Manitoba
Energy and Mines
Geological Services

Mineral Deposit Series

Report No. 7

Mineral Deposits and Occurrences in the Tramping Lake Area, NTS 63K/9

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Winnipeg, 1990

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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. 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 In addition, for each occurrence the geologists have attempted to synthesize available data from published and unpublished sources.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 occurrences represented by cancelled assessment file compilation of diamond drill data are identified under the heading 'Name'. Information for all other occurrences was acquired primarily by field examination supplemented by cancelled assessment file compilation.

Information for this report and the accompanying map have been compiled mainly from cancelled assessment file data and other written sources as noted. In addition, field examinations were made of occurrences 10 and 11. Specific deposit descriptions are attributed as follows:

1) Karen Ferreira: locations 1-45; compilation.
2) Mark Fedikow: field examination of occurrences 10 and 11; review.

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 conducted 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. Where the volume of occurrence/deposit data within a 1:50 000 NTS map sheet is large enough to be more efficiently presented by dividing the map sheet in half or into quadrants (cf. Map MDS87-1, NTS 63K/13 SE) reference numbers will be consecutive only within the individual map sheet.

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 explorationists 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 the mineralization with the greatest economic potential, for example a disseminated narrow chalcopyrite layer is emphasized rather than a much thicker solid pyrite-graphite layer.

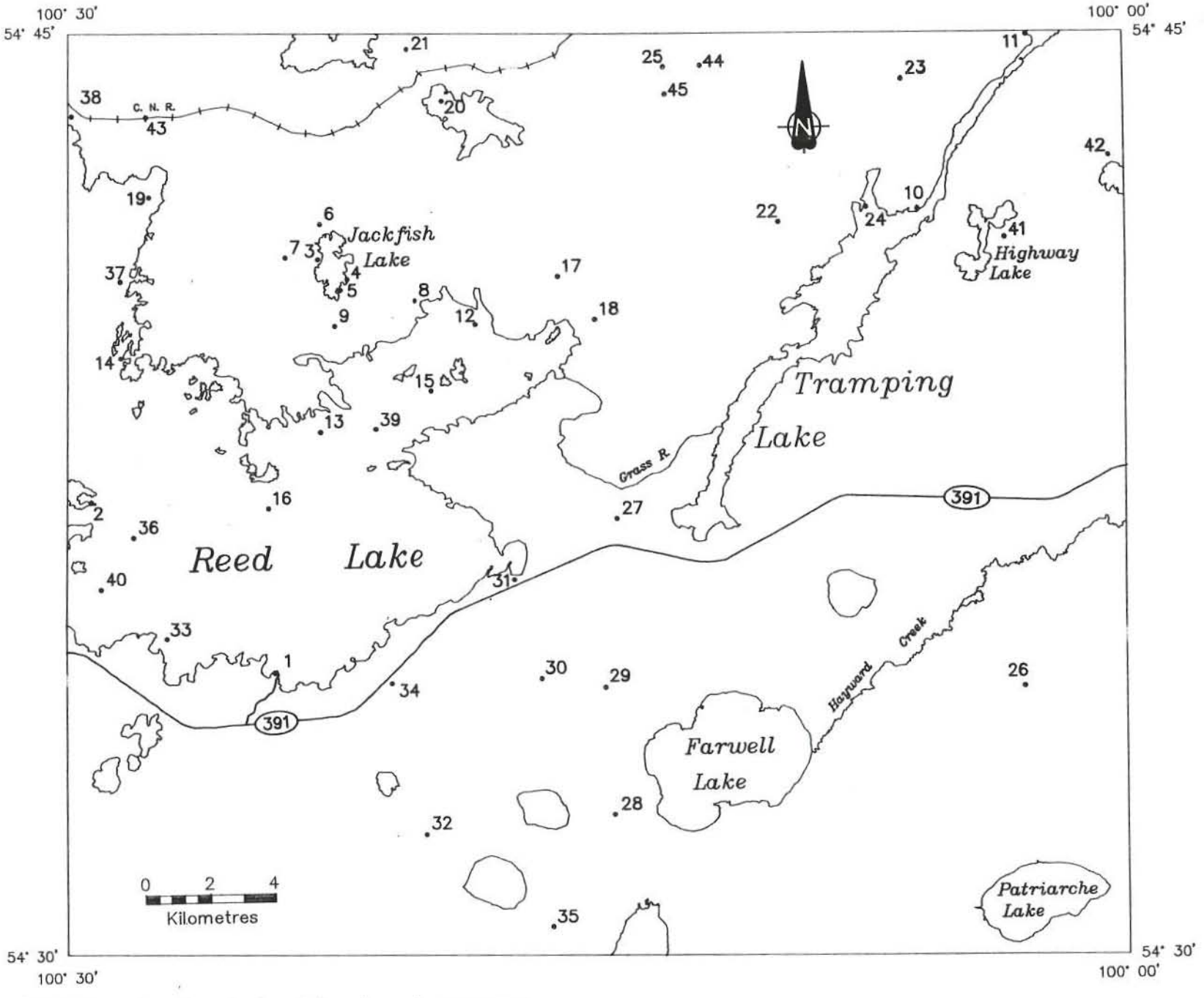

Figure 1: ***Location of mineral deposits and occurrences.***

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) Single 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
NOT CLASSIFIED DEPOSITS

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 several 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.

In some cases 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.

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 mineralogy, host rocks and mineralization-related alteration provide the readers with the opportunity to make their own evaluation of the significance of a mineral occurrence or deposit.

Geochemical Data:

Most geochemical data included in this report are summarized from assays listed in drill logs submitted to fulfill assessment requirements. In addition, samples collected for geochemical analysis from site visits are described in this section.

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 occurrence descriptions:

A.F.	assessment file(s)
CB	claim block
cm	centimetre
C.N.R.	Canadian National Railway
DDH	diamond drill hole(s)
diss.	disseminated
EM	electromagnetic
g/t	grams per tonne
HBED	Hudson Bay Exploration and Development Company Limited
HBM&S	Hudson Bay Mining and Smelting Company Limited
HLEM	horizontal loop electromagnetic
km	kilometre
m	metre
MDS	Mineral Deposit Series
SP	self potential
SS	solid sulphide
t	tonne
tr.	trace
VLEM	vertical loop electromagnetic
py	pyrite
po	pyrrhotite
cp	chalcopyrite
sp	sphalerite
apy	Arsenopyrite

ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance of C. Graham in compilation and plotting. E. Su drafted the figures using Autocad programs; E. Truman drafted the map that accompanies this report. T. Robbie assisted in field examination of occurrences 10 and 11. Technical review was provided by G. Gale; D.A. Baldwin and W.D. McRitchie edited the manuscript.

NOTE

This mineral deposit report and 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 AREA 63K/9

The geological base for mineral deposit map sheet NTS 63K/9 is based on the one inch to one mile map of Stanton (1945) that accompanies Harrison's (1949) report on the File-Tramping lakes area. The Tramping Lake map area includes Proterozoic supracrustal and intrusive rocks that are unconformably overlain by Ordovician dolomitic limestone in the south of the area. Supracrustal rocks comprise volcanic and volcanic-derived sedimentary rocks and volcanic, sedimentary and plutonic derived epiclastic rocks that are part of the Flin Flon-Snow Lake greenstone belt. The volcanic and volcanic-derived sedimentary rocks are assigned to the Amisk Group. The epiclastic rocks compose the Missi Group that overlies the Amisk Group elsewhere in the greenstone belt; it is present locally along the southeast shore of Tramping Lake in a narrow, fault-bounded block. The radiometric ages of supracrustal and intrusive rocks have not been determined in this map sheet.

The Amisk Group comprises mafic to felsic volcanic rocks with intercalated volcanic-derived sedimentary units that become dominant toward the top of the succession (Bailes, 1980). Total rock Rb/Sr and K/Ar determinations from the Flin Flon area (Josse, 1974; Josse *et al.*, 1974; Mukherjee *et al.*, 1971) and more recent U-Pb zircon ages (Gordon *et al.*, in press) favour an Aphebian age for the volcanic rocks; the earliest extrusive event occurred at approximately 1900 Ma. Chemically, rocks in the Flin Flon-Snow Lake greenstone belt exhibit tholeiitic affinities (Bailes, 1988). The prevalence of pillowed flows, mafic to felsic volcanism, submarine volcaniclastic and turbidite deposits and the tholeiitic chemical affinity displayed by the least altered mafic volcanic rocks suggest deposition in an island-arc tectonic environment (Bailes, 1988). The Amisk Group in the eastern, i.e., Snow Lake, part of the greenstone belt has abundant felsic volcanic rocks; some of these have been identified as synvolcanic tonalite plutons, large portions of which are hydrothermally altered (Walford and Franklin, 1982; Bailes *et al.*, 1987). A turbidite sequence up to 1000 m thick has been identified at the top of the Amisk Group in the File Lake area (Bailes, 1980).

In the Snow Lake area the Missi Group consists of a monotonous succession of lithic arenite. Although conglomerate is characteristic of the Missi Group in the Flin Flon area, it is absent in the Snow Lake area; however, east of Wekusko Lake (northeast of NTS 63K/9), the Missi Group does include conglomerate as well as fluviatile sandstone and felsic volcanic rocks (Froese and Moore, 1980). Stanton (1945) mapped a unit of conglomerate with minor pebble beds, and minor quartzite and greywacke along Tramping Lake; Bailes (pers. comm., 1989) recognizes this unit as a fault-bounded part of the Missi Group succession.

The earliest intrusions recognized throughout the Flin Flon-Snow Lake greenstone belt are synvolcanic mafic to felsic sills and dykes, and granitoid, commonly porphyritic, plutons that are restricted to the Amisk Group and related to Amisk volcanism (Walford and Franklin, 1982). A mafic intrusive body centred on Jackfish Lake varies from pyroxenite to gabbro and quartz gabbro and consists of various coarse- and fine-grained phases (Harrison, 1949).

Metamorphism probably commenced during the waning stages of Missi magmatism (1832 ± 2 Ma) and continued to approximately 1800 Ma (Gordon *et al.*, in press). Regional metamorphism in the greenstone belt exhibits a general increase in grade from middle greenschist facies in the western Reed Lake area (Rousell, 1970) to upper amphibolite facies in the File Lake area north of map area NTS 63K/9 (Harrison, 1949; Froese and Moore, 1980).

Few major structures have been identified in the Tramping Lake map sheet because of the paucity of outcrop and the relative lack of detailed geological maps. A westward-plunging anticline is present in northeast Reed Lake (Harrison, 1949). The Berry Creek Fault in the northeastern part of the map area is a late, steeply dipping to near vertical fault marked by a pronounced topographic lineament and a broad zone of schistose rocks, including volcanic and sedimentary rocks, granite, quartz porphyry and diorite (Harrison, 1949; Froese and Moore, 1980). Stanton (1945) has denoted numerous zones of intense foliation in the Reed Lake area, some of which represent local faults and others that represent slippage along bedding planes associated with folding.

The Spruce Point Zn-Cu deposit (location 1) is the only recognized volcanogenic base metal massive sulphide type deposit in area NTS 63K/9. Occurrences 25 and 45 appear to have some of the characteristics of the volcanogenic massive sulphide type deposits that occur in the Chisel Lake area to the north (cf., Fedikow *et al.*, 1989).

Numerous Cu-Ni occurrences, including locations 3 (Jackpot), 4 (New Colony), 5, 6, 7 (Nicu), 8 (Cabin) and 9, are hosted by the Jackfish Lake gabbro. These occurrences consist of disseminated and podiform chalcopyrite and nickeliferous pyrrhotite in a fine grained, dense, grey quartz gabbro phase, and are also concentrated near the margins of mafic volcanic xenoliths. This multiphase ultramafic to mafic intrusion with anomalous concentrations of Ni and Cu suggests a favourable environment for platinum group element exploration. Graphite, sulphide minerals and altered (e.g., chloritized, serpentinized, talcose) rocks in these Cu-Ni occurrences may also be indicative of a C-O-H-S-Cl volatile system, considered important for deposition of platinum group element mineralization in some mafic/ultramafic sequences (Stumpfl and Ballhaus, 1986; Volborth and Housley, 1984; Stumpfl, 1974).

The majority of sulphide occurrences in area NTS 63K/9 are chemical sediment type deposits, consisting mainly of graphite- and sulphide-bearing strata in mafic volcanic rocks and/or argillaceous sedimentary rocks.

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MINERAL DEPOSITS AND OCCURRENCES: TRAMPING LAKE AREA (63K/9)

LOCATION: 1

NAME: SPRUCE POINT MINE (Freebeth)

AREA: South shore of Reed Lake, 3 km east of Freezeout Bay.

UTM: 6048317N/409356E

AIRPHOTO: A26323-94

ACCESS: Via mine road leading from Provincial Road 391.

EXPLORATION SUMMARY:

In 1971, Exploration Reservation No. 107 was taken by M.J. Moreau to cover a 30700 hectare area south of Reed Lake. A Questor INPUT survey was flown for Freeport Canadian Exploration Company and Beth-Canada Mining Company in 1972. Forty-three holes were drilled in 1972-73 to test airborne INPUT anomalies. Mineralization was intersected in 25 holes, and a deposit estimated to contain 1 102 000 tonnes grading 2%Cu and 4% Zn with minor Ag and Au was outlined (Mineral Inventory Card 63K/9 Cu1). The Reed group, of which claim Reed 19 covered the deposit, was staked in 1973 for M.J. Moreau and assigned to Freeport Canadian Exploration Company. Diamond drilling to test the deposit continued in 1974-75. In 1976, Explored Area Lease No. 26 superseded Reservations of Mineral Rights over Reed Lake and 16 claims of the Reed group, including Reed 19. HBED acquired the property by an agreement between Freeport Canadian Exploration Company and HBED's major shareholder, Anglo American Corporation of Canada Limited. Mine development began in 1980; production commenced in 1982. The No. 1 lens was first to be mined. Currently the bulk of ore production is from the No. 3 lens. The No. 4 lens is under development, and the No. 5 lens is being explored. The mine has been developed from the 45 m to the 574 m levels and is open at depth.

GEOLOGICAL SETTING:

Information on the Spruce Point deposit was obtained from F. Bill, (HBM&S, March 17, 1989, pers. comm.). The Spruce Point deposit is overlain by 3 m of overburden and 12 m of kaolinized Ordovician limestone (Fig. 1-1). It is hosted by an overturned sequence of fragmental rhyolite in contact with basalt to the east and west. Rhyolite fragments are lapilli- to block-sized; however, the origin of these fragments is not known. A relatively thin, dark, banded argillite layer with minor erratically distributed graphite occurs at the stratigraphic hanging wall of the sulphide-bearing zone. The enclosing basaltic rocks are massive or tuffaceous, non-foliated, aphyric and appear unaltered.

The host rocks are sericitized and slightly chloritized, but an extensive chloritic alteration zone extending into surrounding lithologies has not been recognized. The structural hanging wall of the deposit is slightly more chloritic than the structural footwall, which has a more cherty appearance.

MINERALIZATION:

The deposit strikes 015°, has an average dip of 80°E, and plunges 36°SE. It has a strike length of 450-500 m, a maximum width of 18 m and an approximate average thickness of 9 m. Several Cu-Zn lenses have been defined, of which the No. 1 lens is the most extensive; it extends 120 m along strike, 365 m down plunge from 45 to 230 m depth and is about 5 m thick (Mineral Inventory Card 63K/9 Cu1).

Mineralization consists of solid, medium grained pyrite, sphalerite, chalcopyrite, and pyrrhotite in four lenses along one stratigraphic zone. Galena is present in trace amounts. Lenses No. 1 and 3 are Cu-Zn rich; the No. 4 lens is Cu-Au rich; and the No. 5 lens is Zn rich. The lenses are separated by subeconomic sulphide minerals, mainly pyrite with a small amount of pyrrhotite. The deposit has an internal metal zoning characterized by a north to south grading of Cu-rich ore to Zn-rich ore. Erratic Au mineralization associated with arsenopyrite is present in the argillite unit directly above the sulphide zones. Quartz is the dominant gangue mineral in the deposit.

GEOCHEMICAL DATA:

Proven reserves as of January 1, 1981 were 616 000 tonnes averaging 2.7% Cu, 4.3% Zn, 1.9 g/t Au, and 32 g/t Ag (Mineral Inventory Card 63K/9 Cu1). Reserves as of December 31, 1987 were 567 000 tonnes grading 2.15% Cu, 1.7% Zn, 1.44 g/t Au and 15.04 g/t Ag. Total production to the end of 1988 was 1 364 000 tonnes averaging 2.36% Cu, 2.8% Zn, 2.0 g/t Au and 25.0 g/t Ag, mainly from zones No. 1 and 3 (F. Bill, pers. comm., 1989).

CLASSIFICATION:

Massive sulphide type deposit; volcanic rock associated. The stratabound Zn-Cu deposit is hosted within sericitized felsic volcanic rocks.

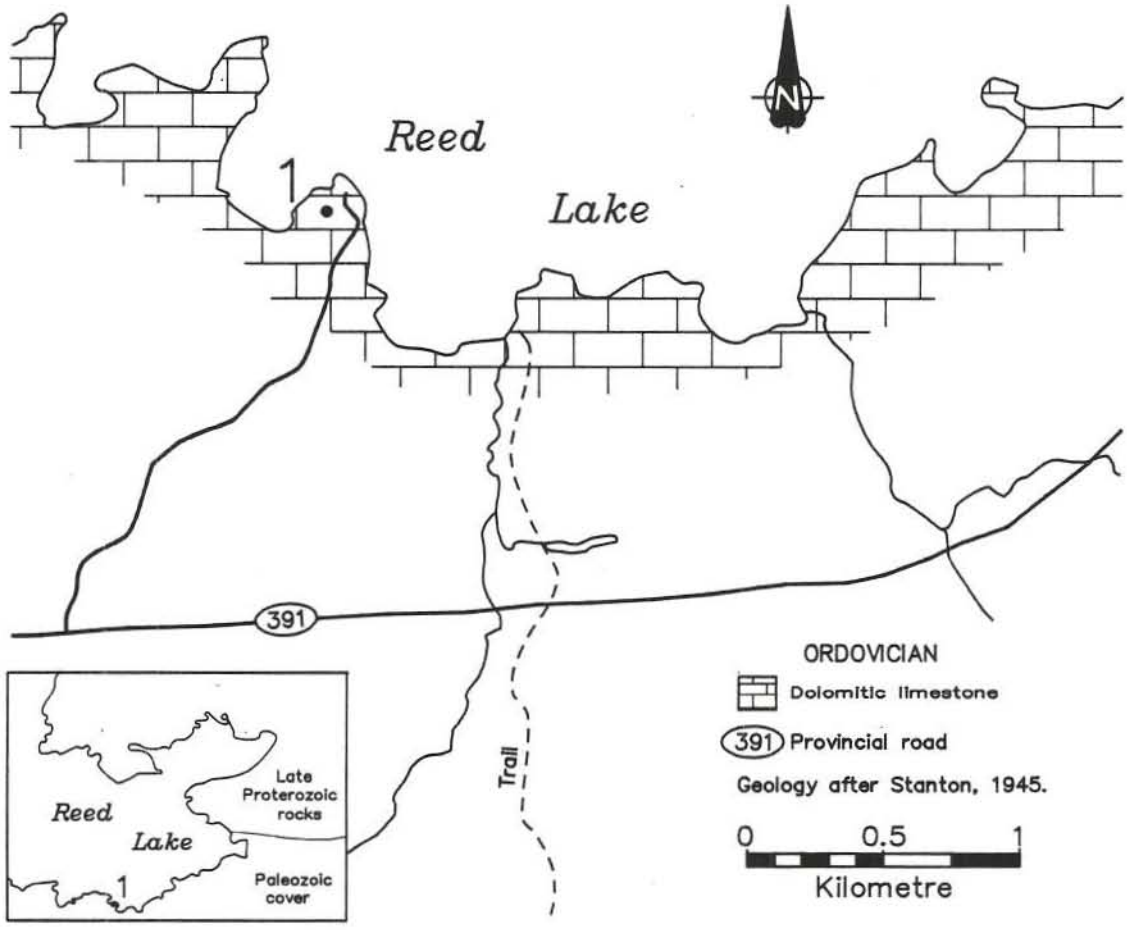

Figure 1-1: Geological setting of Spruce Point Mine (1).

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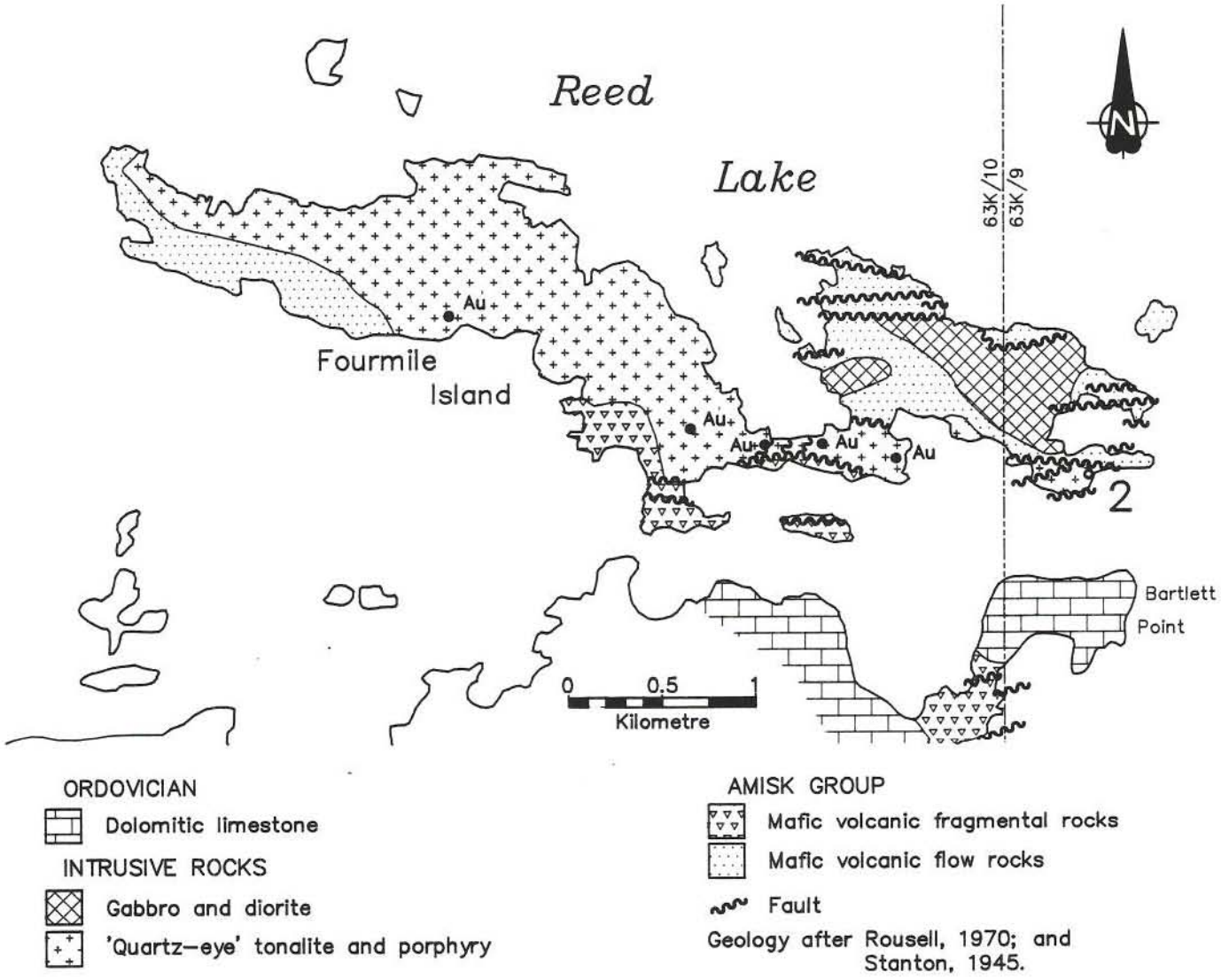

Figure 2-1: Geological setting of occurrence 2. Other occurrences on Fourmile Island are in NTS 63K/10.

LOCATION: **2**

NAME: FOURMILE GOLD - EAST

UTM: 6053494N/403829E
ACCESS: Via boat on Reed Lake.

AREA: Eastern end of Fourmile Island, centre of Reed Lake.
AIRPHOTO: A26367-150

EXPLORATION SUMMARY:

Hjalmar Peterson recorded claims Surprise 5 and Surprise 6 in 1945. In 1947 the claims were transferred to Middleground Mining Company Limited. George Black held the ground as claims Angus 13 and Angus 14 from 1963 to 1964. A.F. Olesen recorded CB 157 and CB 158 in 1968, and assigned the claims to HBED in 1969. HBED has conducted various geophysical and diamond drilling surveys in the Fourmile Island area, including outlining the nearby Fourmile Island deposit (NTS 63K/10), which contains 1.35 million tonnes grading 2.09% Cu (Gale *et al.*, 1980).

GEOLOGICAL SETTING:

The area is underlain by 'quartz eye' tonalite porphyry, mafic volcanic rocks, volcanic breccia, and gabbro (Fig. 2-1). Gale and Koo (1977) report that the unit shown as tonalite by Rousell (1970) is tonalitic only in the southern part of Fourmile Island; the central part of the island contains layered volcanogenic sedimentary rocks and quartz-eye chlorite schist derived from mafic volcanogenic sedimentary rocks. The tonalitic rock varies from massive medium grained tonalite to a mixture of tonalite and quartz porphyry. Harrison (1949, p. 82-83) described the rocks that host location 2 as fine grained silicified 'quartz-eye' granite.

MINERALIZATION:

Harrison (1949) reports "some" pyrite and indeterminate amounts of gold in a 14 m wide stockwork of quartz veinlets. The zone is discontinuous along strike and trends about 050°. Minor brown carbonate crystals are present within the veins, and minor chlorite occurs at vein margins. The host rock within the stockwork is highly silicified and lacks prominent foliation.

GEOCHEMICAL DATA:

Harrison (1949) indicates that gold is present, but analyses have not been published.

CLASSIFICATION:

Vein type deposit. The deposit consists of a stockwork of pyrite-bearing quartz veinlets with minor brown carbonate in silicified wall rock.

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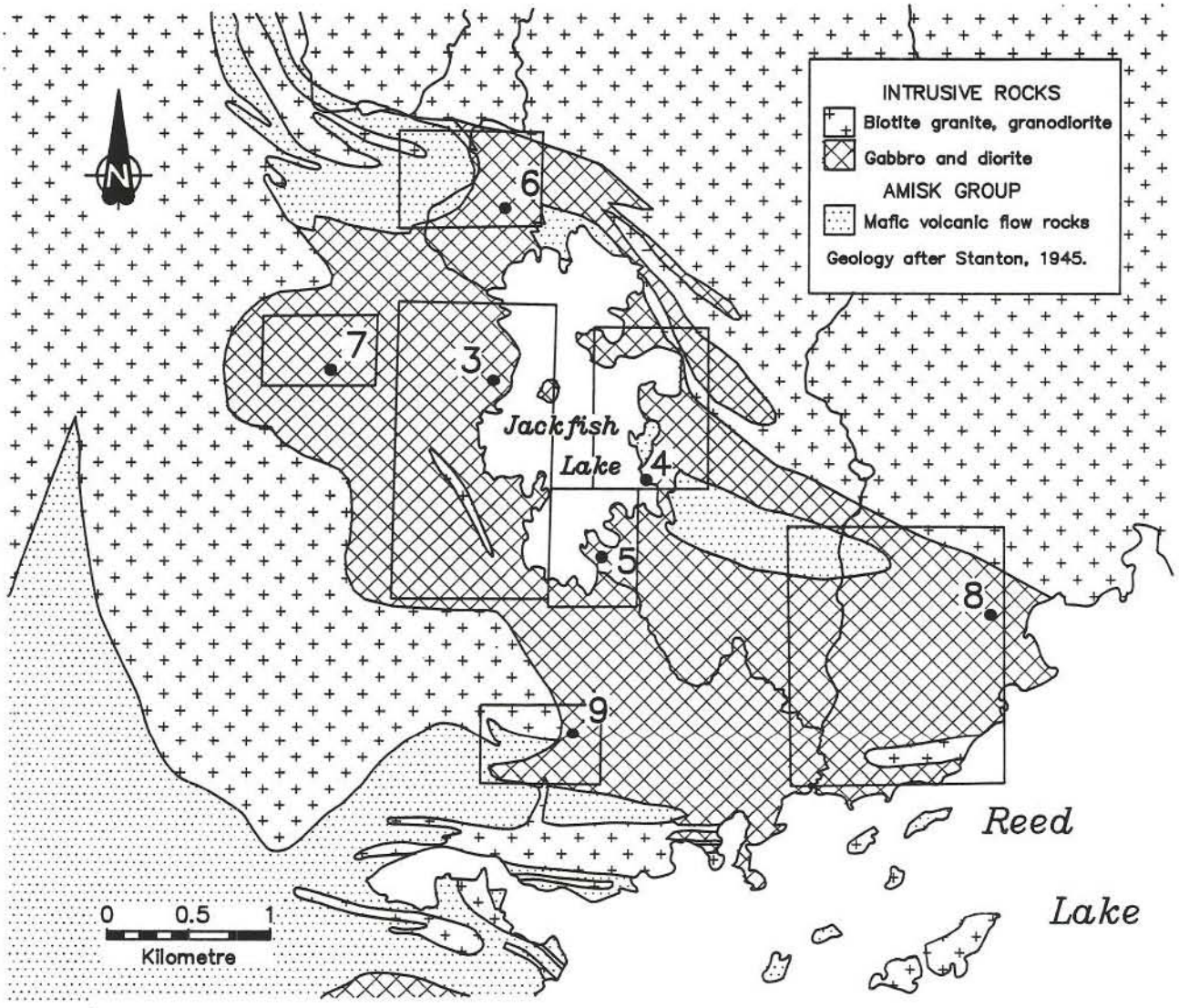

Figure 3-1: Geological setting of occurrences 3, 4, 5, 6, 7, 8 and 9.

LOCATION: **3**

NAME: JACKPOT
UTM: 6060762N/410951E
ACCESS: Via bush aircraft or by canoe from Reed Lake.

AREA: West side of Jackfish Lake.
AIRPHOTO: A26323-104

EXPLORATION SUMMARY:

The New Colony claim group was staked by T. Cote, W. Cote and C.E. Lee and optioned to Manitoba Basin Mines in 1928. "Considerable" prospecting was done in 1928 and 1929 (Wright, 1930, p. 72c-73c). The Jackpot claims were staked by Mary Hale in 1949. A total of 1061 m of diamond drilling was conducted on the Jackpot claims on the north and east sides of Jackfish Lake by Mrs. Hale from 1950 to 1955 (A.F. 90259). In 1951 the Jackpot claims were optioned to Canadian Nickel Company Limited, and a magnetometer survey (A.F. 90258) and 2307 m of diamond drilling (A.F. 90257) were done. Mirado Nickel Mines Limited gained control of the claims in 1957 and carried out a VLEM survey (A.F. 90261) and a 1:2400 geologic mapping program (A.F. 90246). In 1962 W.B. Dunlop staked the Jack 8 and Jack 17 claims and Steve Bachnick staked claim Jac 20; all claims were transferred to Conwest Exploration Company Limited. Conwest conducted an EM survey in 1964 and an unspecified amount of diamond drilling in 1965 (Mineral Inventory Card 63K/9 Ni2). Falconbridge Nickel Mines Limited optioned the ground from 1980 to 1983. In 1986 W. Bruce Dunlop Limited staked the Jac claims to surround the Jack claims. W. Bruce Dunlop Limited remains (1988) the registered owner of the Jack and Jac claims.

GEOLOGICAL SETTING:

The area is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 3-2). The gabbro is coarse- to fine-grained, and varies in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949).

MINERALIZATION:

Fine grained granular pyrrhotite and pyrite with subordinate chalcopyrite and marcasite constitute 5-70% of the rock. Sulphide mineralization is preferentially hosted by dense, grey, fine grained gabbro that occurs as rounded areas within quartz gabbro. DDH 13 intersected 18.8 m of moderate to near solid pyrrhotite in grey siliceous gabbro, as well as three other intersections up to 2.7 m with moderate disseminated to solid pyrrhotite and pyrite in altered gabbro. DDH 14 contains five intersections, each up to 2.6 m, with moderate to solid pyrrhotite and pyrite in fine grained silicified grey gabbro. DDH 15 intersected 2.1 m of moderate to solid pyrrhotite in fine grained grey gabbro/mafic volcanic rock (A.F. 90256). DDH 16 contains five intersections up to 1.6 m in core length with near solid to solid pyrrhotite in fine grained siliceous grey gabbro. DDH 17 intersected 4.6 m of moderate pyrrhotite in a highly altered breccia zone within grey gabbro. DDH 18 contains 0.46, 2.7 and 7.1 m intersections of solid pyrrhotite and pyrite hosted by fine grained grey and anorthositic gabbro; in addition, minor fine grained pyrite is disseminated throughout major sections of medium grained silicified grey gabbro. DDH 19 intersected 15.0 m of solid pyrrhotite and subordinate pyrite in medium- to fine-grained grey gabbro; numerous intersections, <1 m, of solid pyrrhotite and pyrite occur downhole within medium grained grey gabbro. DDH 20 contains 1.6 m and 2.7 m intersections of solid pyrrhotite in medium grained grey gabbro, and 1.0 m of grey gabbro with minor pyrrhotite (A.F. 90256). DDH 9412 contains ubiquitous minor disseminated pyrrhotite, with minor pyrite and chalcopyrite in gabbro and brecciated gabbro. DDH 9414 intersected only minor sections, up to 2.7 m, with minor pyrrhotite and pyrite and rare chalcopyrite disseminated in gabbro. DDH 9415 contained a 9.1 m, a 2.9 m and three sections, <1 m, of gabbro with minor disseminated pyrrhotite and chalcopyrite. DDH 9416 intersected numerous core lengths, <3 m, that contain minor to moderate pyrrhotite and chalcopyrite disseminated in medium- to fine-grained gabbro (A.F. 90257). Drill logs note the alteration of hornblende to chlorite and biotite, as well as the presence of well foliated, green, chloritic, talcose and serpentinized sections.

