence is underlain by massive and layered mafic volcanic rocks (Fig. 16-1). These rocks are intruded by mafic and felsic plutons (Kalliokoski, 1952).

MINERALIZATION:

Near solid to solid pyrrhotite were intersected in DDH 1 (1.5 m) and DDH 2 (1.2 m). Up to 40% pyrrhotite was intersected in DDH 3 (Fig. 16-2). Minor amounts of chalcopyrite and sphalerite are associated with the pyrrhotite in DDH 1 and 3 (A.F. 90477).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 90397, 90477, 92020
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

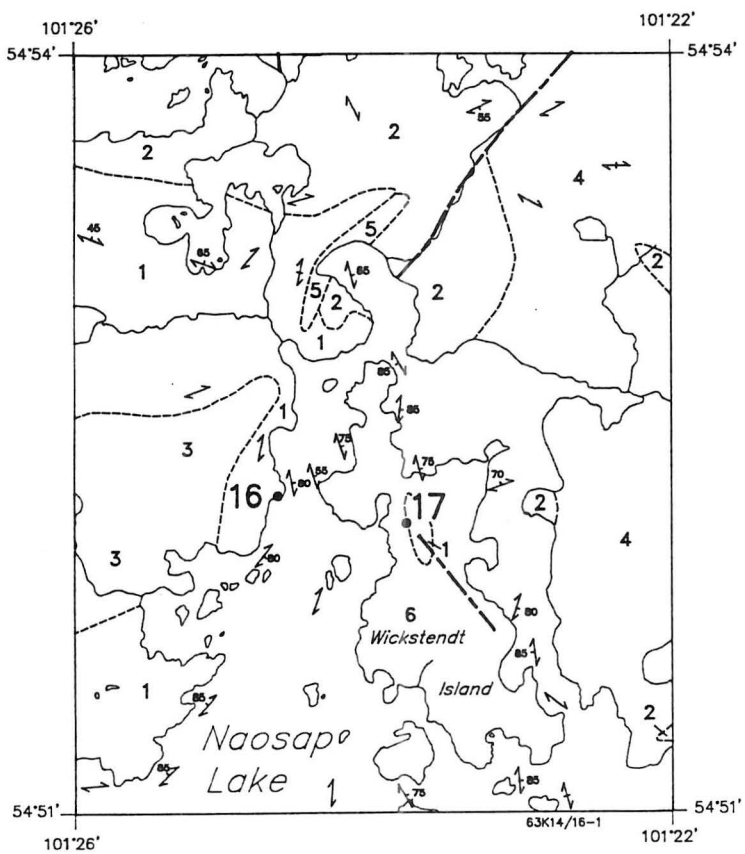
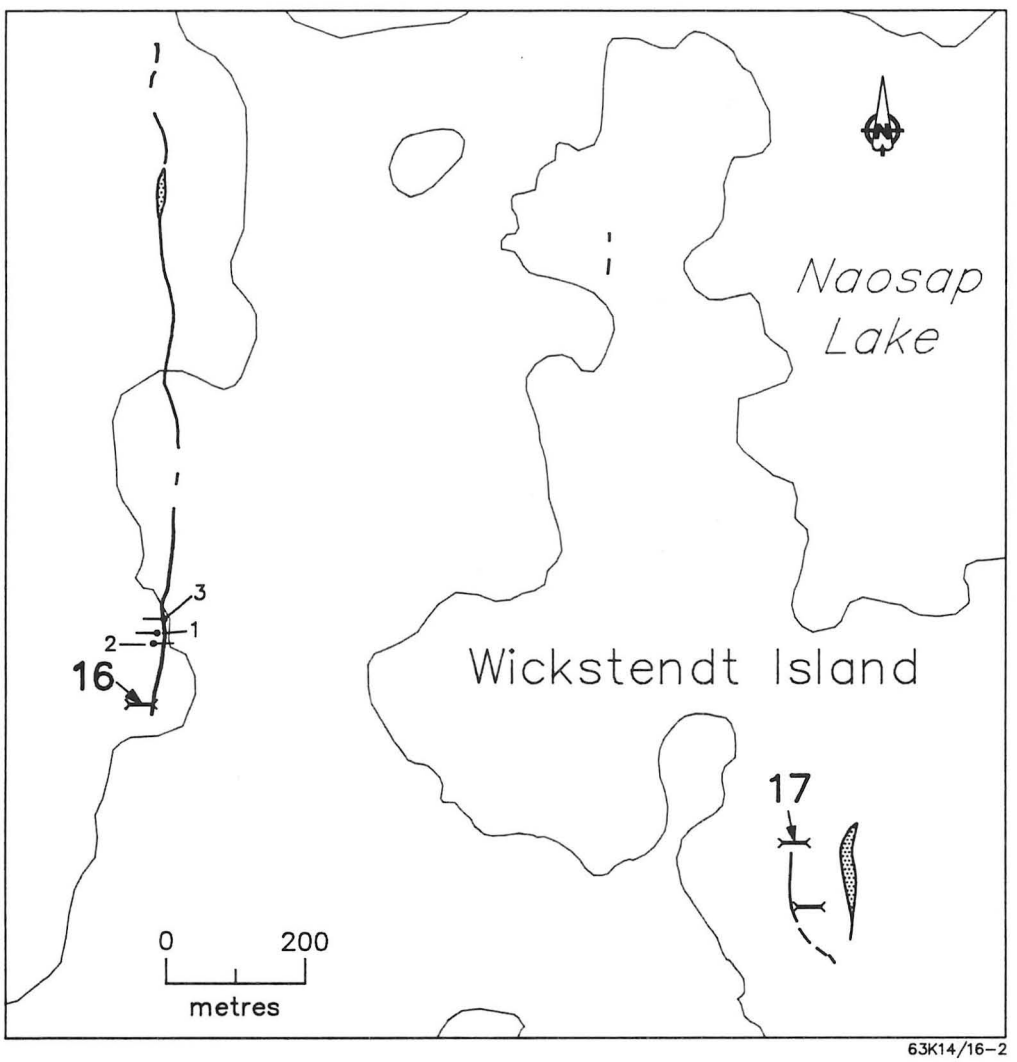


Figure 16-1: Geological setting of occurrences 16 and 17. Geology after Kalliokoski (1952).



Trench

2 — 3 drill holes (A.F. 90477)

Geophysical conductor (EM)
(A.F. 90397)

16 Mineral occurrence location

Figure 16-2: Location of drill holes, EM conductors and trenches in the vicinity of occurrences 16 and 17.

LOCATION: **17**

NAME: Wyckstendt Island
UTM: 6082647N/346286E
ACCESS: Via boat on Naosap Lake.

EXPLORATION SUMMARY:

The property was staked in 1958 for HBED and a HLEM survey was conducted in 1959 (A.F. 90397). Old workings noted by Kalliokoski (1952) include two trenches (4 x 1.5 x 1 m and 10 x 1.7 x 1 m) that were probably excavated by T. Wyckstendt (A.F. 90477). The area was included in regional AEM and AMAG surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-74 (A.F. 92020).

GEOLOGICAL SETTING:

Mafic volcanic rocks on Wyckstendt Island have been intruded by hornblende granodiorite (Fig. 16-1). Kalliokoski (1952) indicates the presence of a fault through the mineralized zone. The host rocks to the sulphides are fine grained mafic volcanic rocks with layers of fine grained siliceous rock.

AREA: Naosap Lake (Fig. 16-1)
AIRPHOTO: A26331-154

MINERALIZATION:

The northernmost trench at Location 17 (Fig. 16-2) exposes 1-2 mm veinlets of pyrite with a trace of chalcopyrite in a sulphide-bearing silicic zone that is subparallel to layers in the volcanic rocks. Approximately 100 m southeast of this trench a 50 cm thick zone of weathered fine grained pyrite (>2%) and graphite(?) are exposed in a small trench.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit; multiple veins.

REFERENCES:

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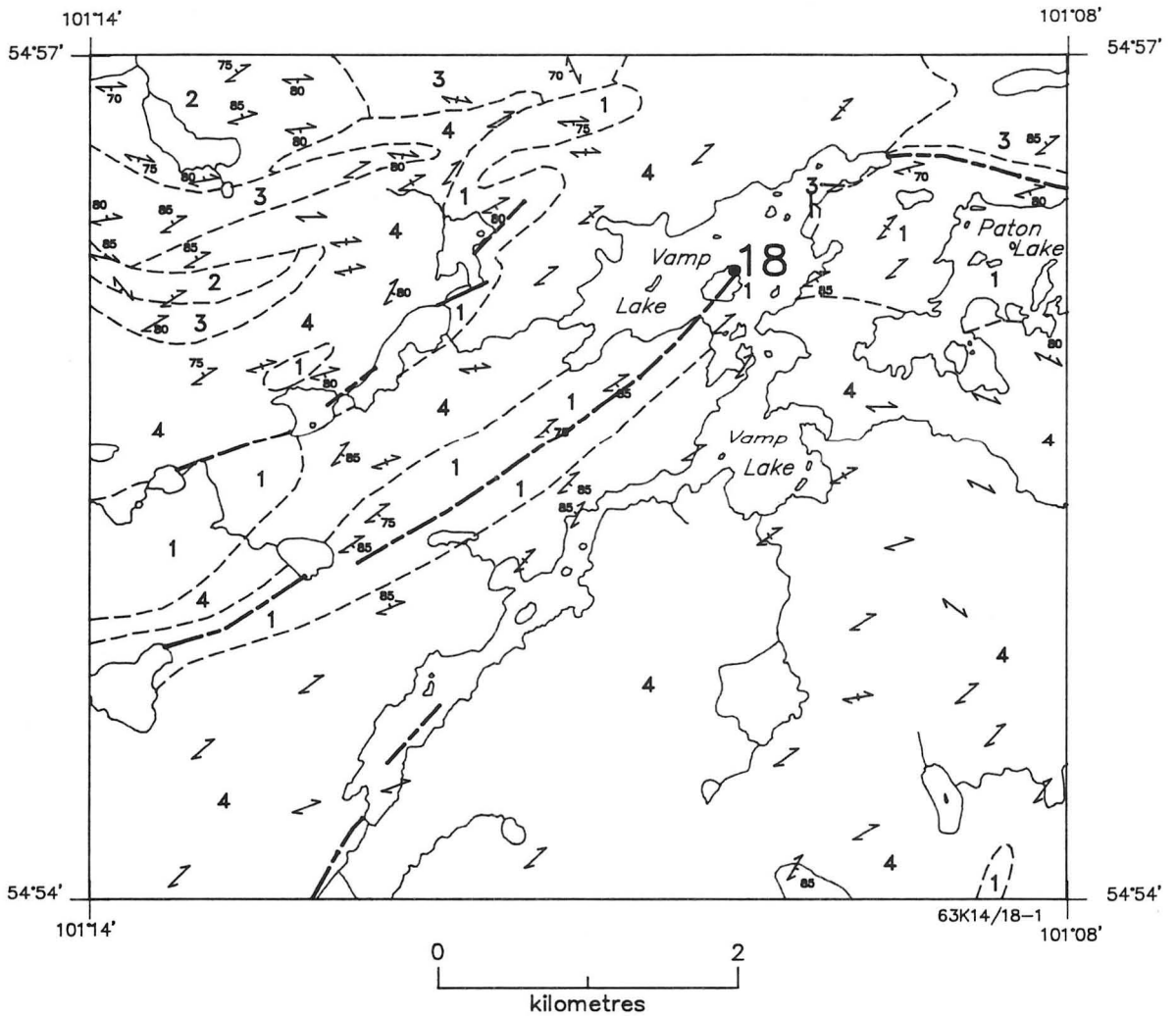

Figure 18-1: Geological setting of the Vamp Lake deposit. Geology after McGlynn (1959).

LOCATION: **18**

NAME: Vamp Lake
UTM: 6089814N/361070E
ACCESS: Via bush aircraft or via all-terrain vehicle along all-weather road to Sherridon.

AREA: Vamp Lake
AIRPHOTO: A26363-242

EXPLORATION SUMMARY:

The property was staked in 1928 by E.R. Patton as the AC claim group and channel samples were collected. Nipissing Mining Company optioned the property in 1929 and reported on a diamond drill program (Miscellaneous File 63K/14; Nipissing Mines Corporation, Corporation File).

F. Whitaker staked the Duke claim in 1940 and L.M. Gordon staked the Lee Gee claim group in 1947 (M.I. Card 63K/14 Cu1). Lee Gordon Mines Ltd. drilled nine holes in 1949 (Lee Gordon Mines Ltd., Corporation File). Canus Petroleum Corporation drilled an additional 22 holes in 1950 (Canus Petroleum Corporation, Corporation File). Magnetic and EM surveys were conducted in 1950-51. Additional drilling was reported in 1952 (Lee Gordon Mines Ltd., Corporation File).

The property was optioned by the Mining Corporation of Canada in 1957. This option was abandoned in 1958 (M.I. Card 63K/14 Cu1).

Drilling was reported by Lee Gordon Mines Ltd. during the spring of 1963. Late in 1963 the property was optioned to Marcon Mines. Prior to Marcon Mines taking control of the property, 83 holes totalling 7 200 m had been drilled on the property (Marcon Mines, Corporation File).

Marcon Mines drilled an additional 6 400 m during 1964-65. In 1965 Lee Gordon Mines Ltd. and Marcon Mines formed Vamp Lake Mines Ltd. to explore the claims (Vamp Lake Mines Ltd., Corporation File).

The property was optioned to HBED in 1968. In 1973 HBED and Vamp Lake Mines Ltd. formed Hudvam Mines Ltd. to explore the claims (Hudvam Mines Ltd., Corporation File) and additional drilling was done (Eric Brown, HBED, pers. comm., 1981). The property was acquired by Mingold Resources Ltd. and optioned to Rayroc Mines Ltd. Golden Range Exploration started a decline ramp in 1987, but stopped after 312 m before reaching the sulphide deposit. The property was acquired by HBED and a drilling program was undertaken on the property during 1993 (A. Baumgartner, HBED, pers. comm., 1993). The property has been mapped at 1:240 and 1:5 000 scales (Wadien and Laznicka, 1986; Wadien, 1993).

GEOLOGICAL SETTING:

The Vamp Lake deposit occurs in a narrow belt of volcanic rocks that have been intruded by plutons of gneissic granodiorite (McGlynn, 1959). R. Wadien undertook a detailed study of the geological setting of this deposit and this summary is taken from that study (Laznicka and Wadien, 1985; Wadien and Laznicka, 1986; Wadien, 1987).

The volcanic rocks (Figs. 18-1, 18-2) comprise basaltic flows and fragmental rocks and rhyodacitic fragmental rocks. The rhyodacitic rocks comprise a 1-3 m thick discontinuous felsic tuff, a feldspar phyric felsic tuff that is up to 9 m thick, and a felsic tuff-breccia (Wadien, 1987).

Stratigraphic tops are interpreted from a pillowed flow to be towards the northwest. A 5 m thick unit of high Mg-Cr-Ni rock, which has been intersected in the drill holes, contains 15.7-16% MgO, 1160-1190 ppm Cr and 240-360 ppm Ni (Wadien, 1987).

A mafic sill (Fig. 18-3), which is a relatively homogeneous rock, is petrologically similar to the basaltic volcanic rocks, but appears to be younger than the volcanic rocks and the mineralization..

MINERALIZATION:

The Vamp Lake deposit consists of two known mineralized zones, the Patton Zone, which is partly exposed on Patton Island, and the Lake Zone, which occurs beneath Vamp Lake at approximately the same stratigraphic level as the Patton Zone (Fig. 18-2).

The Patton Zone consists of two lenses, labelled Zone 1 and Zone 2 by Wadien (1987), which occur on either side of a mafic sill (Fig. 18-3) and have been outlined in a number of old trenches and by diamond drill holes. The mafic sill is not altered and decreases in thickness along strike and in depth. The southern lense (Zone 1, Fig. 18-3) varies from approximately 10% pyrrhotite-rich disseminations to vein type sulphides that grade into near solid lenses of breccia ore in chloritic and sericitic schists; locally, there are solid sulphide veins and lenses up to several tens of centimetres thick. The northern lense (Zone 2, Fig. 18-3), which is well exposed in trenches, consists of concordant and discordant veins of near solid to solid sulphides in sericitic and chloritic schists that are impregnated with disseminated sulphides. This lense contains a 38 m x 42 m x 8 m body of near solid to solid medium grained pyrite located 25 m below the surface. Pyrrhotite-rich mineralization generally occurs as concentrations of approximately 10% sulphides, but locally there are irregular 2 m thick lenses with up to 40-90% sulphides consisting of pyrrhotite, sphalerite, chalcopyrite and pyrite. The Patton Zone sulphide mineralization is contained within a continuous, thin unit of chloritic and sericitic schistose rocks (Wadien, 1987). The non-sulphide portion of the 'mineralized zone' is a homogeneous, garnetiferous intermediate to felsic rock that is interpreted as an altered felsic tuff (Wadien, 1987).

Wadien (1987) interprets the Patton Zone as a conformable stratigraphic unit. The sulphide mineralization exhibits abundant textural evidence of mobilization and deformation; it may represent either a sheared and/or flattened deposit or the distal portion of a stratabound massive sulphide type deposit. Wadien (1987) documents a chloritic alteration assemblage that occurs south of, and is separated from, the Patton Zone by unaltered rock (see also Wadien, 1993).

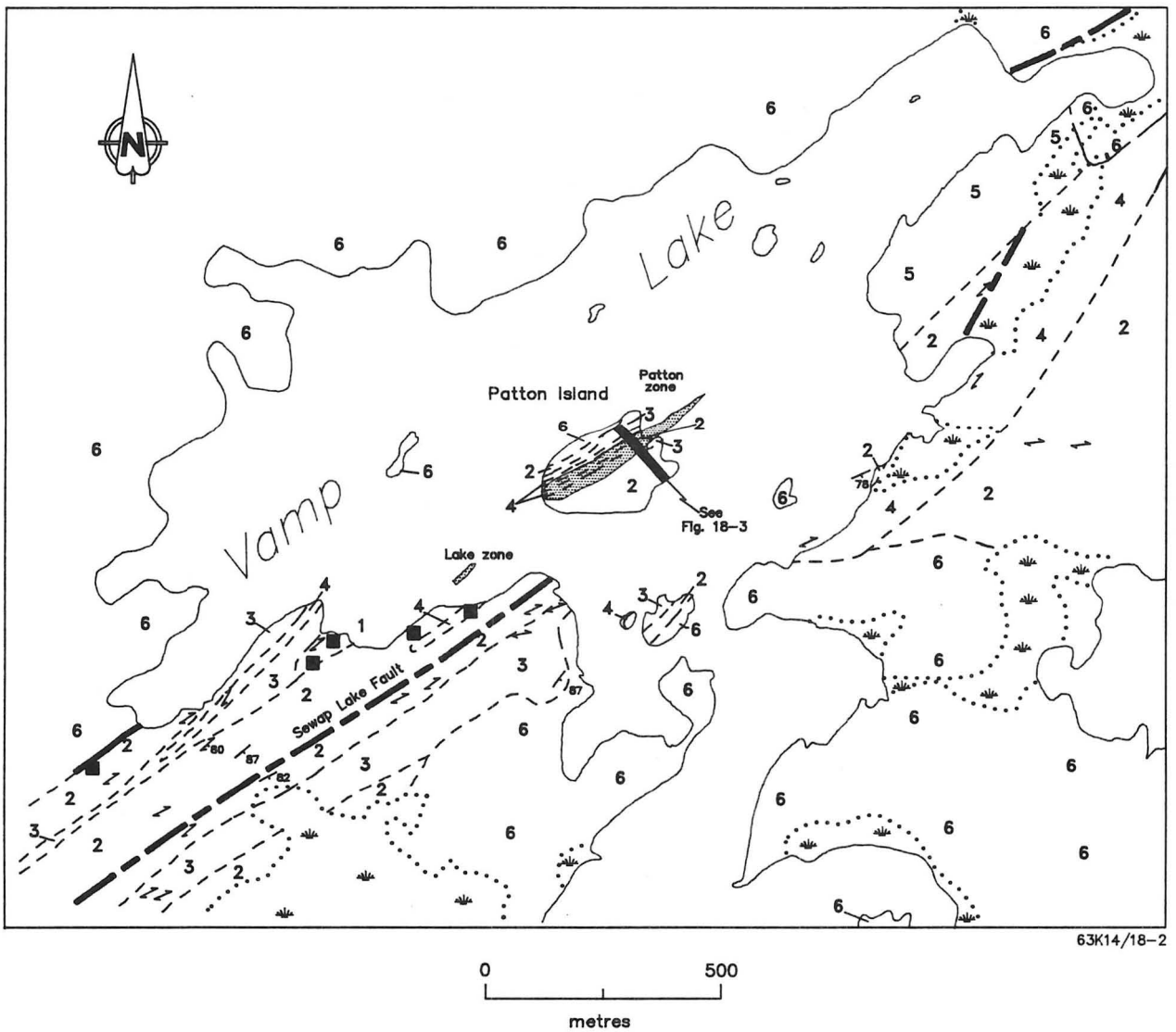

Figure 18-2: Geology of the Vamp Lake area (after Laznicka and Wadien, 1985; Wadien, 1993).