GEOCHEMICAL DATA:

Cu and Ni assays from DDH 13 through 15, which tested the extension of the surface trenches, as well as other drill holes at the occurrence, range from nil to 1.01% Ni and nil to 0.32% Cu. Individual values are reproduced in Table 3-1.

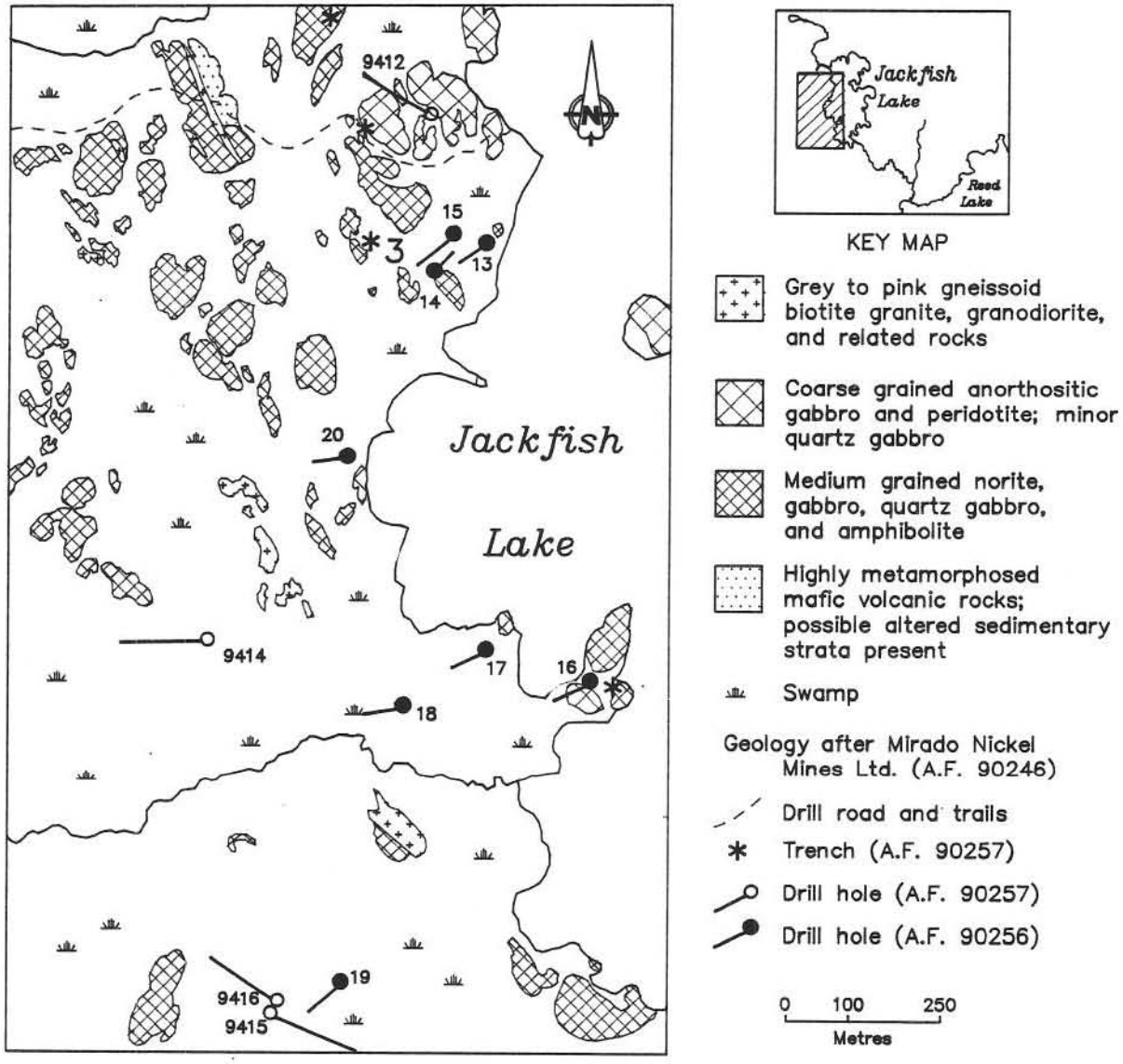

Figure 3-2: Detailed geology and drill hole locations at occurrence 3.

Table 3-1: **Summary of Cu and Ni assays with >0.2% (Cu+Ni) from drill core at location 3, Jackpot claims (A.F. 90256, 90257). Other assays with lower Cu and Ni amounts are found in the drill logs.**

DDH	Interval (m)	Width (m)	Cu (%)	Ni (%)	Mineralization	Rock Type
13	10.7-12.1	1.5	0.19	0.30	moderate po	gabbro, mafic volcanic, altered
	12.1-13.7	1.5	0.19	0.36	SS po	mafic volcanic, altered
	13.7-15.2	1.5	0.13	0.34	minor-moderate po	gabbro, mafic volcanic
	15.2-16.9	1.5	0.09	0.33	minor po	gabbro, grey, silicified
	16.9-18.3	1.5	0.13	0.31	SS po	grey gabbro
	18.3-19.8	1.5	0.19	0.31	SS po	grey gabbro
	19.8-21.3	1.5	0.19	0.36	SS po	grey gabbro
	21.3-25.6	1.2	0.16	0.30	SS po	grey gabbro
	22.8-24.4	1.5	0.09	0.39	minor-SS po	grey gabbro, mafic volcanic rock, silicified
	24.4-25.9	1.5	0.16	0.35	SS po	mafic volcanic
	25.9-27.4	1.5	0.13	1.01	SS po	mafic volcanic
	27.4-29.4	2.0	0.16	0.28	SS po	mafic volcanic
14	11.9-12.5	0.6	0.09	0.57	SS po, py	grey gabbro
	15.1-16.5	1.4	0.19	0.24	5%-SS po, py	mafic volcanic
	35.0-36.9	1.8	0.13	0.34	15% po, py	gabbro, grey, silicified, talcose
	42.7-45.2	2.6	0.13	0.34	10% po, py	gabbro, silicified
15	24.7-26.8	2.1	0.06	0.35	30% po	mafic volcanic
16	no assays with >0.2% (Cu+Ni)				up to 60% po	gabbro, silicified
17	no assays with >0.2% (Cu+Ni)				minor po	grey gabbro
18	no assays with >0.2% (Cu+Ni)				up to SS po, py	grey gabbro
19	no assays with >0.2% (Cu+Ni)				up to SS py	grey gabbro
20	no assays with >0.2% (Cu+Ni)				up to 60% po	grey gabbro
9412	4.0-4.6	0.5	0.08	0.20	minor diss. po	gabbro
	11.0-28.1	16.8	0.08	0.14	minor diss. po	gabbro, altered
	60.9-63.9	3.0	0.12	0.07	tr. po	gabbro
	79.1-103.5	24.0	0.9	0.16	minor diss. po	gabbro, altered
	107.8-110.8	3.0	0.24	0.10	diss. po	gabbro stringers,greywacke
	116.9-154.1	36.7	0.12	0.19	minor po, cp	altered gabbro,brecciated, greywacke
9414	no assays given in drill logs					
9415	no assays given in drill logs					
9416	no assays given in drill logs					

CLASSIFICATION:

Magmatogenic type deposit. Disseminated to solid nickeliferous Fe-sulphide mineralization occurs in lenses of fine grained, dense, grey gabbro. These altered (i.e., serpentinized, talcose, chloritic) rocks with associated Fe-Cu-Ni sulphide minerals suggests an environment favourable for the concentration of platinum group elements.

REFERENCES:

Assessment Files 90246, 90256, 90257, 90258, 90259, 90261
Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area, Manitoba; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

Wright, J.
1930: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, 131p.

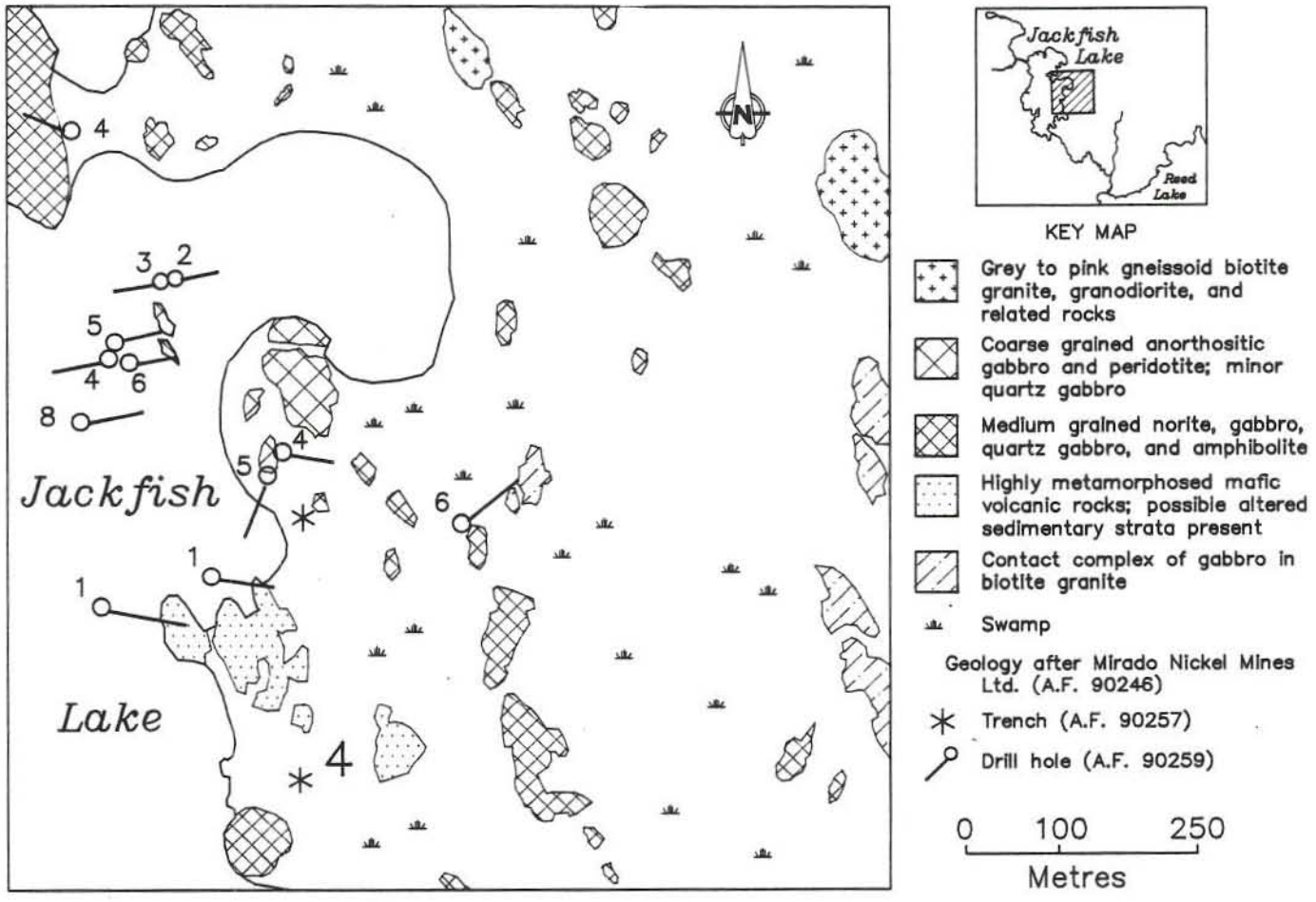

Figure 4-1: Detailed geology and drill hole locations at occurrence 4.

LOCATION: 4

NAME: NEW COLONY GROUP

UTM: 6060146N/411853E

ACCESS: Via bush aircraft or by canoe from Reed Lake.

AREA: 0.8 km north of outlet on the southeast side of Jackfish Lake (Fig. 3-1).

AIRPHOTO: A26323-104

EXPLORATION SUMMARY:

For a synopsis of exploration activity in the Jackfish Lake area, including location 4, see location 3 'Exploration Summary'.

GEOLOGICAL SETTING:

The mineralization is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 4-1). The gabbro varies in grain size from coarse- to fine-grained, and in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). Drilling at location 4 intersected gabbro, diorite, norite and peridotite (A.F. 90259).

MINERALIZATION:

Pyrrhotite, subordinate chalcopyrite and pyrite, and trace sphalerite occur mostly as disseminations, as well as forming lenses and stringers, in quartz gabbro, norite, peridotite and schistose mafic volcanic rocks. Pyrrhotite contains rounded unaltered silicate inclusions and rounded to subangular grains of chalcopyrite (Wright, 1930, p. 72c-73c). DDH 8 and the westernmost DDH 6 contain an unusual assemblage of pyrrhotite, pyrite and molybdenite with carbonate and quartz eyes over core lengths of 30 and 25 m, respectively; the relative abundance and style of mineralization are not specified (A.F. 90259).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Magmatogenic type deposit associated with mafic to ultramafic intrusive rocks. Minor to solid Fe-sulphide mineralization is disseminated in quartz gabbro, and near or at the margins of mafic volcanic blocks within the intrusion. The presence of Fe-Cu-Ni mineralization in mafic to ultramafic intrusive rocks suggests an environment favourable for the concentration of platinum group elements.

REFERENCES:

Assessment Files 90246, 90257, 90258, 90259, 90261
Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

Wright, J.
1930: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, 131p.

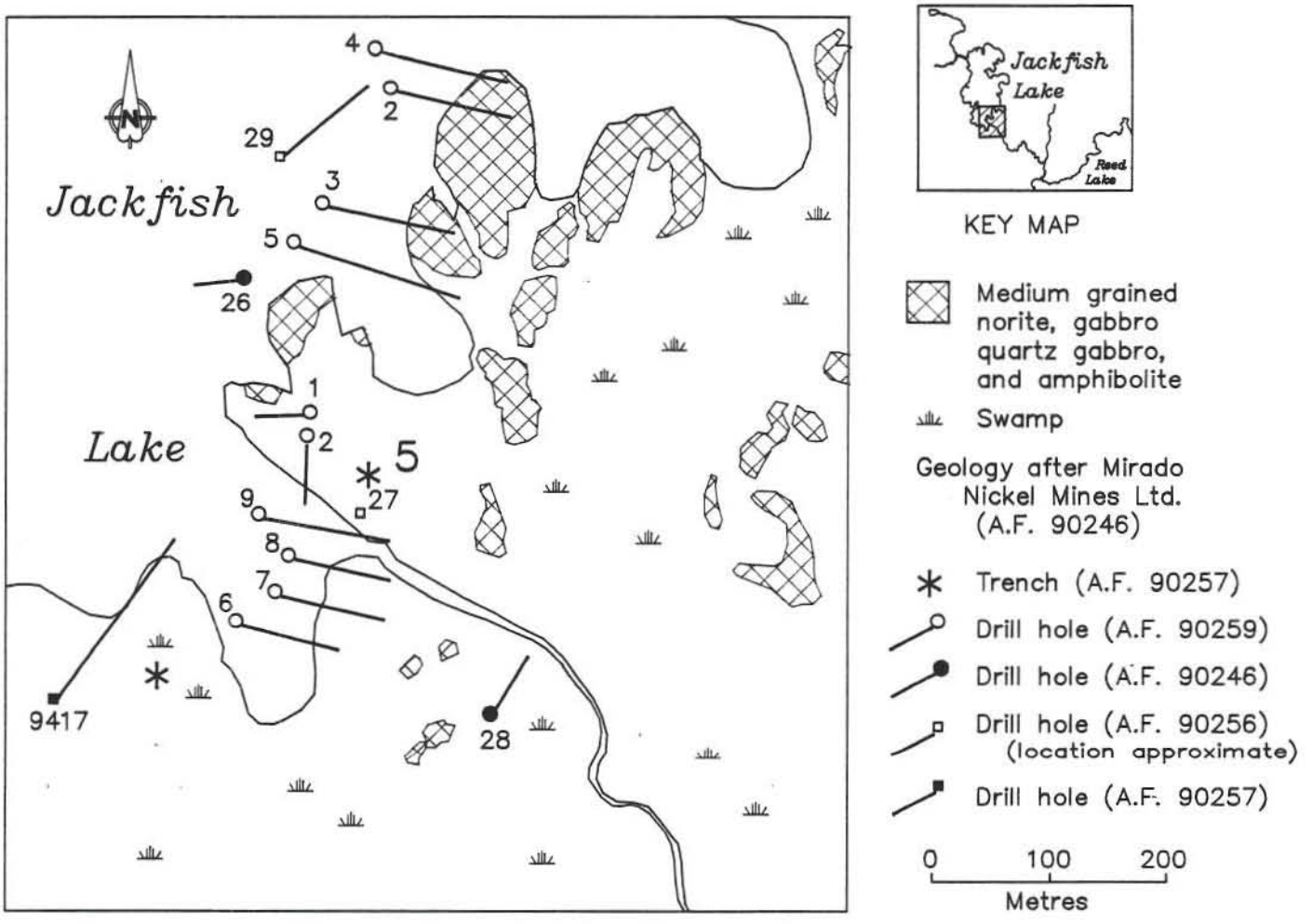

Figure 5-1: Detailed geology and drill hole locations at occurrence 5.

LOCATION: **5**

NAME:

UTM: 6059739N/411556E

ACCESS: Via bush aircraft or by canoe from Reed Lake.

AREA: Southeast side of Jackfish Lake directly north of outlet (Fig. 3-1).

AIRPHOTO: A26323-104

EXPLORATION SUMMARY:

For a synopsis of exploration in the Jackfish Lake area, including location 5, see location 3 'Exploration Summary'. In addition, Central Geophysics Limited drilled 2828 m on the adjoining Jack claims in 1950 (A.F. 90256).

GEOLOGICAL SETTING:

The mineralization is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 5-1). The gabbro varies in grain size from coarse- to fine-grained, and in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). Drilling at location 5 intersected a variety of ultramafic to mafic intrusive rocks with minor granitic dykes and mafic volcanic xenoliths (A.F. 90256, 90259). Graphitic sedimentary xenoliths were intersected in DDH 9417 (A.F. 90257).

MINERALIZATION:

Crystalline and spheroidal aggregates of marcasite, and veinlets and small lenses of pyrite and pyrrhotite within quartz gabbro are exposed within a trench. The sulphide content is not known. Chalcopyrite is reported in drill logs (A.F. 90259), but was not observed in the trench (Harrison, 1949; Wright, 1930, p. 72c-73c). Wright (1930) reports a 2.1 m wide area of brecciated, schistose quartz gabbro near the east end of the trench. Sulphide mineralization is concentrated in this zone of deformation. Joint planes in this schistose section commonly have slickensides. Drill cores contained very fine- to coarse-grained, moderate pyrrhotite, chalcopyrite, pyrite and minor marcasite disseminated in weakly foliated altered gabbro, serpentinite, norite, pyroxenite, peridotite (A.F. 90259). Minor Fe-sulphide mineralization is present in locally silicified mafic volcanic rafts from <1 m to 21 m in core length in DDH 2, 26, 28, 29 and 9417 (A.F. 90246, 90256, 90257) and in graphitic sedimentary xenoliths, 0.8-5.4 m, in DDH 9417 (A.F. 90257). Gabbro is variably foliated, silicified, uralitized, amphibolitized, carbonatized and biotitic (A.F. 90256).

GEOCHEMICAL DATA:

Assays from DDH 26 and 27 range from nil to 0.13% Cu and nil to 0.23% Ni (A.F. 90256).

CLASSIFICATION:

Magmatogenic type deposit. Fe-sulphide mineralization is disseminated in quartz gabbro, with higher concentrations in brecciated schistose gabbro. The presence of Fe-Cu-Ni mineralization in mafic to ultramafic intrusive rocks suggests an environment favourable for the concentration of platinum group elements.

REFERENCES:

Assessment Files 90246, 90256, 90257, 90258, 90259, 90261
Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

Wright, J.
1930: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, 131p.

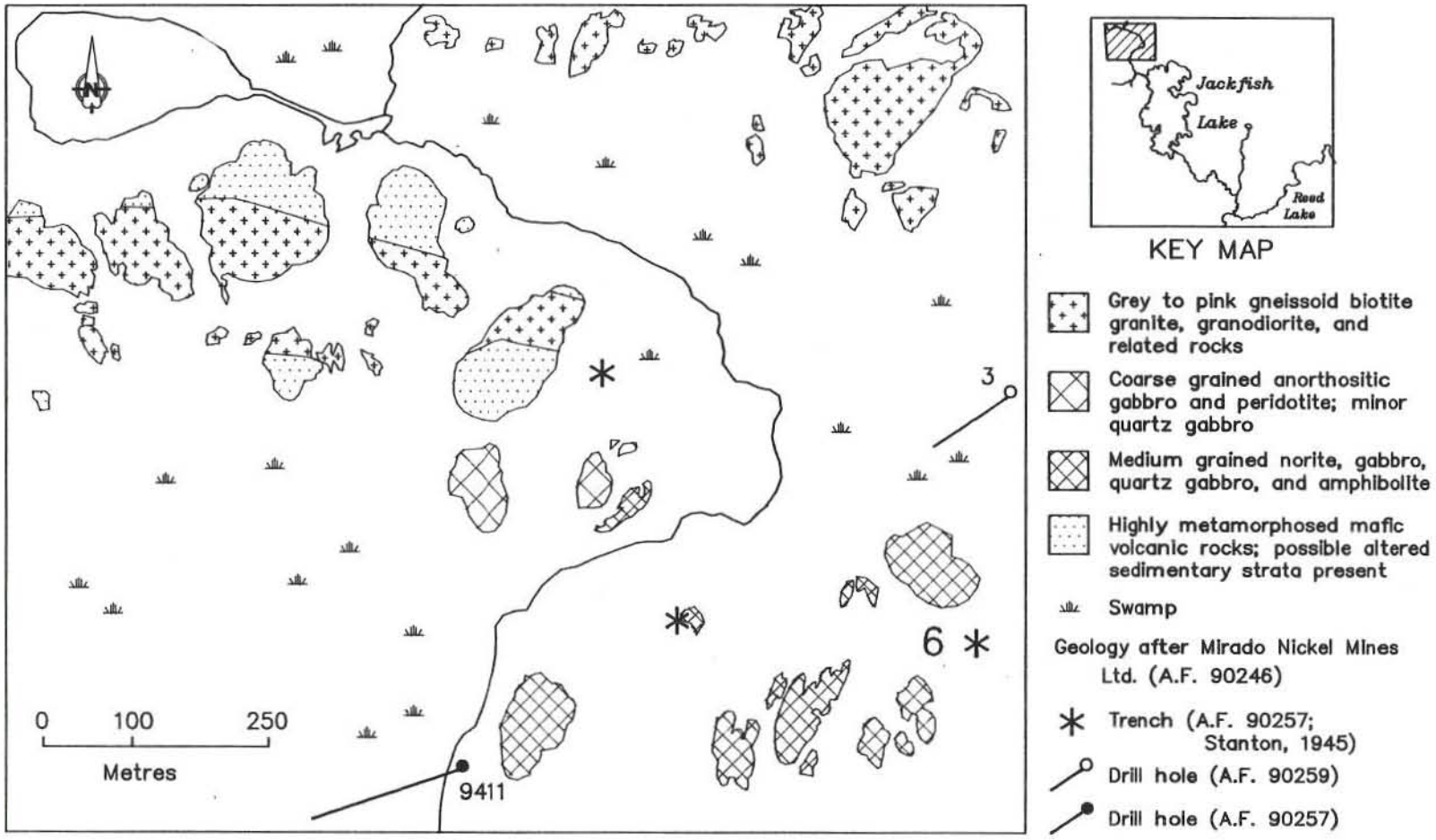

Figure 6-1: Detailed geology and drill hole locations at occurrence 6.

LOCATION: 6

NAME:

UTM: 6061832N/411037E

ACCESS: Via bush aircraft or by canoe from Reed Lake.

AREA: North end of Jackfish Lake (Fig. 3-1).

AIRPHOTO: A26323-104

EXPLORATION SUMMARY:

For a synopsis of exploration activities in the Jackfish Lake area, including location 6, see location 3 'Exploration Summary'.

GEOLOGICAL SETTING:

The mineralization is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 6-1). The gabbro varies in grain size from coarse- to fine- grained, and in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro, the most common lithology in the intrusion, is also dominant in trenches at location 6. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). DDH 9411 intersected: 1) several types of gabbro, including 'quartz-eye' and leucogabbroic varieties, with variable grain sizes; 2) serpentinite; 3) mafic volcanic rocks, locally altered to chlorite schist, and minor greywacke; 4) "felsite" and "quartzite", which may represent granular recrystallized quartz bodies; and 5) granitic dykes (A.F. 90257). DDH 3 was collared in mafic volcanic rocks and intersected quartzite and diorite at depth (A.F. 90259).

MINERALIZATION:

A trench exposes pyrite and pyrrhotite in mafic intrusive rocks (Harrison, 1949). The amount of mineralization is not given. Granular aggregates, disseminations and stringers of pyrrhotite and pyrite are common in gabbro, "felsite" (quartzite?) and greywacke inclusions and chlorite schist in DDH 9411 (A.F. 90257). In DDH 3, 21 m (core length) of moderate to near solid Fe-sulphide minerals and chalcopyrite also contains minor "native copper" and "galena" at the contact between mafic volcanic rocks and "quartzite" (A.F. 90259). Minor Fe-sulphide minerals are present throughout all rock types in DDH 3.

GEOCHEMICAL DATA:

Cu assays range from nil to 0.32% and Ni ranges from 0.03% to 0.30%, including 90.25 m averaging 0.01% Cu and 0.12% Ni (A.F. 90257).

CLASSIFICATION:

Magmatogenic type deposit. Disseminated Fe-sulphide mineralization associated with mafic intrusive rocks. The presence of Fe-Cu-Ni mineralization in mafic to ultramafic intrusive rocks suggests an environment favourable for the concentration of platinum group elements.

In addition, some of the mineralization is disseminated mineralization - not classified. Moderate amounts of Fe-sulphide minerals with "native copper and galena" occur in association with mafic volcanic rocks and quartzite.

REFERENCES:

Assessment Files 90246, 90257, 90258, 90259, 90261
Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

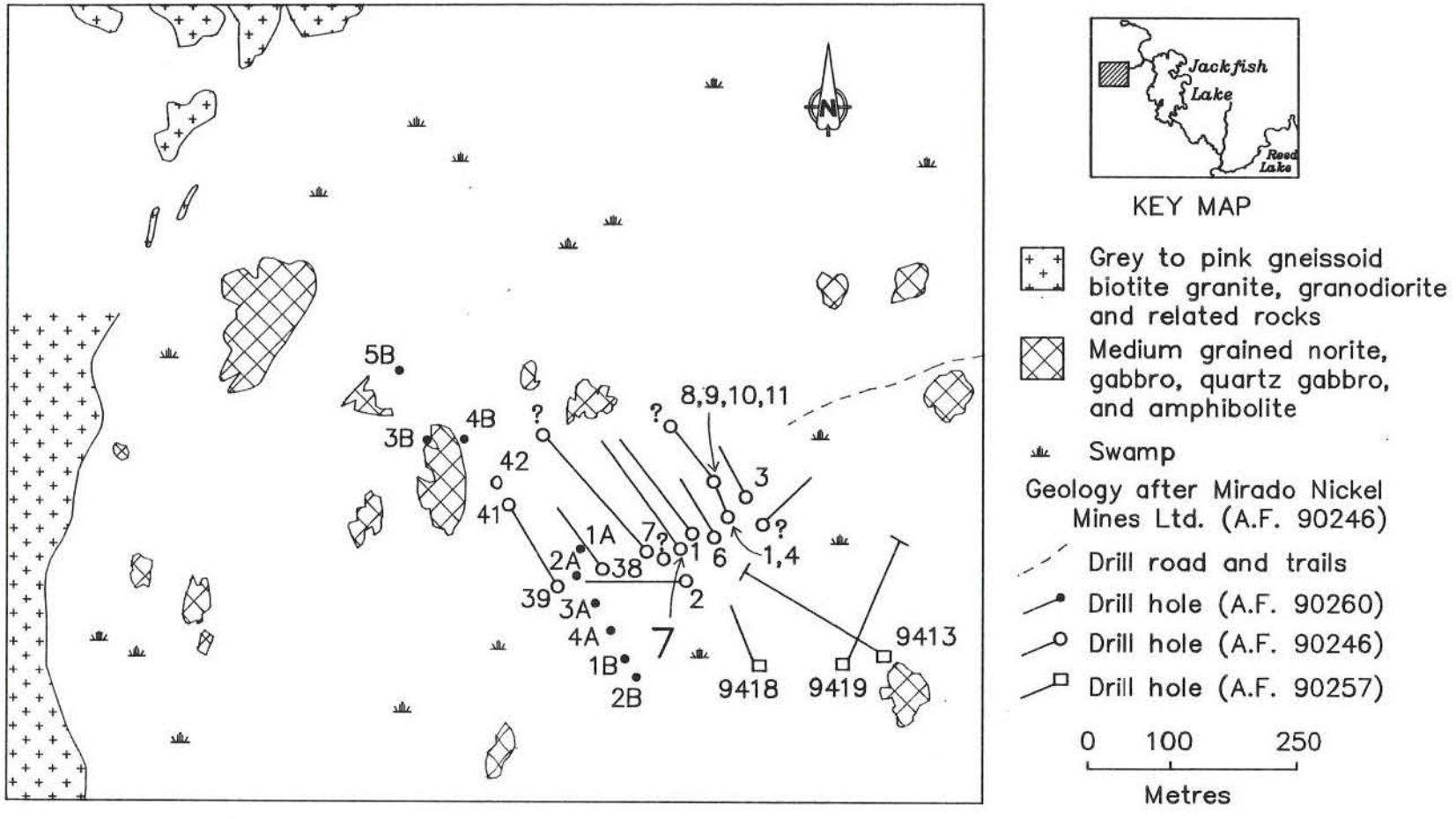

Figure 7-1: Detailed geology and drill hole locations at occurrence 7.

LOCATION: 7

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6060845N/409963E

ACCESS: Via bush aircraft or by canoe from Reed Lake, and traverse.

AREA: 1.2 km west of Jackfish Lake (Fig. 3-1).

AIRPHOTO: A26323-104

EXPLORATION SUMMARY:

The New Colony claim group was staked by T. Cote, W. Cote and C.E. Lee and optioned to Manitoba Basin Mines in 1928. "Considerable" prospecting was done in 1928 and 1929 (Wright, 1930, p. 72c-73c). The Jackpot claims were staked by Mary Hale in 1949. Sno-Squall Mines Limited drilled seventeen holes on the Nicu claims totalling 638 m during the period 1948-1954 (A.F. 90260). Central Geophysics Limited drilled twelve holes totalling 1021 m on the Ni claims in 1950 (A.F. 90256). In 1951 the Jackpot claims were optioned to Canadian Nickel Company Limited, who conducted a magnetometer survey (A.F. 90258) and 652 m of diamond drilling in three holes (A.F. 90257). Mirado Nickel Mines Limited gained control of the claims in 1957 and carried out a VLEM survey (A.F. 90261) and a 1:2400 geologic mapping program (A.F. 90246). W.B. Dunlop staked the Jack 8 and Jack 17 claims and Steve Bachnick staked claim Jac 20 in 1962; all claims were transferred to Conwest Exploration Company Limited. Conwest conducted an EM survey in 1964 and an unspecified amount of diamond drilling in 1965 (Mineral Inventory Card 63K/9 Ni2). Falconbridge Nickel Mines Limited optioned the ground from 1980 to 1983. In 1986 W. Bruce Dunlop Limited staked the Jac claims to surround the Jack claims. W. Bruce Dunlop Limited remains (1988) the registered owner of the Jack and Jac claims.

GEOLOGICAL SETTING:

The area is underlain by a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 7-1). The gabbro varies in grain size from coarse- to fine-grained, and in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). Drill holes in this area intersected grey and green gabbro and norite, with minor mafic volcanic xenoliths and granitic dykes (A.F. 90256, 90257, 90260).

MINERALIZATION:

Minor to solid nickeliferous pyrrhotite, subordinate pyrite and chalcopyrite are hosted by fine grained grey gabbro and norite (A.F. 90256, 90257, 90260). Drill logs commonly note an average of 5-10% disseminated sulphide minerals. DDH 1 contains 2.8 m of solid sulphide comprising mainly pyrrhotite with subordinate pyrite and chalcopyrite in fine grained black gabbro. DDH 6 contains 6.3 m of medium grained grey gabbro "well mineralized" with pyrrhotite and subordinate chalcopyrite. DDH 7 intersected 11.6 m and DDH 10 intersected 4.0 m of "well mineralized" medium grained grey gabbro. DDH 8 contains 3.3 m of solid pyrrhotite and DDH 9 contains 2.1 m of solid pyrrhotite and chalcopyrite hosted by very fine- to medium-grained grey gabbro (A.F. 90256). DDH 9413 contains 3.0 m with moderate coarse grained pyrrhotite and chalcopyrite disseminated in gabbro (A.F. 90257). DDH 1, 4, 5, 6, 7, 8, 9, 10, 23, 9418 and 9419 also include numerous intersections, <1 m, that contain 15% to solid pyrrhotite and chalcopyrite in fine- to medium-grained grey-green gabbro (A.F. 90256, 90257). Silicified sections are common throughout the drill cores.

DDH 2 does not contain any sulphide mineralization, although silicified, talcose and chloritized sections are present (A.F. 90256). DDH 3 contains only trace pyrrhotite in <1 m of very fine grained grey gabbro (A.F. 90256).

GEOCHEMICAL DATA:

Drill core assays range from trace to 6.14% Cu and nil to 3.58% Ni, including numerous intersections with >1.0% Cu and/or Ni (A.F. 90256); results are presented in Table 7-1.

CLASSIFICATION:

Magmatogenic type deposit. Minor to solid nickeliferous pyrrhotite and associated disseminated Fe-Cu sulphide minerals are present in gabbro. Sulphide mineralization is concentrated in fine grained grey gabbro. The presence of Fe-Cu-Ni mineralization in mafic to ultramafic intrusive rocks suggests an environment favourable for the concentration of platinum group elements.

REFERENCES:

Assessment Files 90246, 90256, 90257, 90258, 90260, 90261 Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

Wright, J.
1930: Geology and mineral deposits of a part of northwest Manitoba; Geological Survey of Canada, Summary Report 1930, Part C, 131p.

TABLE 7-1: Assays with >1.0% Cu and/or Ni from drill core at occurrence 7 (A.F. 90256). Other assays with lower Cu and Ni amounts are found in drill logs.

DDH	Interval (m)	Width (m)	Cu (%)	Ni (%)	Mineralization	Rock Type
1	20.6-22.7	3.0	0.50	2.73	SS po, minor py, cp	gabbro, black
4	12.6-12.7	0.1	1.77	1.16	25% cp, po	gabbro, grey
	24.1-24.3	0.1	0.51	1.29	30% po, cp	gabbro, grey
	27.9-28.0	0.15	0.32	2.42	SS po, minor cp	gabbro, dark
	28.2-28.5	0.3	1.20	1.85	40% po, cp	gabbro
	28.8-29.3	0.5	0.38	1.70	45% po, cp	gabbro, grey
	31.1-31.3	0.2	0.63	2.70	80% po	gabbro, grey
5	15.2-15.4	0.15	1.46	1.50	SS po, cp	gabbro, grey
6	16.9-17.1	0.2	0.38	1.05	50% po, cp	Gabbro, grey
	20.0-20.9	0.8	0.32	1.44	30% po, cp	gabbro, grey
	21.1-21.5	0.4	0.63	1.58	65% po, cp	gabbro, grey
	31.8-32.4	0.6	0.51	1.69	moderate po, cp	gabbro, grey
	52.6-52.8	0.2	6.14	1.24	moderate po, cp	gabbro, grey
	52.9-53.6	0.6	0.16	0.87	minor po, cp	gabbro, grey
	68.0-68.3	0.3	0.44	1.48	moderate po, cp	gabbro, altered
7	37.0-37.2	0.15	1.20	1.28	SS po	gabbro, grey
	80.1-80.6	0.5	1.07	1.51	20% po, cp	gabbro, altered
	83.3-84.2	0.8	0.32	1.37	90% po, cp	gabbro, grey
	102.0-102.0	0.1	0.16	2.01	20% po	gabbro, grey
8	18.0-19.2	1.3	2.41	2.34	90% po, cp	gabbro, grey
	19.2-20.7	1.5	0.32	2.12	90% po, cp	gabbro, grey
	21.5-22.6	1.1	0.76	2.51	90% po, cp	gabbro, grey
	24.5-25.7	1.1	1.90	1.66	moderate po, cp	gabbro, grey
9	22.9-23.3	0.4	1.01	1.62	60% po, cp	gabbro, grey
	24.0-25.4	1.3	2.53	2.82	60% po, cp	gabbro, grey
10	14.9-15.6	0.6	0.63	1.73	moderate po, cp	gabbro, altered, grey
	22.9-23.5	0.6	0.19	1.26	moderate po	gabbro, grey
	26.5-27.4	0.9	1.46	1.60	SS po	gabbro
23	57.5-61.0	3.5	0.28	0.77	SS po, cp	gabbro, grey, green
	76.1-77.4	1.3	0.63	1.53	moderate po, cp	gabbro, grey, green

LOCATION: 8

NAME: CABIN
UTM: 6059378N/413918E
ACCESS: Via bush aircraft, or by canoe from Reed Lake, and traverse.

AREA: 2.2 km east of Jackfish Lake (Fig. 3-1).
AIRPHOTO: A26367-135

EXPLORATION SUMMARY:

The area was staked as claim Cabin 9 by Walter Johnson in 1947 (Mineral Inventory Card 63K/9 Ni3). A.L. Parres completed four drill holes totalling 152 m on the Cabin claims (1947-1956?; A.F. 90248). Central Geophysics Limited drilled 32 holes totalling 2828 m throughout the Jackfish Lake area in 1950, including ground on the Jackpot and Egg claims next to the Cabin claims (A.F. 90256); eight of these drill holes are shown on Figure 8-1. Two holes totalling 445 m were drilled by Canadian Nickel Company Limited in 1951 near the Cabin claims (A.F. 90257). The Egg claims were recorded in 1956 by Stewart Staunton and transferred to Mirado Nickel Mines Limited, who conducted a VLEM survey over the area in 1957 (A.F. 90261). Claim Jack 65 was staked in 1962 for Conwest Exploration Company Limited. The area is covered (1988) by the Jac claims held by W. Bruce Dunlop Limited.

GEOLOGICAL SETTING:

The mineralization is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 8-1). The gabbro varies in grain size from coarse- to fine-grained, and in composition from quartz gabbro with up to 3 mm opalescent quartz 'eyes' to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). Drilling intersected partly altered gabbro, including bronzite and quartz gabbro phases, peridotite and pyroxenite (A.F. 90248, 90256, 90257). Minor, locally silicified, mafic volcanic and amphibolite inclusions, granitic dykes, and sugary feldspar-quartz bands/dykes are common.

MINERALIZATION:

DDH 33, 34, and 1 include several intersections, <1 m, with 20% pyrrhotite and chalcopyrite in fine grained silicified gabbroic rock (A.F. 90248, 90256). DDH 30 through 32 and 35 through 37 contain only minor, if any, pyrite in gabbro (A.F. 90256). In addition, drill logs from DDH 1 through 3, and 9420, 9421, 33 and 34 note minor pyrrhotite, pyrite and chalcopyrite in gabbro, altered gabbro, bronzite gabbro, and quartz gabbro (A.F. 90248, 90256, 90257). In all drill holes, the gabbro is locally foliated, siliceous, biotitic, chloritic, talcose, serpentinized, uralitized, amphibolitized, hematitic and carbonatized. One intersection of altered gabbro, or a mafic volcanic inclusion, contains minor graphite in addition to serpentine, carbonate, talc and minor Fe-Cu sulphide minerals (A.F. 90257).

GEOCHEMICAL DATA:

Drill core assays from the Cabin claims have ranges of 0.19-0.39% Ni (average 0.30%), trace-0.16% Cu (average 0.06%), and trace-0.3 g/t Au over sample widths of 3 m (A.F. 90248). Assays from DDH 33 and 34 have ranges of 0.14-0.76% Ni (average 0.32%) and 0.09-0.57% Cu (average 0.23%) (A.F. 90256).

CLASSIFICATION:

Magmatogenic type deposit. Nickeliferous Fe-sulphide mineralization is disseminated in quartz gabbro. The presence of Fe-Cu-Ni mineralization in altered mafic intrusive rocks suggests an environment favourable for the concentration of platinum group elements.

REFERENCES:

Assessment Files 90248, 90256, 90257, 90261
Manitoba Energy and Mines, Minerals Division.

Harrison, J.M.
1949: Geology and mineral deposits of the File-Tramping Lakes area; Geological Survey of Canada, Memoir 250, 92p.

Mineral Inventory Card 63K/9 Ni3
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

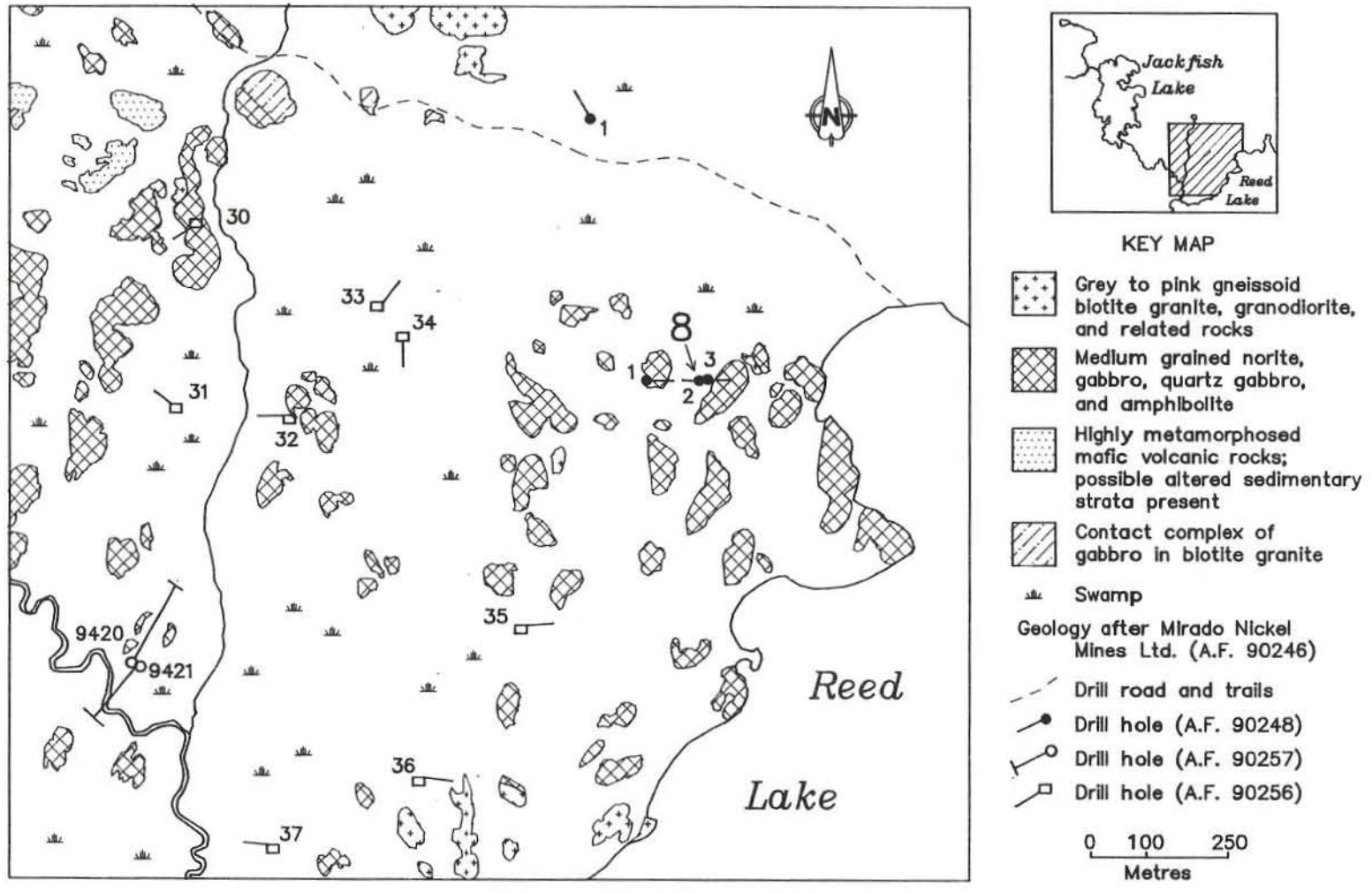

Figure 8-1: Detailed geology and drill hole locations at occurrence 8.

LOCATION: 9

NAME: DUMAS

UTM: 6058663N/411362E

ACCESS: Via bush aircraft or canoe from Reed Lake to Jackfish Lake, then traverse from Jackfish Lake.

AREA: 0.8 km south of Jackfish Lake (Fig. 3-1).

AIRPHOTO: A26323-103

EXPLORATION SUMMARY:

The area was staked in 1928 as part of the New Colony group by W. Cote. A. Dumas recorded claim Dumas 6 in 1947. Ten holes were drilled totalling 214 m on the Kerr-Dumas claims in 1947 (A.F. 90253). The claims were restaked by various individuals between 1953 and 1968. W. Bruce Dunlop Limited staked the Mike claims in 1968, and optioned them to HBED in 1969. HBED drilled three holes totalling 285 m on claims Mike 5 and Mike 6 in 1971 (A.F. 92236; Mineral Inventory Card 63K/9 Cu2). W. Bruce Dunlop Limited staked the Jac claims in 1986.

GEOLOGICAL SETTING:

The area is located within a body of anorthositic gabbro, gabbro, pyroxenite, peridotite and quartz gabbro that is flanked by granite and mafic volcanic rocks (Amisk Group?) (Fig. 3-1, 9-1). The gabbro varies in grain size from coarse- to fine-grained, and in composition from quartz gabbro, with up to 3 mm opalescent quartz 'eyes', to pyroxenite and peridotite. Contacts between the various intrusive phases are generally sharp. Coarse grained quartz gabbro is the most common lithology. Intense oxidation has produced a yellow and brown limonite-rich weathered surface. Blocks of mafic volcanic rocks are contained within the intrusion (Harrison, 1949). Drilling intersected quartz gabbro, gabbro, quartz diorite, anorthosite, and minor mafic volcanic rocks, "quartzite", and an aplite dyke (A.F. 90253, 92236).

MINERALIZATION:

Trace to 5% chalcopyrite and 1-5% pyrrhotite are disseminated in intersections, <1-5.5 m in core length, of quartz gabbro, quartz diorite and gabbro (DDH 1 through 4, 6, 7; A.F. 90253). One to 5% pyrrhotite and pyrite are disseminated in intersections, generally ≤1 m, within massive mafic volcanic inclusions and quartzite (DDH Jack 8 and Jack 9). Up to 5% graphite, 5% pyrite, and traces of chalcopyrite and magnetite are disseminated in 20 m of anorthosite (DDH Jack 7; A.F. 92236). DDH 5, 8 and 9 did not intersect mineralization (A.F. 90253).

GEOCHEMICAL DATA:

Assays of up to 1.45% Cu over 5.5 m and 0.59% Ni over 1.8 m are reported from the Dumas claims. Only one Au assay, 0.03 g/t Au, is reported. Results of drill core assays for Cu, Ni and Au are given in Table 9-1.

Table 9-1: Cu, Ni and Au assays from DDH 1 through 9 (A.F. 90253).

DDH	Interval (m)	Width (m)	Cu (%)	Ni (%)	Au (g/t)	Mineralization	Rock Type
1	4.9-7.3	2.4	1.02	0.20	0.03	5% diss. cp	quartz diorite
	7.3-7.6	0.3			tr.	cp	aplite dyke
	12.2-15.2	3.0	tr.	nil	tr.	none	quartz diorite
2	12.2-17.6	5.3	1.28	0.31	NA	5% diss. cp	quartz gabbro
2A	1.5-7.0	5.5	1.45	0.15	NA	5% diss. cp	mafic intrusive
3	5.5-6.2	0.8	1.33	0.47	NA	5% diss. cp	quartz gabbro
4	4.3-6.4	2.1	0.15	0.32	NA	3% diss. sulphide	quartz gabbro
	6.4-8.8	2.5	0.27	NA	NA	3% diss. sulphide	quartz gabbro
	8.8-11.6	2.1	0.25	NA	NA	3% diss. sulphide	quartz gabbro
5	7.6-9.4	1.8	NA	0.59	NA	?	quartz gabbro?
6	9.3-10.4	1.1	0.27	0.25	NA	5% diss. cp	quartz gabbro
7	7.2-7.8	0.6	0.48	0.24	NA	5% diss. cp	quartz gabbro
	16.3-16.9	0.6	0.61	0.42	NA	5% diss. cp	quartz gabbro
8	no assays listed					none	
9	no assays listed					none	

NA - not analyzed

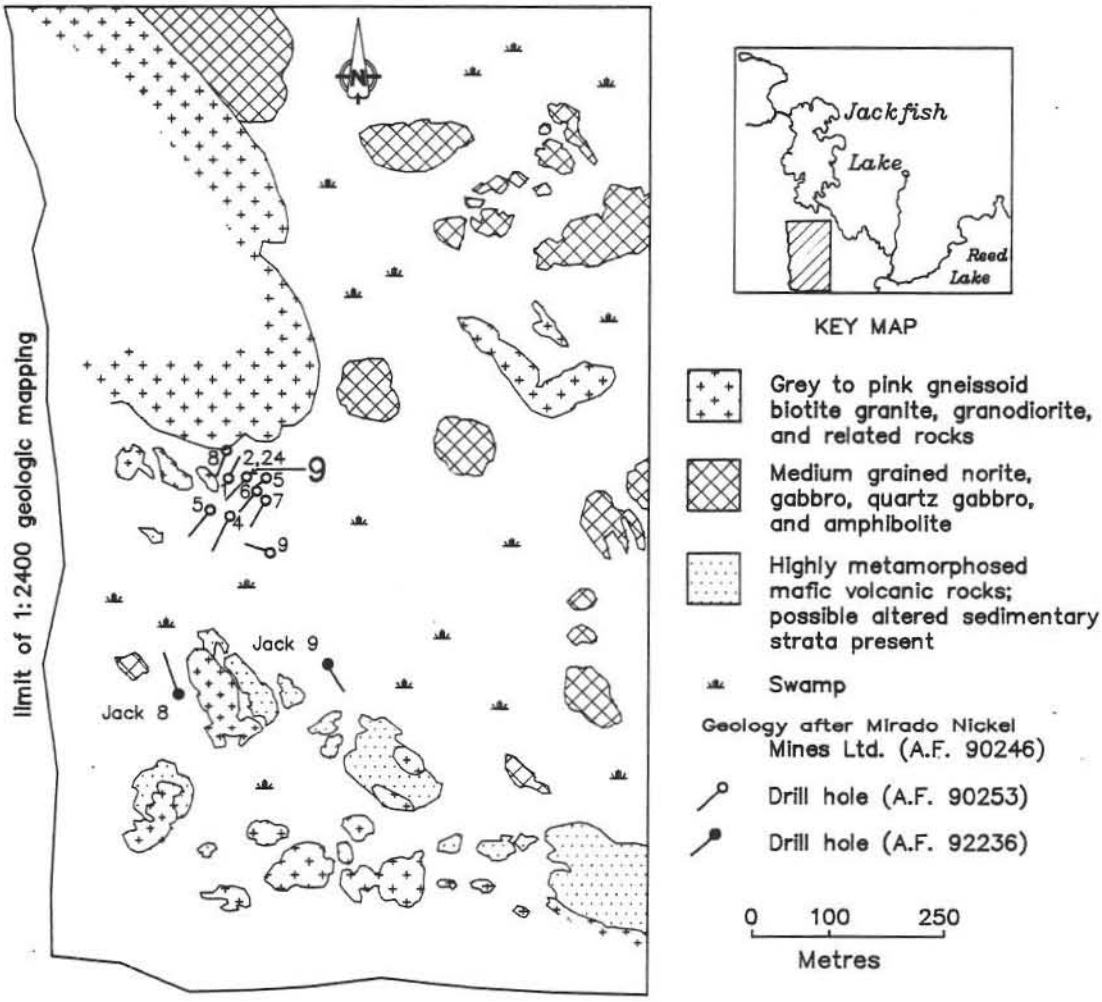

Figure 9-1: Detailed geology and drill hole locations at occurrence 9.

CLASSIFICATION:

Magmatogenic type deposit. Chalcopyrite, pyrrhotite and pyrite are disseminated in quartz diorite and associated mafic intrusive rocks. The presence of graphite accompanying sulphide mineralization in anorthosite suggests an environment favourable for the deposition of platinum group elements. In addition, mafic volcanic and minor "quartzite" contain minor disseminated Fe-sulphide minerals.

REFERENCES:

Assessment Files 90246, 90253, 92236
Manitoba Energy and Mines, Minerals Division.

Mineral Inventory Card 63K/9 Cu2
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

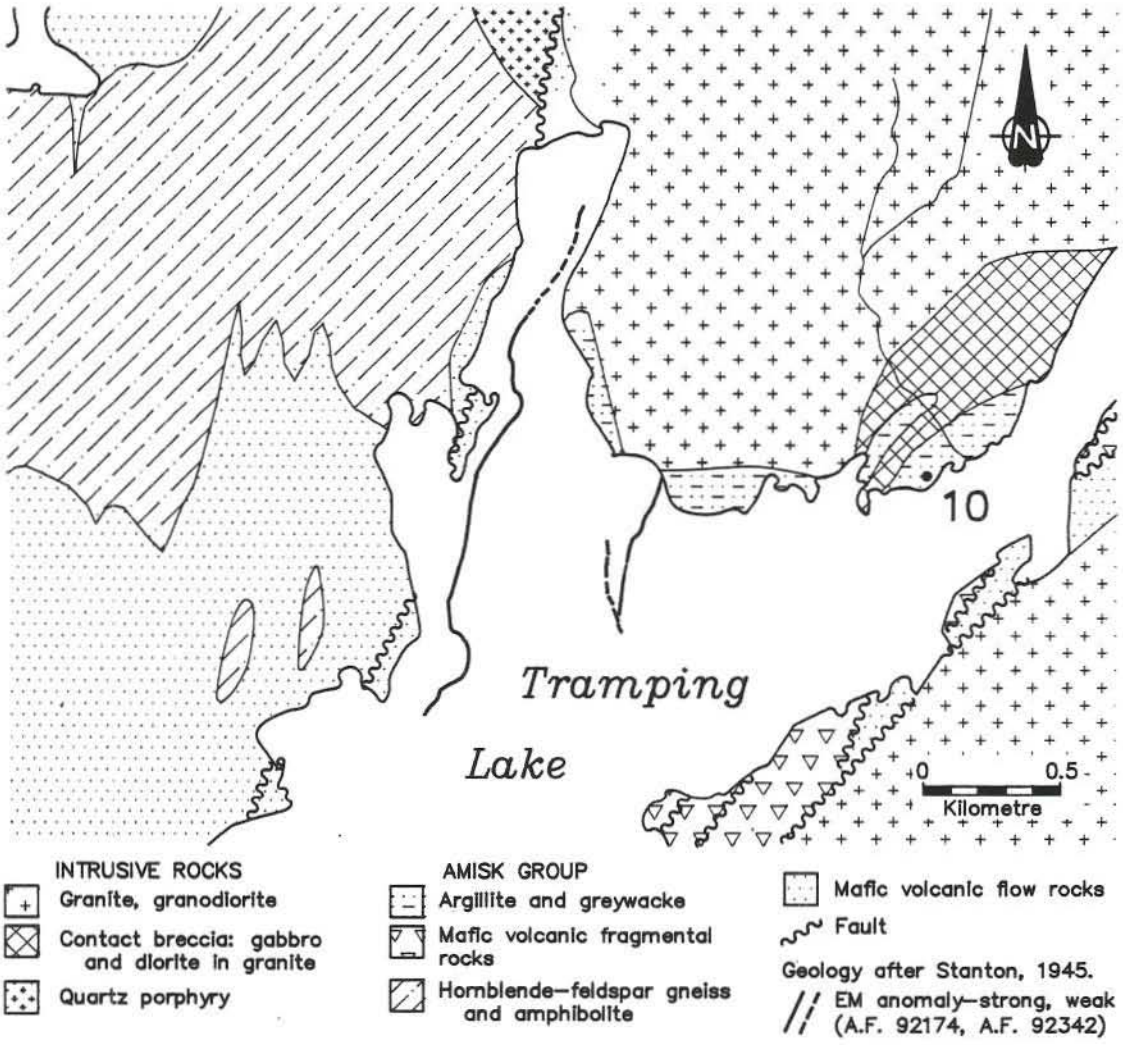

Figure 10-1: Geological setting of occurrence 10.

LOCATION: **10**

NAME: STORM KING
UTM: 6061930N/429320E
ACCESS: Via boat on the Grass River/Tramping Lake.

AREA: Along north shore of Tramping Lake.
AIRPHOTO: A26366-178

EXPLORATION SUMMARY:

The Storm King claim was staked in 1919 by George Taylor. In 1920 R. Bolton recorded the Extension claim, and in 1921 G. Taylor recorded the Simpson claim, both adjoining the Storm King claim. In 1921, a 25% interest in each of the three claims was transferred to W. McDonald, C. Ross and R. Bears. Interests were transferred to Broad Bay Mining Company Limited in 1929, who took out leases M-226, -227 and -228 on the claims. The leases were cancelled in 1946. Gods Lake Gold Mines Limited took out leases M-1857, -1858, and -1859 on the claims in 1946 or 1947. The leases were transferred to R.J. Jowsey Mining Company Limited. The leases were cancelled in 1975 (Mineral Inventory Card 63K/9 Au1). The ground was subsequently held by Granges Exploration Aktiebolag from 1978 to 1981, by Norman Stoltz from 1982 to 1984, and Manitoba Mineral Resources Limited from 1985 to 1987. The occurrence is covered (1988) by the Stormking claim, held by W. Bruce Dunlop Limited since 1987. Figure 10-1 includes some EM conductors that occur west of location 10; the surveys that delineated these conductors are presented in location 24.

GEOLOGICAL SETTING:

The area is underlain by interbedded argillite and greywacke, flanked to the east by mafic volcanic rocks, and to the north by granite and a granite-gabbro contact breccia (Fig. 10-1). The rocks at the occurrence comprise thin bedded (2-7 cm) greywacke that has been intruded by granodiorite dykes.

MINERALIZATION:

A 2 m thick, coarse grained, iron stained, vuggy quartz vein trending 320° contains disseminated pyrite. In places 0.5 cm vugs are partially filled with euhedral quartz crystals and pyrite. The greywacke is silicified adjacent to the vein. The occurrence is marked as a Au occurrence by Stanton (1945), but no details are given.

GEOCHEMICAL DATA:

Sample 00738, a grab sample collected from the quartz vein, contained 88 ppm Cu, 38 ppm Zn, 18 ppm Ni, 3 ppm Pb, trace Au, and <1 ppm Ag. Sample 00739, a grab sample of silicified greywacke with disseminated pyrite, contained 86 ppm Cu, 43 ppm Zn, 19 ppm Ni, 20 ppm Pb, 0.3 g/t Au and <1 ppm Ag. Results of a separate 30-element ICP analysis on sample 00739 are given in Table 10-1.

CLASSIFICATION:

Vein type deposit. Pyrite-bearing quartz vein in greywacke.

REFERENCES:

Assessment Files 92174, 92342
Manitoba Energy and Mines, Minerals Division.

Eccles, D.R. and Fedikow, M.A.F.
1985: Mineral occurrence documentation and alteration zone mapping, Snow Lake area; In Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 82-99.

Mineral Inventory Card 63K/9 Au1
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

Table 10-1: Results of 30-element ICP analysis on sample 00739, location 10.

Mo	10 ppm	B	2 ppm
Cu	80 ppm	Cr	14 ppm
Pb	15 ppm	Mg	1.43%
Zn	40 ppm	W	2 ppm
Au	42 ppb	U	5 ppm
Ag	0.2 ppm	Th	1 ppm
As	35 ppm	P	0.071%
Sb	2 ppm	La	4 ppm
Bi	2 ppm	V	21 ppm
Cd	1 ppm	Ti	0.01%
Ni	18 ppm	Na	0.05%
Co	11 ppm	K	0.08%
Fe	4.97%	Ca	3.56%
Mn	805 ppm	Sr	69 ppm
Ba	20 ppm	Al	0.73%

The sample was analyzed by inductively coupled argon plasma-atomic absorption spectrophotometry (ICP-AAS) at Acme Analytical Laboratories Ltd. (Vancouver). Preparation procedure: 0.500 g rock powder is digested with 3 ml of 3:1:2 HCl-HNO_3-H_2O at 95°C for one hour, then diluted to 10 ml with deionized water. A lower detection limit of 1 ppb Au is attained by preconcentration of a 10 g sample and AAS finish.

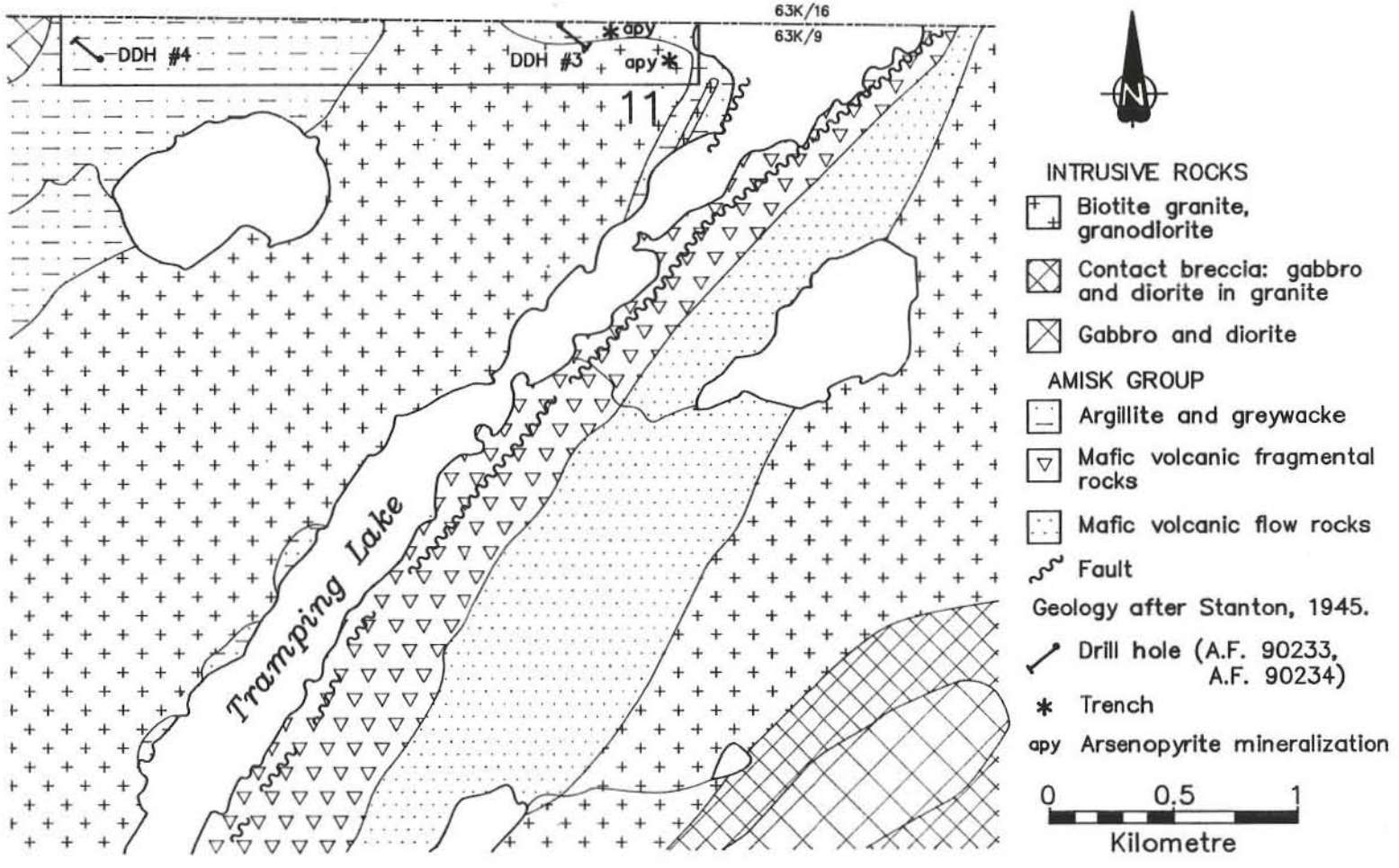

Figure 11-1: Geological setting and drill hole locations at occurrence 11.

LOCATION: 11

NAME: DEW GROUP
UTM: 6067125N/432714E
ACCESS: Via boat on the Grass River/Tramping Lake.

AREA: West side of Tramping Lake.
AIRPHOTO: A26366-233

EXPLORATION SUMMARY:

The Dew claim group was staked in 1956 by Newkirk Mining Corporation, who conducted SP, resistivity, ground magnetometer and VLEM surveys, 1:2400 geological mapping (A.F. 90233) and drilled two holes totalling 302 m (A.F. 90234) in 1956. Two slumped and caved shallow trenches were located. A.J. O'Donnell held the ground from 1973 to 1976.

GEOLOGICAL SETTING:

The area is underlain by granite, flanked to the northeast and west by interbedded argillite and greywacke, and to the southeast by mafic volcanic rocks (Fig. 11-1). The mineralization is hosted by rusty weathered feldspar-porphyritic rocks that are crosscut by a fracture or shear zone trending N50°E. DDH 3 intersected dark grey massive argillite and minor pale green felsic to intermediate dykes; biotite granite was intersected at the base of the drill hole (A.F. 90234). DDH 4 was collared in dark grey argillite, and intersected a quartz diorite intrusion at a depth of 24 m (A.F. 90234).