The Lake Zone (Fig. 18-2), which occurs entirely beneath Vamp Lake, is a 90 m x 75 m x 6 m lense of 40-90% sulphides (Wadien, 1987). The medium grained sulphides consist of 60-85% pyrite and 10-35% sphalerite and chalcopyrite. It is enclosed in a thin unit that includes quartz-sericite schist, chloritic schists, and silicified rocks. A zone of alteration southeast of the Lake Zone could represent the westward extension of the Patton Zone or simply a regional shear zone that has intersected a mineralized zone at depth and resulted in mobilization of sulphides along the zone of shear.

GEOCHEMICAL DATA:

The Patton and the Lake Zones combined contain 703 000 tonnes with 1.9% Zn, 1.3% Cu, 12.68 g/t Ag and 3.74 g/t Au as proven, probable and possible reserves (Manitoba Energy and Mines, Annual Report 1988-89). The gold content of the Patton Zone is 2-6 times greater than that of the Lake Zone (Wadien, 1987).

Seventy eight rock samples analyzed for major and trace elements included 29 samples representative of unaltered rocks and 49 from altered rocks. These analyses indicate that the volcanic rocks formed in an island arc type magmatic environment. The altered rocks exhibit an increase in MgO and decrease in CaO, Na_2O and K_2O relative to non-altered rocks (Wadien, 1987; 1993).

CLASSIFICATION:

Stratabound massive sulphide type deposit; volcanic rock associated. The Lake Zone is a typical solid sulphide lense of this deposit type and the altered rocks south of the Patton Zone have the geochemical and mineralogical characteristics of a hydrothermal alteration zone commonly associated with a massive sulphide type deposit. This mineralization represents either a zone of distal exhalative type mineralization or a zone of sheared and mobilized sulphides.

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1985: Vamp Lake, geology and mineralization; **in** Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1985, p. 77-79.

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Marcon Mines, Corporation File
Manitoba Energy and Mines, Mines Branch.

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1987: Geology of the Vamp Lake Cu-Zn sulphide deposit, Manitoba; Manitoba Energy and Mines, Geological Services Branch, unpublished report, 111p.

Wadien, R.S.
1993: Mineralogical and chemical characteristics of hydrothermal alteration associated with the Proterozoic Vamp Lake Cu-Zn sulphide deposit Flin Flon area. University of Manitoba, MSc Thesis (unpublished), 233p.

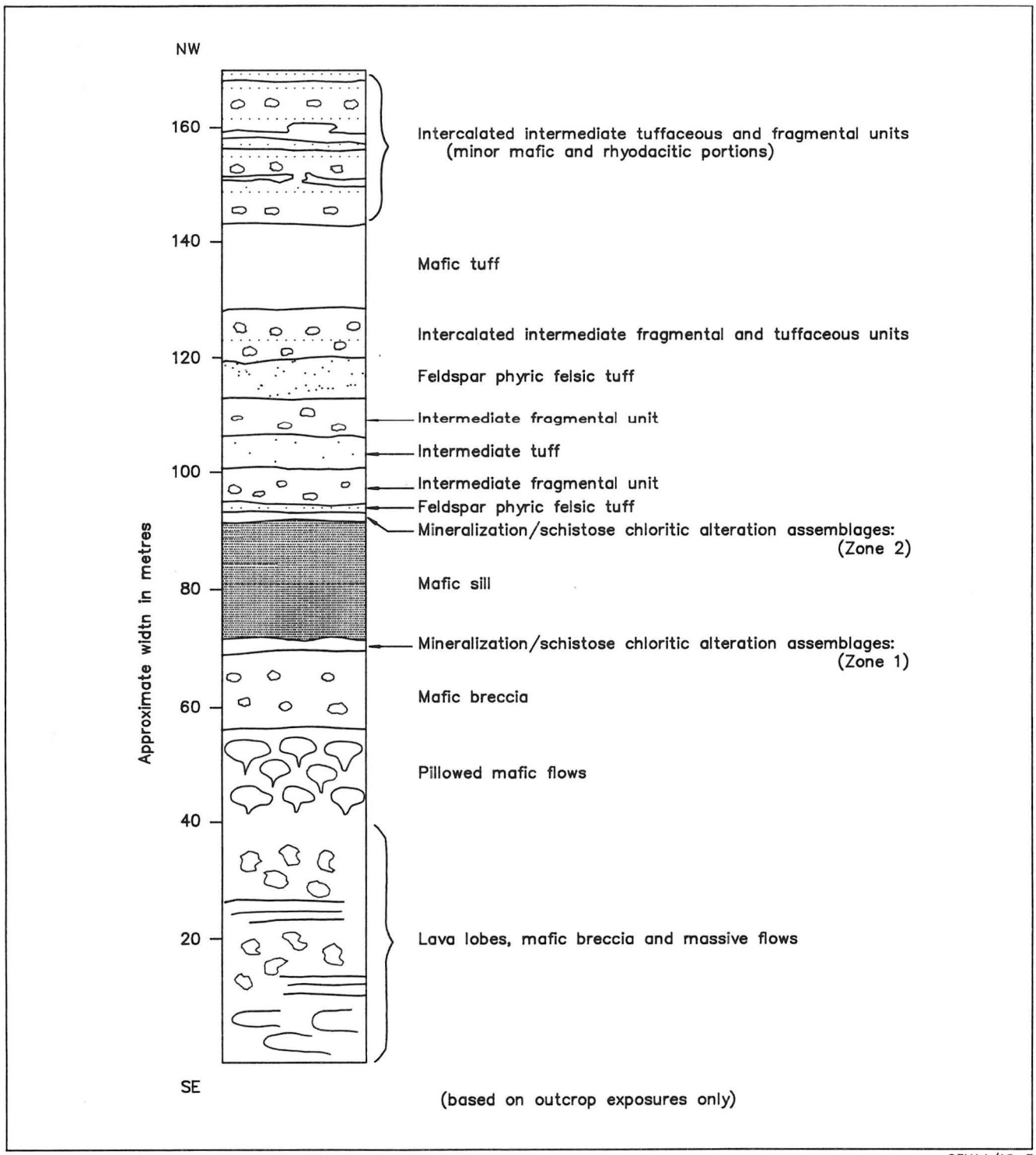

Figure 18-3: Generalized stratigraphic section across Patton Island (from Wadien, 1987).

LOCATION: **19**

NAME: Redwin
UTM: 6092596N/364650E
ACCESS: Via all-weather road to Syme Lake and via boat to Fay Lake.

AREA: Fay Lake
AIRPHOTO: A26363-255

EXPLORATION SUMMARY:

Sulphide mineralization was discovered at this location in the late 1920's by Alfred Redwin. Redwin, in partnership with several others, excavated several trenches on the property prior to the spring of 1931. In 1932 and 1933 three shipments of ore, totalling 229 tonnes, were made to the HBMS smelter (Canus Petroleum Co., Corporation File, 1950); this ore was probably removed from a collapsed shaft. In late 1937, the Copper Chief group of claims was optioned by Fay Lake Mining Syndicate, who dug additional trenches and drilled 10 holes. The option was dropped in late 1938 (Fay Lake Mining Syndicate, Corporation File).

The area around the occurrence was restaked in 1947 and again in 1949 by Alfred Redwin. A diamond drilling program was reported in 1952 (M.I. Card 63K/14 Au2).

The area was staked in 1963 by T.J. Murray and a HLEM survey was conducted in 1964 for Kerr Addison Mines Ltd. (A.F. 90472). In 1968 the property was transferred to Pascar Oils Ltd. who drilled six holes (A.F. 90473). The area was staked in 1972 for HBED. In 1973 HBED conducted a HLEM survey (A.F. 91496, 91563). In 1980 Granges Exploration Aktiebolag staked the area and three holes, totalling 213 m, were drilled in 1982 (A.F. 92463).

GEOLOGICAL SETTING:

McGlynn (1959) indicates that the mafic volcanic rocks of the area are intruded by porphyritic rhyolite and gneissic hornblende-biotite quartz diorite to granodiorite (Fig 19-1). The immediate vicinity of the mineralization (Figs. 19-2, 19-3A, 19-3B, 19-3C) was mapped at a scale of 1:10 000 by Parbery (1986), and described as:

"The Fay Lake area contains a sequence of west-trending mafic metavolcanic rocks that are intercalated with minor felsic volcanic rocks. Outcrops of mafic heterolithic breccia, mafic flow breccia, mafic pillowed flows, amygdular flows and mafic tuffs occur on the large, mushroom-shaped peninsula at the east end of the lake. Hornblende-phyric and massive fine grained sections of mafic rock are believed to be of volcanic origin. Most of the above rock types have a fine grained to aphanitic groundmass and weather medium to dark green. Small diorite-gabbro bodies are found within the mafic volcanic rocks. Outcrops of pillowed, mafic flows are poorly exposed and the pillows have been stretched, making the determination of top directions difficult; tops may be towards the south.

Felsic rocks are aphanitic, weather pink-orange to buff-white and resemble very fine grained intrusions; however, a few outcrops of felsic rock are quartz-phyric and one outcrop contains possible quartz amygdales. Most of the felsic volcanic(?) rock is located in the southern part of the map area." p. 54.

MINERALIZATION:

Wright (1931) describes the mineralization in this area as:

"The pit farthest west exposes 4 1/2 feet of jointed andesite and chlorite schist carrying white iron sulphide in grains and veinlets, some of which are 2 1/2 inches thick. Only a few specks of chalcopyrite were noted near quartz stringers crossing the schistose andesite. The trenches at the middle locality are for the most part in a grey siliceous rock believed to be a fine-grained, marginal phase of the granite mass. In thin section this rock is mainly of irregular-shaped quartz grains with some kaolinized feldspar, flakes of biotite, chloritic material, cubes of pyrite, and grains of pyrrhotite. Where jointed this acidic rock is heavily mineralized with sulphides. The pyrite and pyrrhotite almost completely replace a body of this rock up to 20 feet wide, and chalcopyrite occurs along both margins of this sulphide mass. Some samples from the chalcopyrite-bearing sections assay 2% copper. Veinlets of quartz cut the jointed rock and the sulphide body; a speck of free gold was found in one specimen of dark-coloured, vitreous quartz. Near the quartz veinlets, chalcopyrite is more plentiful than elsewhere and occurs in narrow streaks through the pyrrhotite. The pyrrhotite and pyrite are in small crystals and grains, some specimens from the areas of more massive sulphides being almost dense in appearance. The massive pyrrhotite contains spheres up to 1 1/2 inches in diameter of crystals of pyrite. The sulphide body at the locality farthest east is very similar in general character to the middle deposit. Andesite is the wallrock at the east locality. Veins of quartz are more abundant than at the other localities. One quartz vein in the north or hanging-wall side at the east end of this deposit is a foot wide, and the body of massive pyrrhotite close to the larger quartz vein carries abundant chalcopyrite. The quartz carries free gold, but the average combined gold and copper content of the large pyrrhotite and pyrite bodies is low." (p. 39c-40c).

Brownell (1931) describes mineralization on the Copper Chief No. 11 claim, which appears to be the eastern zone described by Wright (1931).

The mineralization referred to by Wright (1931) as "The pit farthest west..." is located at Site D (Fig. 19-2), "The trenches at the middle locality" are located between DDH OP17 and No. 6 (Fig. 19-2) and "The sulphide body at the locality farthest east..." are located in the vicinity of the shaft shown on Figure 19-2.

Near solid to solid sulphides (pyrrhotite > pyrite) occur in the rubble around the trenches and were intersected in DDH No. 1, No. 2, No. 3, No. 4, No. 6, Op 17, Op 18, and Op 19 (A.F. 90473, 92463).

Brownell (1931) described a lenticular mass of gold-bearing quartz (2.1 x 4.3 m) in a shallow trench located 73 m east of the shaft shown in Figure 19-2. A quartz vein with gold was also reported by Brownell (1931), but its location is uncertain.

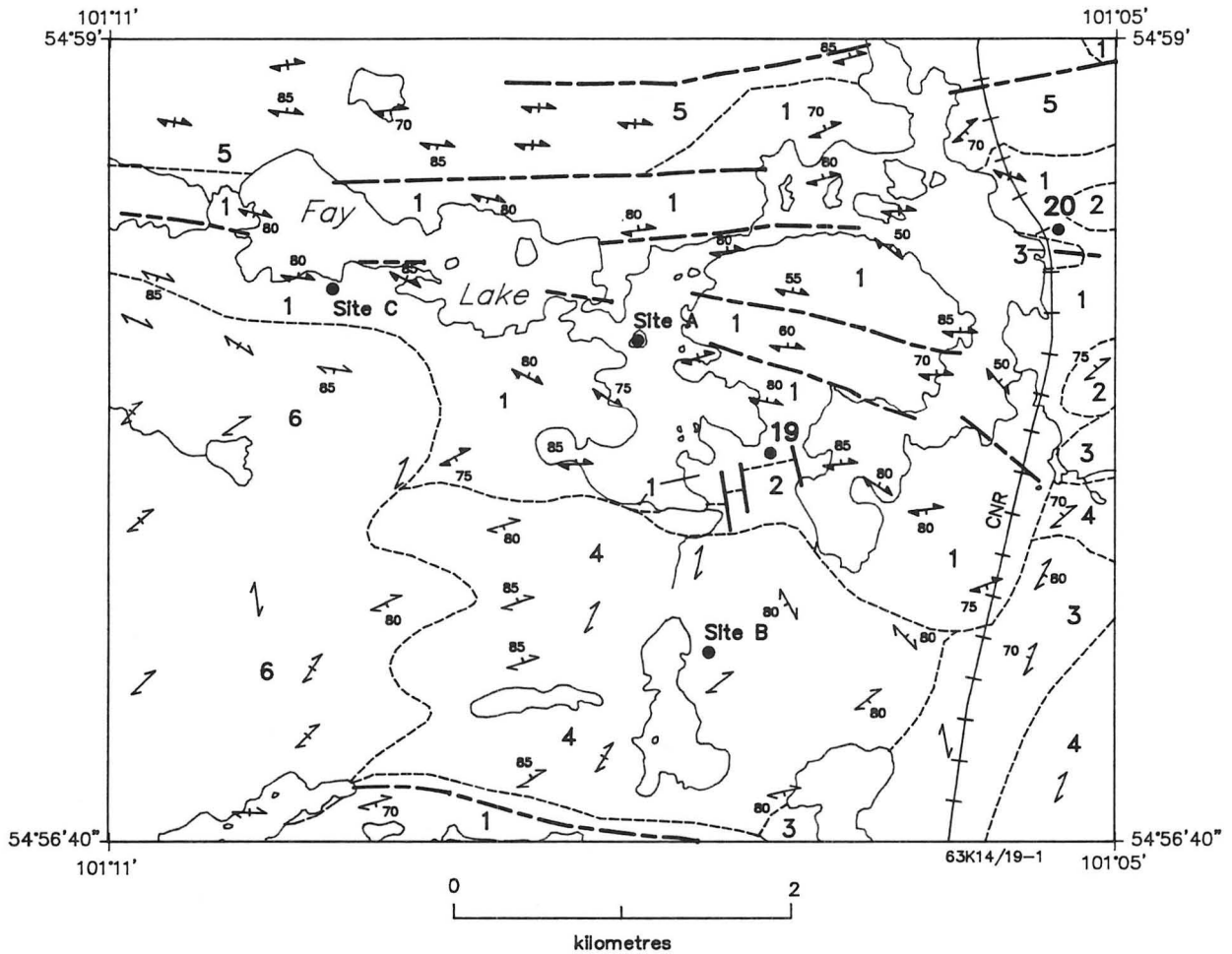

Figure 19-1: Geological setting of occurrences 19 and 20. Geology after McGlynn (1959), Parbery (1986), and Schledewitz (1990, 1992).

Wright (1931) describes mineralization in the general vicinity of Site A (Fig. 19-1) as:

"Copper Chief. Two schist zones within the lavas on the Copper Chief group carry sulphides in small quantities. Several trenches have been dug along one of the schist zones on the north side of an island in the entrance to the second bay south from the east end of Fay Lake, and about 2,000 feet northwest of the west trench shown on the plan of the B.C. Copper group .... Here parts of a bed of garnet-bearing schist about 100 feet thick, carry quartz in veinlets and small lenses and some pyrite, pyrrhotite, and chalcopyrite in scattered grains. The garnet-bearing rock exhibits bedding where it is not too highly schistified and may be a recrystallized, tuff-like layer within the lavas. Widths of 20 feet or more of the schistose rock carry sulphides, but at no point noted was chalcopyrite abundant enough, even across narrow sections, to make an ore of copper." (p. 40-41c).

Site B (Fig. 19-1) is the approximate position of mineralization described by Wright (1931) as:

"Sundown Group. A pyrrhotite-pyrite body containing some chalcopyrite has been exposed by three trenches on the Sundown group at a point about 3,300 feet south of the west trench shown on the plan of the B.C. Copper deposits .... The deposit on the Sundown group is in andesite a few hundred feet west of the main granite mass. The andesite near the trenches is cut by small bodies of granite. The sulphide body has been traced 300 feet along the side of a swamp, and at one point sulphides occur across a width of 10 feet. This deposit is very similar in its general features to the deposits on the B.C. Copper group." (p. 40c).

Site C (Fig. 19-1) is the approximate location of the Pembroke group described by Wright (1931) as:

"Some surface trenching has been done on the Pembroke group at the west end of Fay lake, to explore zones of schist. The bedrock is andesite cut by small dykes of granite. Most of the work has been done along the south shore of the lake where a wide zone of chloritic schist was followed 2,500 feet along the strike. No large mass of schist was uncovered wherein chalcopyrite was abundant." (p. 41c).

The reader should note that the mineralizations at Sites A, B and C have not been confirmed by field checks and the locations of the occurrences are considered to be only approximate. The descriptions given Wright (1931) are provided here simply to alert the reader to the presence of other mineralization in the area even though an exact location cannot be provided.

GEOCHEMICAL DATA:

A 2.6 m long section of near solid sulphides from the shaft area reportedly assayed 2.5% Cu, 0.1 g/t Au, 30 g/t silver and a "small amount" of zinc. A 1.1 m section of quartz vein contained 22 g/t Au and included a 45 cm section (presumably the quartz vein) with 53 g/t Au. Samples from a quartz lense contained 8.2 to 54 g/t Au (Brownell, 1931).

Gold values of 26 to 34 g/t over vein widths of 3.0 to 6.1 m were reported from a drill program in 1938 (Fay Lake Mining Syndicate, Corporation File).

Drill core assays of up to 6.2 g/t Au, 0.45% Cu, 0.09% Ni and 0.71% Zn were reported for DDH 1 to 8 (A.F. 90473). DDH Op 7 intersected a 76 cm section with 1.01% Cu and 0.3% Zn. Other drill core assays for DDH Op 17, 18, 19 and 20 (A.F. 92463) were similar to those reported for DDH No. 1 to No. 8 (A.F. 90473).

The three shipments of ore sent to the Flin Flon smelter consisted of: (1) 42.6 tonnes 14.6 g/t Au, 50 g/t Ag and 0.2% Cu; (2) 40 tonnes of 15.7 g/t Au, 7.9 g/t Ag and 0.65% Cu; and (3) 147 tonnes of 4.5 g/t Au, 4.5 g/t Ag and 0.51% Cu (Canus Petroleum Co., Corporation File).

Major element and trace element analyses for selected samples are presented in Table 19-1. The major element analyses do not exhibit sodium depletion. Gold values are erratic.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The vein type mineralization is probably sulphide mobilizate. This mineralization probably represents the distal portions of a massive sulphide type deposit.