MINERALIZATION:

Less than 1% disseminated pyrite and stubby arsenopyrite occur within a 2 m wide fracture or shear zone in outcrop. Drill logs from DDH 3 note trace to minor arsenopyrite, with subordinate pyrite, pyrrhotite, and trace chalcopyrite in argillite and felsic dykes. Arsenopyrite occurs as acicular disseminations, solid patches, or veinlets. Mineralization is pervasive throughout most of the drill hole, and is accompanied by quartz stringers and "tiny" lenses of chert. The argillite is locally silicified and/or brecciated. DDH 4 intersected <1% disseminated pyrite, pyrrhotite, chalcopyrite, arsenopyrite and quartz stringers in argillite and quartz diorite. Because of the paucity of mineralization as well as similarities in the style and setting of mineralization, DDH 4 is not set aside as a separate location; rather, it is included with DDH 3 and the mineralized outcrops that comprise occurrence 11.

GEOCHEMICAL DATA:

A grab sample of silicified argillite with arsenopyrite from an old pit assayed 4.5 g/t Au and 42.45 g/t Ag (A.F. 90234). Assays from DDH 3 and 4 range from nil to 0.12% Cu, nil to trace Zn, and nil Ag and Au (A.F. 90234).

CLASSIFICATION:

Vein type deposit. Zn-, Cu- and Fe sulphide minerals are disseminated in quartz veins in silicified feldspar-porphyritic rocks and argillite.

REFERENCES:

Assessment Files 90233, 90234
Manitoba Energy and Mines, Minerals Division.

Eccles, D.R. and Fedikow, M.A.F.
1985: Mineral occurrence documentation and alteration zone mapping, Snow Lake area; in Manitoba Energy and Mines, Geological Services, Mines Branch, Report of Field Activities, 1985, p. 82-99.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

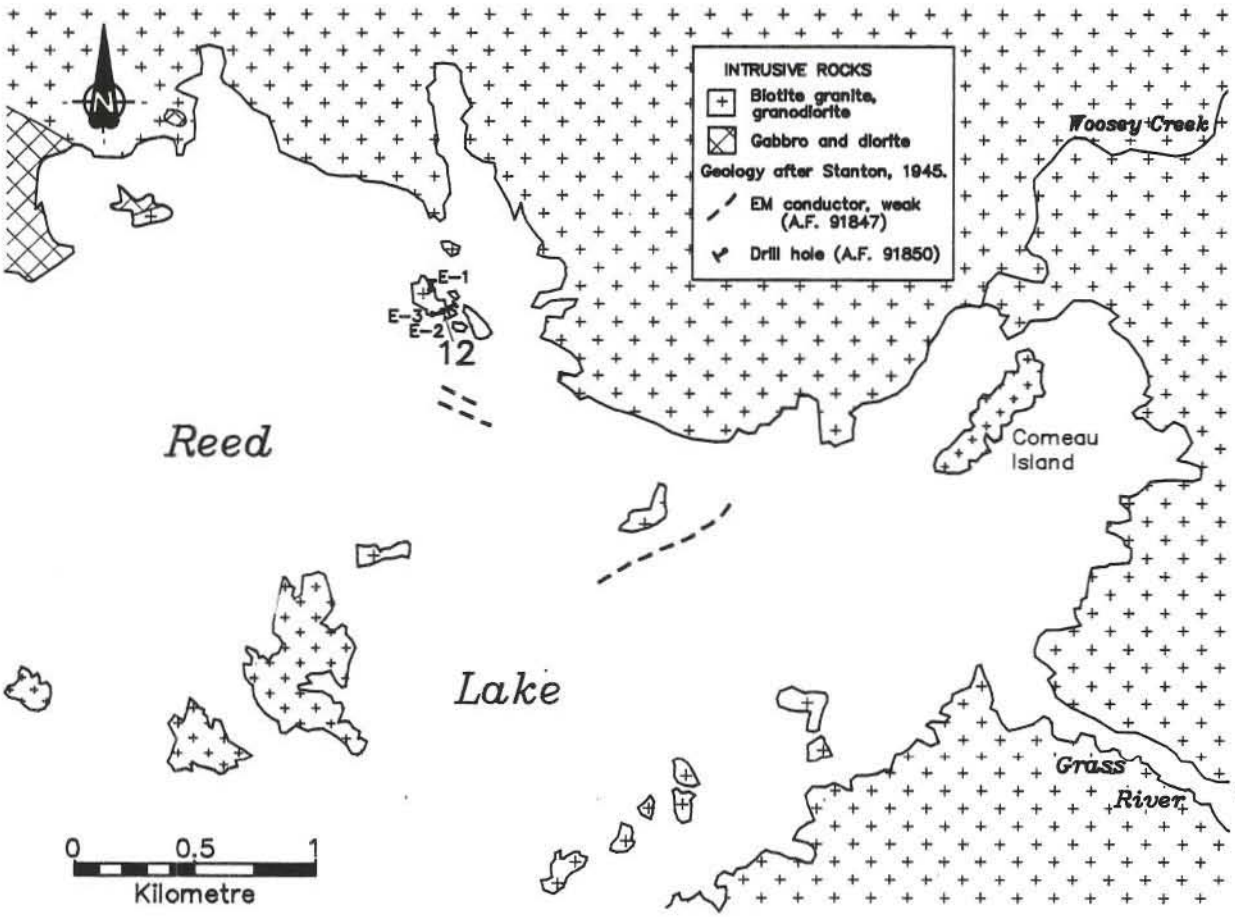

Figure 12-1: Geological setting and drill hole locations at occurrence 12.

LOCATION: 12

NAME: FRANCOEUR (Rusty 2)
UTM: 6058623N/415768E
ACCESS: Via boat on Reed Lake.

AREA: Northeastern Reed Lake.
AIRPHOTO: A26367-51

EXPLORATION SUMMARY:

The Rusty and Raft claims were staked in 1956 for Francoeur Mines Limited, who conducted an EM survey and drilled three holes totalling 148 m on claim Rusty 2 (A.F. 91850; Mineral Inventory Card 63K/9 Ni4). Granges Exploration Aktiebolag held CB 6218 over the occurrence from 1974 to 1977 and conducted ground magnetometer and HLEM surveys in 1974 (A.F. 91847). The ground was held by W. Bruce Dunlop Limited from 1980 to 1982, and Granges Exploration AB from 1984 to 1986. The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by granite (Fig. 12-1). Drill holes intersected grey and pink granite, hybrid granite, and subordinate amounts of granitized volcanic and/or gabbroic rocks (A.F. 91850).

MINERALIZATION:

Pyrrhotite, pyrite, and chalcopyrite occur as minor disseminations and patches from <1 to 2 m in core length in hybrid granite, granite and granitized volcanic rocks. In addition, DDH E-2 contains 0.4 m near solid Fe-Cu sulphide minerals in intrusive (granitic?) rock, and 0.5 m moderate pyrite and traces of chalcopyrite and molybdenite in granite. Minor quartz stringers were noted over 27 m in DDH E-1 (A.F. 91850).

GEOCHEMICAL DATA:

DDH E-2 contains 0.52% Cu and 0.63% Ni over 1.5 m in granite and granitized volcanic rocks with pyrite, chalcopyrite and molybdenite. DDH E-3 contains 0.23% Cu and 0.05% Ni over 0.7 m in chalcopyrite-bearing hybrid granite (A.F. 91850).

CLASSIFICATION:

Disseminated mineralization - not classified. Minor disseminated to near solid Mo-Cu-Ni-Fe sulphide minerals occur in hybrid granite and granite. These intersections may represent partially digested sulphidic xenoliths from the Jackfish Lake gabbroic complex to the west. The association of molybdenite and chalcopyrite in felsic intrusive rocks suggests porphyry affinities, but the small data base precludes classifying this occurrence as a porphyry deposit.

REFERENCES:

Assessment Files 91847, 91850
Manitoba Energy and Mines, Minerals Division.

Mineral Inventory Card 63K/9 Ni4
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

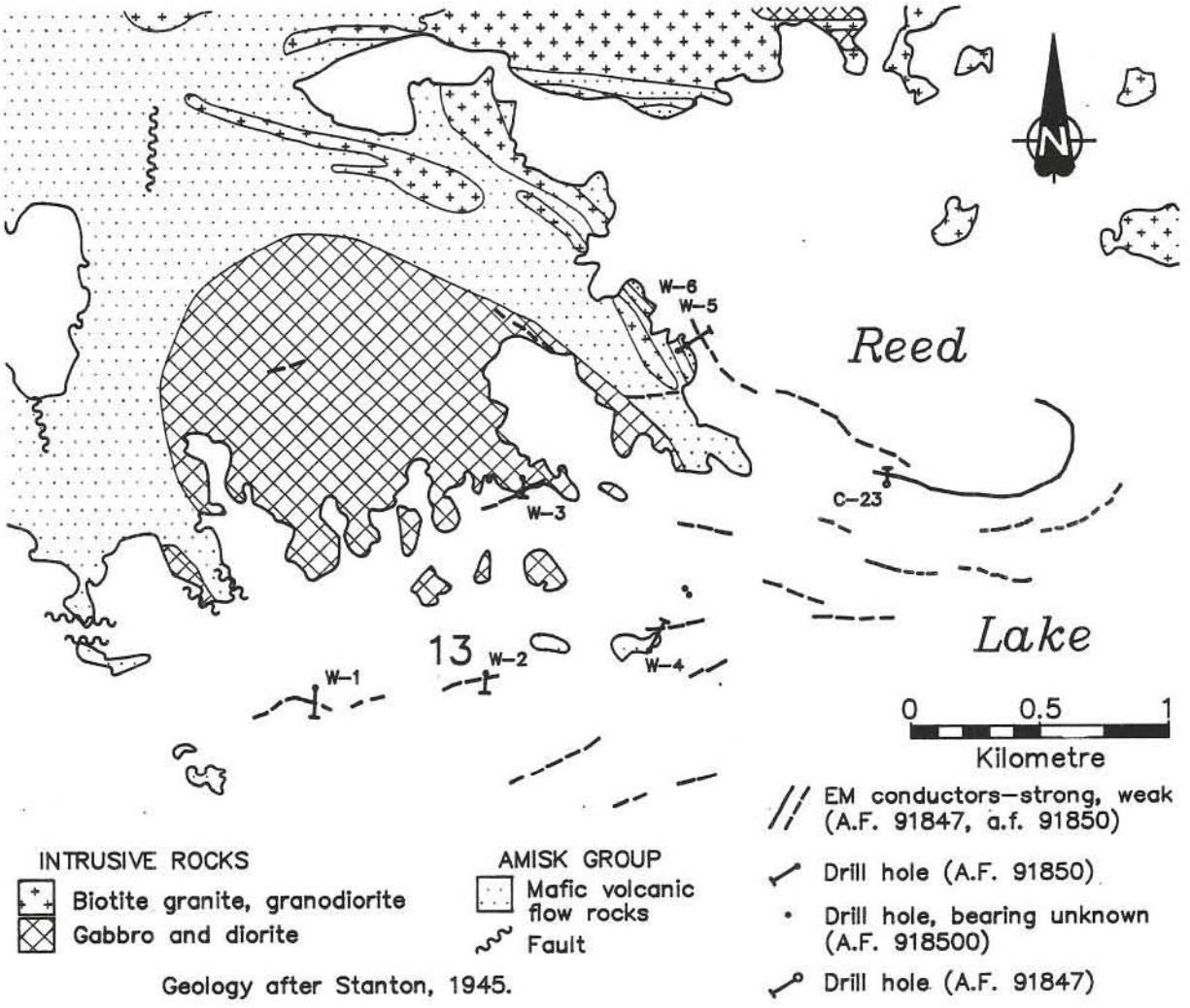

Figure 13-1: Geological setting and drill hole locations at occurrence 13.

LOCATION: **13**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6055479N/410845E

ACCESS: Via boat on Reed Lake.

AREA: North shore of northeastern Reed Lake.

AIRPHOTO: A26323-100

EXPLORATION SUMMARY:

Francoeur Gold Mines Limited drilled six holes totalling 816 m to test EM conductors on the Raft claims in 1957 (A.F. 91850). Granges Exploration Aktiebolag drilled DDH C-23 (69 m) on CB 6226 to test an EM conductor in 1975 (A.F. 91847). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by coarse grained gabbroic and mafic volcanic rocks (Fig. 13-1). Diamond drilling intersected foliated mafic volcanic rocks, including tuffaceous rocks and amygdaloidal flows, as well as minor sericite and/or chlorite schist, gabbro, and feldspar porphyry dykes (A.F. 91850).

MINERALIZATION:

Pyrrhotite and pyrite bands, stringers and disseminations are common throughout foliated chloritic mafic volcanic rocks (A.F. 91847, 91850). Fe-sulphide minerals form up to 40% of the rock, but average <20% over 1-3 m drill core intersections. DDH C-23 contains minor graphite in 1.5 m of mineralized foliated volcanic rocks, and 1.3 m of near solid graphite. Quartz-carbonate stringers are common throughout mineralized units.

GEOCHEMICAL DATA:

Assays from some of the mineralized intersections for the 'W-' holes returned nil or trace Cu and Ni (A.F. 91850). Three samples from DDH C-23 assayed 0.02-0.03% Cu, 0.01-0.02% Zn, 0.03 g/t Au and 0.7-2.1 g/t Ag (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Moderate Fe-sulphide minerals and minor to near solid graphite occur within mafic volcanic rocks. The mafic rocks are chloritic and contain abundant quartz-carbonate stringers.

REFERENCES:

Assessment Files 91847, 91850
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

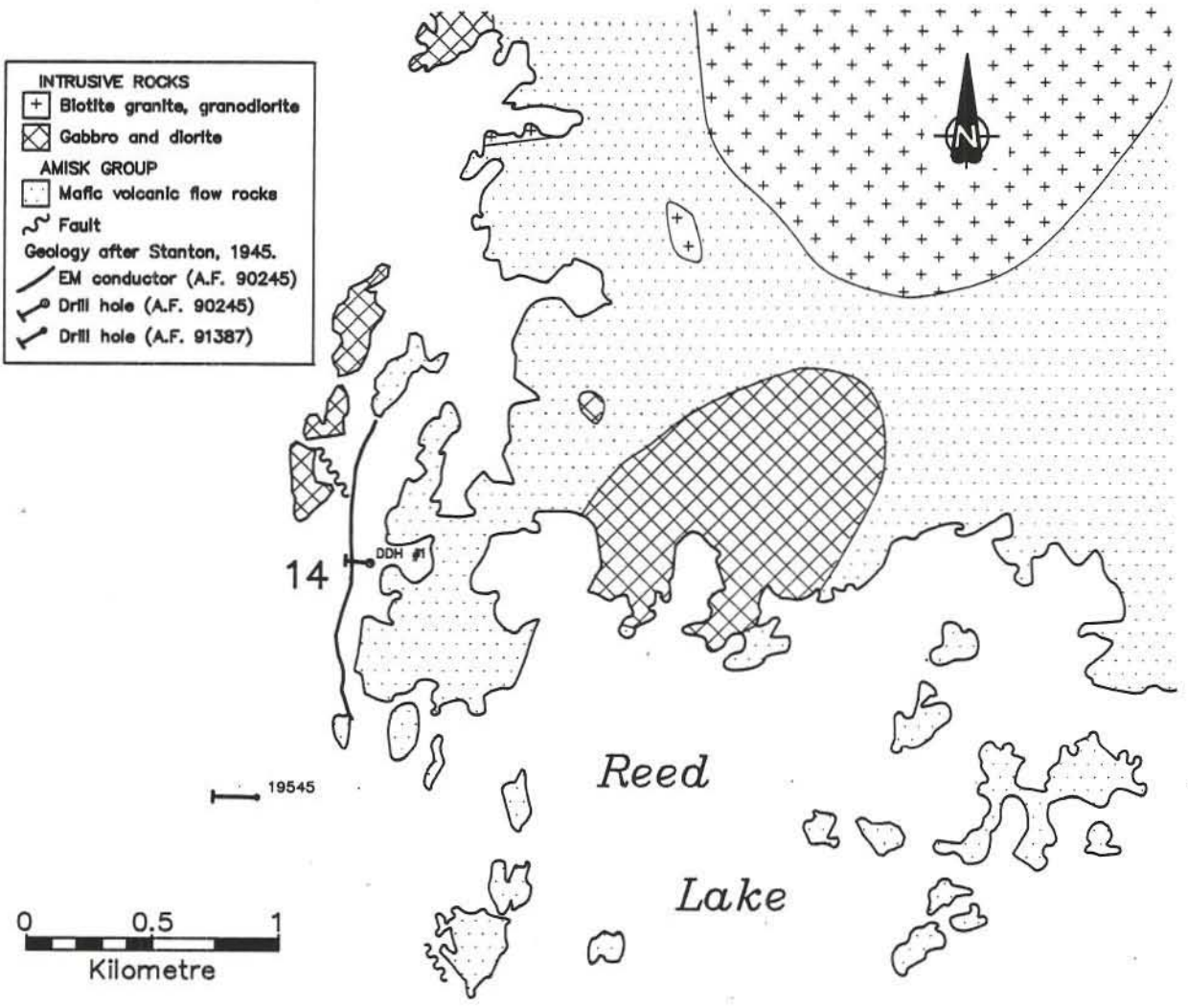

Figure 14-1: Geological setting and drill hole locations at occurrence 14.

LOCATION: 14

NAME: DON 5

AREA: North shore of Reed Lake, southwest of Jackfish Lake.

UTM: 6057822N/404789E

AIRPHOTO: A26368-101

ACCESS: Via boat on Reed Lake.

EXPLORATION SUMMARY:

The area was staked in 1947 as the Java claims by L. Mezo and D.C. Beveridge. T. Greenwood held the ground from 1954 to 1955. In 1955 claim Don 5 was staked by M. Skulmoski and transferred to N.S. Beaton (Mineral Inventory Card 63K/9 Ag1). Northern Canada Mines Limited conducted an EM survey in 1957 and drilled one drill hole (136 m) in 1958 (A.F. 90245). Canadian Nickel Company Limited held the ground from 1961 to 1964, and drilled DDH 19545 to a depth of 276 m on claim Reed 46 in 1961 (A.F. 91387). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks and coarse grained gabbro; felsic intrusive rocks occur northeast of location 14 (Fig. 14-1). Drilling intersected massive fine grained mafic volcanic rocks, greywacke, siliceous argillite and iron formation (A.F. 90245, 91387). The drill log from A.F. 90245 notes local strong foliation, brecciation and contortion; graphitic sections and cherty bands are common.

MINERALIZATION:

Pyrite and minor graphite veinlets, blebs and disseminations commonly occur throughout argillite and greywacke. DDH Don 5 also intersected 8.8 m of argillite containing 10-25% pyrite blebs and veinlets, and numerous intersections, <1 m, of argillite with 10-20% pyrite. Sulphide veinlets preferentially parallel foliation. At the bottom of DDH 19545, a "weakly mineralized" argillite with minor tuff beds was intersected (A.F. 91387).

GEOCHEMICAL DATA:

Ag and Au assays given in the drill log for DDH Don-5 report traces of Ag and Au, with the exception of: 1) sample 7303 with 0.5 g/t Au over 0.2 m; 2) sample 7308 with 12.3 g/t Ag over 1.5 m; and 3) sample 7317 with 4.1 g/t Ag over 1.0 m (A.F. 90245).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Moderate argentiferous iron sulphide minerals in graphitic argillite.

REFERENCES:

Assessment Files 90245, 91387
Manitoba Energy and Mines, Minerals Division.

Mineral Inventory Card 63K/9 Ag1
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

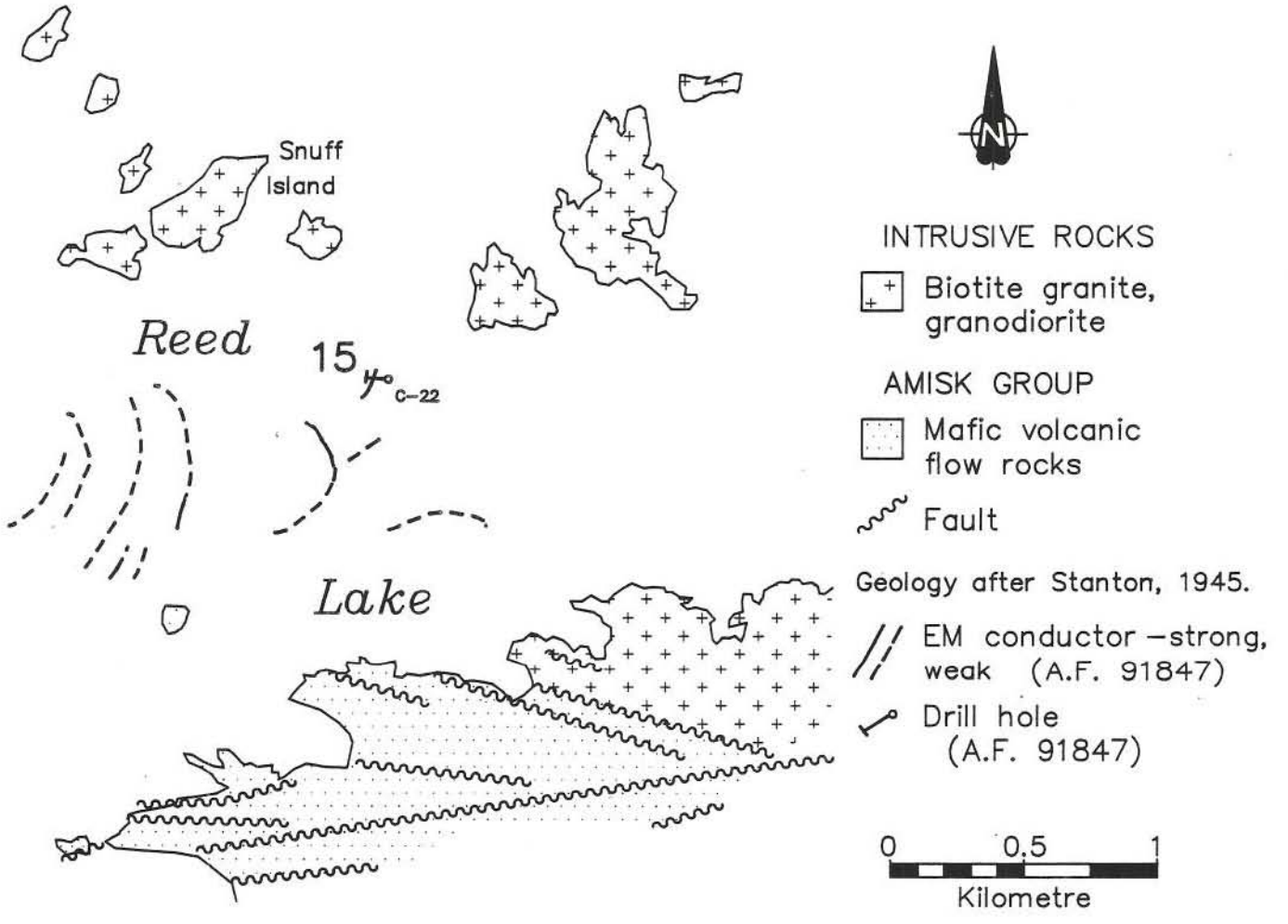

Figure 15-1: Geological setting and drill hole locations at occurrence 15.

LOCATION: 15

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6056651N/414373E

ACCESS: Via boat on Reed Lake.

AREA: Northeastern Reed Lake.

AIRPHOTO: A26366-113

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled hole C-22 (65 m) to test an EM conductor on CB 6219 in 1975 (A.F. 91847). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by biotite granite, granodiorite, and mafic volcanic rocks (Fig. 15-1). Mafic volcanic rocks and the Jackfish Lake gabbroic pluton occur to the south and to the northwest, respectively. Diamond drilling intersected quartz-biotite±carbonate±hornblende gneiss (A.F. 91847).

MINERALIZATION:

A 1.2 m drill intersection contained 5-10% pyrite in biotite granite gneiss. Fragments of near solid pyrite up to 2.4 cm were noted in a zone of poor core recovery within this intersection (A.F. 91847).

GEOCHEMICAL DATA:

Three assays from drill core samples reported 0.03 g/t Au, 0.3-2.4 g/t Ag, 0.02-0.03% Cu, and 0.01-0.10% Zn (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Minor pyrite in biotite granite gneiss. The mineralization may be derived from mafic volcanic xenoliths within felsic intrusive rocks.

REFERENCES:

Assessment File 91847
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

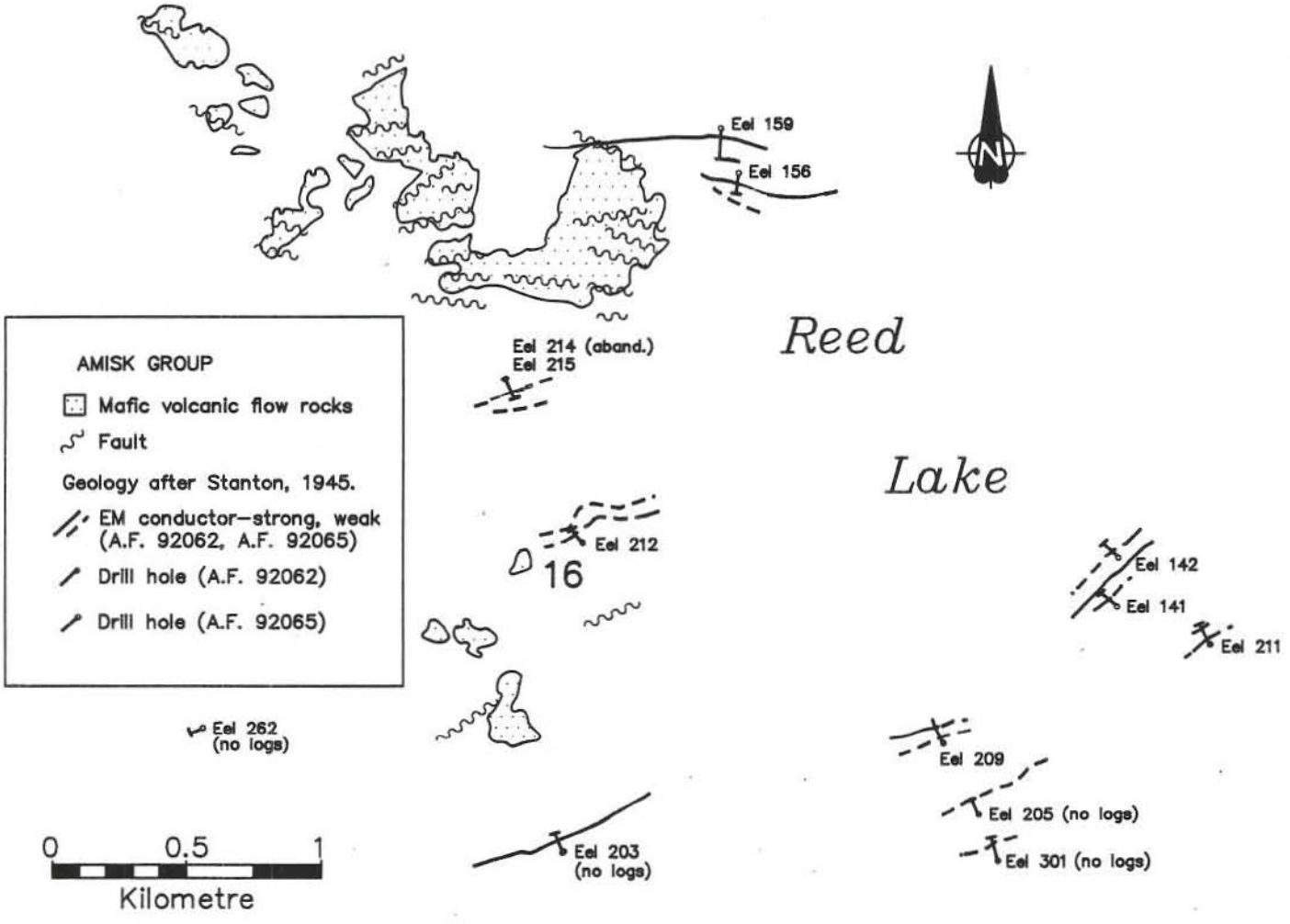

Figure 16-1: Geological setting and drill hole locations at occurrence 16.

LOCATION: 16

NAME: (A.F. - Mineralization intersected by diamond drilling)

AREA: Northeastern Reed Lake.

UTM: 6053201N/409197E

AIRPHOTO: A26368-115

ACCESS: Via boat on Reed Lake.

EXPLORATION SUMMARY:

HBED drilled nine holes totalling 1362 m on Reservation of Mineral Rights 027 in 1972-73 (A.F. 92062, 92065) and conducted a Turam EM survey in 1972 (A.F. 92062), a HLEM survey in 1973 (A.F. 92064) and an airborne magnetometer survey in 1978 (A.F. 91625). Four additional drill holes are plotted on maps in A.F. 92062 and 92065 (Fig. 16-1), but the logs are not available. The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by highly faulted or sheared mafic volcanic rocks (Fig. 16-1). Drill holes intersected mafic and felsic volcanic rocks, and subordinate graphitic argillite and augen gneiss (A.F. 92062, 92065). Layering, contorted layering and brecciation are common in volcanic rocks and argillite in drill core.

MINERALIZATION:

Mineralization comprises trace to 60% pyrite, 5-60% graphite, 0-15% pyrrhotite and trace chalcopyrite hosted mainly by dacitic to rhyolitic and mafic volcanic rocks. These rocks are commonly chloritized, brecciated and contain quartz-carbonate±feldspar veinlets and fracture fillings. Mineralization occurs at numerous intervals throughout the cores, and ranges from <1 to >30 m in core length (A.F. 92062, 92065).

DDH Eel-212 intersected 16.1 m of light greyish-green dacite that contains 2-60% pyrrhotite and trace pyrite in contorted bands alternating with 5-40% graphite. Further downhole, 0.9 m of dacite contains 5% pyrrhotite stringers and 1-2% graphite. Abundant quartz-feldspar-carbonate veinlets occur throughout the drill core (A.F. 92062). DDH Eel-215 contains four intersections, 3.3-24.6 m in core length, with altered contorted bands of 5-60% graphite, 2-50% pyrrhotite and trace to 30% pyrite in chloritized mafic volcanic rocks (A.F. 92062).

Rocks in DDH Eel-159 are virtually all mineralized, with up to 50% pyrite, 30% graphite, and 10% pyrrhotite hosted by black graphitic argillite and light grey dacitic to rhyolitic volcanic rocks with numerous quartz stringers and carbonate-filled fractures (A.F. 92065). DDH Eel156 intersected light grey rhyolitic to dacitic volcanic rocks with only minor quartz stringers. Numerous mineralized zones in this hole range from <1 to 25.0 m in core length with up to 40% pyrite, 20% graphite and 7% pyrrhotite (A.F. 92065).

DDH Eel-142 intersected light- to dark-green chloritized carbonatized mafic volcanic rocks that contain 1.4 m of 5-10% pyrite and 20-30% graphite, and 17.5 m of 10-40% graphite, 1-15% pyrite, and local minor specular hematite. Below the altered mafic volcanic rocks, a green felsic volcanic breccia, partly chloritized and carbonatized, contains five intersections, <1-3.2 m, with up to 15% pyrite, pyrrhotite and local trace chalcopyrite (A.F. 92065). DDH Eel-141 contained trace to 2% pyrite and local trace chalcopyrite as disseminations and veinlets in chloritized mafic volcanic rocks with abundant quartz and carbonate (A.F. 92065). DDH Eel-211 contained only two intersections, both <1 m, that have traces of pyrite±pyrrhotite±chalcopyrite in chloritized mafic volcanic rocks with abundant quartz-feldspar-carbonate veinlets (A.F. 92062).

DDH Eel-209 intersected 7.6 m of dacite with 2-10% pyrite and 3-10% graphite, in which pyrite occurs as bands and as blebs alternating with bands of graphite and chlorite (A.F. 92062).

GEOCHEMICAL DATA:

Only two analyses from DDH Eel-212 were given in the drill logs; the samples are 0.9 and 0.45 m in core length and contained <1 ppm Au, 11 and 22 ppm As, <1 ppm Sb, <10 ppm Mo, and <2 ppm W (A.F. 92062).

CLASSIFICATION:

Chemical sediment type deposit, sulphide facies iron formation. Moderate Fe-sulphide minerals and graphite within chloritized carbonatized felsic and mafic volcanic rocks and minor graphitic argillite.