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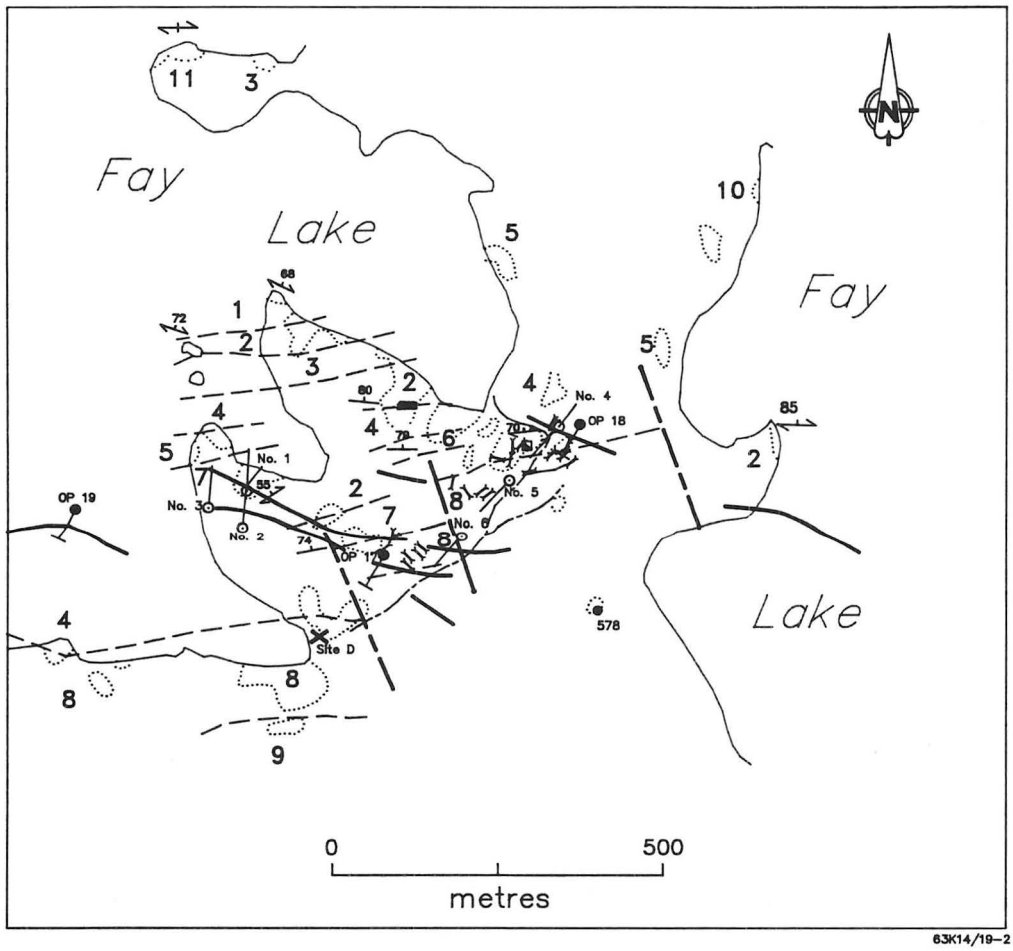
Wright, J.F.
1931: Geology and mineral deposits of a part of northwestern Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.



11 Pillowed mafic flow
10 Gneissic mafic rock
9 Granodiorite
8 Felsic volcanic rock
7 Mafic volcanic rock
6 Mafic flow breccia
5 Plagioclase phyric basalt
4 Hornblende phyric basalt
3 Mafic heterolithic breccia
2 Quartz amygdaloidal basalt
1 Pillow breccia

Geological boundary
Foliation (inclined)
Layering (inclined)
Outcrop
Fault (postulated)
Felsic dyke
Trench
Shaft

EM conductor (A.F. 91563,92463)
Drill holes:
(A.F. 90473)
(A.F. 92463)
Trail
Site location
Sample location (81-6-578)

Figure 19-2: Outcrop, trench, EM conductors and drill hole locations at the Redwin occurrence.

Table 19-1
Major and trace element analyses of samples from the Redwin occurrence.
Analyses performed at Manitoba Energy and Mines Analytical Laboratory using gravimetric and Atomic Absorption techniques

Sample #	SiO_2	$A1_2O_3$	FeO(T)	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	H_2O	S	CO_2	Au	Cu	Zn
81-6-578	73.4	11.8	3.32	3.69	0.62	2.71	1.80	0.3	0.11	0.05	0.71	0.14	0.36			
81-6-576	68.6	11.3	6.14	1.89	3.04	1.77	2.87	0.3	0.10	0.08	1.60	0.39	0.26			
81-6-542	73.2	11.5	2.90	3.71	1.06	2.29	1.66	0.2	0.11	0.06	1.20	0.24	0.63			
81-6-538														701	1400	285
81-6-545														222	412	53
81-6-546														548	793	4750
81-6-550														60	623	80
81-6-512														<12		
81-6-514														726		
81-6-515														52		
81-6-517														<12		
81-6-539														193		
81-6-540														<12		
81-6-541														<12		
81-6-551														5804 (0.15 oz Au/ton)		

Au in ppb, Cu and Zn in ppm, others in %.

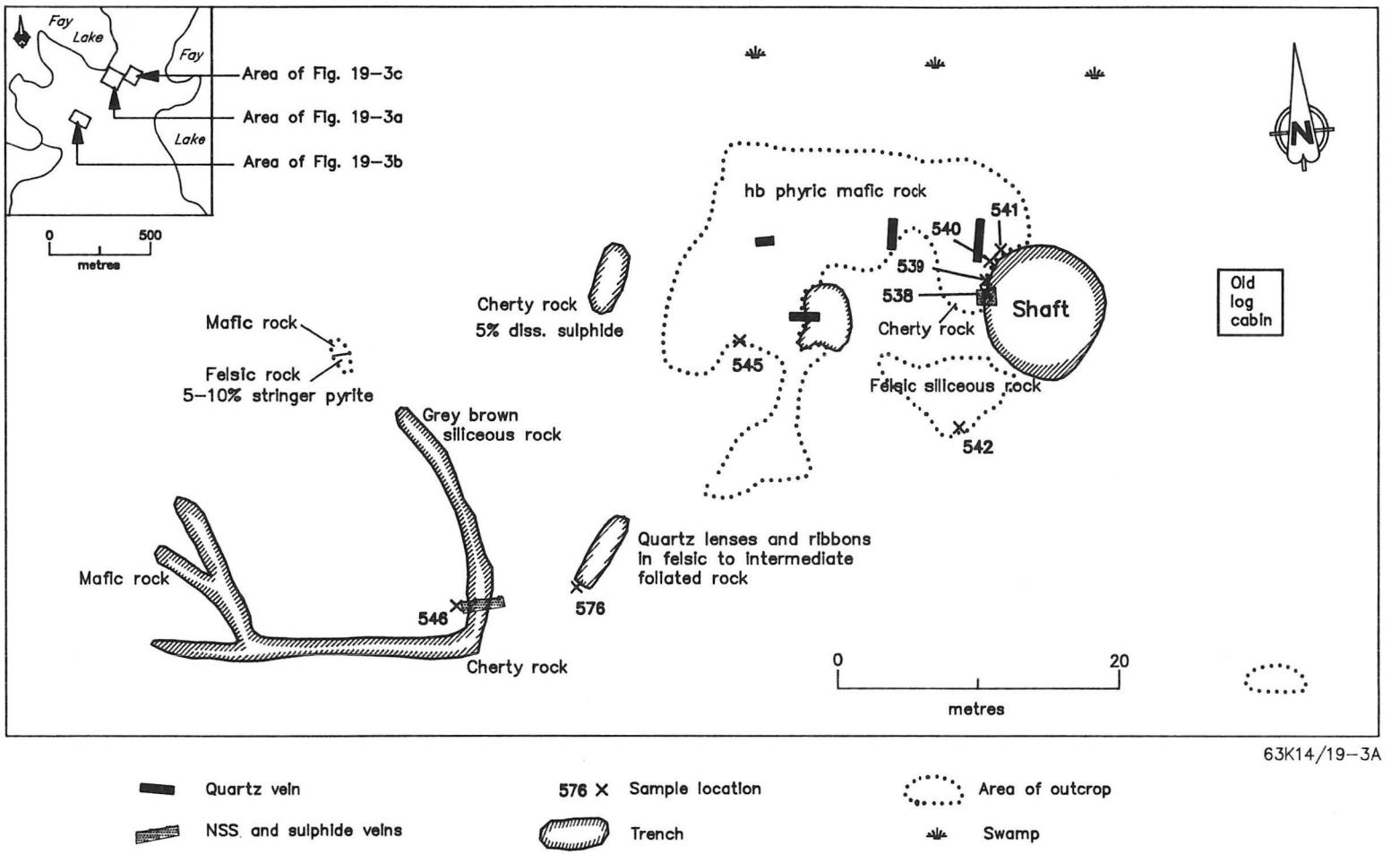
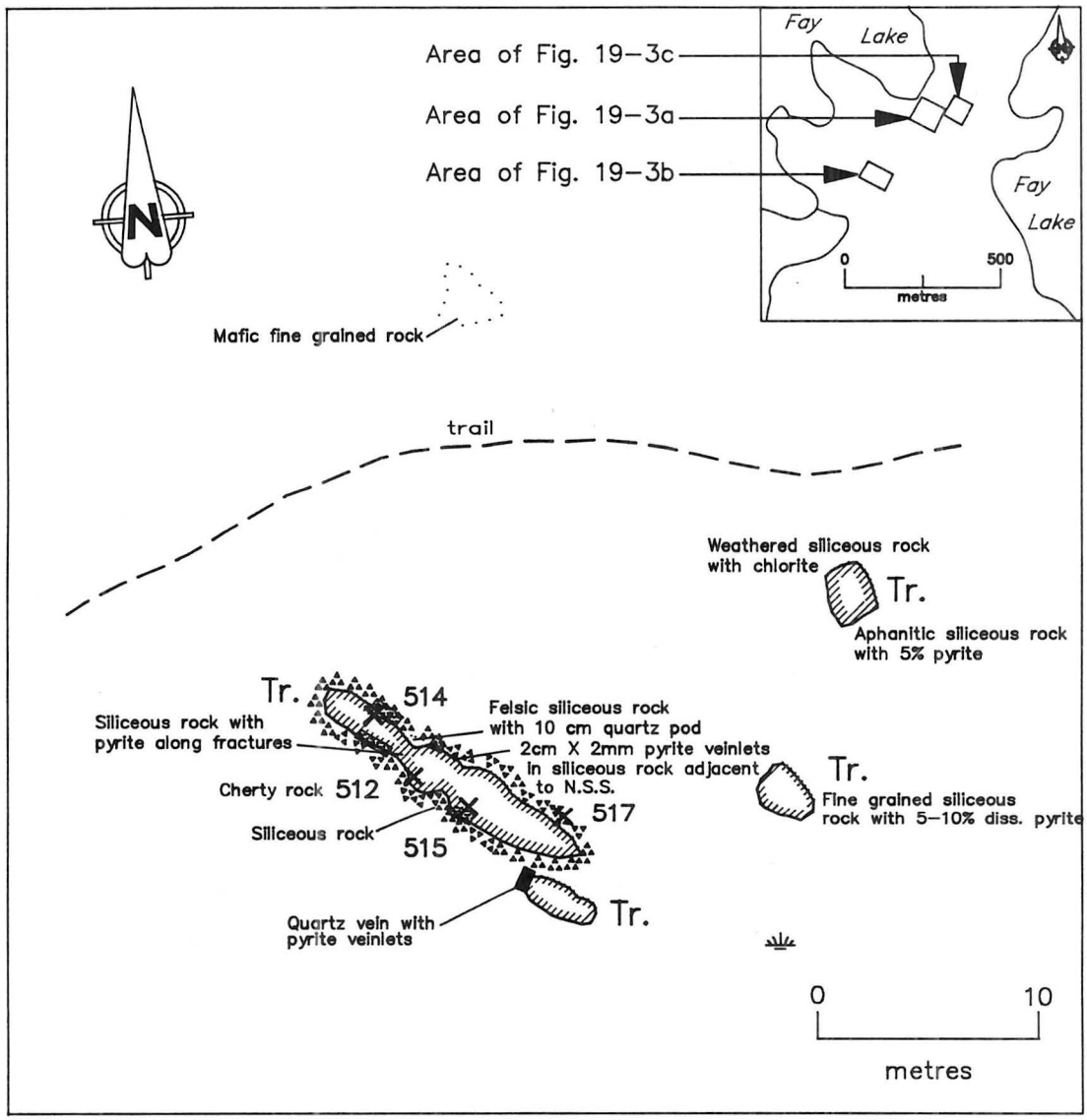


Figure 19-3: Detail of trenches (a) at the Redwin shaft (b) between DDH OP 17 and No. 6 (Fig. 19-2) (c) east of the Redwin shaft (from Parbery, unpublished field notes, 1986).



63K14/19–3B

Quartz vein

N.S.S. and sulphide veins

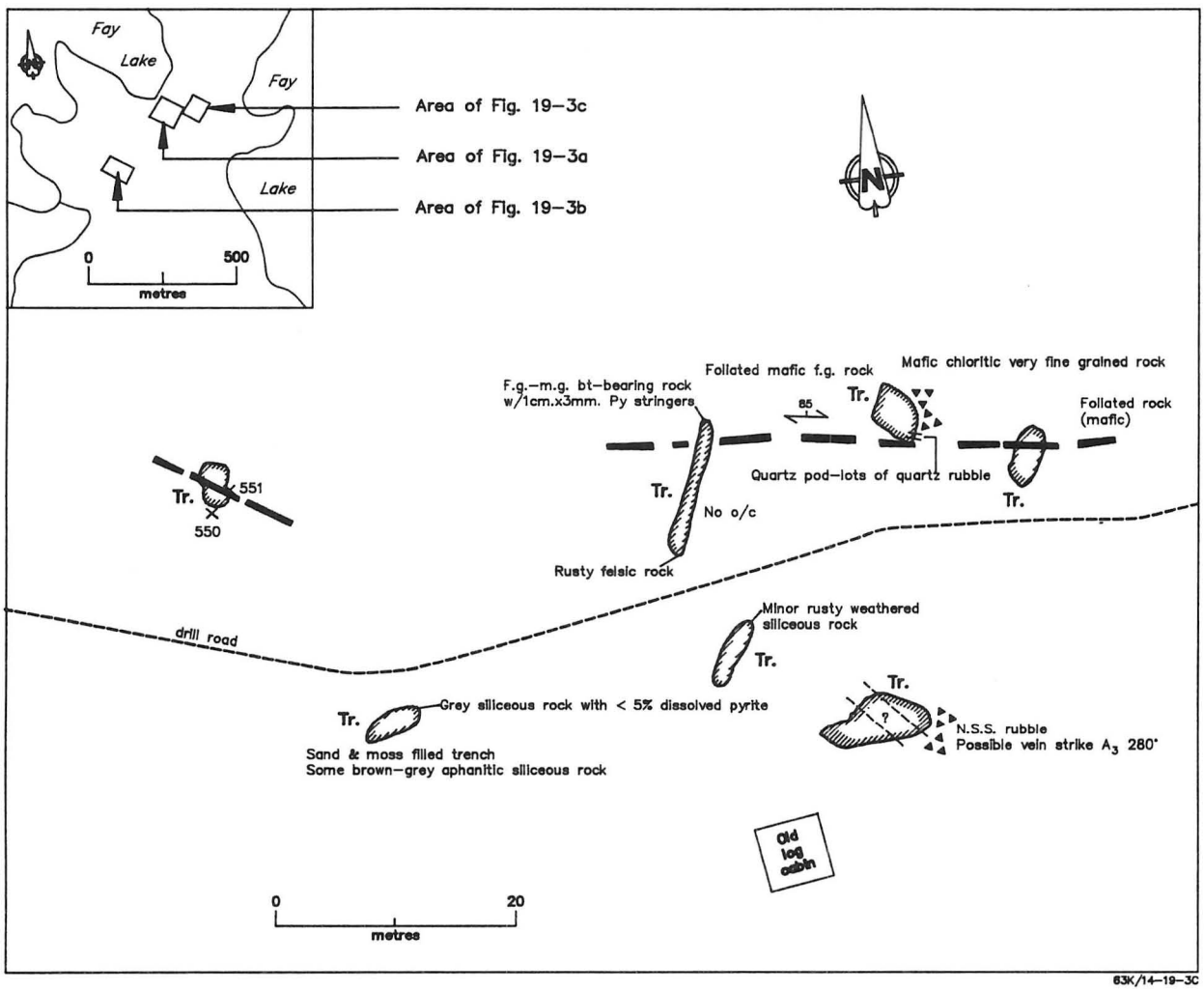
576 × Sample location

Tr. Trench

Area of outcrop

Swamp

Rubble



---------- Geological contact (approximate)

N.S.S. and sulphide veins

85 Foliation (inclined)

Tr. Trench

Rubble

550 × Sample location

LOCATION: **20**

NAME: Fay Lake
UTM: 6093905N/366309E
ACCESS: Via all-weather road to Syme Lake and via boat to Fay Lake

AREA: Fay Lake (Fig. 19-1)
AIRPHOTO: A26364-30

EXPLORATION SUMMARY:

Wright (1931) indicated that two trenches had been dug in an area 150 m east of Fay Lake. The Rad 1 claim, recorded by H. Palmgram in 1947, covered this occurrence. McGlynn (1959) indicates that trenches had been excavated in the area prior to 1952. This work may have been undertaken by the Fay Lake Mining Syndicate in 1950-52. A geophysical survey was undertaken in 1952 (McGlynn, 1959). Catear Resources Ltd. mapped 8 trenches (Fig. 20-1) and conducted soil and rock geochemical surveys in 1984 (A.F. 92651; M.I. Card 63K/14 Au1).

GEOLOGICAL SETTING:

The area is underlain by banded amphibolite derived from mafic volcanic rocks that are intruded by gabbro (Fig. 19-1). A feldspar-quartz porphyritic rhyolite occurs adjacent to the mineralized zone (McGlynn, 1959; Schledewitz, 1990).

MINERALIZATION:

McGlynn (1959) describes the mineralization:

> "Quartz occurs in schist zones as veins, lenses, and pods. In one trench, two veins are separated by about 10 feet of altered and sheared gneiss. In a second trench about 75 feet along the strike from the first, only one vein is present. The veins are 2 feet wide at places and their known length is 100 feet. The quartz is fine to medium grained, white to grey, and at places contains up to 3 per cent combined pyrite, arsenopyrite, galena, and chalcopyrite. The wall rock carries pyrite, arsenopyrite and gold; grab samples are reported by the owners to assay 0.23 ounce gold a ton" (p. 67).

The sulphide minerals occur as disseminations, veinlets and as centimetre size lenses in a siliceous rock that probably represents a zone of silicification (Parbery, 1986).

GEOCHEMICAL DATA:

Eighty-four soil samples were analyzed for Cu, Zn, Ag, As and Au. Multi-element and/or gold anomalies occur at 23 sites. Although one soil sample contained 5450 ppb Au, the highest Au content in mineralized rock samples was 1390 ppb (A.F. 92651).

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Assessment File 92651
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Mineral Inventory Card 63K/14 Au1
Manitoba Energy and Mines, Geological Services Branch.

Parbery, D.
1986: Mineral occurrence studies - Flin Flon area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 49-55.

Schledewitz, D.C.P.
1990: Webb Lake-Fay Lake (NTS 63/15); in Manitoba Energy and Mines, Minerals Division, Report of Activities, 1990, p. 58-61.

Wright, J.F.
1931: Geology and mineral deposits of a Part of Northwestern Manitoba, Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.