REFERENCES:

Assessment Files 91625, 92062, 92064, 92065
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

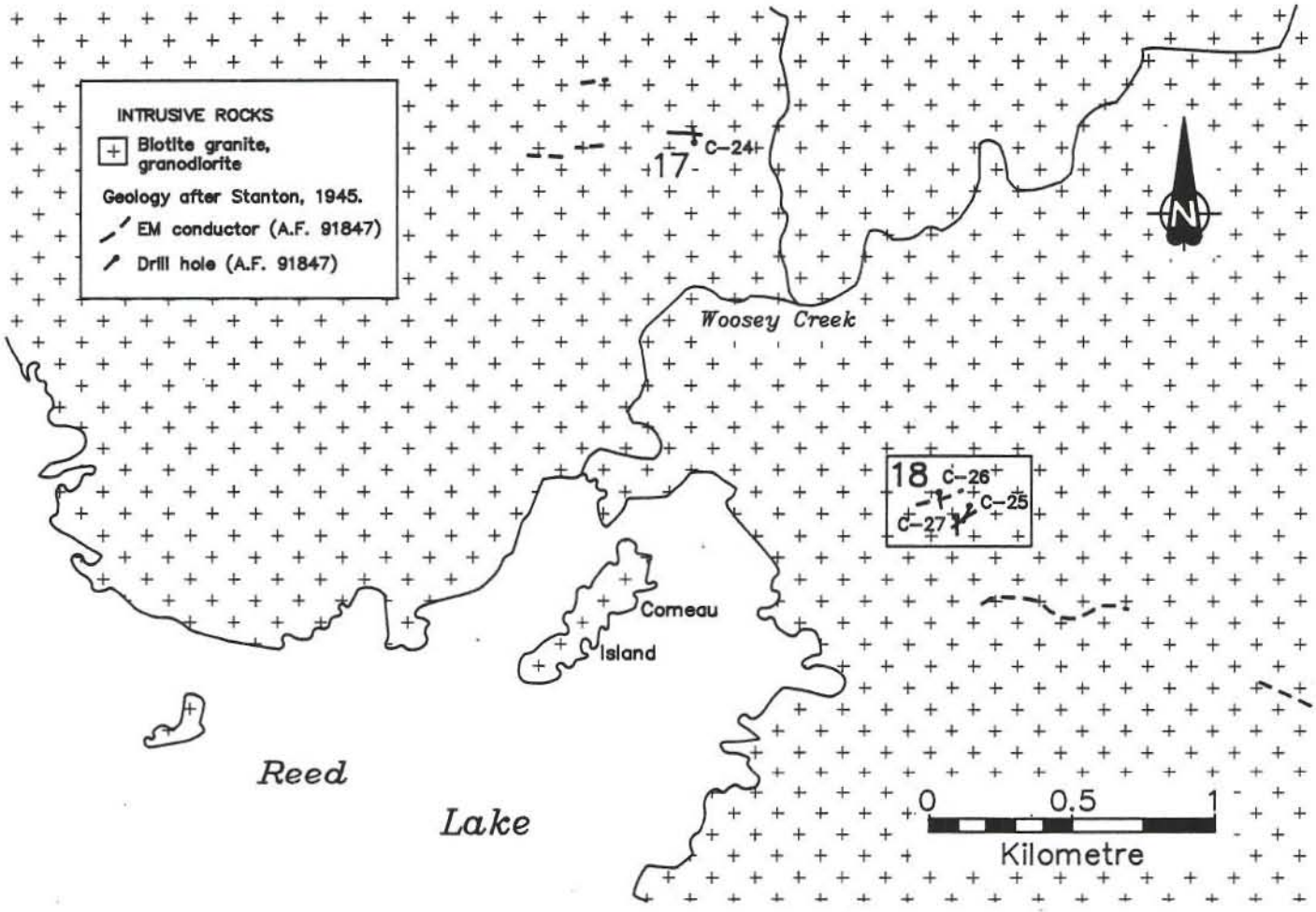

Figure 17-1: Geological setting and drill hole locations at occurrences 17 and 18.

LOCATION: 17

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6060097N/418326E

ACCESS: Via boat on Reed Lake and traverse.

AREA: 1.2 km north of northeast arm of Reed Lake.

AIRPHOTO: A26366-124

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled DDH C-24 (53 m) to test an EM conductor on CB 6227 in 1975 (A.F. 91847). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by partly gneissic massive coarse grained pink granite and granodiorite (Fig. 17-1). Diamond drilling intersected pegmatitic granite (A.F. 91847).

MINERALIZATION:

Near solid pyrrhotite, 2% pyrite and 5% graphite occur in a 5.5 m intersection of pegmatitic granite (A.F. 91847).

GEOCHEMICAL DATA:

Assays for four samples from the mineralized zone reported 0.03 g/t Au, and up to 1.7 g/t Ag, 0.06% Cu and 0.10% Zn (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Near solid Fe-sulphide and graphite mineralization in felsic intrusive rocks probably represents an assimilated xenolith or vein type mobilizate.

REFERENCES:

Assessment File 91847
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

LOCATION: **18**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6058704N/419364E

ACCESS: Via boat on Reed Lake and traverse.

AREA: 0.6 km northeast of northeastern shore of Reed Lake (Fig. 17-1).

AIRPHOTO: A26366-123

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled three holes totalling 159 m to test EM conductors on CB 6227 and CB 6228 in 1975 (A.F. 91847). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by partly gneissic, massive, coarse grained, pink granite and granodiorite (Fig. 17-1). Diamond drill holes intersected quartz-biotite granite gneiss and quartz-biotite±hornblende schist with sections of pegmatite (A.F. 91847).

MINERALIZATION:

DDH C-26 contains 8.0 m of 12% to near solid pyrrhotite and trace chalcopyrite in grey-green quartz-biotite-hornblende schist. Less than 10% pyrrhotite and minor chalcopyrite are disseminated throughout the remainder of the schist in drill core. DDH C-27 intersected an 8 cm thick pyrite stringer in biotite granite and minor disseminated pyrrhotite in quartz-biotite schist. DDH C-25 intersected 0.4 m of "pseudo-gabbro", probably a mafic xenolith, that contains trace pyrrhotite and 5% magnetite (A.F. 91847).

GEOCHEMICAL DATA:

Samples from DDH C-26 assayed 0.03-0.06 g/t Au, 0.3 g/t Ag, 0.02-0.11% Cu, 0.02-0.04% Zn, and 0.02% Ni. One sample from DDH C-27 assayed 0.01% Cu and 0.02% Zn. One sample from DDH C-25 assayed 0.03 g/t Au, 0.3 g/t Ag, 0.02% Cu and 0.02% Zn (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Moderate to near solid Fe-sulphide mineralization occurs within mafic xenoliths in felsic intrusive rocks. DDH C-27 may also include a vein of sulphide mobilizate.

REFERENCES:

Assessment File 91847
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

LOCATION: 19

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6062745N/405820E

ACCESS: Via boat on Reed Lake.

AREA: North of northern Reed Lake.

AIRPHOTO: A26368-99

EXPLORATION SUMMARY:

HBED drilled five holes totalling 569 m on the Hen claims in 1955, 1956 and 1958 (A.F. 90251, 90252), and three holes totalling 327 m to test EM conductors on CB 10776 and 10779 in 1984 (A.F. 92776). Canadian Nickel Company Limited drilled DDH 19542 (171 m) on claim Reed 3 in 1961 (A.F. 91387). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic, and felsic and mafic intrusive rocks; minor argillite and greywacke occur west of location 19 (Fig. 19-1). DDH 1, 2, 3, 4 and 7 intersected siliceous mafic volcanic rocks that contain hornblende, biotite, carbonate, epidote, chlorite and locally, garnet (A.F. 90252). DDH 1 also contains numerous granite dykes, and ends in diorite. DDH 2 contains numerous diorite dykes and one granite dyke. DDH 3 also intersected locally garnetiferous hornblende-biotite gneiss and minor quartz diorite. DDH 4 contains minor gabbro at the foot of the drill hole, and minor "cherty" sections within mafic volcanic rocks. The Eel drill logs report an interlayered sequence of tuffaceous argillite to argillaceous dacite tuff to dacite tuff, and in places, biotite-hornblende-feldspar gneiss derived from argillaceous metasedimentary rocks, and felsic intrusive rocks (A.F. 92776). DDH 19542 contains greywacke intruded by diorite dykes (A.F. 91387).

MINERALIZATION:

DDH Eel-311 contains 48.4 m of sulphidic graphitic argillite with up to 20% graphite, minor to moderate pyrrhotite and pyrite and local trace sphalerite. Carbonate is abundant in the mineralized portions. DDH Eel-312 contains 33.9 m of biotite-hornblende-feldspar gneiss, probably derived from tuffaceous argillite, with minor stringer to near solid pyrrhotite with minor pyrite, and local chalcopyrite and sphalerite. DDH Eel-314 contains 0.7 m of graphitic argillite with up to 50% pyrrhotite and 10% pyrite, and 12.0 m of carbonatized dark blue-grey fragmental rock with up to 70% pyrite, 15% pyrrhotite and 1% chalcopyrite, and trace sphalerite.

The Eel drill holes also contain minor pyrite, pyrrhotite and graphite disseminated throughout most of the sedimentary to tuffaceous rocks (A.F. 92776). DDH 19542 intersected "mineralized" greywacke over the length of the hole (A.F. 91387).

DDH 1, 2, 3, 4 and 7 collectively contain <1-24.8 m intersections with moderate to near solid pyrite and pyrrhotite, minor graphite and local trace chalcopyrite in siliceous, chloritic, biotitic hornblende-bearing mafic volcanic rocks (A.F. 90252). These rocks may also be epidotized and/or contain minor local quartz-carbonate veinlets. In addition, minor pyrite and pyrrhotite are disseminated throughout major portions of the drill holes.

GEOCHEMICAL DATA:

Assays from the Eel drill holes are mostly low, with ranges of nil to 0.20% Cu, nil to 0.1% Zn, nil to trace Ag, and nil to trace Au. One 0.6 m sample from Eel-314 contained 1.3% Zn, 0.43% Cu, 3.8 g/t Ag and 0.3 g/t Au (A.F. 92776).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Near solid Fe-sulphide and graphite mineralization in tuffaceous siltstone and in silicified chloritized carbonatized mafic volcanic rocks.

REFERENCES:

Assessment Files 90251, 90252, 91387, 92776
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

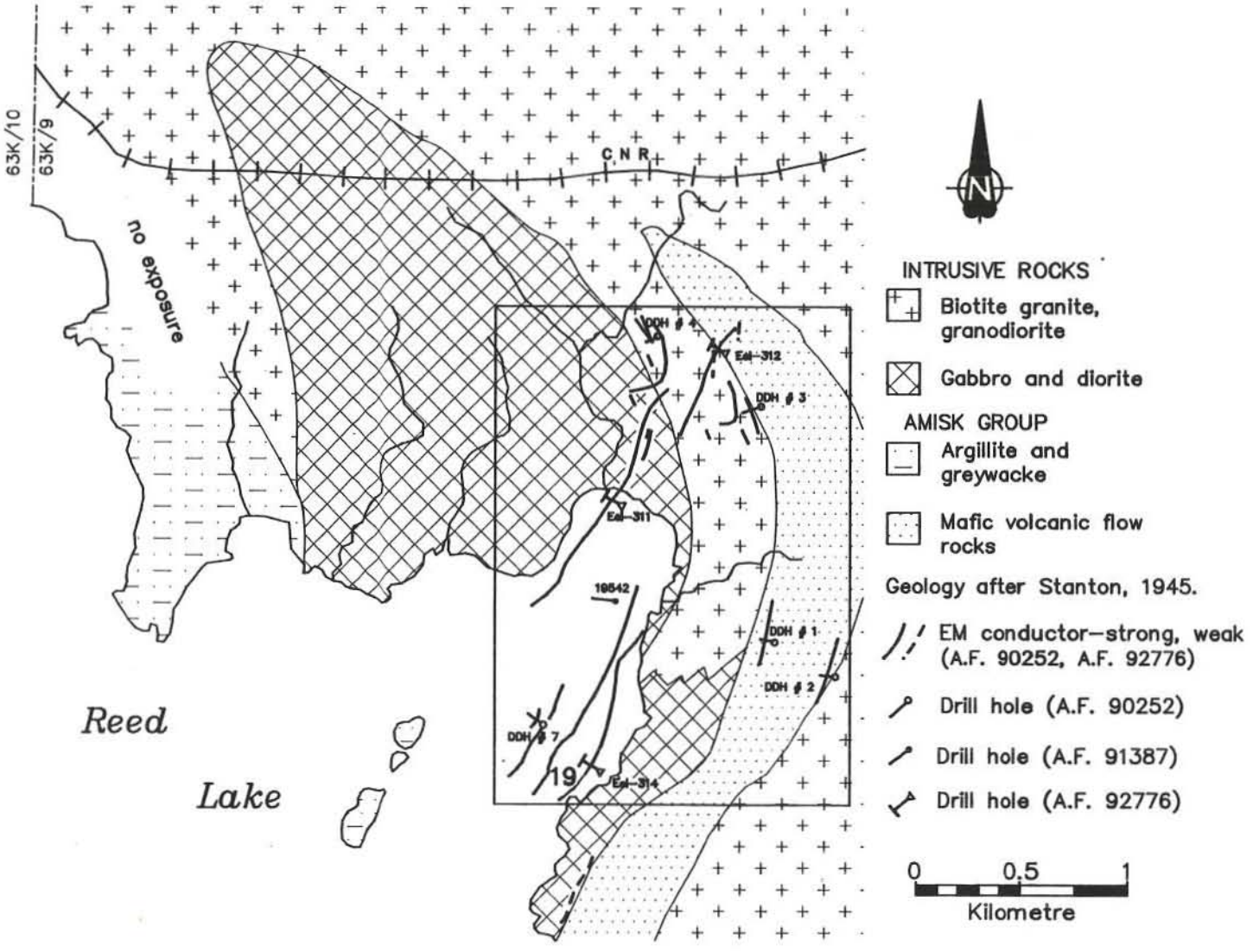

Figure 19-1: Geological setting and drill hole locations at occurrence 19.

LOCATION: **20**

NAME: (A.F. - Mineralization intersected by diamond drilling)

AREA: Halfway Lake.

UTM: 6065457N/414954E

AIRPHOTO: A26366-107

ACCESS: Via bush aircraft or railroad and portage.

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled four holes, C-17, C-18, C-19 and C-20, totalling 255 m to test EM conductors on CB 6249 and CB 6250 in 1975 (A.F. 91847). The area is partially covered (1988) by claims Zit 3 and Zit 4, staked by J.J. Studer for Granges Exploration Limited in 1987.

GEOLOGICAL SETTING:

The area is underlain by felsic intrusive rocks and volcanic-derived granite gneiss, with minor mafic volcanic flow and fragmental rocks (Fig. 20-1). Diamond drilling intersected quartz-biotite granite gneiss, including some minor garnetiferous and quartz-rich rocks, subordinate quartz-carbonate-chlorite schist and granodiorite (A.F. 91847).

MINERALIZATION:

Pyrite, graphite and subordinate pyrrhotite constitute 20% to near solid mineralization over 0.4 to 3.3 m (A.F. 91847). DDH C-17 contained 0.6 and 1.3 m of quartz-biotite gneiss with 40% graphite and 5% pyrite, and 1.1 and 3.0 m of near solid graphite and 5% pyrite. DDH C-18 contains five intersections, ≤1 m, with 20-40% pyrite and up to 20% graphite, and 1.2 m of near solid graphite and 20% pyrite, all hosted by quartz-biotite granite gneiss. DDH C-19 contains 3.3 m of quartz-carbonate-chlorite schist with 40% graphite and 5% pyrite. DDH C-20 contained two intersections, 2.8 m and 0.5 m, of quartz-biotite granite gneiss with 10-15% pyrite and 2-20% graphite, and three bands, up to 1.6 m, of near solid pyrite±graphite.

GEOCHEMICAL DATA:

Drill core assays for Au, Ag, Cu and Zn have ranges of 0.02-0.10% Cu, trace to 0.76% Zn, trace to 0.03 g/t Au, and trace to 0.7 g/t Ag (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Moderate to near solid pyrrhotite and graphite are hosted by quartz-biotite granite gneiss.

REFERENCES:

Assessment File 91847
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

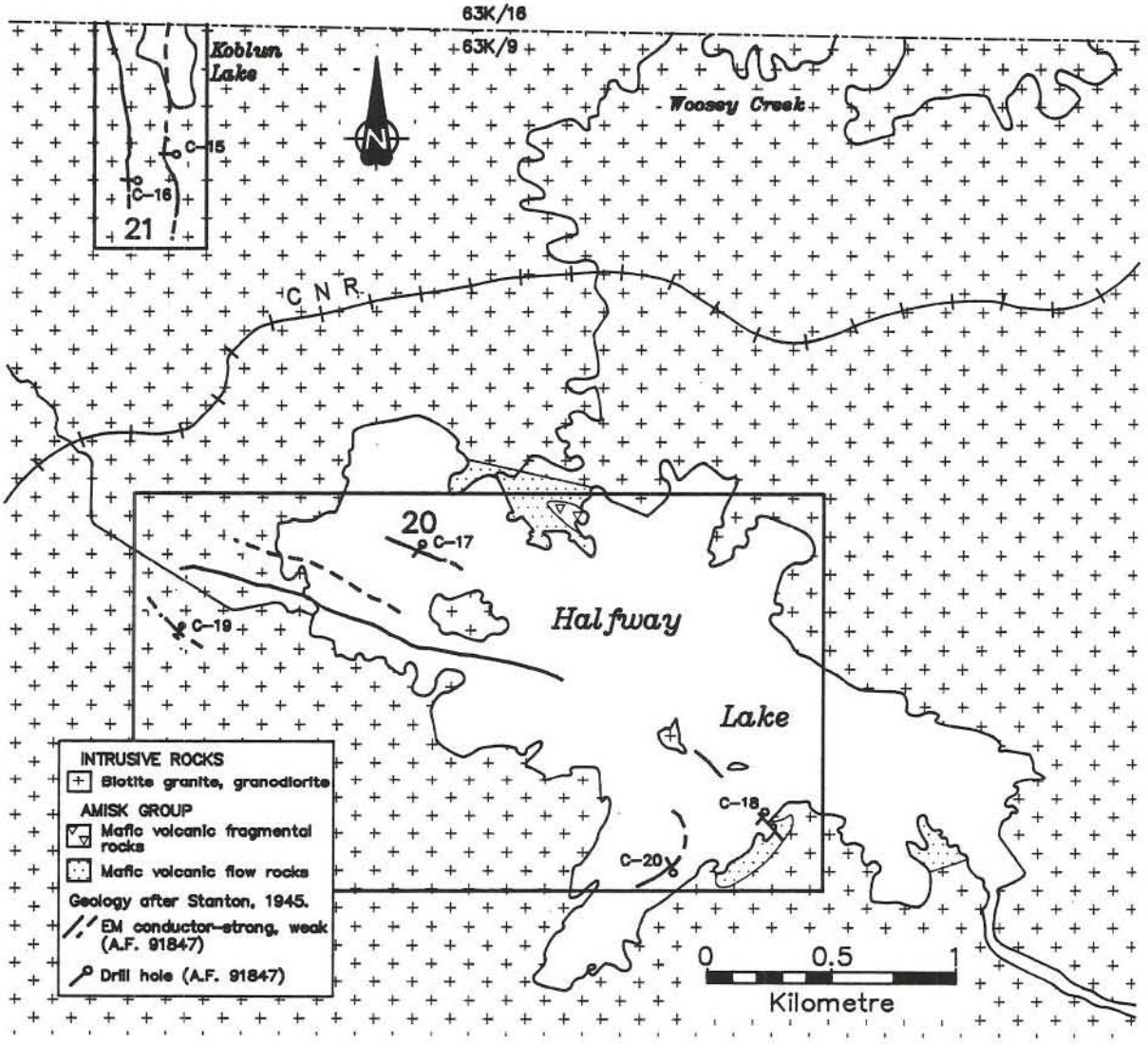

Figure 20-1: Geological setting and drill hole locations at occurrences 20 and 21.

LOCATION: 21

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6067045N/413850E

ACCESS: Via bush aircraft, or railroad and traverse.

AREA: South end of Koblun Lake (Fig. 20-1).

AIRPHOTO: A26367-130

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled DDH C-15 and C-16 to test EM conductors on CB 6251 in 1975 (A.F. 91847). The area is partially covered (1988) by CB 9486, staked by HBED in 1979, and claim Zit 5, staked by Granges Exploration Limited in 1987.

GEOLOGICAL SETTING:

The area is underlain by felsic intrusive rocks and volcanic-derived granite gneiss, and minor mafic volcanic flow and fragmental rocks (Fig. 20-1). Diamond drilling intersected quartz±biotite±hornblende±garnet granite gneiss and subordinate greywacke and fragmental volcanic rocks (A.F. 91847).

MINERALIZATION:

DDH C-16 intersected 3.8 m of near solid graphite and 5% pyrite hosted by quartz-hornblende gneiss. DDH C-15 intersected 1.2 m of near solid graphite and 3% pyrite, and 0.7 m of 40% graphite and trace pyrite in quartz-biotite granite gneiss (A.F. 91847).

GEOCHEMICAL DATA:

Drill core assayed 0.02-0.05% Cu, 0.02-0.08% Zn, trace Ag and trace Au (A.F. 91847).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Near solid graphite and pyrite in quartz±biotite±hornblende gneiss. The protolith for the granite gneiss may have been a mafic volcanic rock.

REFERENCES:

Assessment File 91847
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

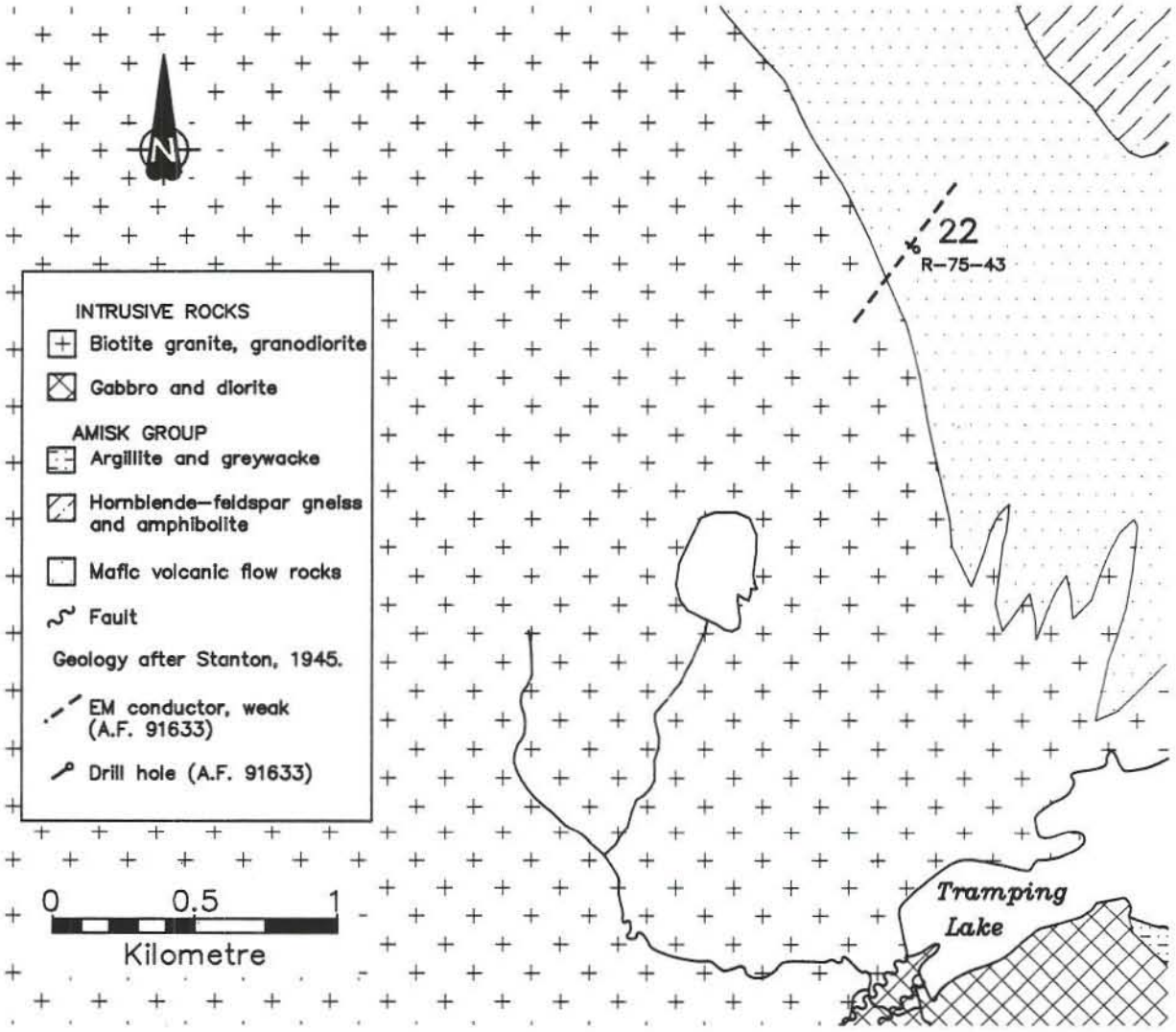

Figure 22-1: Geological setting and drill hole location at occurrence 22.

LOCATION: **22**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6061619N/425065E

ACCESS: Via boat on Tramping Lake/Grass River and traverse.

AREA: 2.4 km west of Tramping Lake.

AIRPHOTO: A26366-165

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled DDH R-75-43 (71 m) to test an EM conductor on CB 6245 in 1975 (A.F. 91633). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain predominantly by mafic volcanic and felsic intrusive rocks (Fig. 22-1). Diamond drilling intersected medium grained biotite gneiss and locally chloritic, garnetiferous quartz-biotite gneiss (A.F. 91633).

MINERALIZATION:

One to 5% fine grained pyrite and pyrrhotite and rare chalcopyrite are disseminated throughout garnetiferous quartz-biotite gneiss. The sulphide minerals also occur as stringers and fracture fillings throughout garnetiferous quartz-biotite gneiss.

GEOCHEMICAL DATA:

Drill core assayed 0.01-0.25% Zn, 0.02-0.23% Cu and 0.3-2.1 g/t Ag (A.F. 91633).

CLASSIFICATION:

Disseminated mineralization - not classified. Minor Cu- and Fe-sulphide minerals in volcanic-derived garnetiferous quartz-biotite gneiss.

REFERENCES:

Assessment File 91633
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

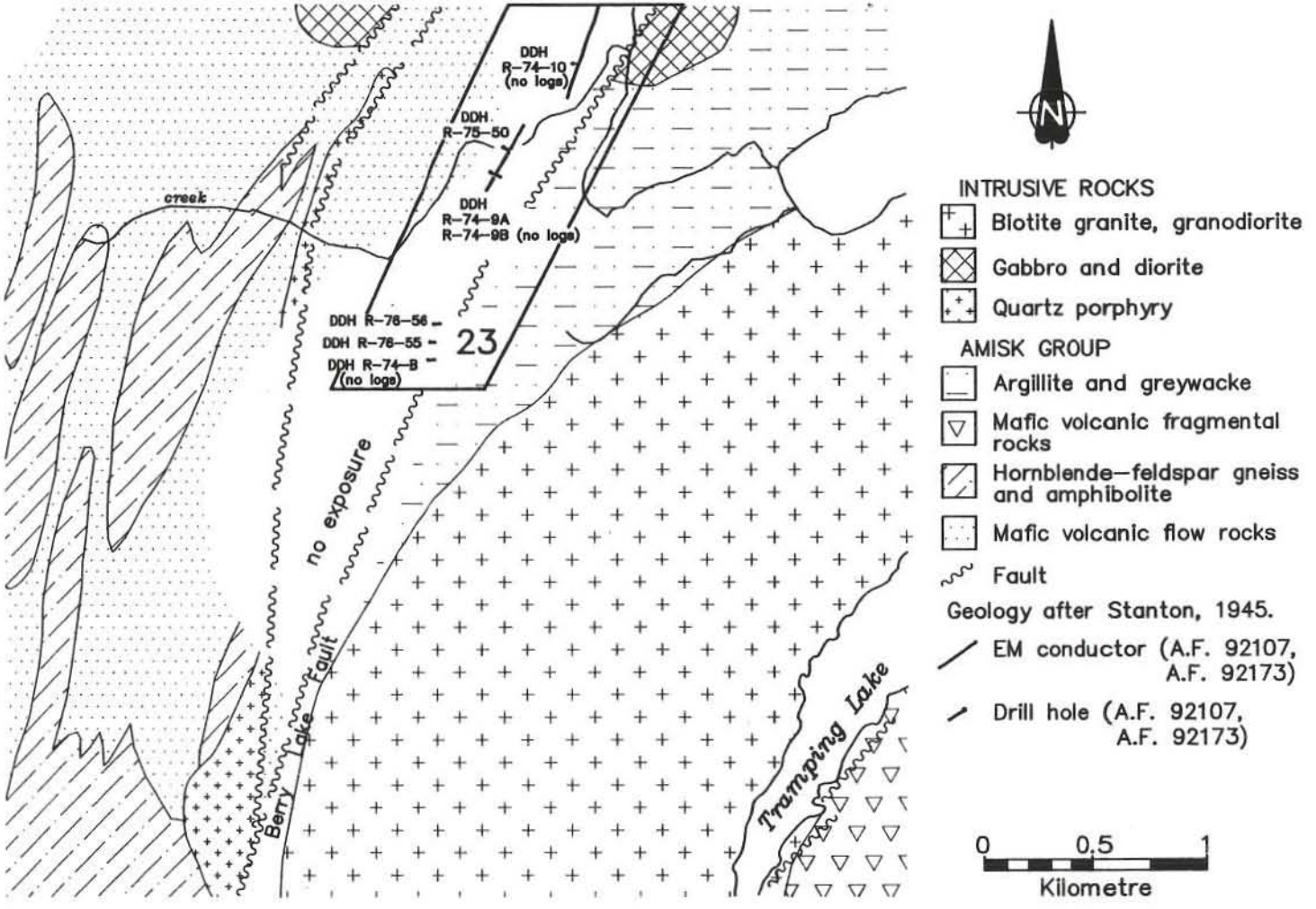

Figure 23-1: Geological setting and drill hole locations at occurrence 23.

LOCATION: 23

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6065850N/428888E

ACCESS: Via bush aircraft or winter road and traverse.

AREA: 3.5 km west of Tramping Lake near Berry Creek.

AIRPHOTO: A26366-181

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled DDH R-75-50 (73 m) in 1975 to test an EM conductor on CB 4230 (A.F. 92173), and DDH R-76-55 and R-76-56 totalling 267 m in 1976 to test EM conductors on CB 5631 (A.F. 92107). Maps included with drill logs indicate that additional holes may have been drilled, but were not submitted for assessment credits (Fig. 23-1). The area is held (1988) by Granges Exploration Limited as claim Ber-7 staked in 1986.

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks and hornblende-feldspar gneiss, argillite and greywacke, flanked to the east by felsic intrusive rocks, and to the northwest and northeast by gabbro and diorite (Fig. 23-1). The late north-northeast-trending Berry Creek Fault transects the area. Drilling intersected quartz-biotite gneiss, foliated feldspar-phyric mafic volcanic rocks and foliated grey-green dacite (A.F. 92173, 92107).

MINERALIZATION:

DDH R-76-55 and R-76-56 contain moderate amounts of disseminated to near solid pyrrhotite and minor pyrite in foliated grey-green dacite (A.F. 92107). DDH R-76-55 contains 9.3 m of dacite averaging 30% pyrrhotite and 2.7 m of dacite averaging 45% pyrrhotite. DDH R-76-56 intersected 2.9 m with 40% pyrrhotite and minor pyrite in dacite, and 1.3 m with 20% fine grained pyrrhotite in foliated silicified light green andesite. Additionally, minor pyrrhotite and pyrite are disseminated locally in light green andesite and dacite in both drill holes. DDH R-75-50 contains numerous narrow (i.e., <1 m) intersections of near solid pyrite or pyrite-pyrrhotite in graphite hosted by quartz-biotite gneiss and mafic volcanic-derived chloritic gneiss (A.F. 92173).

GEOCHEMICAL DATA:

Drill core assayed 0.01-0.13% Cu, 0.03-0.40% Zn, 1.0-4.1 g/t Ag and <0.1-0.3 g/t Au (A.F. 92107, 92173).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Disseminated to near solid Fe-sulphide minerals and graphite are hosted by dacitic to mafic volcanic rocks.