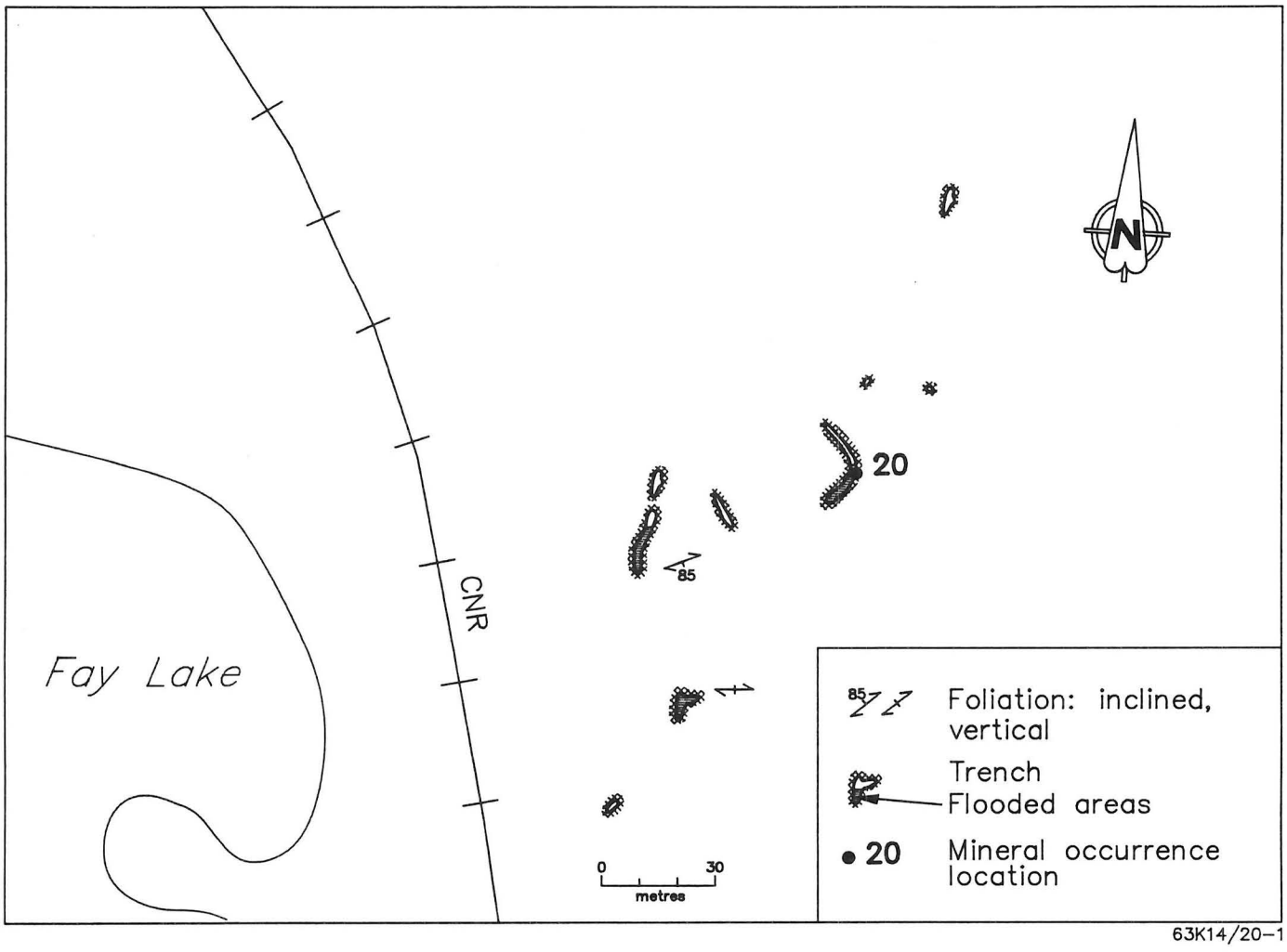


Figure 20-1: Distribution of trenches at occurrence 20 (from A.F. 92651).

LOCATION: **21**

NAME:
UTM: 6071604N/363636E
ACCESS: Via bush aircraft.

AREA: South of Peterson Lake
AIRPHOTO: A26363-269

EXPLORATION SUMMARY:

The property was staked in 1964 as part of the Pet group of claims for HBED who conducted a HLEM survey in 1964-65 (A.F. 90476) and drilled a 90 m hole in 1966 (A.F. 90294).

GEOLOGICAL SETTING:

The area (Fig. 21-1) was mapped as part of a large pluton of pink biotite granodiorite (McGlynn, 1959). The drill hole intersected mostly garnet gneiss and hornblende-feldspar gneiss; granitic rocks were intersected in the lowermost 12.5 m of the drill hole (A.F. 90294).

MINERALIZATION:

A 27.7 m length of core contained 2-10% pyrrhotite, 3-10% magnetite, up to 15% graphite and up to 1% pyrite in hornblende-feldspar gneiss (A.F. 90294).

GEOCHEMICAL DATA:

None.

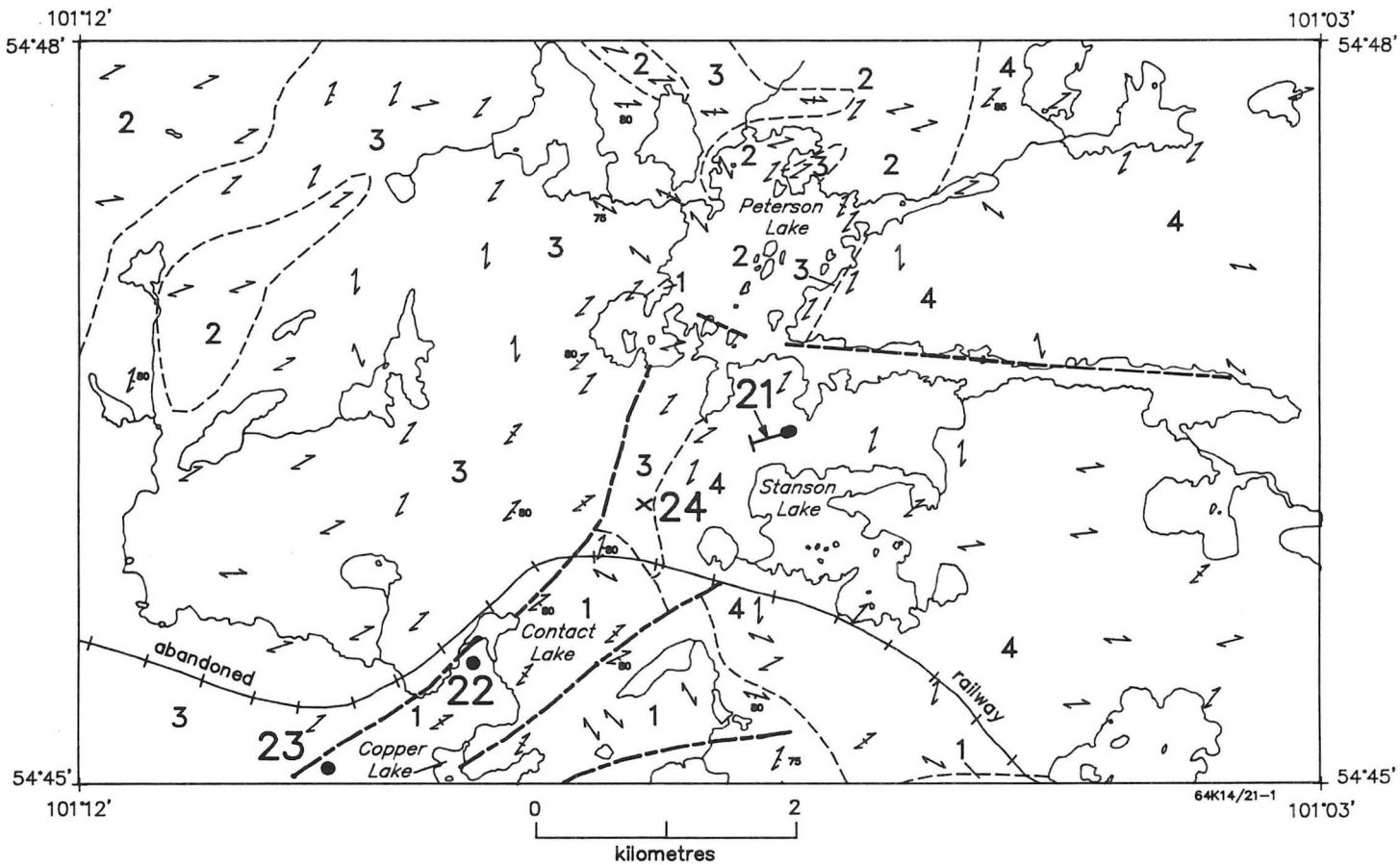
CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 90294, 90476
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.



INTRUSIVE ROCKS

4 Pink biotite granodiorite

3 Gneissic diorite and syenodiorite

2 Gneissic hornblende–biotite–quartz diorite to granodiorite

AMISK GROUP

1 Mafic volcanic rocks, amphibolite

Geological contact

Fault

Foliation inclined, vertical, dip unknown

Drill hole (A.F. 90294)

Location approximate

21 Mineral occurrence location

Figure 21-1: Geological setting of occurrences 21, 22, 23 and 24. Geology after McGlynn (1959).

LOCATION: **22**

NAME: Contact
AREA: Southwest of Peterson Lake (Fig. 21-1)
UTM: 6069881N/361320E

AIRPHOTO: A26363-229, -230
ACCESS: Via bush aircraft to Copper Lake and via traverse or boat.

EXPLORATION SUMMARY:

The Contact Extension M.C. was recorded in 1919 by J.P. Gordon who prospected five claims along a quartz vein, and excavated a number of trenches (Wallace, 1919; Wright, 1931). The claim was transferred in 1922 to The Copper Lake Mining Company Limited who leased the property for 21 years in 1928 (M.I. Card 63K/14 Au3).

The property was restaked in 1951 and T. Stewart drilled three holes totalling 107 m on the Jog 1 claim (A.F. 90476). The claims were transferred to Kay Lake Mines Ltd. in 1952 and optioned in 1955 to Nic-Cop Mines Limited (M.I. Card 63K/14 Au3). A magnetometer survey was conducted and three holes drilled for a total of 189 m (A.F. 90289). McGlynn (1959) indicates that the mineralized zone had been exposed by 16 regularly spaced trenches and an unspecified number of drill holes.

The property was staked in 1963 for John Murray. In 1965 Ryanor Mines Company Ltd. drilled two holes totalling 286 m on the Bog 5 claim (A.F. 92248; not shown on Fig. 22-1). In 1971 HBED conducted a Turam survey and drilled 7 holes totalling 1002 m (A.F. 92242).

The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020).

GEOLOGICAL SETTING:

A narrow belt of predominantly mafic volcanic rocks (Fig. 21-1) are intruded by plutons of gneissic diorite, syenodiorite and pink granodiorite (McGlynn, 1959). Dykes of medium grained gabbro, several tens of metres in thickness intrude the volcanic rocks at Contact Lake.

MINERALIZATION:

McGlynn (1959) described the occurrence as two quartz veins about 1 m apart in a shear zone that varies from 1-4 m in width. The veins have a total known length of 400 m.

Galena, pyrite, pyrrhotite and chalcopyrite are present as disseminations, centimetre size lenses and veinlets in the quartz. Locally, several intervals of sulphide minerals, separated by barren dioritic rocks, were intersected by the drill holes (A.F. 90475). The core log for DDH Bog 1, which is typical of the logs of cores drilled on this property, is summarized here from top to bottom:

5.3 m - dacite with few quartz phenocrysts and locally up to 2% pyrite;
18.2 m - medium grained quartz diorite with trace to 1% pyrite;
9.9 m - fault breccia with angular to subangular fragments of quartz and feldspar and two white quartz veins in core lengths of 30 cm each. Up to 2% pyrite and less than 1% chalcopyrite and pyrrhotite occur throughout the section. A 34 cm section of core contained 25-30% pyrite.
1.4 m - massive, white to grey quartz with less than 3% pyrite;
2.3 m - slightly chloritized fault breccia with fragments of quartz and feldspar, less than 2% pyrite;
14.5 m - fine- to medium-grained quartz diorite with veinlets of quartz and carbonate, less than 3% pyrite;
3.4 m - fault breccia with angular to subangular fragments of quartz and feldspar, white quartz veins and quartz diorite;
17.5 m - grey aphanitic dacite with sections of up to 15% pyrite and one section with less than 1% graphite;
11.6 m - rhyolite and dacite, in part chloritic, less than 3% pyrite;
14.2 m - breccia with angular to subangular fragments of rhyolite, andesite and dacite, one 30 cm section with up to 30% pyrite and 2% graphite, several sections with 1% pyrite;
1.2 m - medium grained granodiorite;
2.5 m - chlorite schist with talc; includes a 20 cm section with 5-10% pyrite;
32 m - andesite, in part banded;
5.1 m - grey dacite with 15 cm of 2% pyrite and 75-80% pyrrhotite and 25 cm of less than 5% pyrite and 50-60% pyrrhotite; and,
9.4 m - medium grained granodiorite.

DDH Bog 2 intersected a 0.8 m section of 25-30% pyrite and 2-5% graphite, and several sections with 1-5% pyrite. Although quartz veinlets were present in several parts of the core, this hole did not intersect the extension of the quartz veins or the fault breccia intersected in DDH Bog 1 (A.F. 92242).

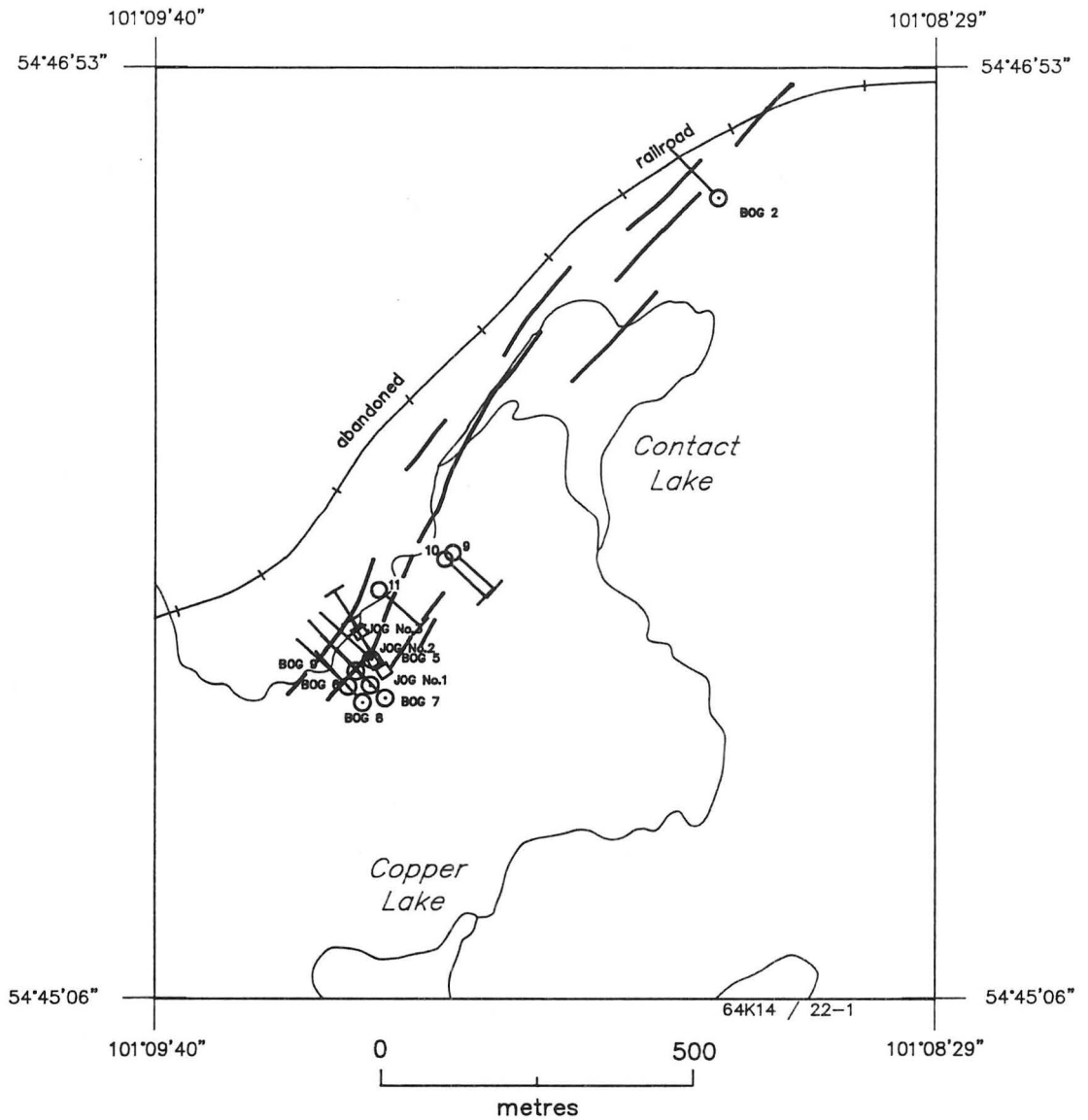
Locally, the southernmost quartz vein has a thickness of 3 m. The fine- to medium-grained quartz is white to bluish grey and fractured. Pyrite, chalcopyrite and galena occur in fractures and veinlets in the quartz and constitute approximately 1% of the vein material. Pyrite also occurs in the schist adjacent to the quartz veins.

GEOCHEMICAL DATA:

Eleven samples of drill core assayed from DDH 101 and 102 (not plotted on Fig. 22-1) contained less than 1 g/t Au, 0.30% Cu, and 0.1% Ni (A.F. 92248). One 3.5 m length of core contained 4.2 g/t Au (M.I. Card 63K/14 Au3).

CLASSIFICATION:

Vein type deposit, multiple veins or lenses. This vein system is considered to be an extension of the vein system that is exposed at the Jameson occurrence (Hage, 1944; Location 23, this volume) and the Bluebird occurrence (Location 24, this volume).



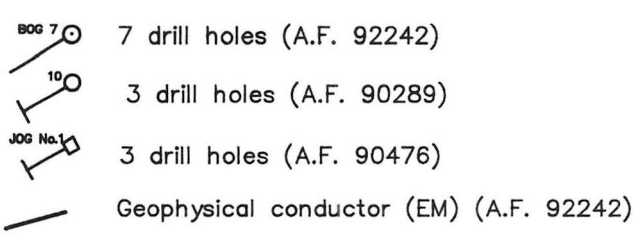


Figure 22-1: Location of drill holes and EM conductors in the vicinity of occurrence 22.

REFERENCES:

Assessment Files 90289, 90475, 90476, 92020, 92242, 92248

Manitoba Energy and Mines, Mines Branch.

Hage, C.O.

1944: Geology of the Gurney Gold Mine area, Manitoba; Precambrian, v. 17, no. 4, p. 4-7, 25.

McGlynn, J.C.

1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Mineral Inventory Card 63K/14 Au3

Manitoba Energy and Mines, Geological Services Branch.

Wallace, R.C.

1919: Mining development in northern Manitoba; Canadian Mining and Metallurgical Bulletin, v. 83, p. 287-296.

Wright, J.F.

1931: Geology and mineral deposits of a part of northwestern Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.

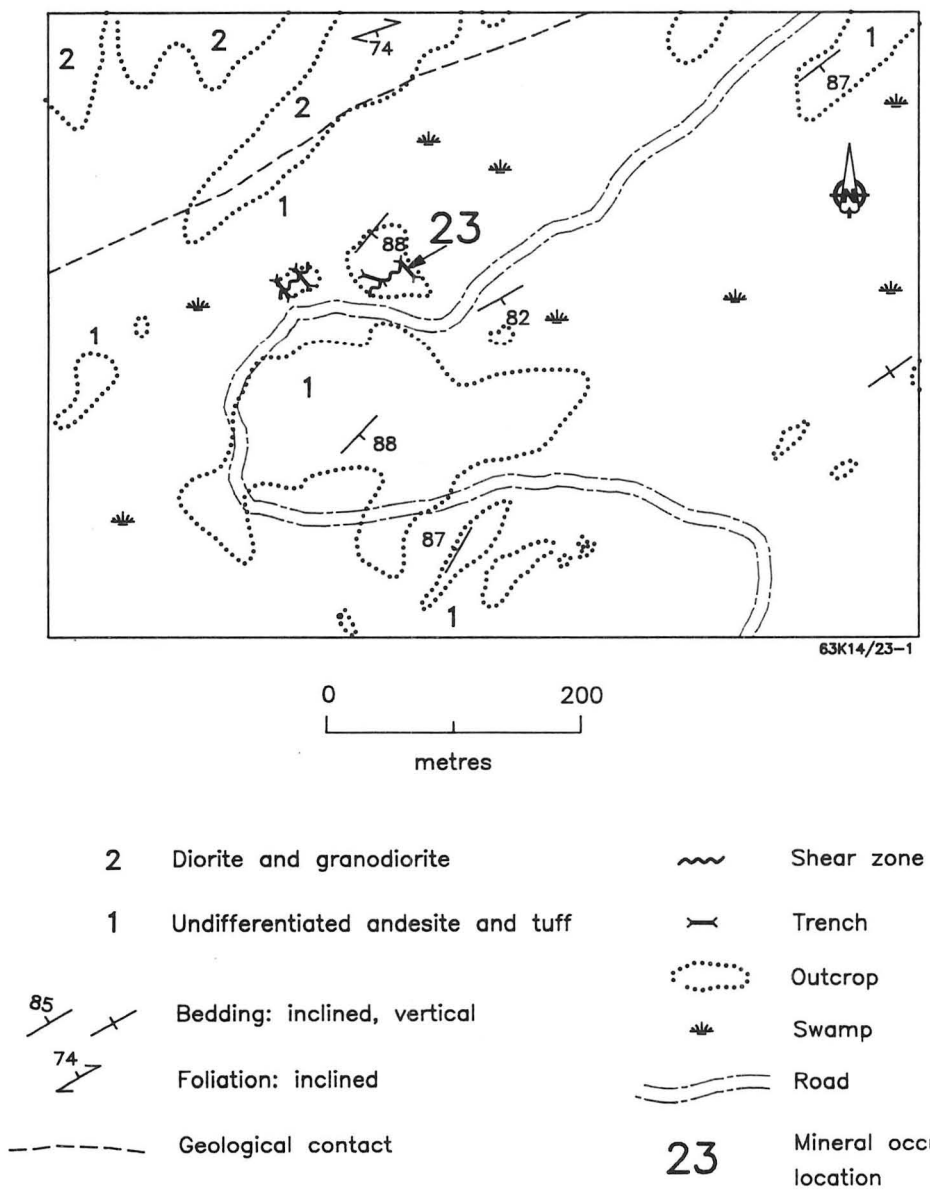


Figure 23-1: Geology and trench locations at occurrence 23. Geology map supplied by W.B. Dunlop (written comm., 1985).