REFERENCES:

Assessment Files 92107, 92173
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

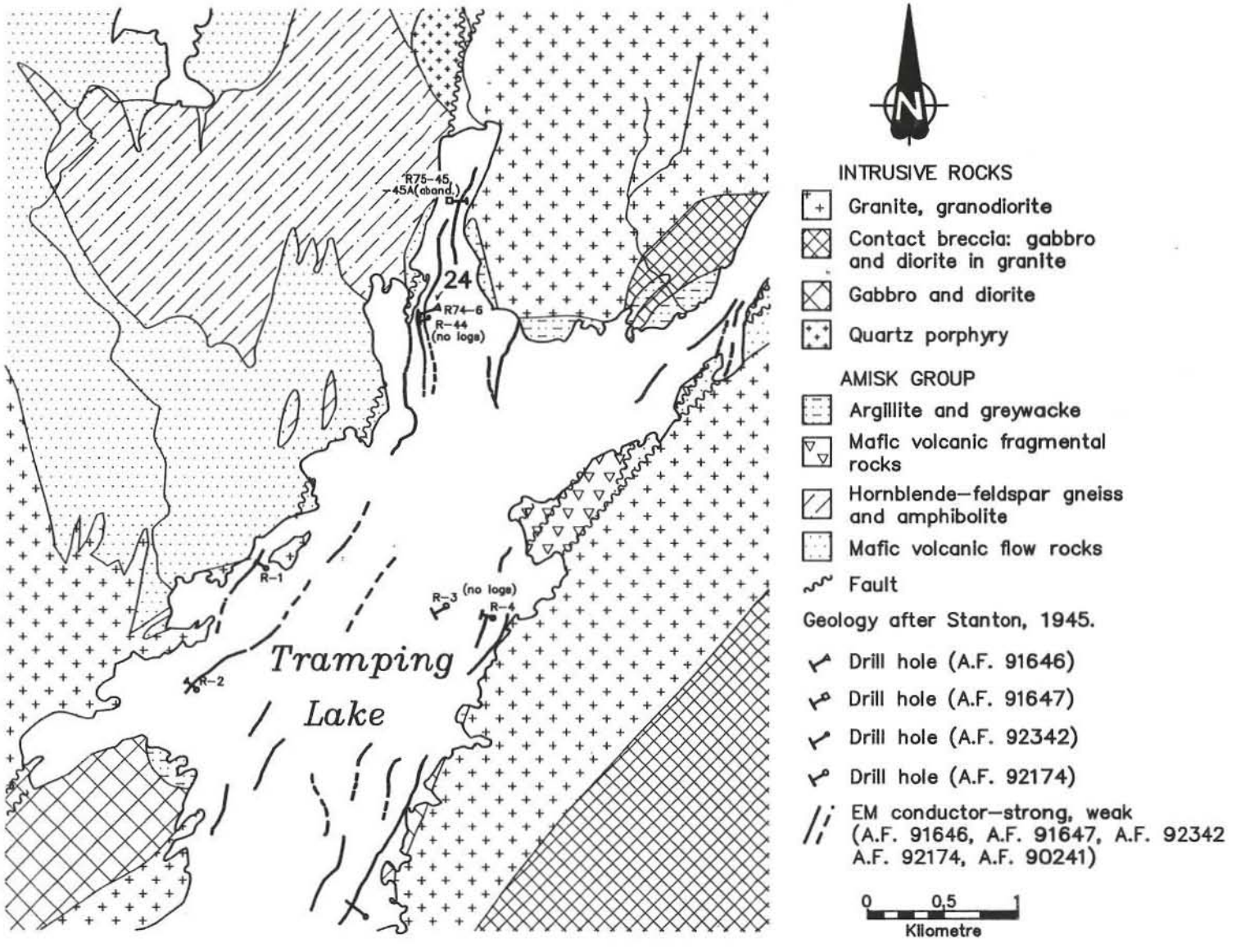

Figure 24-1: Geological setting and drill hole locations at occurrence 24.

LOCATION: **24**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6062022N/427758E

ACCESS: Via boat on Tramping Lake/Grass River.

AREA: Northwestern Tramping Lake.

AIRPHOTO: A26366-177, -179

EXPLORATION SUMMARY:

Tri-J Minerals Surveys conducted a Turam EM survey on CB 3823 in 1973 (A.F. 92174). Granges Exploration Aktiebolag drilled DDH R-74-6 (112 m) in 1974 (A.F. 91646) and DDH R-75-45 and R-75-45A (81 and 32 m, respectively) in 1975 to test EM conductors on CB 3823 (A.F. 91647), and conducted a HLEM survey over the area in 1980 (A.F. 92342). Maps in A.F. 92174 and 92342 also show collar locations for additional drill holes; logs were not submitted for assessment (cf. Fig. 24-1). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic flow and fragmental rocks, flanked to the northwest by mafic volcanic-derived gneiss, to the east by argillite, greywacke and granite and to the southwest by granite (Fig. 24-1). DDH R-74-6 intersected serpentinite (A.F. 91646) and DDH R-75-45 intersected granite and phyllite (A.F. 91647).

MINERALIZATION:

DDH R-74-6 intersected 7.5 m of graphite schist with <1-7% pyrite flanked by serpentinite (A.F. 91646). DDH R-75-45 did not contain mineralization, indicating that the conductor was not intersected (A.F. 91647).

GEOCHEMICAL DATA:

Drill core samples from four samples of graphite schist in DDH R-74-6 contained 0.3-0.7 g/t Au, 0.3-1.0 g/t Ag, 0.02-0.04% Cu and 0.01-0.02% Zn (A.F. 91646).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Graphite schist with minor pyrite occurs within serpentinite.

REFERENCES:

Assessment Files 91646, 91647, 92174, 92342
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

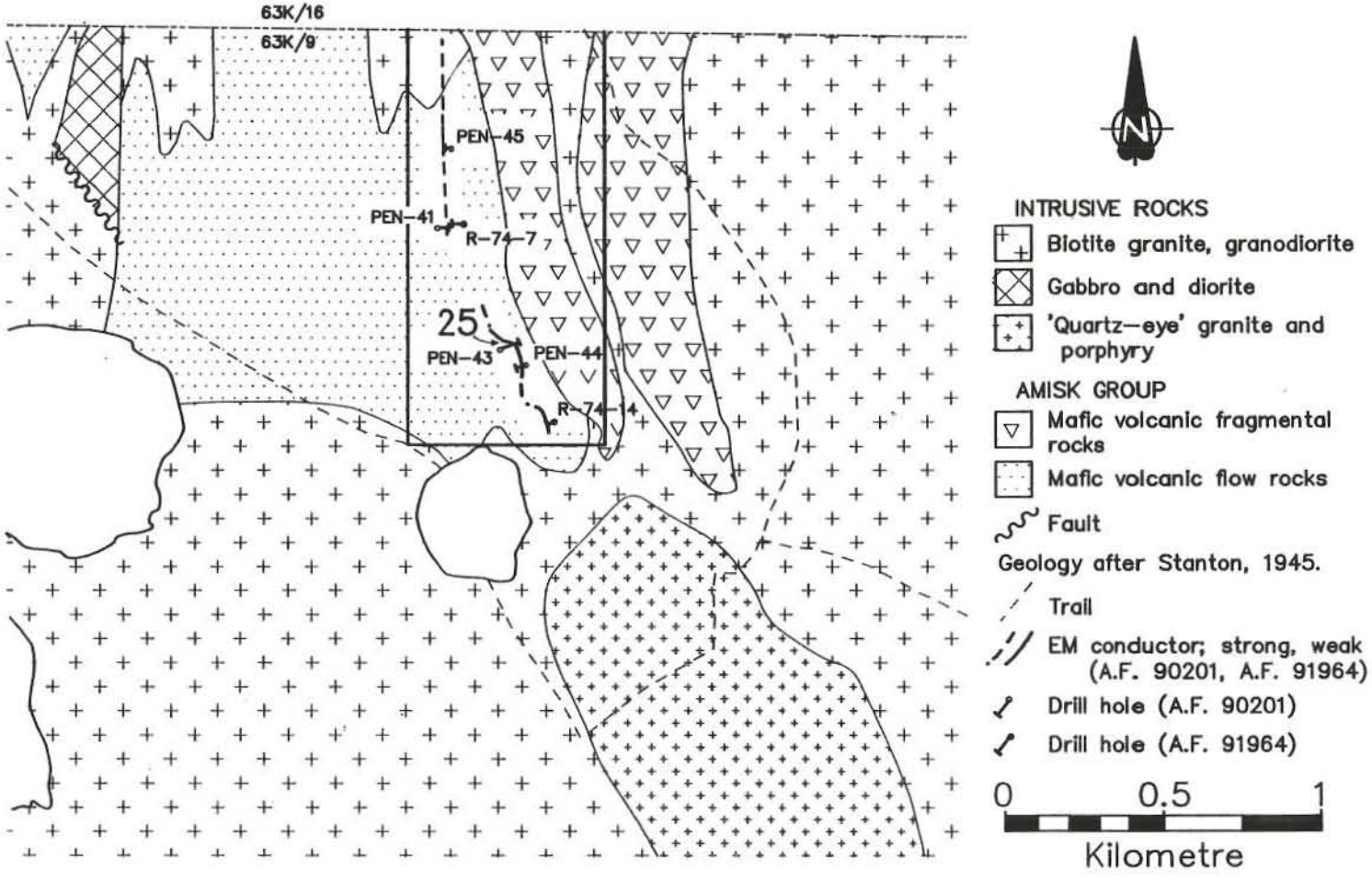

Figure 25-1: Geological setting and drill hole locations at occurrence 25.

LOCATION: **25**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6066345N/421642E

ACCESS: Via winter road and traverse.

AREA: 3 km west of Bujarski Lake.

AIRPHOTO: A26367-120

EXPLORATION SUMMARY:

HBED drilled DDH Pen-41, -43, -44, and -45 totalling 249 m on claims Pen -5, -8 and -11 in 1965 (A.F. 90201). Granges Exploration Aktiebolag conducted an airborne magnetometer survey (A.F. 91963) and a HLEM survey in 1973 (A.F. 91964), and drilled DDH R-74-7 and R-74-14 in 1974 on CB 5668 (A.F. 91964).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic flow and fragmental rocks, flanked to the southeast by quartz-eye granite and porphyry, to the east by granite and to the west by granite and minor gabbro (Fig. 25-1). DDH Pen-43 intersected felsic volcanic rocks and minor garnetiferous gneiss, probably derived from altered mafic volcanic rocks. DDH Pen-41 intersected "quartz amphibolite" (A.F. 90201). DDH Pen-44, Pen-45, R-74-7 and R-74-14 intersected interlayered sequences of grey banded sedimentary rocks, garnetiferous gneiss, quartzite and greywacke (A.F. 90201, 91964). It is notable that the "quartz amphibolite" and garnetiferous gneissic rocks in these drill holes are similar to alteration products in the Chisel Lake mine area (Fedikow *et al.*, 1989, location 33).

MINERALIZATION:

DDH Pen-43 intersected 13.1 m of altered rhyolite with four intersections, <1 m, that contain up to 80%, but usually 20-30% pyrrhotite, 5-20% pyrite, and trace chalcopyrite. Trace pyrrhotite is disseminated throughout the rhyolite between the intersections of moderate to near solid mineralization. In addition, biotite-hornblende-garnet gneiss (altered mafic volcanic rocks?) directly above the altered rhyolite in the drill hole contains three intersections, 0.3-2.0 m, with 20-40% pyrrhotite, 5-10% pyrite, 0-5% graphite, and trace chalcopyrite. Additionally, minor pyrite and trace chalcopyrite form bands throughout the felsic fragmental sequence (A.F. 90201).

DDH Pen-44 contains 20-50% pyrrhotite, 5-30% pyrite, trace chalcopyrite and locally up to 10% graphite in five intersections, <1 m, of garnet-quartz-hornblende-plagioclase gneiss, probably derived from altered mafic volcanic rocks (A.F. 90201). DDH R-74-14 contains eight intersections, <1 m, with up to 15% pyrrhotite, 10% pyrite, graphite and trace chalcopyrite interlayered in a sequence of quartzite, greywacke and quartz-biotite-garnet gneiss (A.F. 91964).

DDH Pen-41 contained 1.8 m of "quartz amphibolite" with 20-30% pyrrhotite, 10-20% pyrite, 5% graphite and trace chalcopyrite (A.F. 90201). DDH R-74-7 contained numerous intersections, <1-2.9 m, of graphitic schist with up to 35% (average 5-15%) pyrrhotite or pyrite and trace chalcopyrite (A.F. 91964). DDH Pen-45 contained 4 m of grey banded sedimentary rocks and amphibolite, interlayered with mafic volcanic rocks with 20-30% pyrrhotite, 2-5% pyrite and trace chalcopyrite (A.F. 90201).

GEOCHEMICAL DATA:

Drill core samples contain 0.01-0.05% Cu, 0.01-0.16% Zn, <0.1 g/t Ag, <0.1 g/t Au, and 0.01% Pb (A.F. 91964).

CLASSIFICATION:

Massive sulphide type deposit; volcanic rock associated. Moderate to near solid Fe-sulphide minerals with trace chalcopyrite in felsic volcanic rocks (DDH Pen-43).

Also, some of the mineralization represents a chemical sediment type deposit; sulphide facies iron formation. Moderate Fe-sulphide minerals and graphite with trace chalcopyrite are present in interlayered quartzite and garnetiferous volcanic-derived gneiss. This mineralization occurs along strike from and stratigraphically above mineralized felsic volcanic rocks (DDH Pen-43, Pen-44, Pen-45, R-74-7 and R-74-14).

In the model envisaged for this occurrence, a massive sulphide type deposit was deposited near an exhalative centre (i.e., in the vicinity of DDH Pen-43) and was flanked along strike (downslope) by younger chemical sediments. The area between the two conductors may represent irregularities on the paleotopographic depositional surface, disruption by an intrusion or the deposition of nonconductive material. Alternatively, the area between the two conductors may separate two discrete stratigraphic intervals that represent separate depositional basins in which the sulphide minerals were deposited.

REFERENCES:

Assessment Files 90201, 91963, 91964
Manitoba Energy and Mines, Minerals Division.

Fedikow, M.A.F., Ostry, G., Ferreira, K.J. and Galley, A.
1989: Mineral deposits and occurrences in the File Lake area, NTS 63K/16; Manitoba Energy and Mines, Mineral Deposit Series Report 5, 277p.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

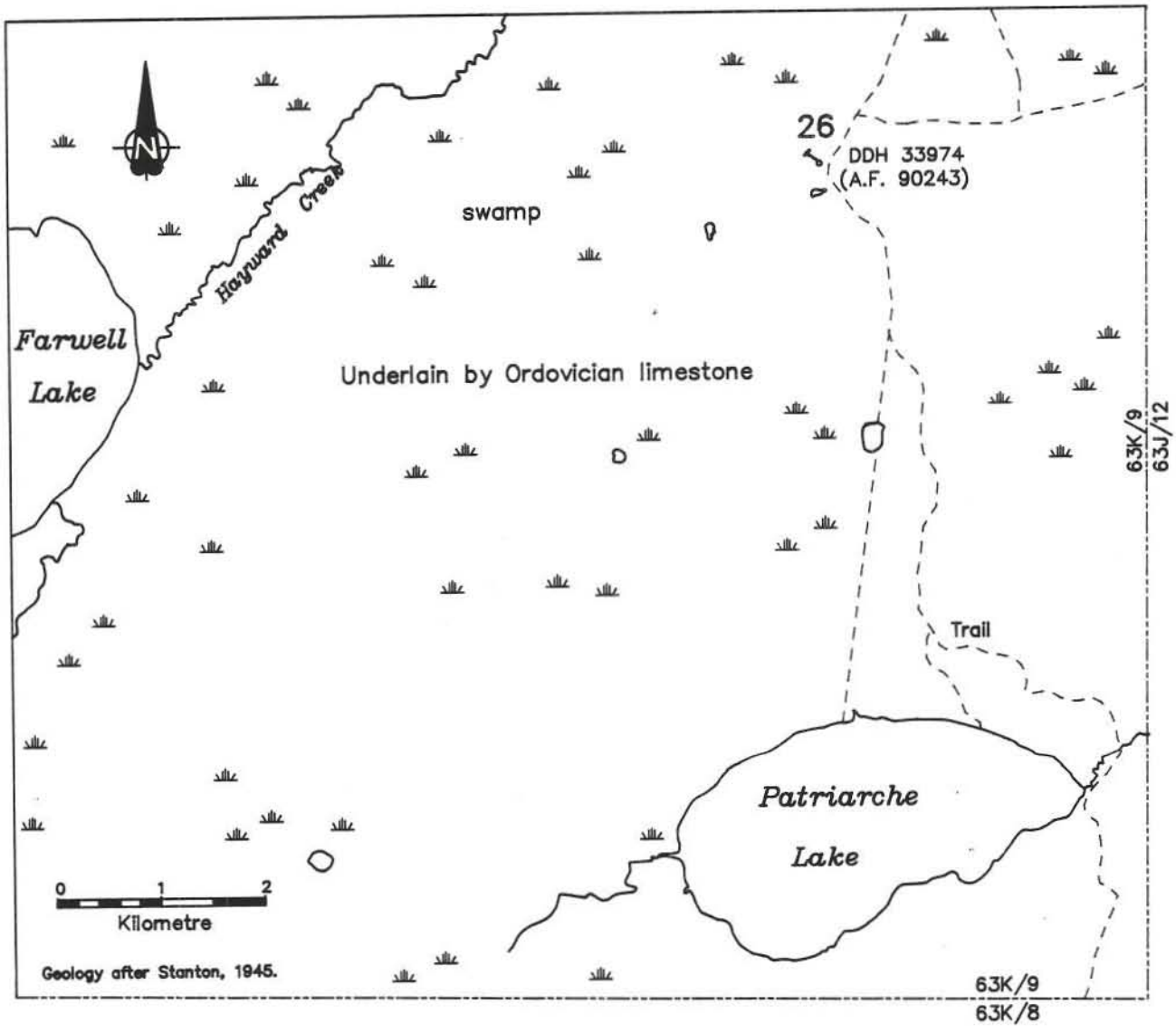

Figure 26-1: Geological setting and drill hole locations at occurrence 26.

LOCATION: **26**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6047494N/432253E

ACCESS: Winter road.

AREA: 5.2 km north of Patriarche Lake.

AIRPHOTO: A20136-62

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 33974 to a depth of 215 m on claim KO-116 in 1968 (A.F. 90243). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 26-1). DDH 33974 intersected limestone, sandstone and argillite interlayered with tuff of unspecified composition (A.F. 90243).

MINERALIZATION:

"Sulphide threads and streaks" hosted by tuff interlayered with argillite were intersected at the bottom of the drill hole. The amount and species of sulphide mineralization were not noted (A.F. 90243).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. Streaks of sulphide minerals occur in interlayered argillite and tuff. The lithologic association suggests that this occurrence may be a chemical sediment type deposit, sulphide facies iron formation, but there are insufficient data to confirm this conclusion.

REFERENCES:

Assessment File 90243
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

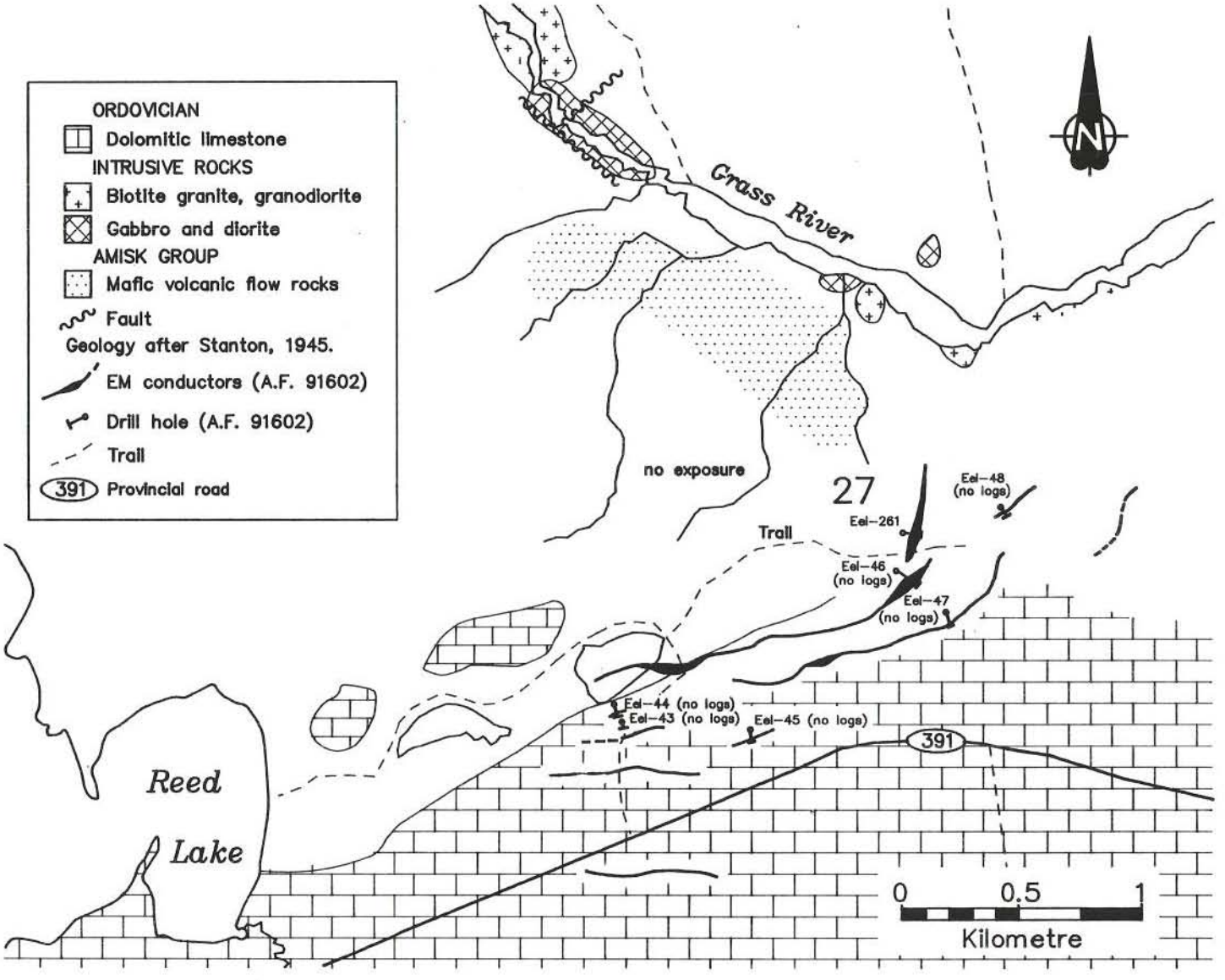

Figure 27-1: Geological setting and drill hole locations at occurrence 27.

LOCATION: **27**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6052686N/419908E

ACCESS: Via winter road from Provincial Road 391.

AREA: 2.6 km east of easternmost Reed Lake.

AIRPHOTO: A26366-119

EXPLORATION SUMMARY:

HBED drilled DDH Eel-261 (87 m) to test an EM conductor on CB 148 in 1975 (A.F. 91602). The locations of six other drill holes are shown on the maps, but logs were not submitted for assessment. The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is mostly drift and swamp covered, but is probably underlain by Ordovician dolomitic limestone (Fig. 27-1). Mafic volcanic rocks and felsic and mafic intrusive rocks occur north of location 27. DDH Eel-261 intersected graphitic shale, calcareous mudstone, argillaceous limestone and quartzite (A.F. 91602).

MINERALIZATION:

Four intersections of graphitic shale from 1 to 23 m in core length contain 40-70% graphite and 1-20% pyrite. The mineralized shale is interlayered with calcareous mudstone and argillaceous limestone (A.F. 91602).

GEOCHEMICAL DATA:

Au, Ag, Cu and Zn assays were nil except one Zn assay of 0.1% (A.F. 91602).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Pyritic graphitic shale interlayered with calcareous mudstone.

REFERENCES:

Assessment File 91602
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

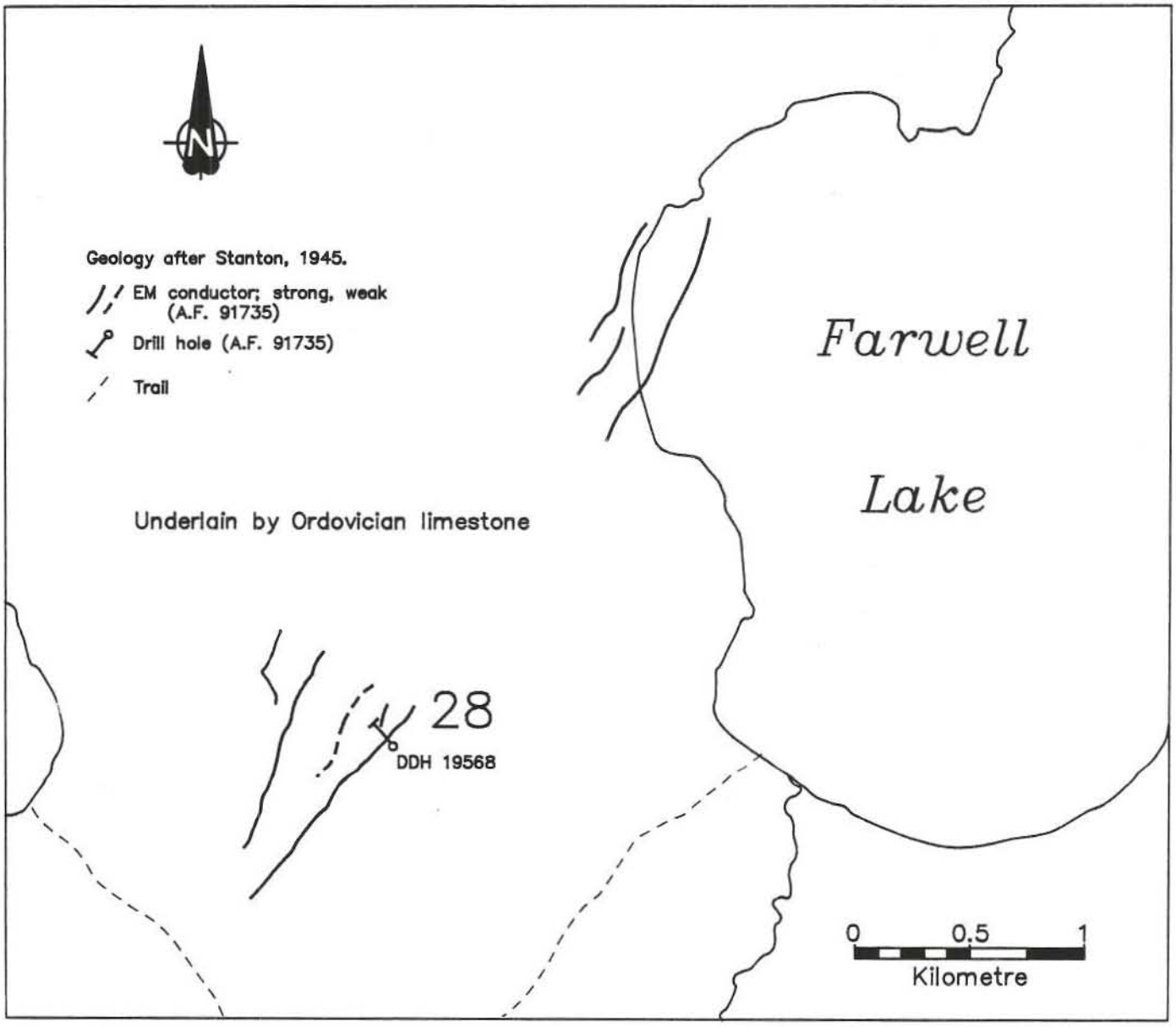

Figure 28-1: Geological setting and drill hole location at occurrence 28.

LOCATION: **28**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6043846N/419722E

ACCESS: Via bush aircraft or winter road and traverse.

AREA: 1.5 km west of Farwell Lake.

AIRPHOTO: A19767-46

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19568 (183 m) to test an EM conductor on Reservation of Mineral Rights 19 in 1961 (A.F. 91735). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 28-1). Diamond drilling intersected limestone, sandstone, argillite, quartzose sedimentary rocks, and graphitic iron formation (A.F. 91735).

MINERALIZATION:

Argillaceous sedimentary rocks contain up to 20% graphite and 25% fine- to coarse-grained pyrite. Banded magnetite iron formation, which comprises a 14 m section within the sequence of argillaceous rocks, contains up to 15%, very fine grained pyrite and pyrrhotite. Virtually all rocks intersected in the drill hole contain minor Fe-sulphide mineralization (A.F. 91735).

GEOCHEMICAL DATA:

Drill core assayed 0.01-0.09% Cu and nil-0.08% Ni (A.F. 91735). There do not appear to be any Au assays for this occurrence.

CLASSIFICATION:

Chemical sediment type deposit; oxide facies iron formation. Banded iron formation with moderate amounts of graphite and iron sulphide minerals occur in argillaceous sedimentary rocks.

REFERENCES:

Assessment File 91735
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

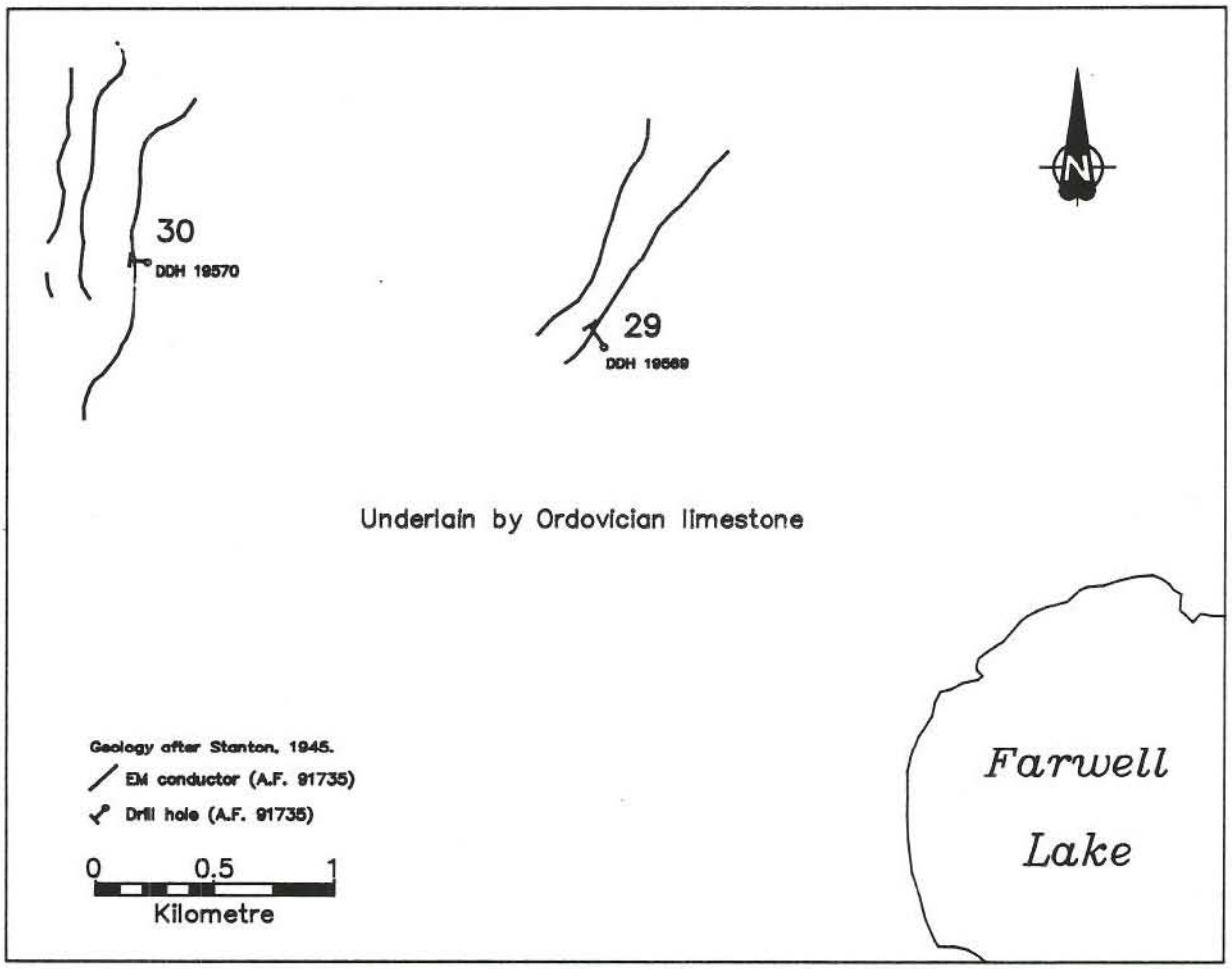

Figure 29-1: Geological setting and drill hole locations at occurrences 29 and 30.

LOCATION: **29**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6047687N/419518E

ACCESS: Via bush aircraft or winter road and traverse.

AREA: 2 km northwest of Farwell Lake.

AIRPHOTO: A19767-48

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19569 (135 m) to test an EM conductor on Reservation of Mineral Rights 19 in 1961 (A.F. 91735). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 29-1). Diamond drilling intersected limestone, reddish brown and grey sandstone, chamosite-bearing iron formation and argillite (A.F. 91735).

MINERALIZATION:

Banded argillaceous sedimentary rocks, at least 16 m in core length, contain up to 70% pyrite and up to 30% graphite (A.F. 91735). Brecciated pyrite-quartz fragments occur within the banded sequence. The mineralized rocks are overlain by chamosite-bearing iron formation; the chamosite occurs at the top of the Proterozoic rocks, and is probably related to the development of the regolith at the Precambrian/Phanerozoic unconformity. The drill hole was stopped in pyritic graphitic argillite.

GEOCHEMICAL DATA:

Drill core assayed 0.01-0.07% Cu and 0.02-0.07% Ni (A.F. 91735). There do not appear to be any Au assays for this occurrence.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Sulphidic graphitic iron formation occur in argillaceous sedimentary rocks.

REFERENCES:

Assessment File 91735
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

LOCATION: **30**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6047993N/417600E

ACCESS: Via winter road and traverse.

AREA: 3.7 km northwest of Farwell Lake (Fig. 29-1).

AIRPHOTO: A20044-98

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19570 (123 m) to test an EM conductor on Reservation of Mineral Rights 19 in 1961 (A.F. 91735). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 29-1). Diamond drilling intersected limestone, graphitic pyrite- and chamosite-bearing iron formations and graphitic argillite (A.F. 91735). Chamosite occurs at the top of the Proterozoic rocks, and is probably related to the development of the regolith at the Precambrian/Phanerozoic unconformity.

MINERALIZATION:

Graphitic argillaceous sedimentary rocks contain 4-10% disseminated pyrite and pyrite blebs. A 10.1 m intersection of interbedded iron formation within the unit of argillaceous rock contains 70% pyrite, 20% graphite and 10% quartz fragments (A.F. 91735).

GEOCHEMICAL DATA:

Drill core assayed 0.02-0.05% Cu and nil-0.04% Ni (A.F. 91735). There do not appear to be any Au assays for this occurrence.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Graphite- and sulphide-bearing iron formation occurs in argillaceous sedimentary rocks.

REFERENCES:

Assessment File 91735
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

LOCATION: 31

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6050904N/416757E

ACCESS: Via Provincial Road 391.

AREA: Easternmost Reed Lake.

AIRPHOTO: A26367-55

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19565 (162 m) and 19566 (203 m) to test EM conductors on Reservation of Mineral Rights #19 in 1961 (A.F. 91735). HBED drilled DDH FB-64 (114 m) in 1984 to test an EM conductor on RMR 135, west of RMR 19 (A.F. 92528). HBED drilled DDH FB-69 (112 m) in 1985 to test an EM conductor on CB 12364 (A.F. 92818). The area is partly covered (1988) by CB 5450, staked by Freeport Canadian Exploration Company in 1973 and transferred to HBED in 1978. Part of the ground is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 31-1). Diamond drilling intersected limestone, graphitic argillite and minor silicified, foliated mafic to intermediate tuff and tuffaceous siltstone (A.F. 91735, 92528).

MINERALIZATION:

A unit of graphitic argillite contains minor pyrite and pyrrhotite, in which up to 65% pyrite occurs over 2.1 m in DDH 19566, and up to 15% pyrite is present over 1.5 m in DDH 19565 (A.F. 91735). The graphitic argillite, approximately 125-150 m in core length, is underlain in the drill holes by "greenstone" that contains tuff bands, minor quartz, and trace to minor disseminated pyrrhotite. A 34 m long intersection of chloritic and carbonatized graphitic argillite in DDH FB-69 contained <10% disseminated pyrite and minor quartz-carbonate veinlets (A.F. 92818). DDH FB-64 did not intersect sulphide or graphite mineralization (A.F. 92528).

GEOCHEMICAL DATA:

Assays from DDH 19565 and 19566 have ranges of nil to 0.08% Cu and nil to 0.03% Ni (A.F. 91735). Five samples from DDH FB-69 contained nil Au, Ag, Cu and Zn (A.F. 92818).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Fe-sulphide minerals occur in graphitic argillite.

REFERENCES:

Assessment Files 91735, 92528, 92818
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

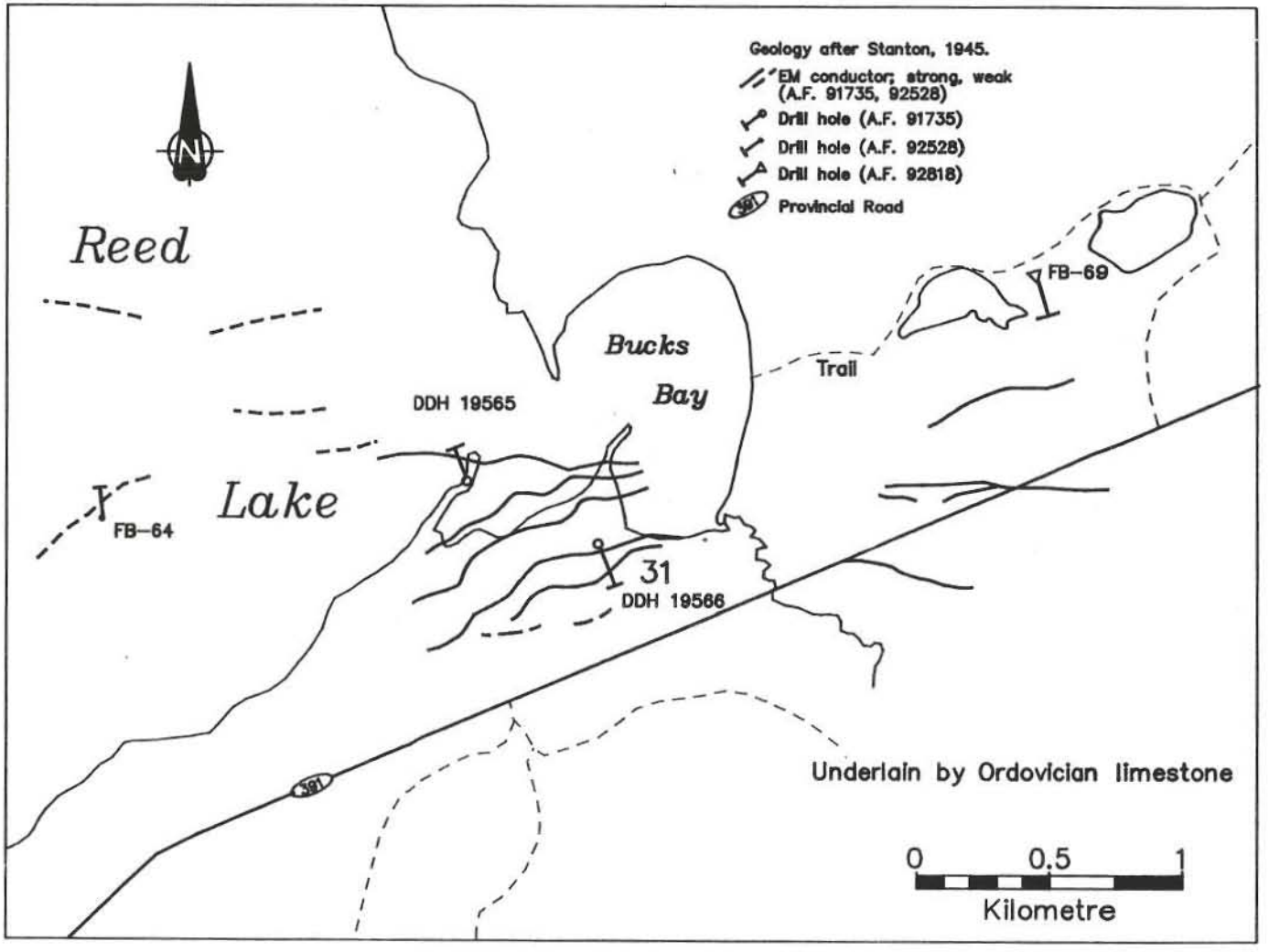

Figure 31-1: Geological setting and drill hole locations at occurrence 31.

LOCATION: 32

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6043353N/414006E

ACCESS: Via winter road and traverse.

AREA: 4 km south of Reed Lake.

AIRPHOTO: A19729-75

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19567 (112 m) to test an EM conductor on Reservation of Mineral Rights 19 in 1961 (A.F. 91735). Granges Exploration Aktiebolag drilled DDH B-77-1 (77 m) in 1977 (A.F. 92180) to test an EM conductor (A.F. 92181) on CB 4850. The area is partly covered (1988) by CB 5574, staked by Freeport Canadian Exploration Company in 1973 and transferred to HBED in 1978.

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 32-1). DDH 19567 intersected limestone, graphitic chamosite and pyrite iron formations and argillite (A.F. 91735). The chamosite occurs at the top of the Proterozoic rocks, and is probably related to the development of the regolith at the Precambrian/Phanerozoic unconformity. DDH B-77-1 intersected dolomitic limestone, chlorite schist, chloritized mafic volcanic rocks, dacite, and quartz diorite (A.F. 92180).

MINERALIZATION:

Up to 85% very fine- to coarse-grained pyrite, up to 40% graphite and minor carbonate streaks occur in 59 m of iron formation in DDH 19567. The amount of pyrite decreases towards the top of the drill hole. Argillaceous sedimentary rocks underlying the unit contain siliceous bands with 5-15% pyrite (A.F. 91735). DDH B-77-1 contains 1.7 m of near solid pyrrhotite and 1-2% pyrite hosted by dacite. The dacite contains minor disseminated pyrrhotite and pyrite in light green quartzose bands. The dacite is commonly silicified, foliated and possibly graphitic (A.F. 92180).

GEOCHEMICAL DATA:

Assays from DDH B-77-1 have ranges of 0.01-0.26% Zn, 0.01-0.02% Cu, 0.03-1.4 g/t Ag and <0.1-6.2 g/t Au (A.F. 92180). Two anomalous samples are notable: (1) sample 6104: 6.2 g/t Au, 0.3 g/t Ag, 0.01% Cu, 0.08% Zn over 1.3 m of silicified dacite with 25-30% pyrrhotite and 5-7% pyrite; and (2) sample 6402: 0.26% Zn, 0.01% Cu, 0.7 g/t Ag and <0.1 g/t Au over 0.7 m of dacite with graphite(?) and 1-2% pyrrhotite-pyrite.

Assays for DDH 19567 reported 0.01-0.06% Cu and nil-0.06% Ni (A.F. 91735).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. The mineralization intersected in DDH 19567 appears typical of graphitic sulphide facies iron formation. It is possible that the mineralization intersected in DDH B-77-1 represents a distal portion of massive sulphide type mineralization.

REFERENCES:

Assessment Files 91735, 92180, 92181
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

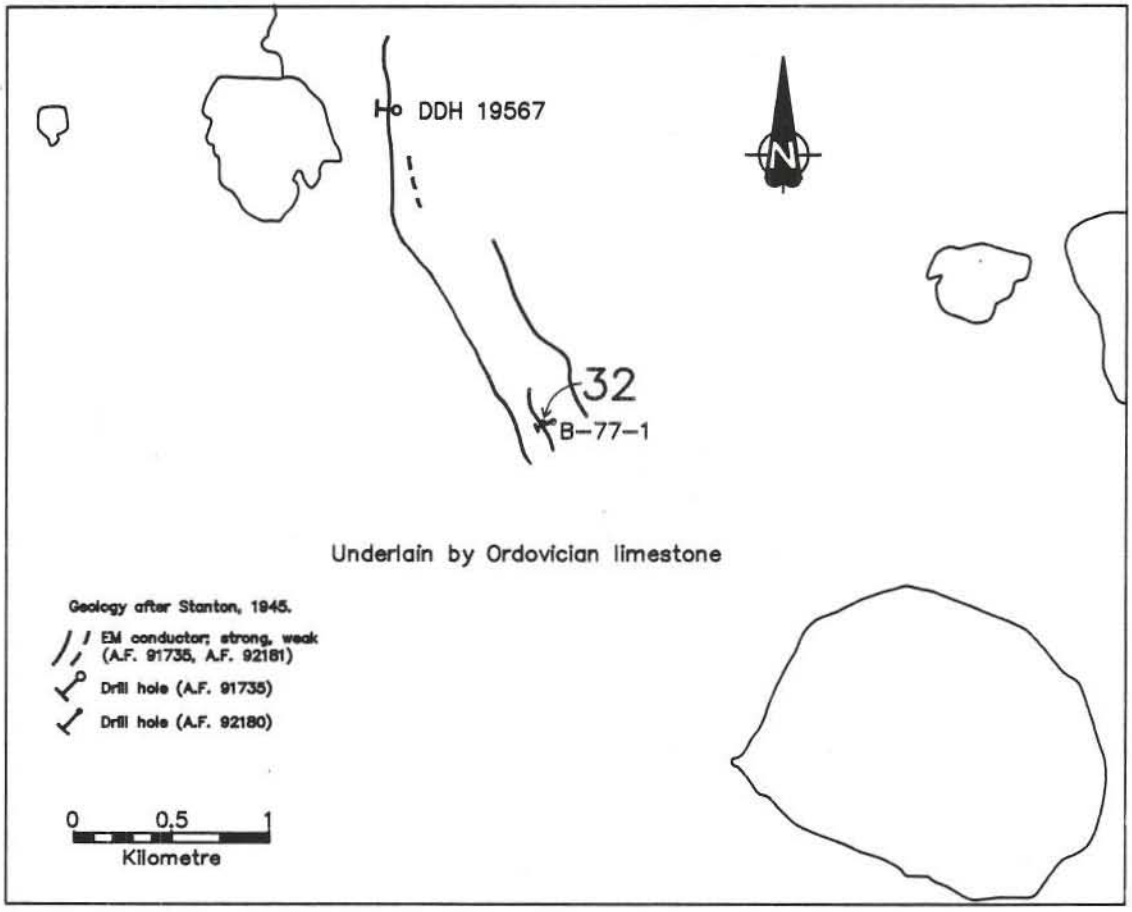

Figure 32-1: Geological setting and drill hole locations at occurrence 32.

LOCATION: 33

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6049403N/406079E

ACCESS: Via Provincial Road 391.

AREA: Southern shore of Reed Lake.

AIRPHOTO: A26368-107

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19549 (224 m) and 19550 (227 m) to test EM conductors on Reservation of Mineral Rights 19 in 1961 (A.F. 91735). The area is covered (1988) by (1) Reservation of Mineral Rights 128 and CB 5474, staked by Freeport Canadian Exploration Company in 1973 and transferred to HBED in 1978, and (2) the Deer claims, staked by W. Bruce Dunlop Limited in 1987.

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 33-1). DDH 19549 was collared in dark grey to grey-green, foliated volcanic rocks and intersected graphitic argillaceous sedimentary rocks with minor hematite, carbonate and quartz streaks at depth (A.F. 91735). DDH 19550 intersected limestone, an alternating sequence of earthy, vuggy, hematitic, banded argillite and hematite-rich iron formation, and biotite schist and minor mafic volcanic rocks (A.F. 91735).

MINERALIZATION:

A unit of graphitic argillite about 150 m in core length in DDH 19549 contains up to 50%, fine- to coarse-grained pyrite (average 5-20%); minor quartz streaks occur locally (A.F. 91735). DDH 19550 intersected 19.6 m of graphitic argillite with up to 15% pyrite streaks and vugs, and 1.1 m of argillite with 50% vuggy pyrite (A.F. 91735).

GEOCHEMICAL DATA:

Drill core assayed nil-0.10% Cu and nil-0.15% Ni (A.F. 91735). There do not appear to be any Au assays for this occurrence.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Fe-sulphide minerals in graphitic argillite.

REFERENCES:

Assessment File 91735
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

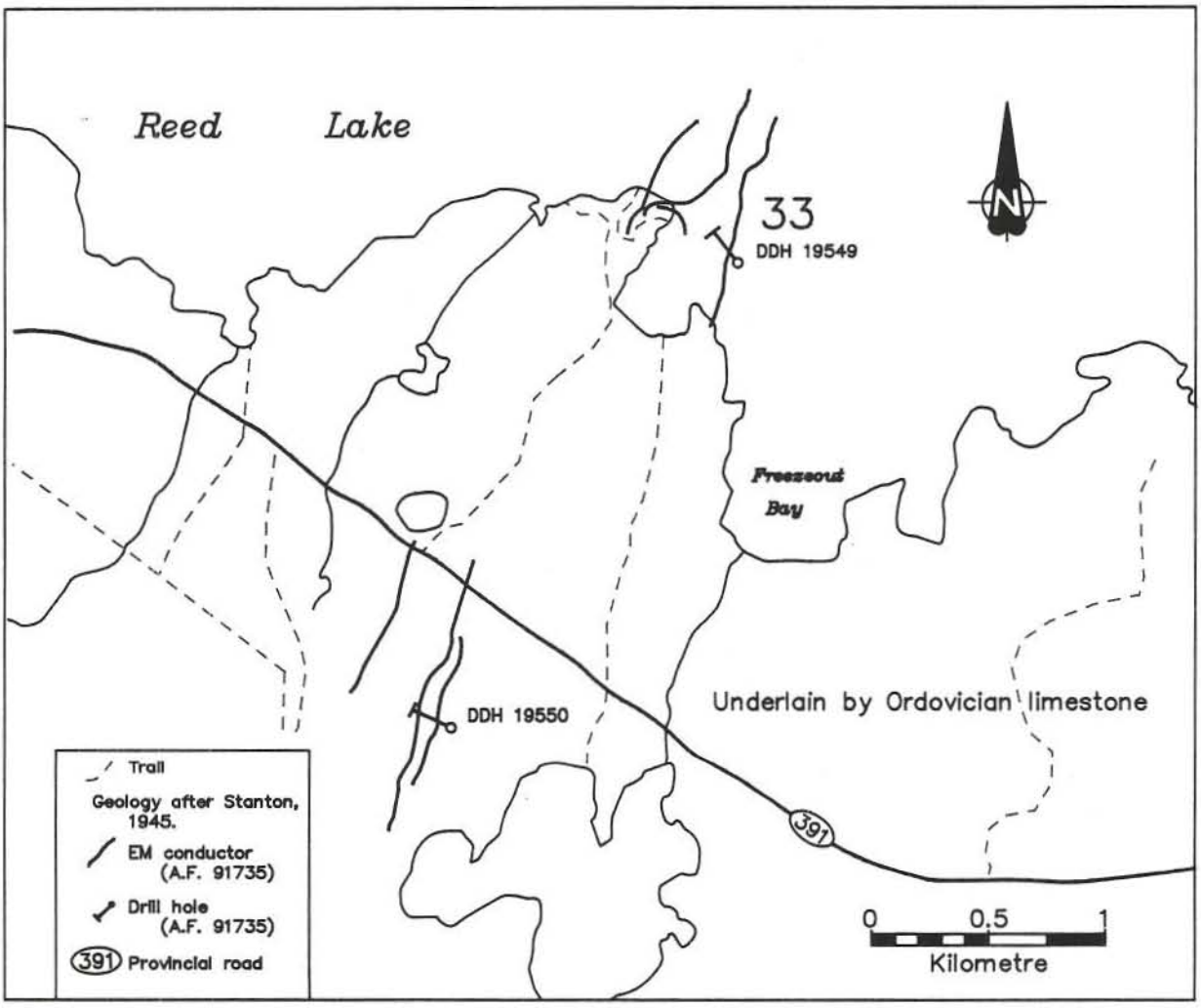

Figure 33-1: Geological setting and drill hole locations at occurrence 33.

LOCATION: **34**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6047931N/412986E

ACCESS: Via Provincial Road 391.

AREA: 1 km south of southeastern Reed Lake.

AIRPHOTO: A26367-144

EXPLORATION SUMMARY:

Parmlee Mining Company Limited drilled DDH 1 (138 m) on claim Base 22 in 1959 (A.F. 90244). The area is covered (1988) by CB 5479, staked by Freeport Canadian Exploration Company in 1973 and transferred to HBED in 1978.

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 34-1). Diamond drilling intersected limestone, graphitic chlorite-sericite schist and carbonatized felsic volcanic rocks (A.F. 90244).

MINERALIZATION:

Near solid, very fine grained, contorted pyrite constitutes a 5.8 m layer in chlorite-sericite schist and carbonatized felsic volcanic rocks. This layer contains later blebs and veinlets of pyrrhotite and quartz veinlets. The quartz veinlets parallel a strong foliation in the pyrite. The remainder of the drill core contains 5-40% pyrite and pyrrhotite veinlets, blebs and disseminations, and trace chalcopyrite. The host rocks are graphitic, carbonatized, chloritized and sericitized (A.F. 90244).

GEOCHEMICAL DATA:

Drill core samples assayed 0.4-0.7 g/t Au, trace-0.4 g/t Ag, and trace Cu, Zn and Ni (A.F. 90244).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Near solid graphite and pyrite are hosted by chlorite-sericite schist and carbonatized felsic volcanic rocks. The mineralization intersected in this drill hole may also represent a distal massive sulphide type deposit, but the data are insufficient to confirm this hypothesis.

REFERENCES:

Assessment File 90244
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

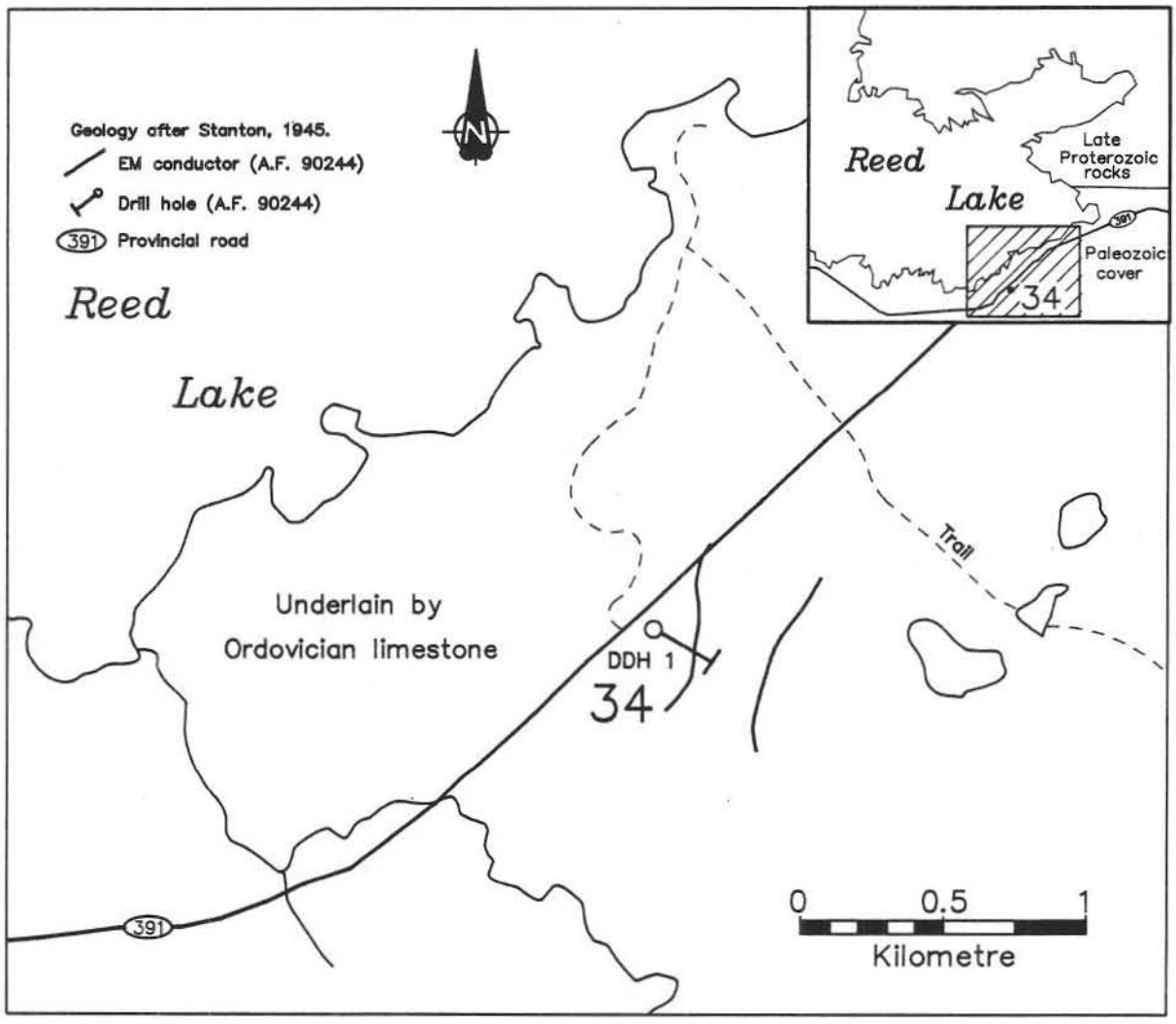

Figure 34-1: Geological setting and drill hole location at occurrence 34.

LOCATION: **35**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6040507N/417782E

ACCESS: Via winter road.

AREA: 4.5 km southwest of Farwell Lake.

AIRPHOTO: A20044-103

EXPLORATION SUMMARY:

HBED drilled DDH Fare-2 (109 m) to test an EM conductor on CB 7140 in 1979 (A.F. 92370). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone (Fig. 35-1). Diamond drilling intersected dolostone, sandstone, diorite, mafic tuff and quartz-feldspar-biotite gneiss (A.F. 92370).

MINERALIZATION:

One to 5% disseminated pyrite and 0-5% graphite occur in 7.6 m of mafic tuff. The grey-green, fine- to medium-grained mafic tuff is "altered and soft", probably chloritized, and contains quartz-carbonate stringers (A.F. 92370).

GEOCHEMICAL DATA:

Au, Ag, Cu, Zn, Pb and Ni drill core assays were nil (A.F. 92370).

CLASSIFICATION:

Disseminated mineralization - not classified. Minor graphite and pyrite occur in chloritized carbonatized mafic tuff.

REFERENCES:

Assessment File 92370
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

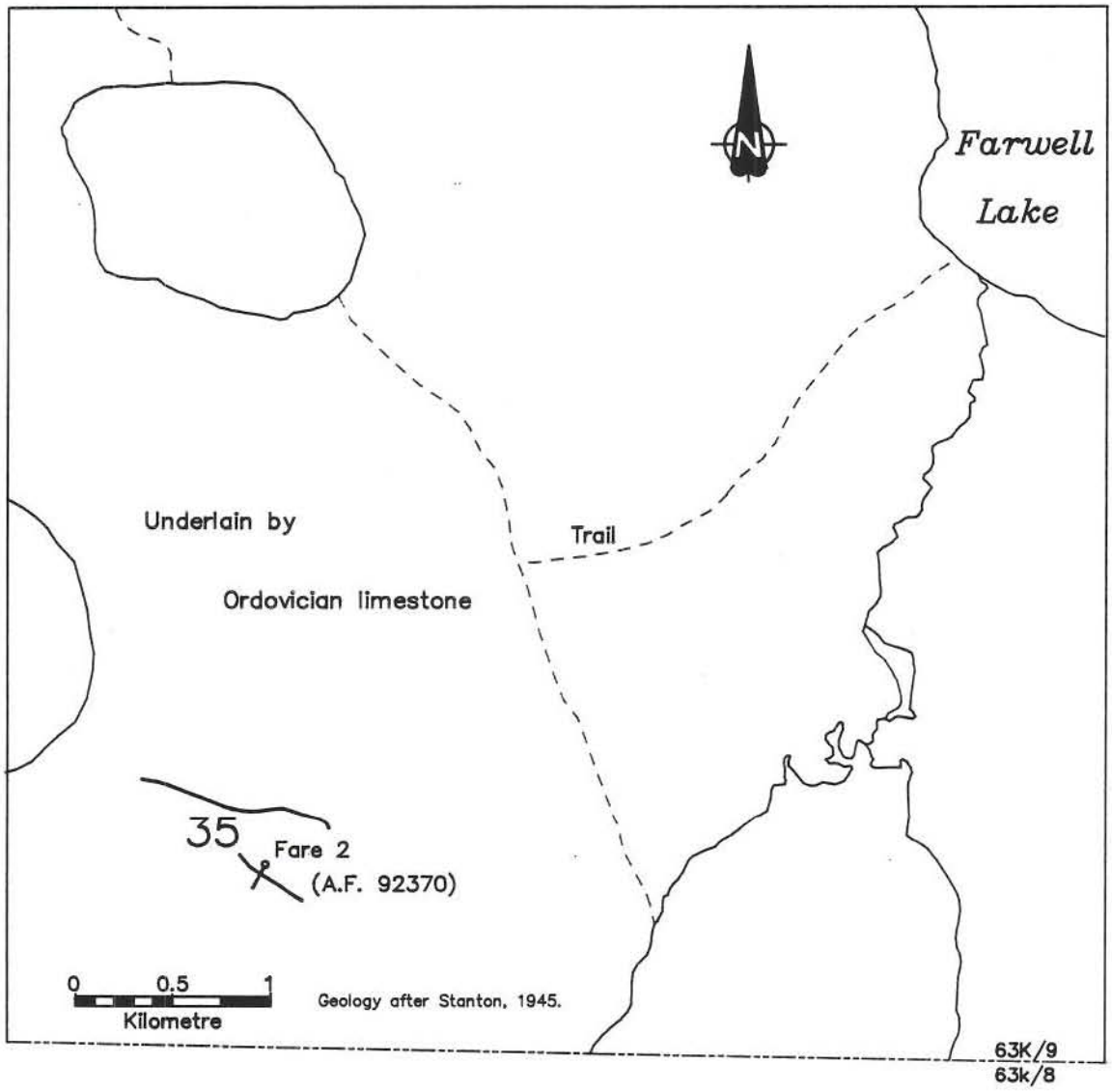

Figure 35-1: Geological setting and drill hole location at occurrence 35.

LOCATION: **36**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6052396N/405058E

ACCESS: Via boat on Reed Lake.

AREA: Central Reed Lake.

AIRPHOTO: A26368-105

EXPLORATION SUMMARY:

HBED, the current (1988) owner, drilled DDH Eel-198 (93 m) to test an EM conductor on Reservation of Mineral Rights 48 in 1972 (A.F. 92477).

GEOLOGICAL SETTING:

Mafic volcanic rocks, gabbro, and 'quartz-eye' granite and porphyry are exposed on the north shore of Reed Lake and on islands to the west of the occurrence. Ordovician dolomitic limestone is exposed on the south shore of Reed Lake and on islands to the west of the occurrence (Fig. 36-1). Drilling intersected grey to light pink, massive rhyolite with short intersections of dacite and abundant quartz stringers (A.F. 92477).

MINERALIZATION:

A 0.8 m intersection of rhyolite contains trace pyrite, 10% graphite and numerous quartz stringers (A.F. 92477).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization - not classified. Minor graphite and pyrite occur in rhyolite.

REFERENCES:

Assessment File 92477
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

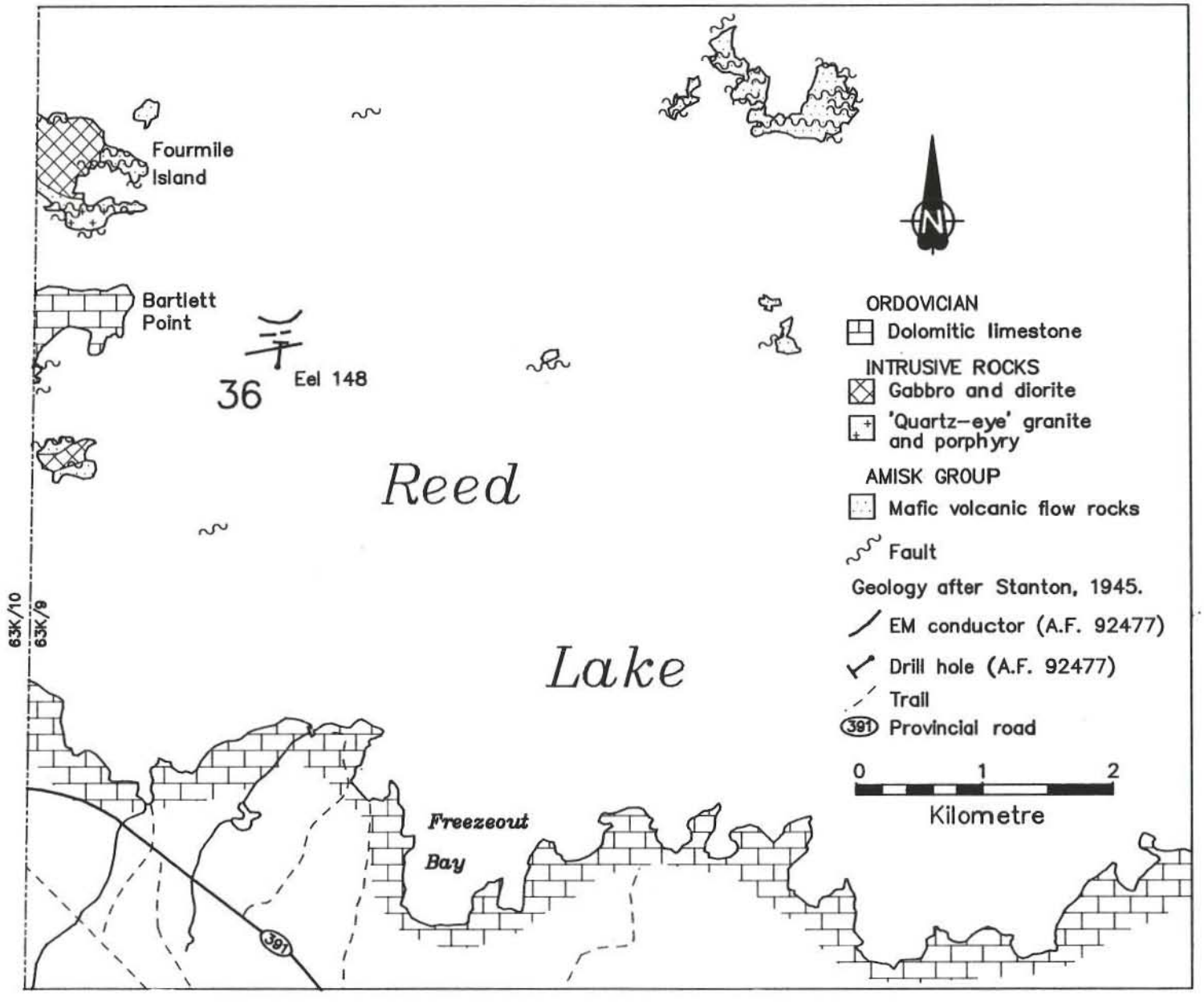

Figure 36-1: Geological setting and drill hole location at occurrence 36.

LOCATION: 37

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6060215N/404876E

ACCESS: Via boat on Reed Lake.

AREA: Northern arm of Reed Lake.

AIRPHOTO: A26368-101

EXPLORATION SUMMARY:

Canadian Nickel Company Limited drilled DDH 19543 to a depth of 179 m on claim Reed 22 in 1961 (A.F. 91387). Canadian Nickel Company Limited drilled three holes totalling 574 m on claims Reed 17 and Reed 22 in 1963 (A.F. 90255). HBED drilled DDH Eel-313 (134 m) to test an EM conductor on CB 10781 in 1984 (A.F. 92776). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by gabbro and diorite, flanked to the east by mafic volcanic rocks and granite; argillite and greywacke are exposed on islands west of the occurrence (Fig. 37-1). Diamond drilling intersected graphitic argillaceous and tuffaceous sedimentary rocks and iron formation (A.F. 90255, 91387, 92776).