LOCATION: **23**

NAME: Jameson
UTM: 6069223N/360836E
ACCESS: Via bush aircraft to Copper Lake and traverse.

AREA: Copper Lake (Fig. 21-1)
AIRPHOTO: A26363-229

EXPLORATION SUMMARY:

Wallace (1919) reported "Less than a claim's width west of this vein [on the Red Rose] a parallel quartz lode has been prospected over five claims by J.P. Gordon" (Wright, 1931; p. 49c). Bruce (1929) indicated that at least one hole had been drilled on the Jameson vein. Hage (1944) shows a quartz vein on the Jameson claim at the approximate location described by Wallace (1919). The Jameson claim does not appear to have been included in the EM survey conducted by HBED in 1971 (A.F. 92242). Four trenches were noted at this location in 1980 (Fig. 23-1; W.B. Dunlop, written comm., 1985).

GEOLOGICAL SETTING:

The area is underlain by a narrow belt of predominantly mafic volcanic rocks (Fig. 21-1) that are intruded by plutons of gneissic diorite, syenodiorite and pink granodiorite (Podolsky, 1951; McGlynn, 1959). Within 100 m of the granodioritic pluton, there are at least two quartz veins that appear to be along the strike (Hage, 1944) of the Big Dyke (Location 23, Gale and Norquay) and Contact occurrences (Location 22, this volume).

MINERALIZATION:

Galena, pyrite and chalcopyrite are scattered throughout the quartz veins (Wallace, 1919); the gold content of the veins is not known.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Assessment File 92242
Manitoba Energy and Mines, Mines Branch.

Bruce, E.L.
1929: Report on mineral claims in the Copper Lake area held by Ventures Limited; Manitoba Energy and Mines, Miscellaneous File, NTS 63K/14, unpublished report, 8p.

Hage, C.O.
1944: Geology of the Gurney Gold Mine area, Manitoba; Precambrian, v. 17, no. 4, p. 4-7, 25.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Podolsky, T.
1951: Preliminary map, Cranberry Portage (east half), Manitoba; Geological Survey of Canada, 1:40 000, accompanies Paper 51-17.

Wallace, R.C.
1919: Mining development in Northern Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Wright, J.F.
1931: Geology and mineral deposits of a part of northwestern Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.

LOCATION: **24**

NAME: Bluebird
UTM: 6070710N/362120E
ACCESS: Via bush aircraft to Copper Lake or Stanson Lake and traverse.

AREA: Northeast of Copper Lake (Fig. 21-1)
AIRPHOTO: A26363-230

EXPLORATION SUMMARY:

Five Bluebird claims were staked by J.K. Peterson prior to 1919 (Wallace, 1919). Some exploration was conducted in the area in 1915, but prior to that claims had been staked in the area by a German scientist named Brunne (Brunne and Copper Lake Telluride Mines Ltd., Corporation File). Exploration conducted in the area by Brunne and Copper Lake Telluride Mines Ltd. in 1937-39 included extensive trenching and drilling programs. In 1939 one of the trenches was 7.9 m deep x 2.9 m long x 2.3 m wide and two other trenches were almost as deep (Miscellaneous Files, NTS area 63K/11).

The property was staked in 1962 as the Bog 1 claim for John Murray. HBED conducted a Turam EM survey in the area in 1971 (A.F. 92242).

The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020).

GEOLOGICAL SETTING:

The area is underlain mainly by mafic volcanic rocks that include pillowed lava. A large pluton of gneissic diorite and granodiorite (Fig. 21-1) occurs to the north of the mineral occurrence (McGlynn, 1959). The vein system has the same general strike as the vein at Contact Lake (Location 22, this volume) and may be the continuation of a structure that coincides roughly with the contact of the intrusion and a fault (McGlynn, 1959; Hage, 1944).

MINERALIZATION:

The Bluebird vein was traced for approximately 240 m along strike with an average width of 6.7 m; some drill intersections were up to 15.2 m in length. Although essentially a white quartz vein, portions of the drill core contained near solid sulphide comprising pyrite, pyrrhotite, chalcopyrite and galena. The mineralized zone was still open at both ends when the drill program was completed in 1939 (Brunne and Copper Lake Telluride Mines Ltd., Corporation File).

GEOCHEMICAL DATA:

Three channel samples collected in 1939, at a depth of 7.3 m in one of the trenches, contained 13, 16 and 14 g/t Au and 80, 105 and 220 g/t Ag for the same samples (Brunne and Copper Lake Telluride Mines Ltd., Corporation File).

CLASSIFICATION:

Vein type deposit; single vein.

REFERENCES:

Assessment Files 92020, 92242
Manitoba Energy and Mines, Mines Branch.

Brunne and Copper Lake Telluride Mines Ltd., Corporation File
Manitoba Energy and Mines, Mines Branch.

Hage, C.O.
1944: Geology of the Gurney Gold Mine area, Manitoba; Precambrian, v. 17, no. 4, p. 4-7, 25.

McGlynn, J.C.
1959: Heming Lake; Geological Survey of Canada, one inch to one mile, Map 1971A, Ottawa, Ontario.

Miscellaneous File, NTS area 63K/11
Manitoba Energy and Mines, Mines Branch.

Wallace, R.C.
1919: Mining development in Northern Manitoba, Canadian Mining and Metallurgical Bulletin, v. 83, p. 287-296.

LOCATION: **25**

NAME: Lew
UTM: 6091525N/343450E
ACCESS: Via all-weather road and trail.

AREA: North of Dismal Lake
AIRPHOTO: A26331-13

EXPLORATION SUMMARY:

The area was staked as part of the Sap claim group in 1959 for HBED who conducted a HLEM survey in 1960 (A.F. 90397). The area was staked as the Carri claims for A.L. Parres Ltd. in 1980 and as the Lew claims in 1990. The claims were optioned to Esso Minerals Canada who conducted geological mapping, geochemical, and geophysical surveys. Shallow trenches were dug in 1992. Kalliokoski (1952) indicated the presence of a mineral occurrence in the area west of this occurrence (site A Fig. 25-1); the mineralization was not located during several searches of the area.

GEOLOGICAL SETTING:

The area is underlain predominantly by amphibolite derived from mafic volcanic rocks (Fig. 25-1; Kalliokoski, 1952). The rocks are commonly layered and consist of mafic flows and tuff(?); pillow-like structures were observed near the junction of the Lobstick road and the bush road (Fig 25-2). Gabbro and diorite intrusions occupy the southeast portion of the area (Fig. 25-2). The rocks are metamorphosed to amphibolite facies and locally there are layers of biotite-hornblende schist and garnetiferous biotite schists.

MINERALIZATION:

Trenches on the south side of the trail expose a 60 cm thick zone of solid pyrrhotite with 1-3% chalcopyrite. There was no evidence of graphite in the rocks surrounding the trenches.

Kalliokoski (1952) described the mineralization at site A as disseminated pyrrhotite in sheared biotite-feldspar-quartz gneiss.

GEOCHEMISTRY:

Soil samples from this area reportedly contained anomalous Au and As values (A.L. Parres, Pers. comm., 1992).

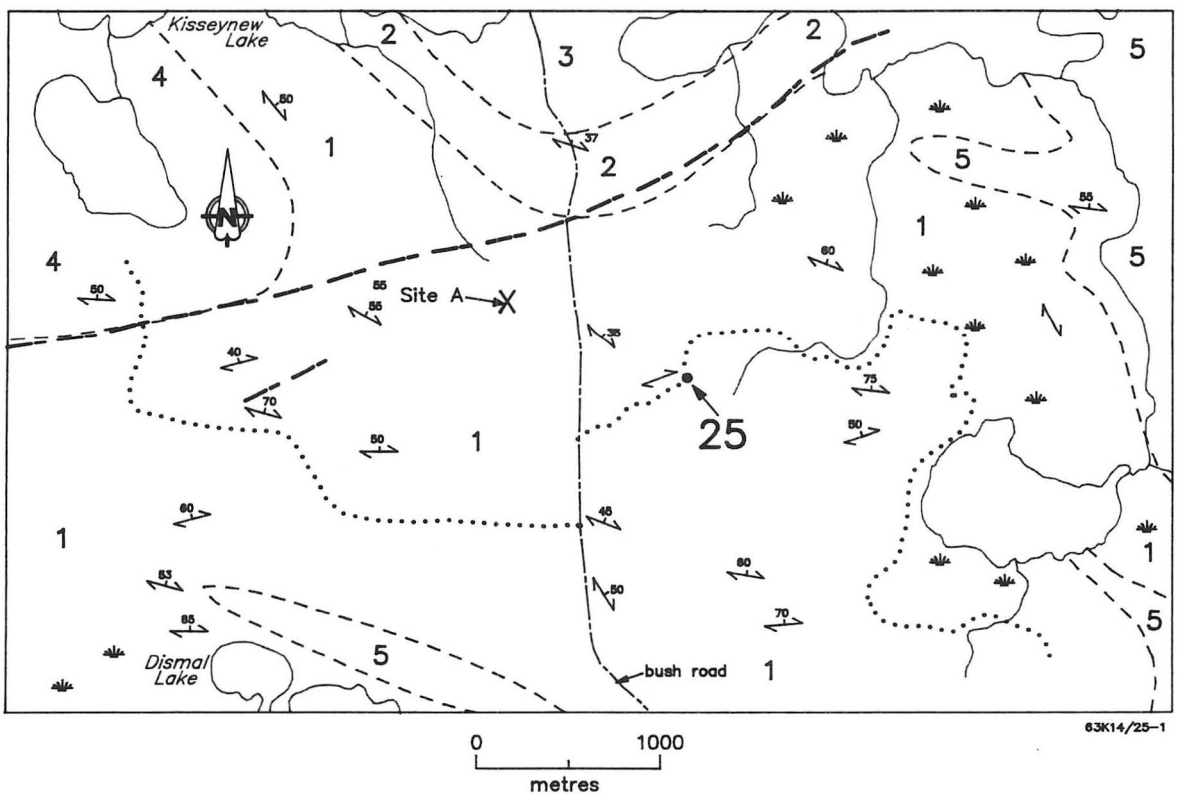
CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 90397
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.



Intrusive Rocks

5 Gabbroic to dioritic rocks

4 Quartzofeldspathic gneiss (orthogneiss)

Missi Metamorphic Suite

3 Metasandstones (quartz–rich gneiss, quartzofeldspathic gneiss, hornblende–biotite gneiss and metaconglomerate)

2 Felsic gneiss (metavolcanic)

Amisk Group

1 Mafic to intermediate volcanic rocks

Geological contact

Trail

Foliation,inclined, dip unknown

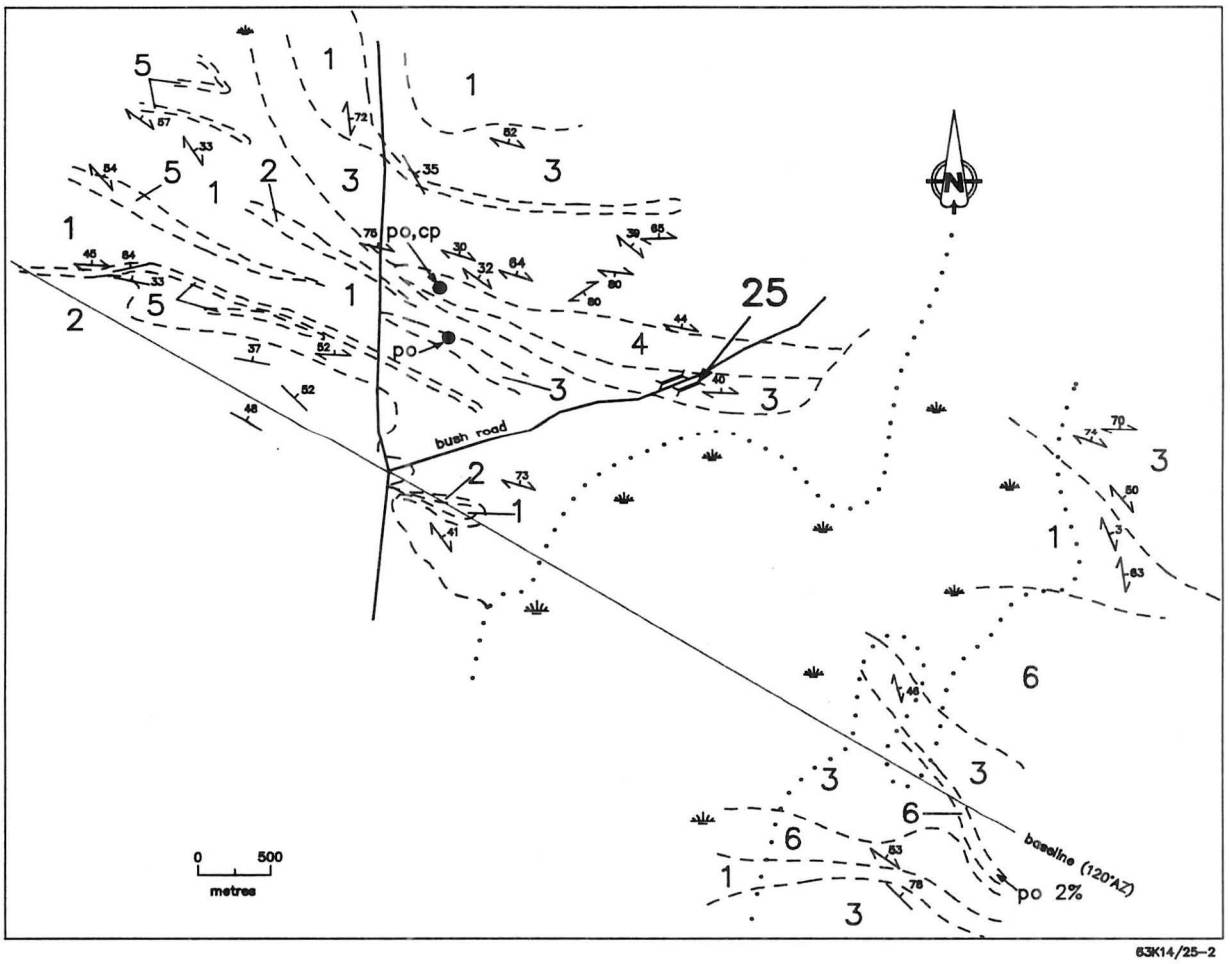
Fault

Swamp

25. Mineral occurrence location

Geology after Kalliokoski (1952).

Figure 25-1: Geological setting of occurrence 25. Geology after Kalliokoski (1952) and Zwanzig (1984).



6 Gabbro, diorite

5 Granitic rocks

4 Biotite–hornblende schist

3 Biotite–feldspar ± chlorite schist

2 Mafic tuff

1 Mafic flows, in part pillowed

---- Geological contact

Foliation (inclined)

Bedding (inclined)

. . . . . Outcrop

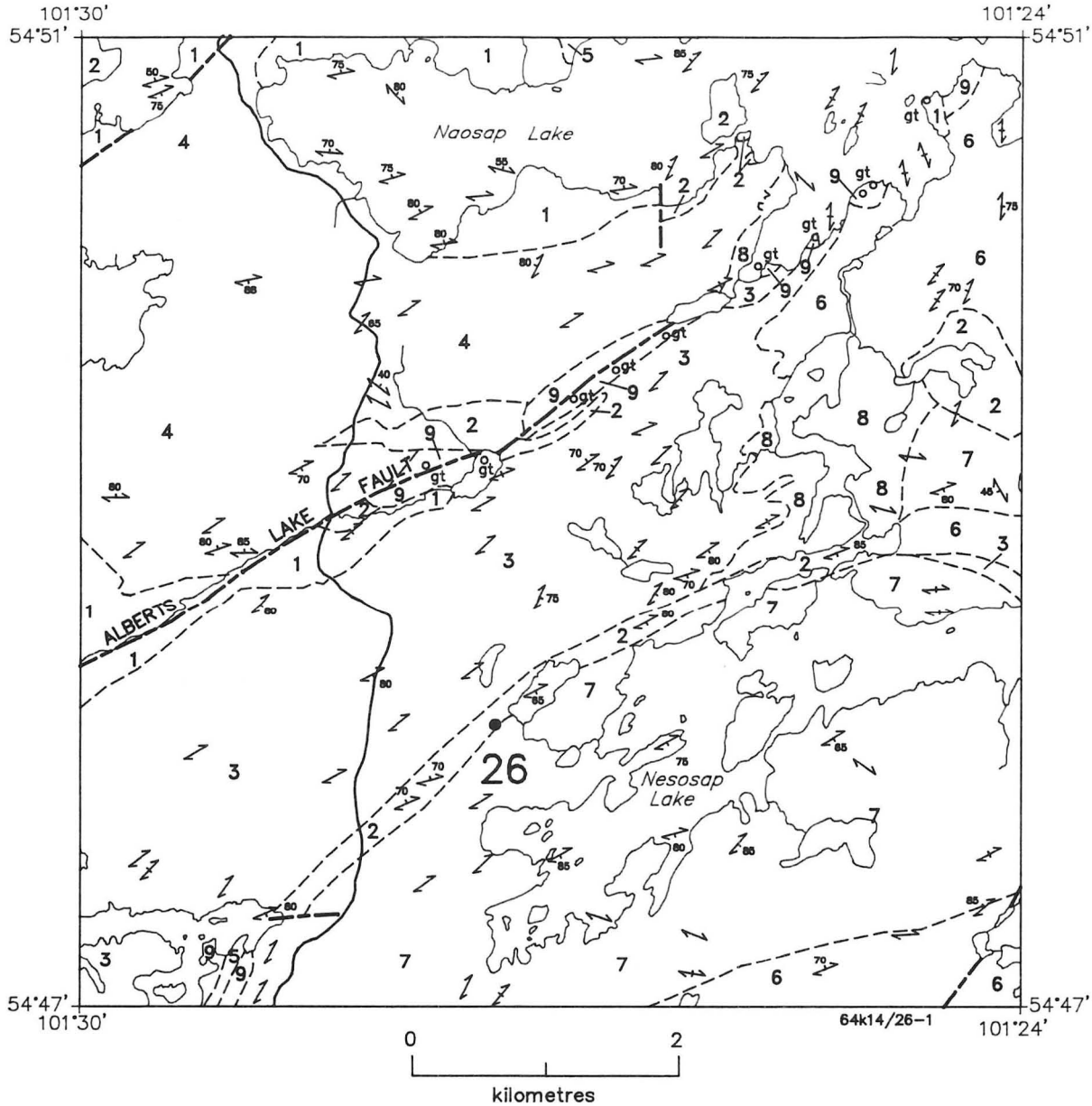
Swamp

Trench

25 Mineral occurrence location

Geology by C. Everett and B. Langlois (1988).
Map provided by A.L. Parres (written comm., 1992).

Figure 25-2: Detailed geology of occurrence 25. Geology map provided by A.L. Parres (written comm., 1992)



INTRUSIVE ROCKS

9 Fine–grained silicious rocks

8 Equivalent to 3 or 6

7 Diorite/gabbro

6 Hornblende granodiorite

5 Hornblende gabbro

4 Granodiorite

3 Granite

AMISK GROUP

2 Amphibolite

1 Mafic volcanic rocks

Geological contact

Fault

Foliation: inclined, vertical, dip unknown

Road

ogt Garnet

26 ● Mineral occurrence location

Figure 26-1: Geological setting of occurrence 26. Geology after Kalliokoski (1952).

LOCATION: **26**

NAME:
UTM: 6075387N/342646E
ACCESS: Via boat on Naosap Lake.

AREA: Nesosap Lake
AIRPHOTO: A26331- A27118-56

EXPLORATION SUMMARY:

The area was staked in 1959 as part of the Sap claim group for HBED who conducted a HLEM survey in 1960 (A.F. 90397). The area was included in regional airborne magnetic and EM surveys conducted for Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020). The area was staked and prospected by W. Hanna in 1985.

GEOLOGICAL SETTING:

Amphibolite derived from mafic volcanic rocks is intruded by 'quartz eye' granite, fine grained granodiorite, hornblende granodiorite and fine grained, siliceous rocks that were derived from adjoining granitic rocks (Kalliokoski, 1952). Zones of garnet-rich rocks occur adjacent to the Alberts Lake Fault (Fig. 26-1).

MINERALIZATION:

This occurrence consists of approximately 1 m-sized angular blocks of a sericitic quartz-feldspar rock with up to 10% pyrite and 1-2 cm veins of black tourmaline.

Garnet occurs in siliceous rocks along the Alberts Lake Fault (Fig. 26-1). These rocks generally contain less than 1% pyrite as small widely scattered lenses. The garnet does not appear to be related to alteration associated with mineralization.

GEOCHEMICAL DATA:

Pyritic rock samples did not contain gold (W. Hanna, pers. comm., 1986).

CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 90397, 92020
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

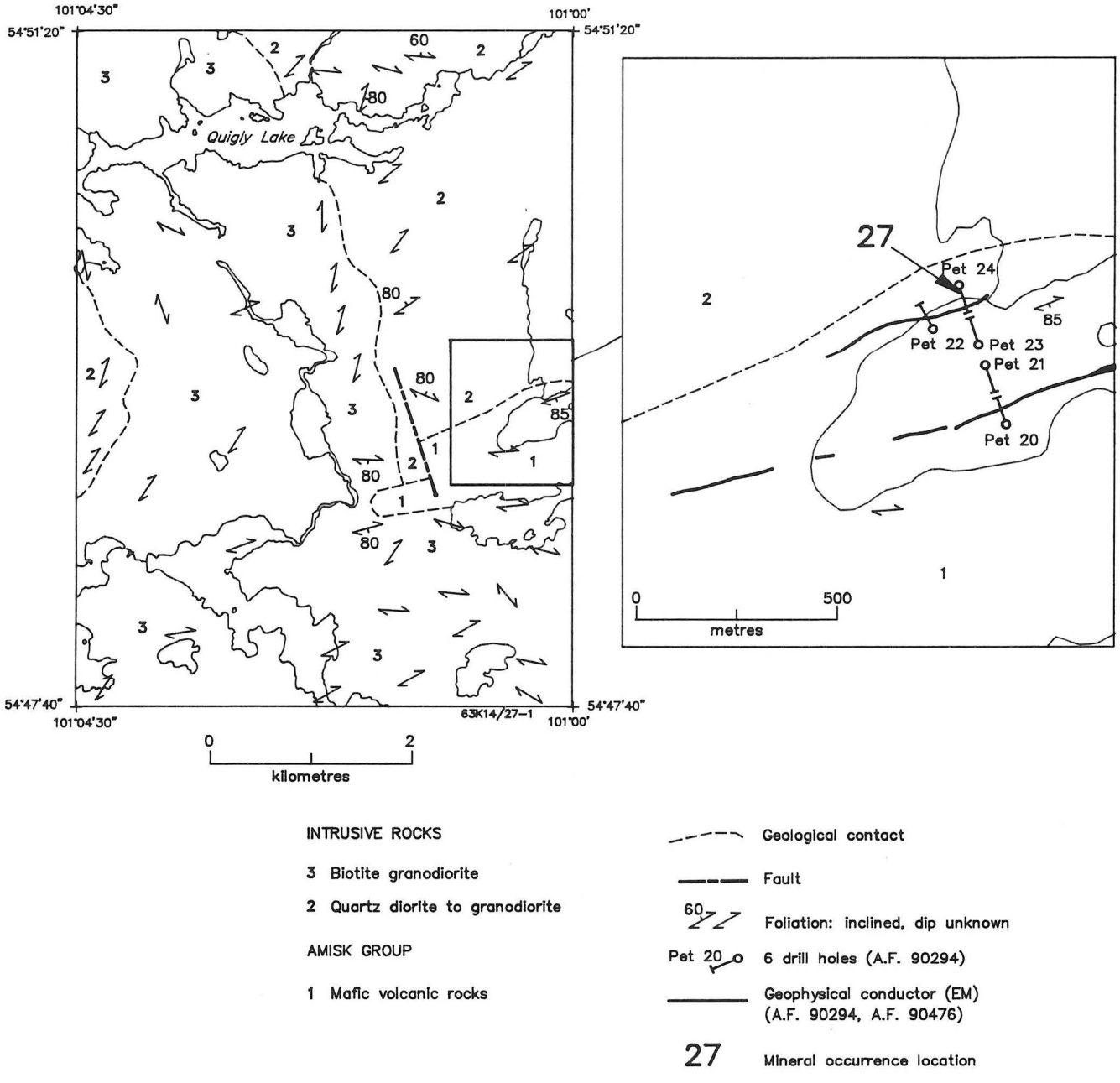


Figure 27-1: Geological setting, drill holes and EM conductors at occurrence 27. Geology after McGlynn (1959).

LOCATION: **27**

NAME:
UTM: 6076686N/371033E
ACCESS: Via bush aircraft.

AREA: Southeast of Quigly Lake
AIRPHOTO: A26227-220

EXPLORATION SUMMARY:

The property was staked in 1964 for HBED who conducted a HLEM survey in 1964-1965 and drilled five holes totalling 303 m in early 1966 (A.F. 90294, A.F. 90476). The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020).

GEOLOGICAL SETTING:

A narrow belt of mafic volcanic rocks (Fig. 27-1) occurs between plutons of gneissic hornblende-biotite quartz diorite to granodiorite and younger pink biotite granodiorite (McGlynn, 1959).

Lithologies noted in the drill core logs were: (1) 'chert some calcium carbonate', serpentinized granite and granite in DDH Pet 20; (2) peridotite, biotite gneiss, granite gneiss, hornblende gneiss in DDH Pet 21; and, (3) andesite, sheared fine grained granite, rhyolite, and calcium carbonate rock in DDH Pet 24.

MINERALIZATION:

A 1.5 m section of rhyolitic rock from DDH Pet 24 contained a 45 cm section with 45% pyrrhotite and a 60 cm section with 30% pyrrhotite. A 1.6 m section of altered andesite from the same drill core contained 2-60% pyrrhotite, 0-2% pyrite and a trace of chalcopyrite.

GEOCHEMICAL DATA:

None.

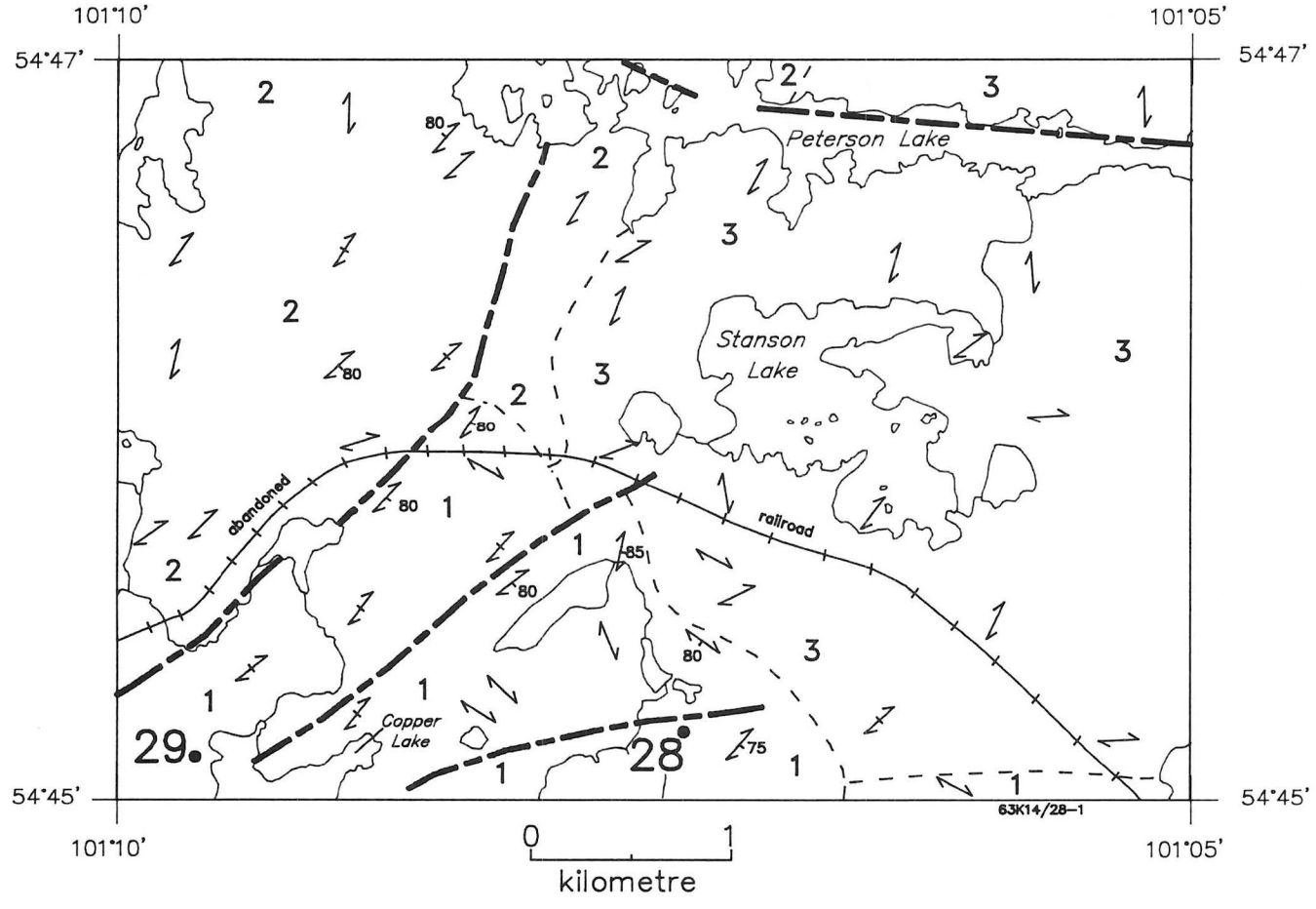
CLASSIFICATION:

Disseminated mineralization - not classified.

REFERENCES:

Assessment File 90294, 90476, 92020
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.



INTRUSIVE ROCKS

3 Biotite granodiorite

2 Gneissic diorite and syenodiorite

AMISK GROUP

1 Mafic volcanic rocks

Geological contact

Fault

Foliation inclined, dip unknown

28. Mineral occurrence location

Figure 28-1: Geological setting of occurrences 28 and 29. Geology after McGlynn (1959).

LOCATION: **28**

NAME:
UTM: 6069157N/363374E
ACCESS: Via bush aircraft

AREA: East of Copper Lake
AIRPHOTO: A26363-270

EXPLORATION SUMMARY:

In early 1955 Nic-Cop Mines Ltd. drilled five holes totalling 554 m on the Jog claim group (A.F. 90289); three additional holes were drilled on the adjoining map sheet. The area was staked in 1964 for HBED as part of the Pet claim group. HBED conducted a HLEM survey during the winter of 1964-1965 (A.F. 90476) and drilled two holes (149 m) in 1966 (A.F. 90294). The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020).

Wallace (1920) indicates that work was being undertaken on the Silverbell claims in this general area. There are no records that show the location of the Silverbell claim.

GEOLOGICAL SETTING:

The mineralization occurs in an area that is underlain predominantly by mafic volcanic rocks (Fig. 28-1, McGlynn, 1959).

Although DDH Jog 1 (Fig. 28-2) intersected mostly graphitic tuff schists, DDH Jog 2 and DDH Jog 3 intersected mostly rhyolite and altered mafic volcanic rocks. The drill log for DDH Jog 4 indicates that this hole intersected mostly interlayered 'acid tuffs' and sulphides, but DDH Jog 5 intersected mostly mafic volcanic rocks (A.F. 90289).

MINERALIZATION:

The graphitic tuff layers and one 75 cm section of siliceous rhyolite in core from DDH Jog 1 contained moderate amounts of pyrite and pyrrhotite. DDH Jog 2 intersected several sections of altered mafic rocks with moderate amounts of pyrite and pyrrhotite. A 6.4 m section of core from DDH 3 contained 15-30% pyrrhotite in altered mafic volcanic rocks. DDH Jog 4 intersected 11 separate sections of near solid to solid sulphides (pyrite ± pyrrhotite) in core lengths of 0.2, 5.9, 4.3, 7.0, 0.3, 9.8, 8.7, 21.1, 6.3, 1.1 and 17.9 m. The solid sulphides were interlayered with silicic tuffs that commonly contained moderate amounts of sulphides (A.F. 90289).

In contrast, DDH Jog 5 intersected only minor amounts of pyrite in mafic volcanic rocks (A.F. 90289) and DDH Pet 7 intersected 12 sections with 20-40% pyrrhotite (A.F. 90294).

The Silverbell occurrence reportedly contained abundant free gold on the surface of a 3.3 m thick quartz mass adjacent to a solid sulphide layer, but the gold extended to a depth of only 1.3 metres. It is possible that one of the sulphide occurrences in this area represents the Silverbell.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The data available for DDH Jog 3, Jog 4, Jog 5 and Pet 7 are not totally consistent with classification as a chemical sediment type deposit, and this mineralization could be interpreted as part of a massive sulphide type deposit.

REFERENCES:

Assessment File 90289, 90294, 90476, 92020
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Wallace, R.C.
1920: Mining and mineral prospects in northern Manitoba; Office of Commissioner of Northern Manitoba, Northern Manitoba Bulletin.

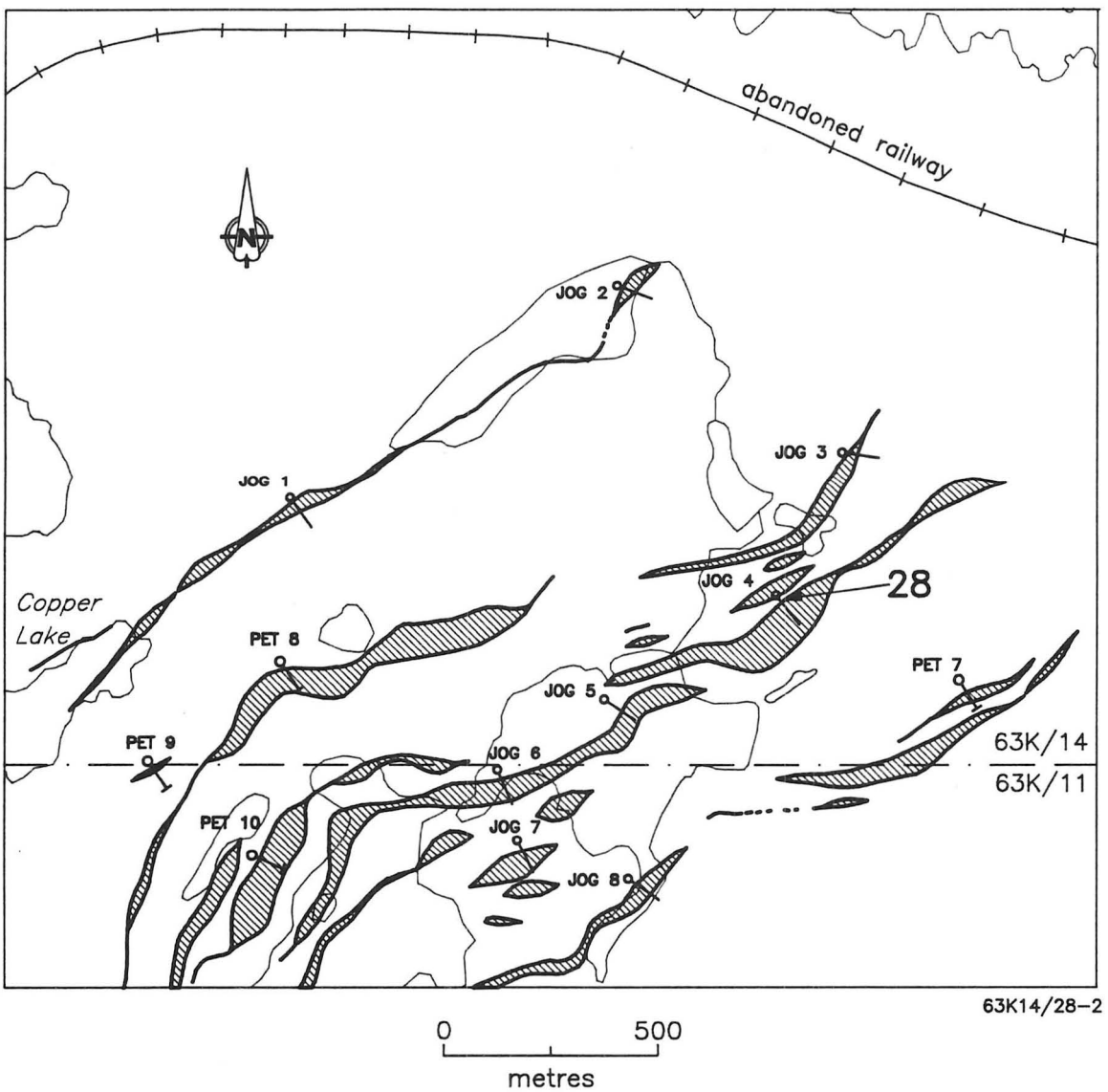


Figure 28-2: Location of drill holes and EM conductors in the vicinity of occurrence 28.

LOCATION: **29**

NAME: Red Rose
UTM: 6068999N/361022E
ACCESS: Via bush aircraft.

AREA: Copper Lake (Fig. 28-1)
AIRPHOTO: A26363-228

EXPLORATION SUMMARY:

The Red Rose claim was staked by J.P. Gordon in 1918 (Wallace, 1920). Stripping and trenching programs were carried out on the vein in 1919. The claim was in good standing in 1944 (Hage, 1944).

The property was staked in 1964 as the Bog 18 claim for John Murray. In 1971 HBED conducted a Turam EM survey over the area (A.F. 92242). The area was included in regional airborne magnetic and EM surveys conducted by Sherritt Gordon Mines Ltd. during the winter of 1973-1974 (A.F. 92020). The property was staked for B. Dunlop in 1978. Exploration was conducted in the area in 1980 by Kerr Addison Exploration Ltd. and by Granges Exploration in 1989.

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks, in part pillowed, that were intruded by a large pluton of gneissic diorite and syenodiorite (Fig. 28-1; Podolsky, 1951; McGlynn, 1959).

MINERALIZATION:

A vertical quartz vein, exposed for a distance of 60 m with a width of 15-45 cm, had a 7.5 cm wide 'very rich gold shoot' on the east side of the vein (Wallace, 1919). "The highly sheared and somewhat decomposed greenstone on the east wall shows very coarse gold in panning across 2.5' at the bottom of the pit" (Wallace, 1919; p. 73). The Red Rose quartz vein is probably the along-strike extension of the vein trenched on the Moose claim (Fig. 29-1).

GEOCHEMICAL DATA:

None

CLASSIFICATION:

Vein type deposit; single vein.

REFERENCES:

Assessment Files 92020, 92242
Manitoba Energy and Mines, Mines Branch.

Hage, C.O.
1944: Geology of the Gurney Gold Mine area, Manitoba; Precambrian, v. 17, No. 4, p. 4-7, 25.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Podolsky, T.
1951: Preliminary map, Cranberry Portage (east half), Manitoba; Geological Survey of Canada, Paper 15-17, 1:40 000.

Wallace, R.C.
1919: The Gold Discovery at Copper Lake, northern Manitoba, Canadian Mining Journal, v. 40, p. 731-33.

Wallace, R.C.
1920: Mining and mineral prospects in northern Manitoba; office of Commissioner of Northern Manitoba, Northern Manitoba Bulletin.

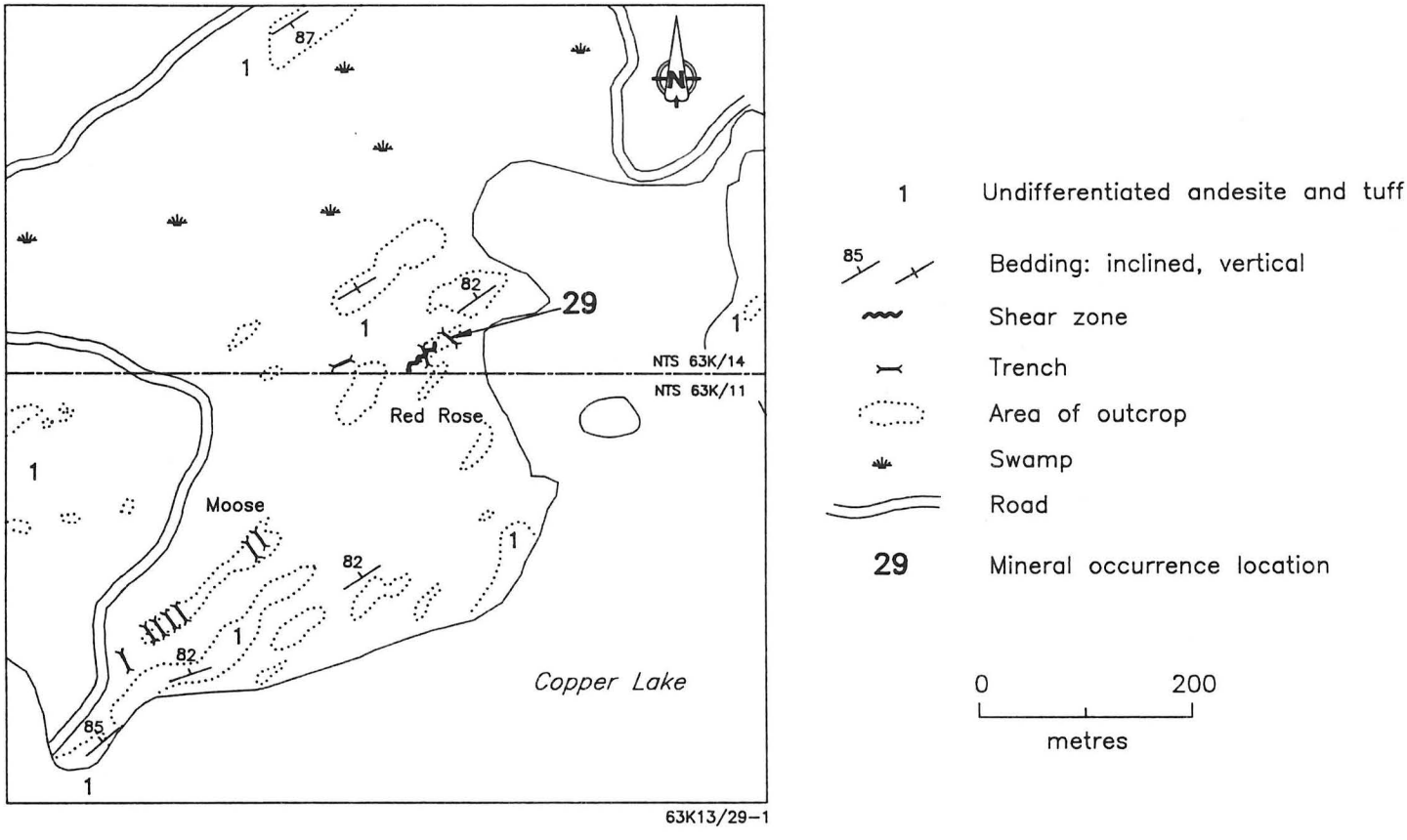


Figure 29-1: Geology and trench locations at the Red Rose and Moose (63K/11) occurrences. Geology base supplied by W.B. Dunlop (written comm., 1985).

LOCATION: **30**

NAME: Gwen
UTM: 6075950N/340510E
ACCESS: Via plane from Flin Flon or via North Star Road, trail to Alberts Lake and boat on Alberts Lake.

AREA: East end of Alberts Lake
AIRPHOTO: A26330-275

EXPLORATION SUMMARY:

Nine holes (total length of 250.4 m) were drilled by Cominco in 1948 on the Loretta claim (A.F. 90439). Four holes (total length of 114.6 m) were drilled by the Thompson Brothers in 1964 on the Nugget 1 claim (A.F. 90429). The area was staked as the Gwen claim by W. Hanna who dug trenches along a vein for several hundred metres. The property was optioned by Granges Inc. in 1985 who undertook an extensive trenching, mapping and drilling program (W. Hanna, pers. comm. 1985).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic extrusive and intrusive rocks (Fig. 30-1, Kalliokoski, 1952). Bimodal (felsic and mafic) fragmental rocks occur north of the mineralized zone. The volcanic rocks are intersected at a high angle by an approximately north-striking quartz vein.

MINERALIZATION:

Minor amounts of pyrite, chalcopyrite, galena and tetrahedrite occur in discontinuous lenses and veinlets in a quartz vein that is approximately 30 cm thick.

GEOCHEMICAL DATA:

Assay data reported includes 0.9 m of 4.5 g/t Au, 17.1 g/t Ag and 0.4 m of 5.1 g/t Au and 40 g/t Ag (A.F. 90439). Some grab samples contained over 300 g/t Ag (W. Hanna, pers. comm., 1981)

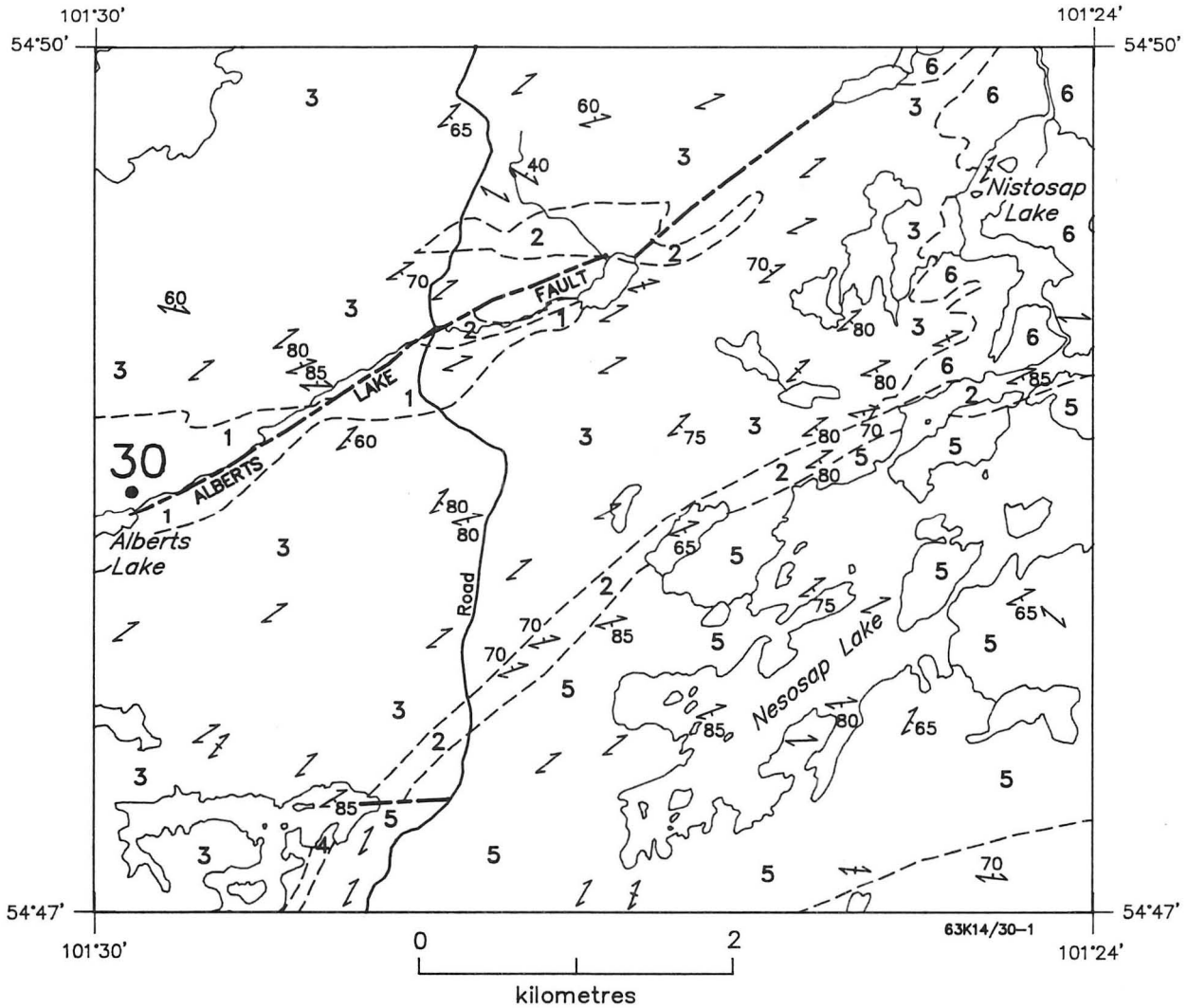
CLASSIFICATION:

Vein type deposit; single vein. This mineralization may represent mobilizate or 'leakage' from pre-existing mineralization.

REFERENCES:

Assessment File 90429, 90439
Manitoba Energy and Mines, Mines Branch.

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.



INTRUSIVE ROCKS

7 Granite to granodiorite

6 Hornblende granodiorite

5 Diorite, gabbro

4 Gabbro

3 Granodiorite to quartz diorite

AMISK GROUP

2 Amphibolite

1 Mafic volcanic rocks

Geological contact

Fault

70 Foliation: inclined, vertical, dip unknown

30. Mineral occurrence location

Figure 30-1: Geological setting of occurrence 30. Geology after Kalliokoski (1952).

LOCATION: 31

NAME:
UTM: 6092298N/365267E
ACCESS: Via all-weather road to Syme Lake and via boat to Fay Lake.

AREA: Fay Lake
AIRPHOTO: A26363-255

EXPLORATION SUMMARY:

The Copper Chief claim group covered part of the area in 1930 (Wright, 1931). The claims were optioned to the Fay Lake Mining Syndicate in 1937. T.J. Murray staked the Bob 9 and -16 claims in 1963. A HLEM survey conducted by Kerr Addison Mines Limited in 1964 delineated a conductor on the Bob 16 claim. Pascan Oils Limited drilled two holes, totalling 228.6 m, to test the conductor in 1968 (A.F. 90472, 90473). HBED conducted a HLEM survey and drilled two holes, totalling 200 m in 1973 (A.F. 91496). A small trench was noted during the HBED geophysical survey (A.F. 91496).

GEOLOGICAL SETTING:

The area is underlain by banded amphibolite (Fig. 31-1) derived from mafic volcanic rocks (McGlynn, 1959; Schledewitz, 1990). Dacitic to rhyolitic tuff and massive rocks were predominant in the uppermost 54.9 m of DDH Fud-1 (Fig. 31-2) and in the lowermost part of DDH Fud-2 drill core. Andesitic tuff and massive rocks were intersected below the rhyodacitic rocks in DDH Fud-1, whereas the uppermost portion of DDH Fud-2 intersected chloritic schists and gabbro dykes (A.F. 91496).

Parbery (1986) reinterprets the felsic intrusive rocks of McGlynn (1959) as felsic volcanic rocks. The dacitic to rhyolitic rocks intersected by DDH Fud-1 and Fud-2 probably represent the eastward continuation of the felsic volcanic sequence at Location 19 (this volume).

MINERALIZATION:

DDH Fud-1 intersected 2.4 m of 40-45% pyrite and 40-45% pyrrhotite within andesitic rocks whereas DDH Fud-2 intersected 0.5 m of 70-80% pyrite and pyrrhotite and 1% chalcopyrite within dacitic tuff. The near solid sulphide section from DDH Fud-2 is structurally underlain by 2.1 m of 3-25% pyrite and a trace of chalcopyrite in dacitic tuff and more than 24 m of chloritic dacite (A.F. 91496). DDH 7 intersected 15 cm of near solid pyrite and pyrrhotite in andesitic rocks and DDH 8 intersected "a few narrow sections of semi-massive sulphides with a few small splashes of chalcopyrite" within rhyodacitic rocks (A.F. 90473).

GEOCHEMICAL DATA:

Thirteen samples of drill core from DDH 7 and 8 contained up to 0.3 g/t Au and less than 0.45% Cu (A.F. 90473).

CLASSIFICATION:

Massive sulphide type deposit; volcanic rock associated. The disseminated sulphides and chloritic dacite structurally below the solid sulphide section from DDH Fud-2 probably represent a zone of hydrothermal alteration of the type commonly associated with massive sulphide type deposits. This mineralization may be at the same stratigraphic position as the sulphide facies iron formation at Location 19.

REFERENCES:

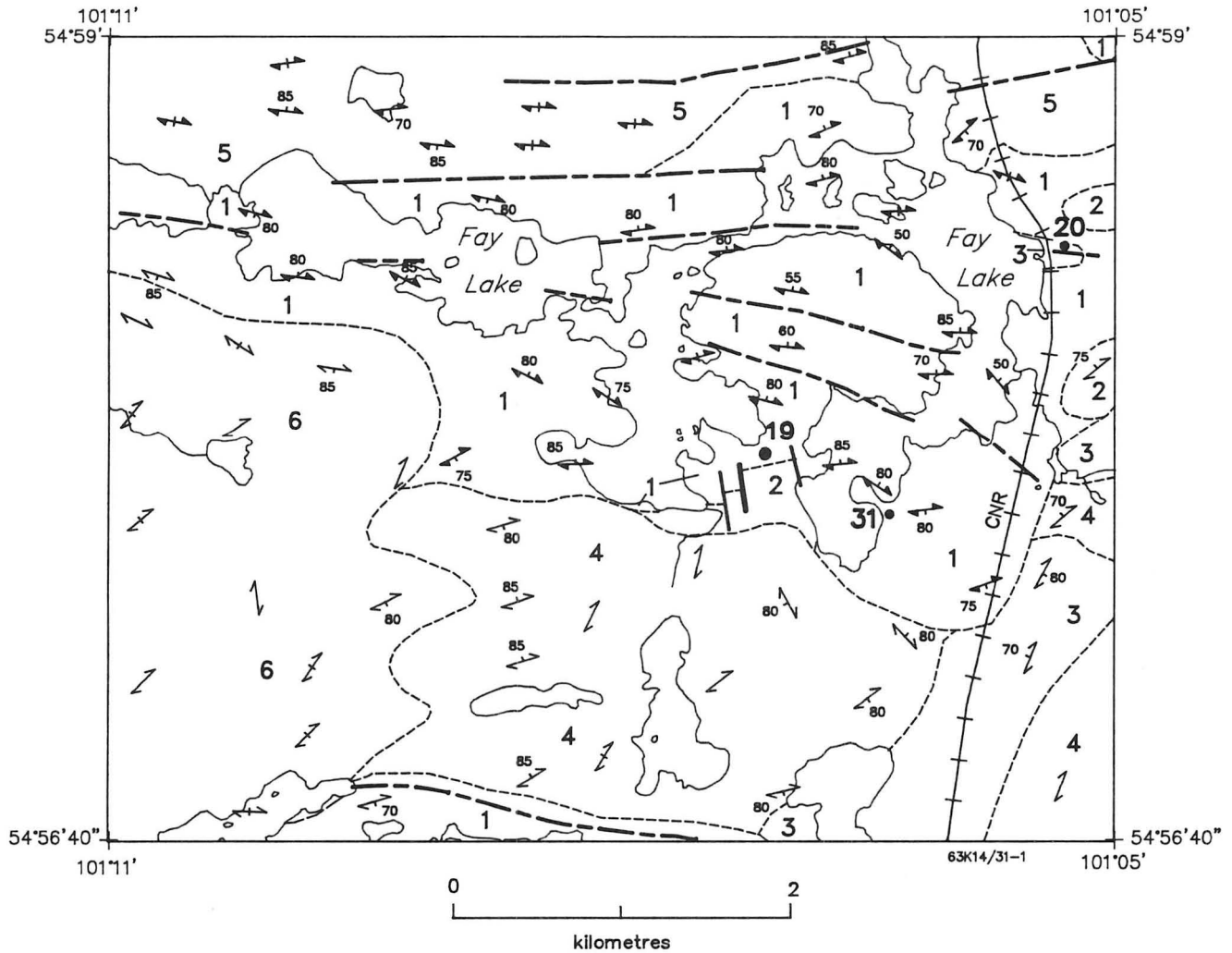
Assessment File 90472, 90473, 91496
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.

Parbery, D.
1986: Mineral occurrence studies - Flin Flon area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 49-55.

Schledewitz, D.C.P.
1990: Webb Lake-Fay Lake (NTS 63/15); in Manitoba Energy and Mines, Minerals Division, Report of Activities, 1990, p. 58-61.

Wright, J.F.
1931: Geology and mineral deposits of a part of northwestern Manitoba, Geological Survey of Canada, Summary Report 1930, Part C, p. 1-124.



6 Biotite granodiorite

5 Meta–arkose, sedimentary gneiss

4 Hornblende–biotite granodiorite

3 Diorite, gabbro

2 Felsic volcanic rock

1 Mafic volcanic rock, amphibolite

Geologic contact, position approximate

Fault

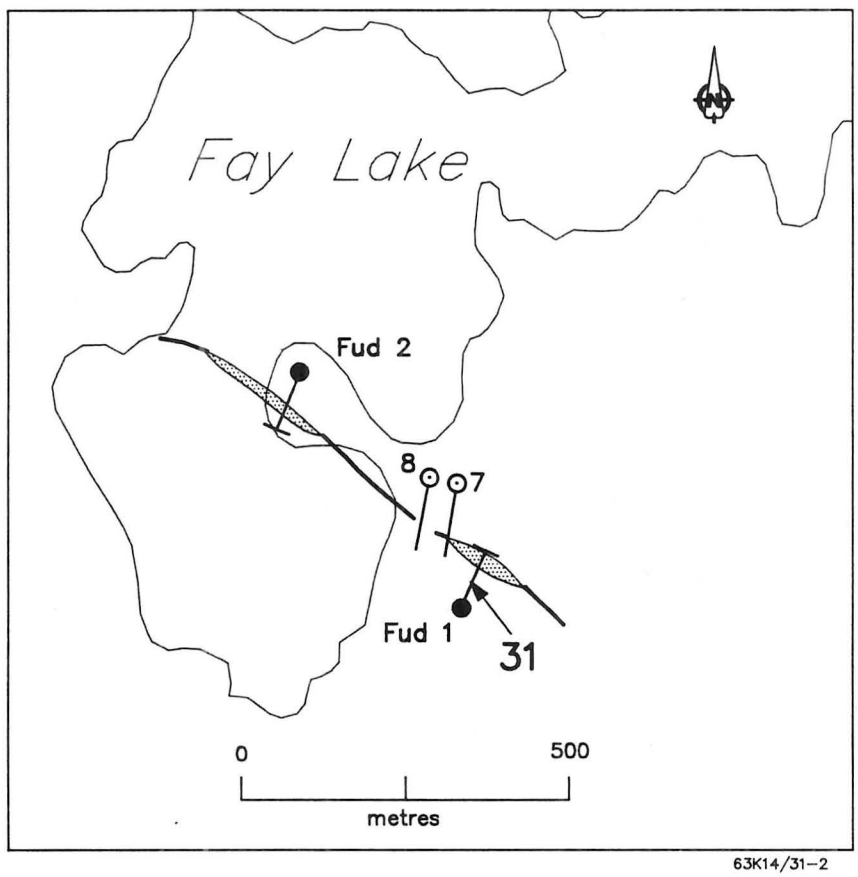
Schistosity: inclined, vertical, dip unknown

Foliation: inclined, vertical

Railway

31• Mineral occurrence location

Figure 31-1: Geological setting of occurrence 31. Geology after McGlynn (1959), Parbery (1986), and Schledewitz (1990).



2 drill holes (A.F. 90473)

2 drill holes (A.F. 91496)

Geophysical conductor (EM) (A.F. 91496)

31 Mineral occurrence location

Figure 31-2: Location of drill holes and EM conductors in the vicinity of occurrence 31.

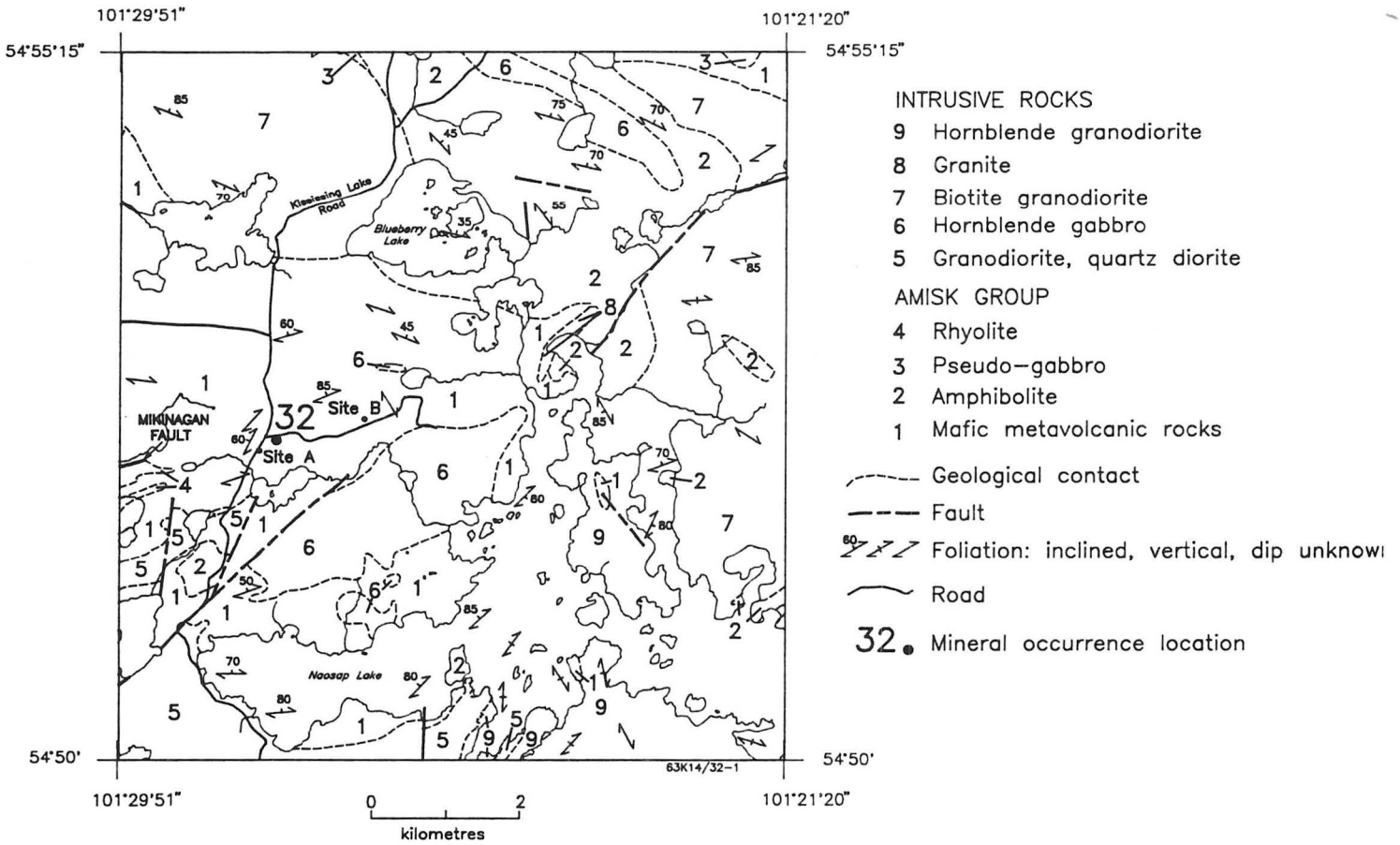


Figure 32-1: Geological setting of occurrence 32. Geology after Kalliokoski (1952).

LOCATION: **32**

NAME: Sap
UTM: 6083211N/341858E
ACCESS: Via all-weather road and logging road.

AREA: 2 km north of Naosap Lake
AIRPHOTO: A26330-270

EXPLORATION SUMMARY:

Mineralization was discovered in the area in 1986 by P. Bachnick and A. L. Parres who dug several trenches. The property was optioned to Esso Minerals in 1987 and geological, geochemical and geophysical surveys were undertaken. A number of trenches were dug over a strike length of 300 m by Parres and Bachnick at Site B (Figs. 32-1, 32-2) between 1990 and 1992.

GEOLOGICAL SETTING:

The area is underlain predominantly by mafic schist and amphibolite that were derived from mafic volcanic rocks (Fig. 32-1; Kalliokoski, 1952). Laminated (0.5-5 cm) felsic lapilli tuffs with garnet and magnetite and a 20-30 cm thick fine grained felsic dyke occur in the vicinity of the trenches at Site B (Fig. 32-2) and Site A (Fig. 32-3).

The northeastwards projection of the Mikanagan Fault (Kalliokoski, 1952) would be located immediately north of the occurrence and several major faults cut through the area (Fig. 32-1). The rocks in the area are strongly deformed and contain minor folds and faults. Minor faults at Site A (Fig. 32-3) indicate dextral movements. Quartz veinlets are commonly parallel to the fault that is oriented at 068° strike, but rarely parallel the fault that is oriented at 052°; a 20 cm thick quartz vein strikes 122°.

MINERALIZATION:

A hornblende-rich mafic rock, exposed in several trenches, contains quartz veinlets with 5-10% pyrite, chalcopyrite, arsenopyrite, trace pyrrhotite and visible gold. A felsic dyke, exposed in trench 3 (Fig. 32-2), contains 1% disseminated pyrite. Tourmaline occurs in banded quartz in several outcrops southwest of the area shown in Figure 32-2.

Two trenches at Site A (Fig. 31-3) were dug on fine grained chloritic mafic rock with 1% pyrite and chalcopyrite and quartz veinlets with up to 3% pyrite and trace chalcopyrite.

Visible gold occurs in 10-30 cm thick quartz veins at Site B. One of the quartz veins contains a blue grey mineral tentatively identified as sylvanite.

A 1 m thick shear zone at trench 3 (Fig. 32-2) does not contain any sulphide mineralization.

GEOCHEMICAL DATA:

Arsenopyrite-bearing grab samples from trench 3 (Fig. 32-2) contained up to 20 g/t Au. Grab samples from a quartz vein at Site B assayed over 50 g/t Au (A.L. Parres, pers. comm. 1991).

CLASSIFICATION:

Vein type deposit; multiple veins or lenses.

REFERENCES:

Kalliokoski, J.
1952: Weldon Bay map area, Manitoba; Geological Survey of Canada, Memoir 270, 80p.

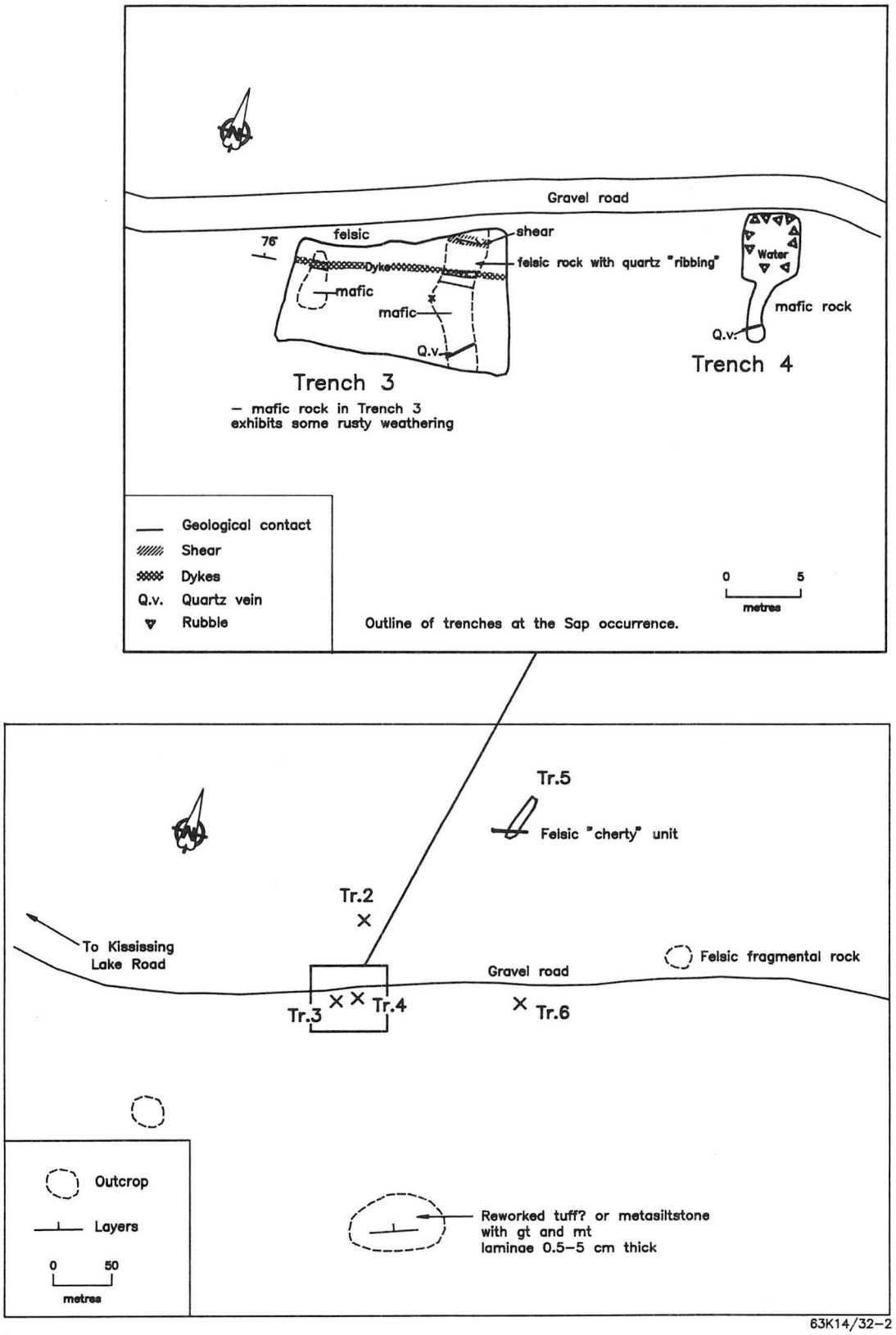


Figure 32-2: Geology and location of trenches at occurrence 32.

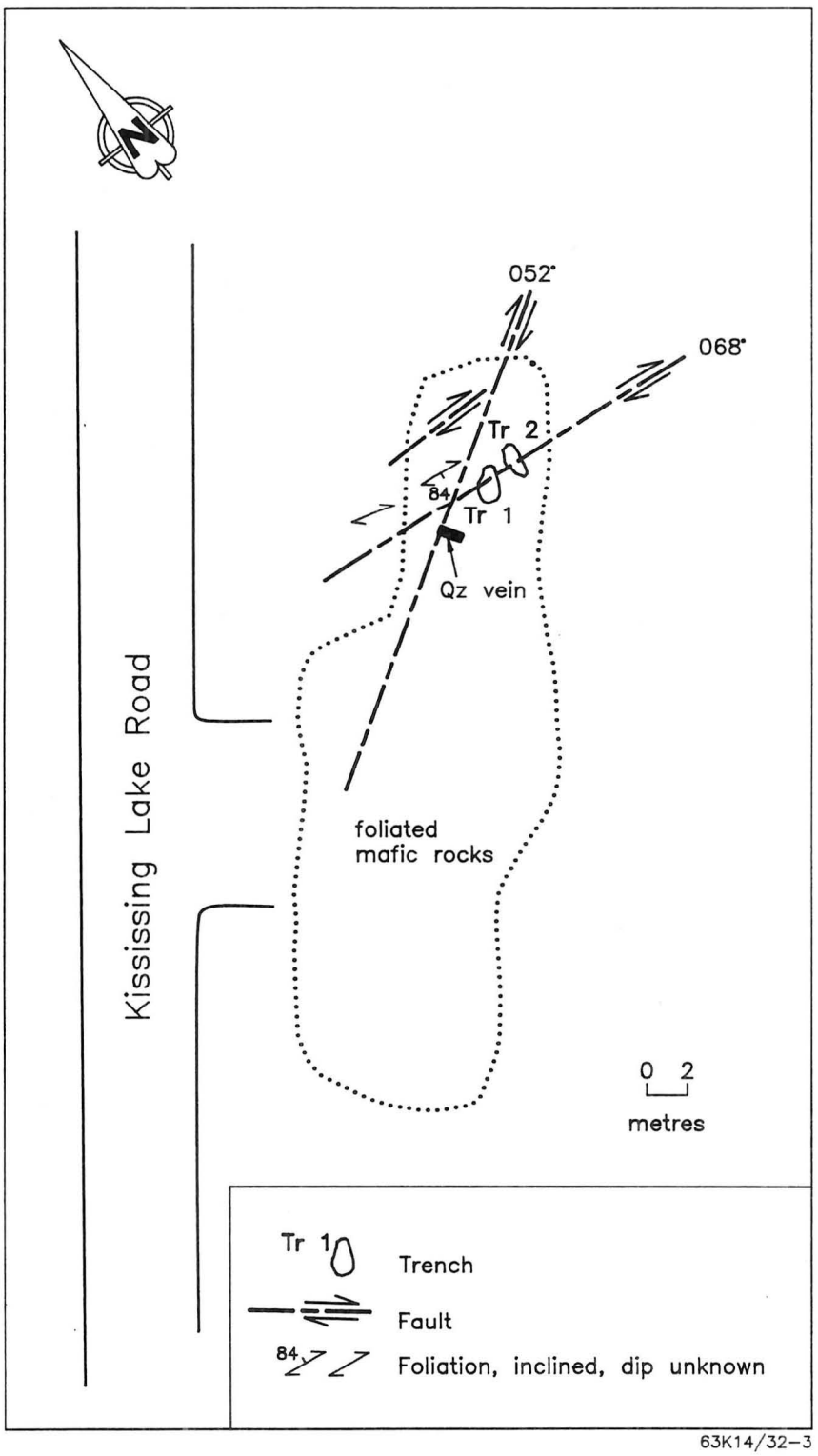


Figure 32-3: Geology and location of trenches at Site A, occurrence 32.

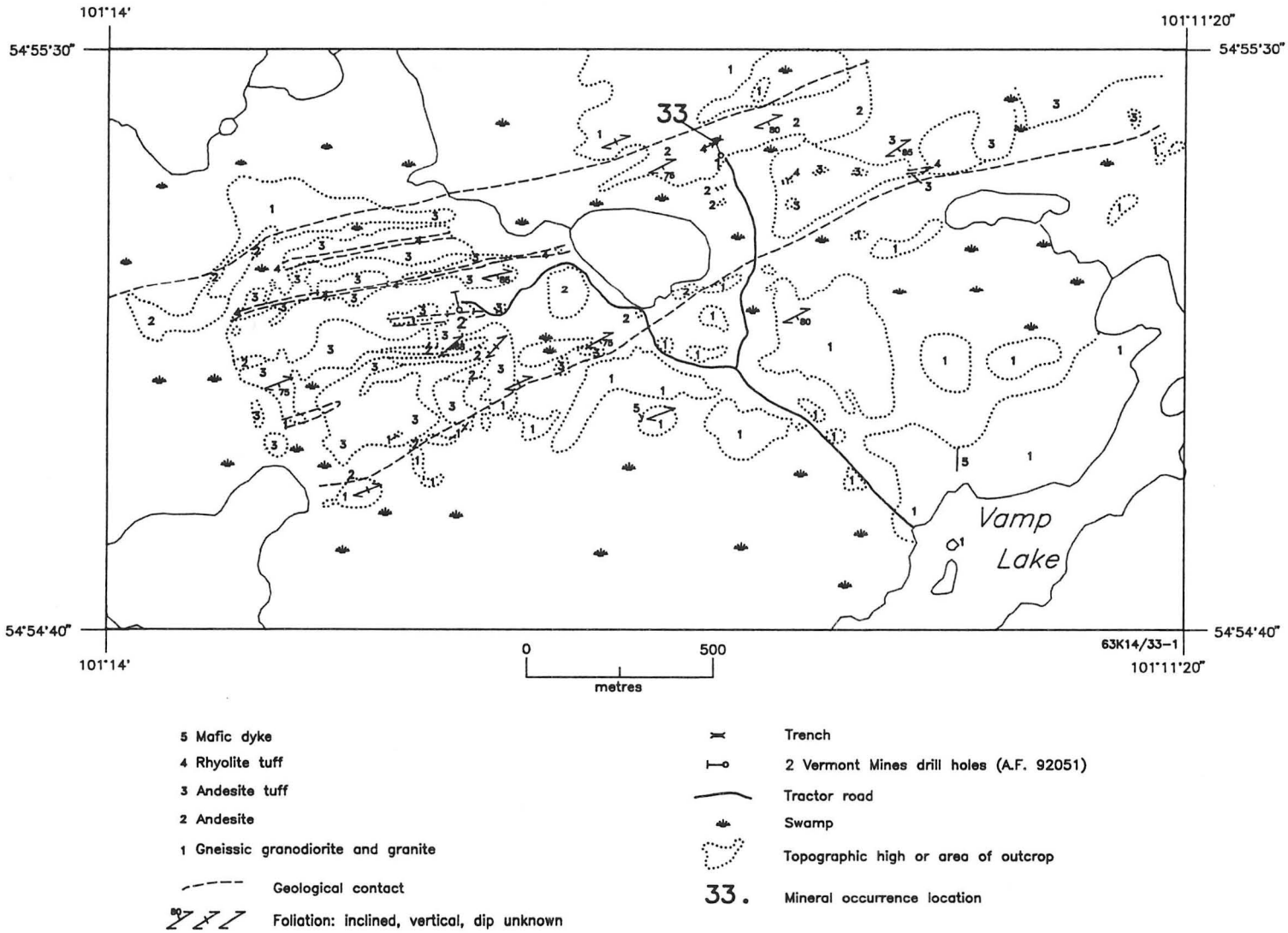


Figure 33-1: Geology and location of drill holes and trench at occurrence 33.

LOCATION: **33**

NAME:
UTM: 6088117N/358479E
ACCESS: Traverse from Nekik or Vamp lakes.

AREA: West of Vamp Lake
AIRPHOTO: A26363-49

EXPLORATION SUMMARY:

The property was staked in 1962 as the Dum group of claims for HBED who conducted geophysical surveys and drilled two holes totalling 121 m (A.F. 92051). The property was staked in 1963 as the Tap group of claims by Hudvam Mines Ltd. In 1964 Vermont Mines Ltd. conducted a geological survey of the Tap claims (A.F. 92051) and Pickering Metal Mines Ltd. conducted a VLEM survey on claims Tap 27 and 28 located immediately to the north of the Tap claims (A.F. 92050). The last of the Tap claims were cancelled in 1978.

GEOLOGICAL SETTING:

The andesitic and rhyolitic rocks of the area are intruded by a large pluton of gneissic biotite granodiorite (McGlynn, 1959). Detailed mapping of the area indicated the presence of rhyolite tuff (Fig. 33-1; A.F. 92051).

MINERALIZATION:

Fine- and coarse-grained disseminated pyrite and pyrrhotite are exposed by a trench in a rhyolitic tuff layer. DDH 1 intersected 60 cm of solid pyrrhotite with a trace of pyrite and chalcopyrite. DDH 2 intersected 45, 20, and 50 cm core lengths of solid pyrrhotite and a 54 cm section of near solid to solid pyrite (A.F. 92051).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation.

REFERENCES:

Assessment File 92050, 92051
Manitoba Energy and Mines, Mines Branch.

McGlynn, J.C.
1959: Elbow-Heming lakes area, Manitoba; Geological Survey of Canada, Memoir 305, 72p.