MINERALIZATION:

DDH Eel-313 intersected 9.2 m and 18.1 m of carbonatized argillite and interlayered greywacke and argillite with 10-30% graphite and 1-3% fine grained pyrite layers. Minor pyrite and graphite occur as streaks and disseminations in "sedimentary rocks", including tuffaceous sections throughout DDH 19543, 21992 and 21993. In addition, DDH 19543 and 21993 contain several intersections of "iron formation, mineralized" and "iron formation - pyrite", presumably; a sulphide facies iron formation containing an unknown amount of pyrite (A.F. 90255, 92776).

GEOCHEMICAL DATA:

Au, Ag, Cu and Zn drill core assays from DDH Eel-313 were nil (A.F. 92776).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Graphite and minor pyrite are interlayered within a sequence of sedimentary rocks, probably as chemical precipitates.

REFERENCES:

Assessment Files 90255, 91387, 92776
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

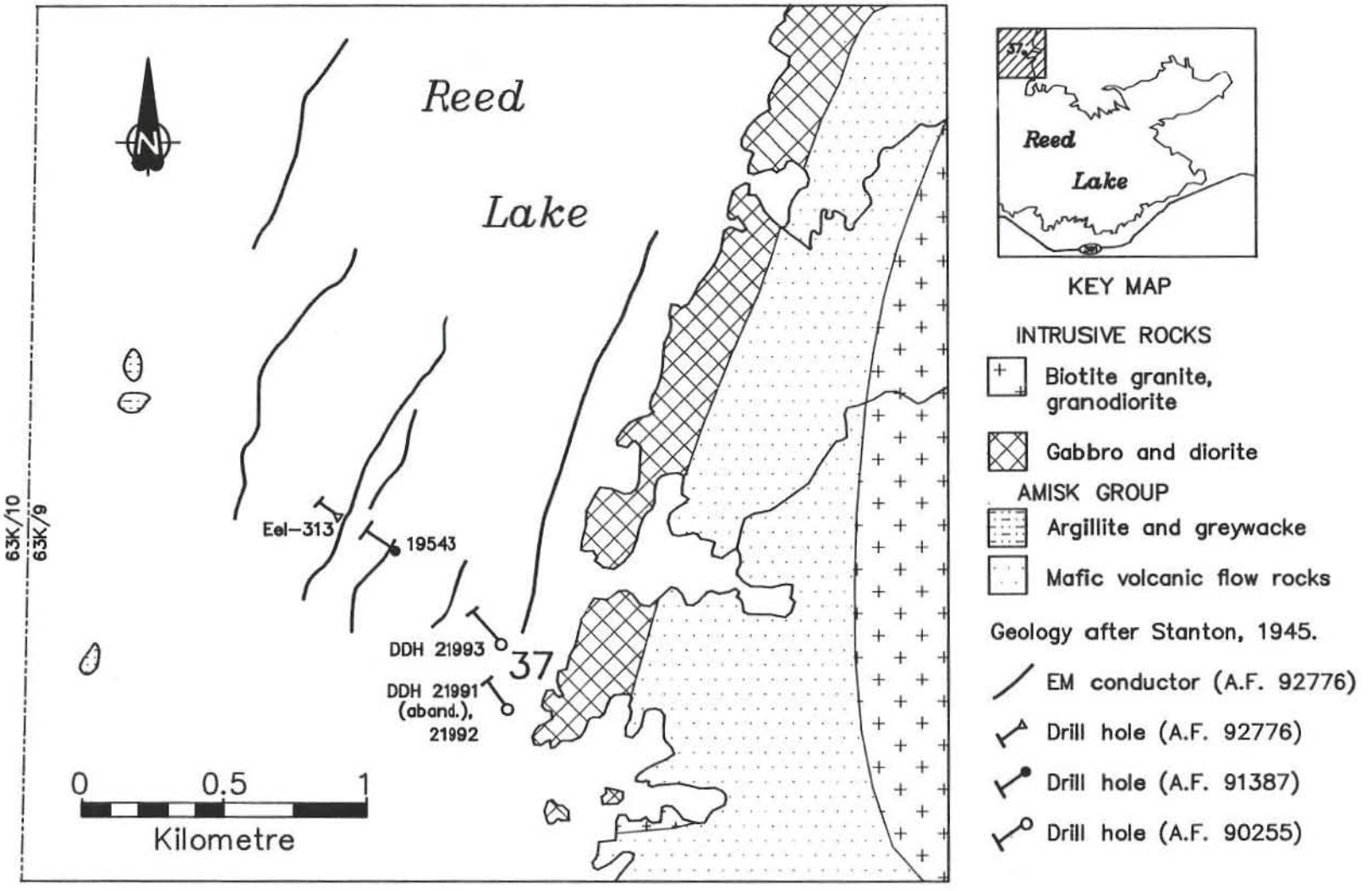

Figure 37-1: Geological setting and drill hole locations at occurrence 37.

LOCATION: **38**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6065235N/403419E

ACCESS: Via boat on Reed Lake, or railroad.

AREA: Petersons Bay, Reed Lake.

AIRPHOTO: A26367-157

EXPLORATION SUMMARY:

HBED conducted a ground EM survey over the area in 1982-83 (A.F. 92683, 92775) and drilled DDH Eel-305 (228 m) to test an EM conductor on CB 10771 in 1983 (A.F. 92570). The area is open for staking (1988).

GEOLOGICAL SETTING:

The area is underlain by argillite, greywacke and granite, with gabbro and mafic volcanic rocks to the west and east (Fig. 38-1). Drilling intersected a sequence of light grey, banded, finely laminated dacitic to rhyolitic tuff with argillaceous bands and lenses, interlayered felsic tuff and tuffaceous greywacke, graphitic argillite, and minor concordant 'quartz-eye' porphyry and diorite sills (A.F. 92570).

MINERALIZATION:

Minor pyrrhotite, subordinate pyrite and graphite are disseminated throughout the predominantly volcaniclastic sequence. Locally, trace to 1% chalcopyrite and trace sphalerite are associated with Fe-sulphide-bearing rocks. In addition, eight widely spaced intersections, <1 m, contain 15-35% pyrrhotite and trace to 1% pyrite, and two intersections, 0.6 m and 2.4 m, contain 50-70% pyrrhotite and 1-2% pyrite (A.F. 92570).

GEOCHEMICAL DATA:

Drill core samples from DDH Eel-305 contained nil to 0.10% Cu, nil to 0.5% Zn, and nil Ag and Au (A.F. 92570).

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Graphite and Fe-sulphide minerals occur in a sequence of felsic fragmental rocks and argillite.

REFERENCES:

Assessment Files 92570, 92683, 92775
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

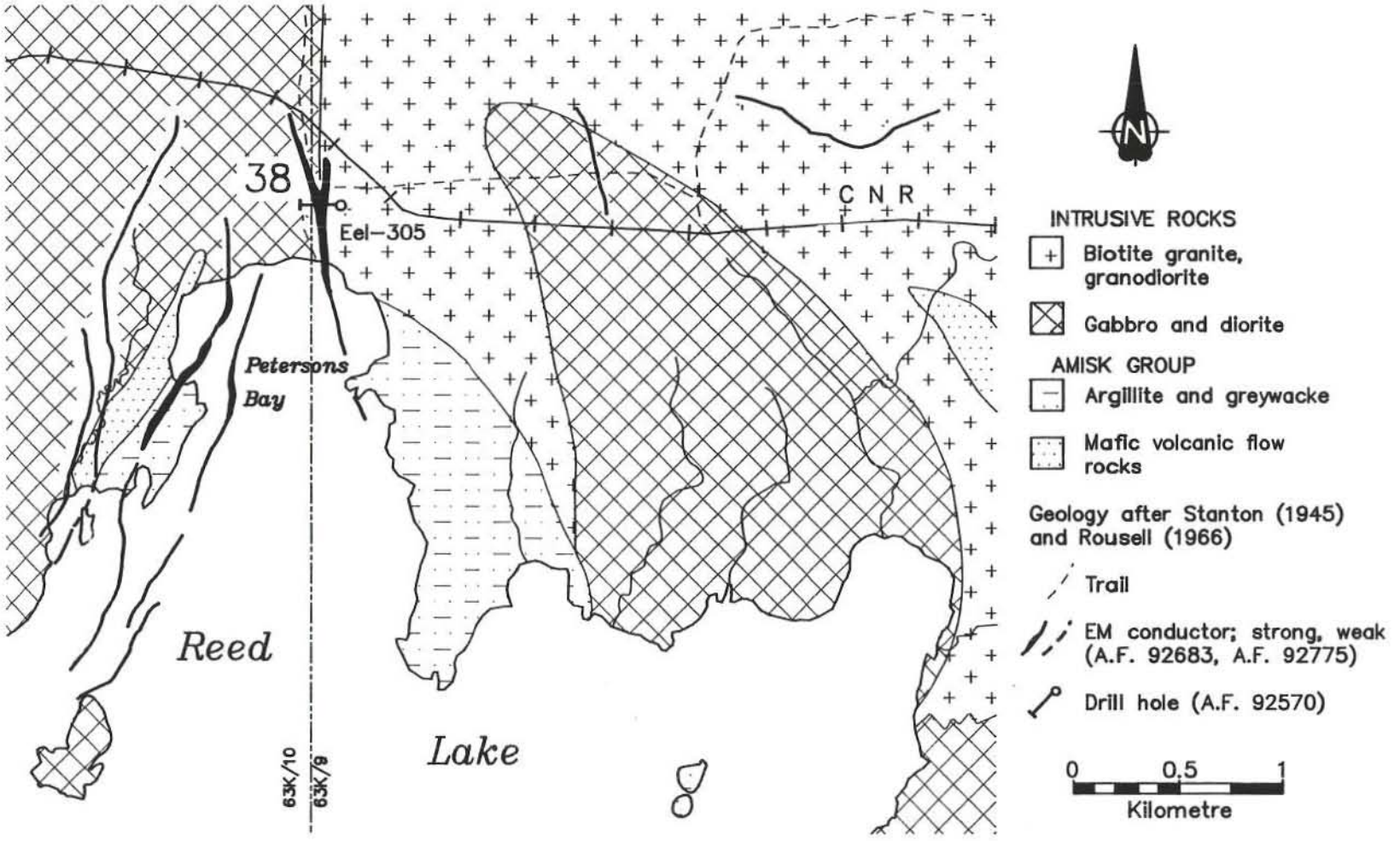

Figure 38-1: Geological setting and drill hole location at occurrence 38.

LOCATION: 39

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6055535N/412590E

ACCESS: Via boat on Reed Lake.

AREA: Eastern arm of Reed Lake.

AIRPHOTO: A26367-138

EXPLORATION SUMMARY:

HBED drilled DDH Eel-148, -150 and -152 to test EM conductors on CB 2825 in 1972 (A.F. 91945). The area is open for staking (1988). Figure 39-1 includes some EM conductors that occur north of location 39; the surveys that delineated these conductors are presented in locations 13 and 15.

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks flanked to the east by granite (Fig. 39-1). Diamond drilling intersected mafic volcanic rocks, dacite, quartzite and arkose, and minor quartz porphyry and quartz diorite (A.F. 91945).

MINERALIZATION:

DDH Eel-150 contains 25-80% pyrrhotite, trace-3% pyrite, and 5-20% graphite in 10.6 m of arkose with sections of altered mafic volcanic rocks. DDH Eel-150 contains minor pyrrhotite, pyrite and graphite distributed throughout the rest of the lithologies in the drill core, including arkose, quartz porphyry, quartz diorite and mafic volcanic rocks. In DDH Eel-148 and Eel-152, less than 10% pyrrhotite, pyrite and graphite are disseminated in local intersections, ≤1 m, within quartzite and minor intermediate to mafic volcanic rocks. Minor quartz±carbonate stringers are present throughout drill core, and some mafic volcanic rocks are chloritized and/or garnetiferous (A.F. 91945).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Moderate to near solid Fe-sulphide minerals and graphite occur in arkose. Chloritized and/or garnetiferous mafic volcanic rocks interlayered with arkose also contain Fe-sulphide minerals. Minor Fe-sulphide minerals and graphite present in the intrusive rocks in these drill holes might represent xenoliths of chemical sediment type rocks.

REFERENCES:

Assessment File 91945
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

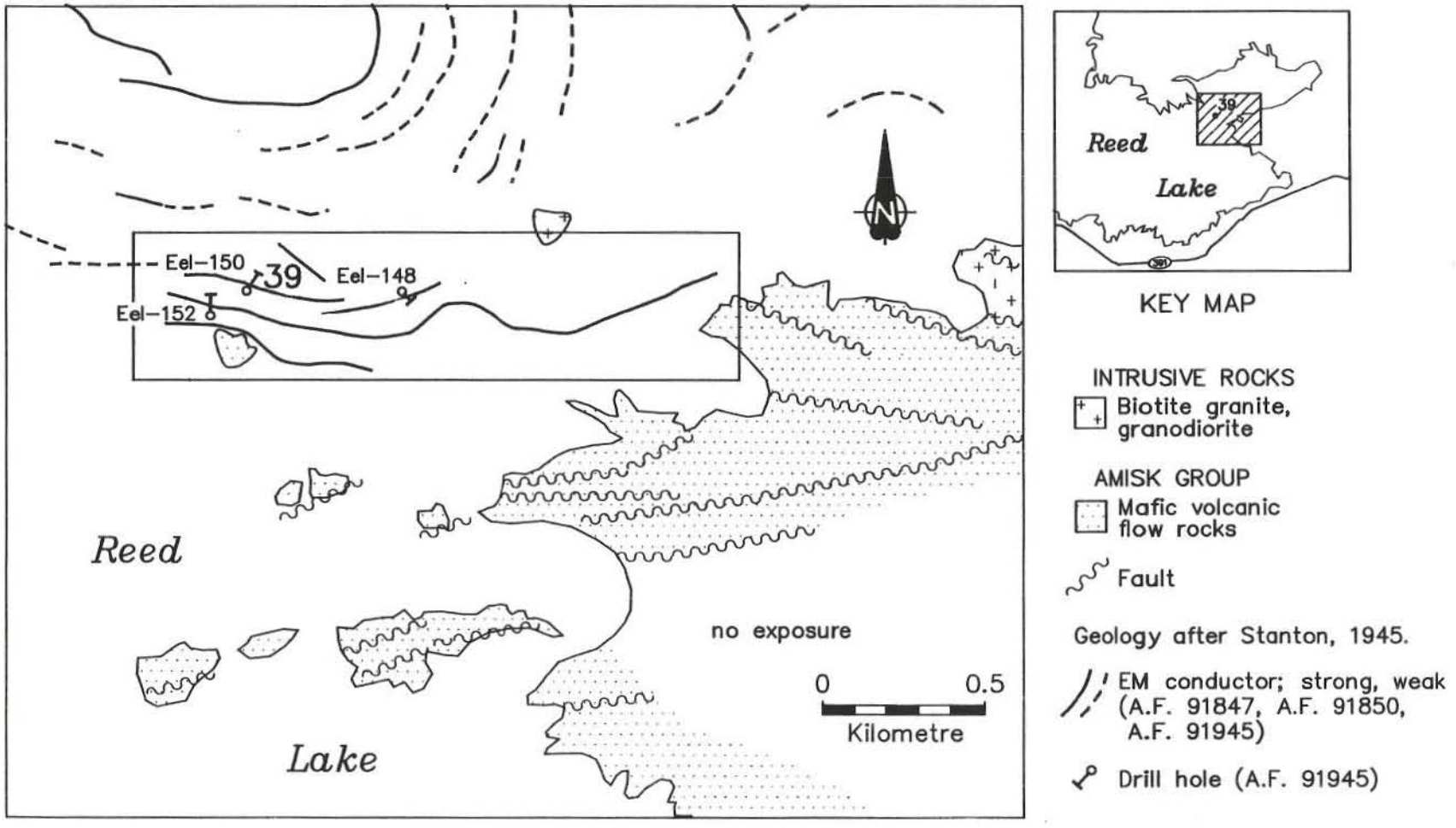

Figure 39-1: Geological setting and drill hole locations at occurrence 39.

LOCATION: 40

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6050842N/404008E

ACCESS: Via boat on Reed Lake.

AREA: Southeast of Fourmile Island.

AIRPHOTO: A26367-148

EXPLORATION SUMMARY:

W. Bruce Dunlop Limited conducted an EM survey in 1978 and Esso Minerals Canada drilled DDH RL 79-1 (102 m) to test an EM conductor on CB 10028 and CB 10029 in 1979 (A.F. 92556). The area is covered (1988) by claim Reed-8, staked by W. Bruce Dunlop Limited in 1987.

GEOLOGICAL SETTING:

The area is underlain by Ordovician limestone, and Proterozoic mafic volcanic rocks and gabbro (Fig. 40-1). Diamond drilling intersected graphitic argillite overlain by mafic volcanic rocks, feldspar porphyry and laminated intermediate tuff, and underlain by felsic volcanic rocks and quartz-eye porphyry (A.F. 92556).

MINERALIZATION:

Pyrite laminae and blebs, 5%, occur over 16.9 m of graphitic argillite. The unit is laminated and the ratio of the relative abundance of graphite to quartz decreases toward the bottom of the drill hole (A.F. 92556).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Minor laminae and blebs of pyrite occur in graphitic sedimentary strata.

REFERENCES:

Assessment File 92556
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

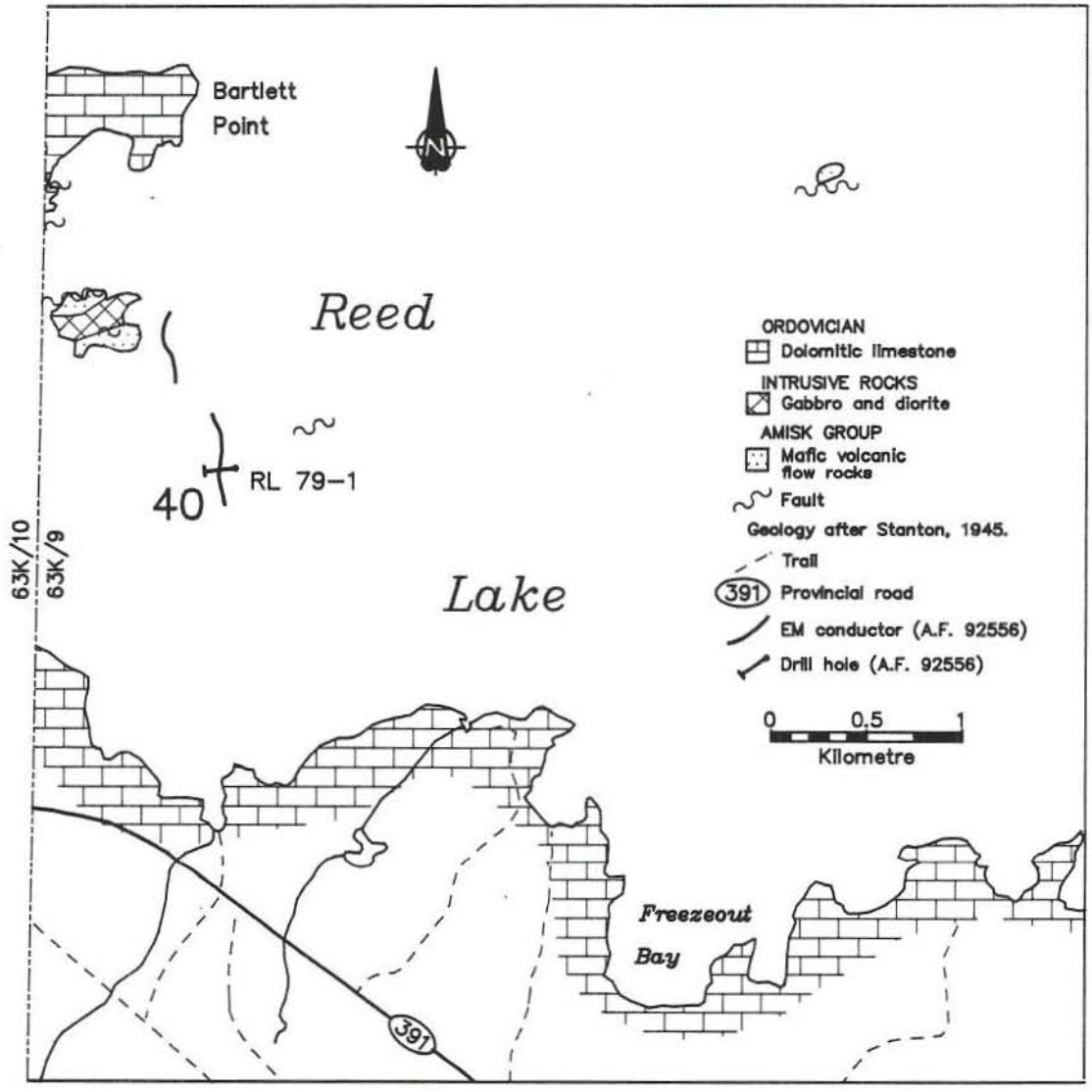

Figure 40-1: Geological setting and drill hole location at occurrence 40.

LOCATION: 41

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6061028N/431903E

ACCESS: Via bush aircraft.

AREA: Highway Lake.

AIRPHOTO: A26366-229

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled five holes totalling 289 m on CB 12325 and CB 12324 in 1983 (A.F. 92760). The area is open for staking (1989).

GEOLOGICAL SETTING:

The area is underlain by granitic and mafic intrusive rocks; mafic volcanic rocks are exposed northwest of the occurrence (Fig. 41-1). Diamond drilling intersected massive chloritized dacite and chloritized rhyolitic to andesitic tuff (A.F. 92760). DDH HL-3 was collared in granodiorite, but intersected dacitic volcanic rocks at depth. DDH HL-5 intersected diorite with inclusions of serpentinite and andesite.

MINERALIZATION:

DDH HL-2 contains 8 m of solid pyrrhotite with 5-10% pyrite veins hosted by rhyolite tuff (A.F. 92760). DDH HL-3 and HL-4 contain a 4 m chlorite-graphite schist layer that contains 3-40% disseminated pyrrhotite, 5-10% pyrite in veinlets, and traces of chalcopyrite and sphalerite within dacite tuff. In addition, the felsic to intermediate tuff contains less than 5% pyrite and pyrrhotite infilling fractures throughout the drill holes. Only minor quartz-carbonate stringers are present in chloritized andesite tuff in DDH HL-1. No sulphide mineralization was intersected in DDH HL-5.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Massive sulphide type deposit; volcanic rock associated. Moderate to solid Fe-sulphide mineralization with traces of chalcopyrite and sphalerite is hosted by chloritized rhyolitic to dacitic tuff and chlorite-graphite schist.

REFERENCES:

Assessment File 92760
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

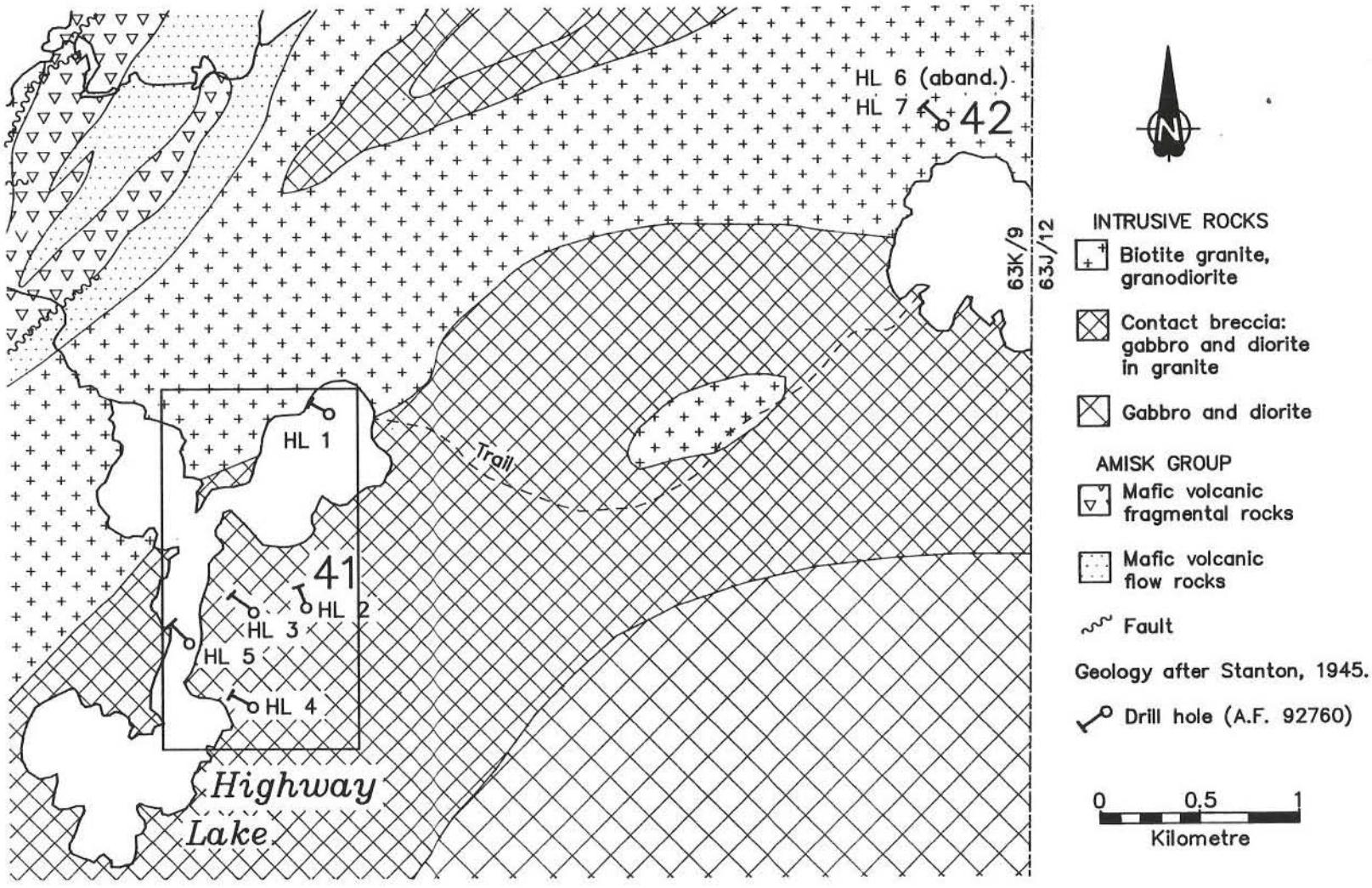

Figure 41-1: Geological setting and drill hole locations at occurrences 41 and 42.

LOCATION: **42**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6063442N/435104E

ACCESS: Via bush aircraft; by trail from Highway Lake.

AREA: 3.25 km northeast of Highway Lake (Fig. 41-1).

AIRPHOTO: A26366-215

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag drilled DDH HL-6 (30 m; abandoned) and HL-7 (54 m) on CB 12326 in 1983 (A.F. 92760). The area is open for staking (1989).

GEOLOGICAL SETTING:

The area is underlain by granite; mafic intrusive rocks occur to the south and northwest, and mafic volcanic rocks are exposed further to the west of the occurrence (Fig. 41-1). Diamond drilling intersected interlayered graphite schist and greywacke, and chlorite schist (A.F. 92760).

MINERALIZATION:

Up to 1% pyrite is disseminated locally in four intersections, 0.6-2.2 m, of graphitic schist (A.F. 92760).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit; sulphide facies iron formation. Graphite schist with trace pyrite is interlayered with greywacke.

REFERENCES:

Assessment File 92760
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

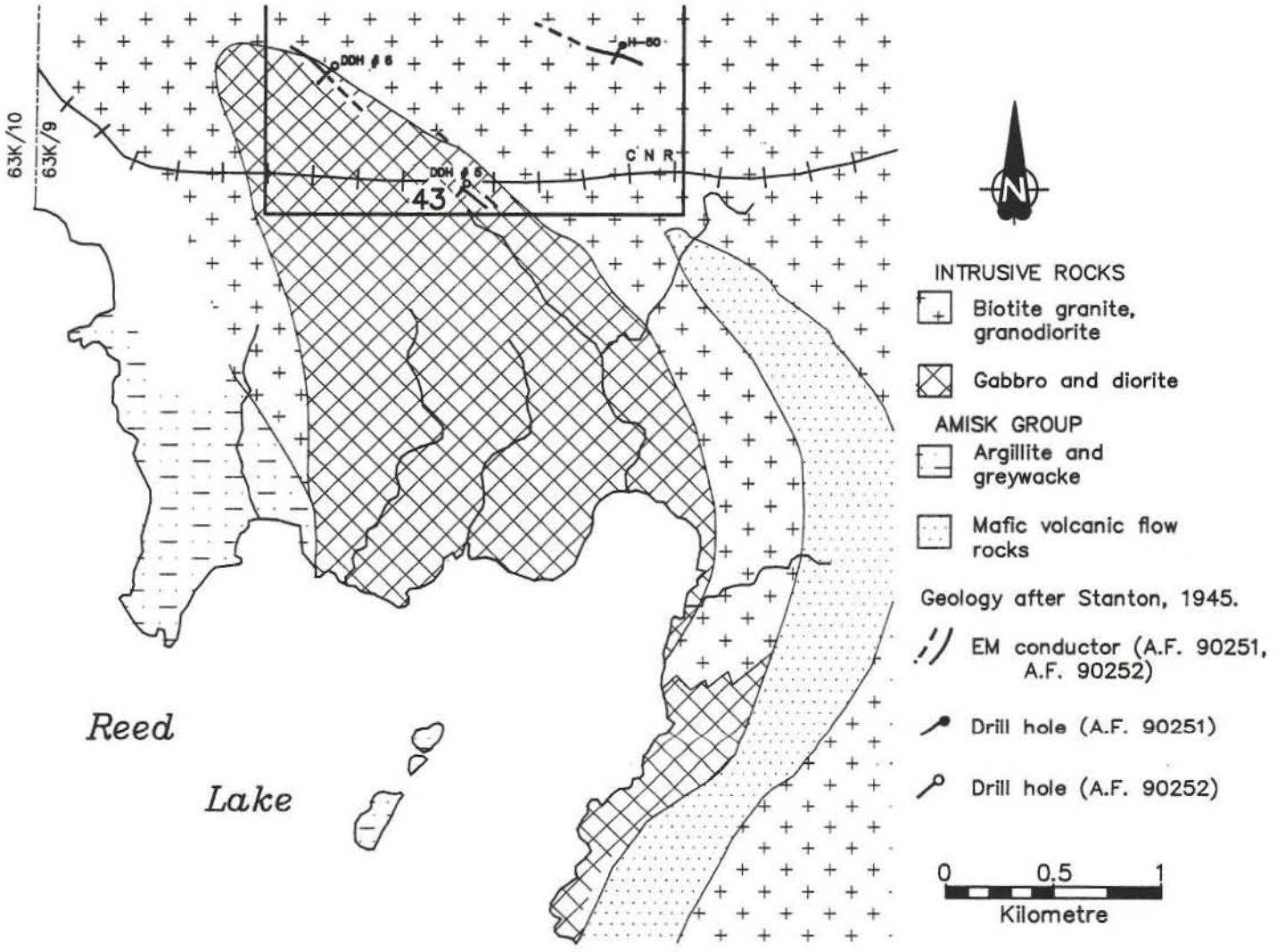

Figure 43-1: Geological setting and drill hole locations at occurrence 43.

LOCATION: 43

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6065180N/405440E

ACCESS: Via boat on Reed Lake.

AREA: North of the north end of Reed Lake.

AIRPHOTO: A26368-99

EXPLORATION SUMMARY:

HBED drilled DDH 5 and 6 totalling 222 m to test EM conductors on claims Hen 23 and Hen 7, respectively, in 1956 (A.F. 90252). DDH H-50 (120 m) was drilled to test an EM conductor to the east on claim Hen-5 in 1958 (A.F. 90251). The area is open for staking (1989).

GEOLOGICAL SETTING:

The area is underlain by mafic and felsic intrusive rocks, flanked to the southeast by mafic volcanic rocks, and to the southwest by argillite and greywacke (Fig. 43-1). DDH 5 and 6 were collared in quartz gabbro, and intersected mafic volcanic rocks at depth (A.F. 90252). DDH H-50 intersected biotite granite and a breccia composed of schist or gneiss fragments in a granitic matrix (A.F. 90251).

MINERALIZATION:

DDH 5 intersected 5.2 m and 3.5 m of moderate to near solid pyrite, pyrrhotite, and minor graphite hosted by siliceous, epidotized, chloritic and/or carbonate-bearing mafic volcanic rocks (A.F. 90252). DDH 6 contained moderate to near solid pyrite and pyrrhotite hosted by 0.2 m of hornblende- and biotite-bearing "siliceous rock". Additionally, both drill holes commonly contain trace to minor pyrite and pyrrhotite disseminated throughout all lithologies in the drill holes. DDH H-50 contains trace to minor pyrrhotite, pyrite, graphite and siderite disseminated in mafic volcanic xenoliths and breccia zones in granite.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Chemical sediment type deposit, sulphide facies iron formation. Moderate to near solid Fe-sulphide minerals, and minor graphite, occur in altered mafic rocks accompanied by minor Fe-sulphide minerals in mafic intrusive and volcanic rocks. Mineralization in intrusive rocks probably represents the assimilation of xenoliths or vein type mobilizate.

REFERENCES:

Assessment Files 90251, 90252
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

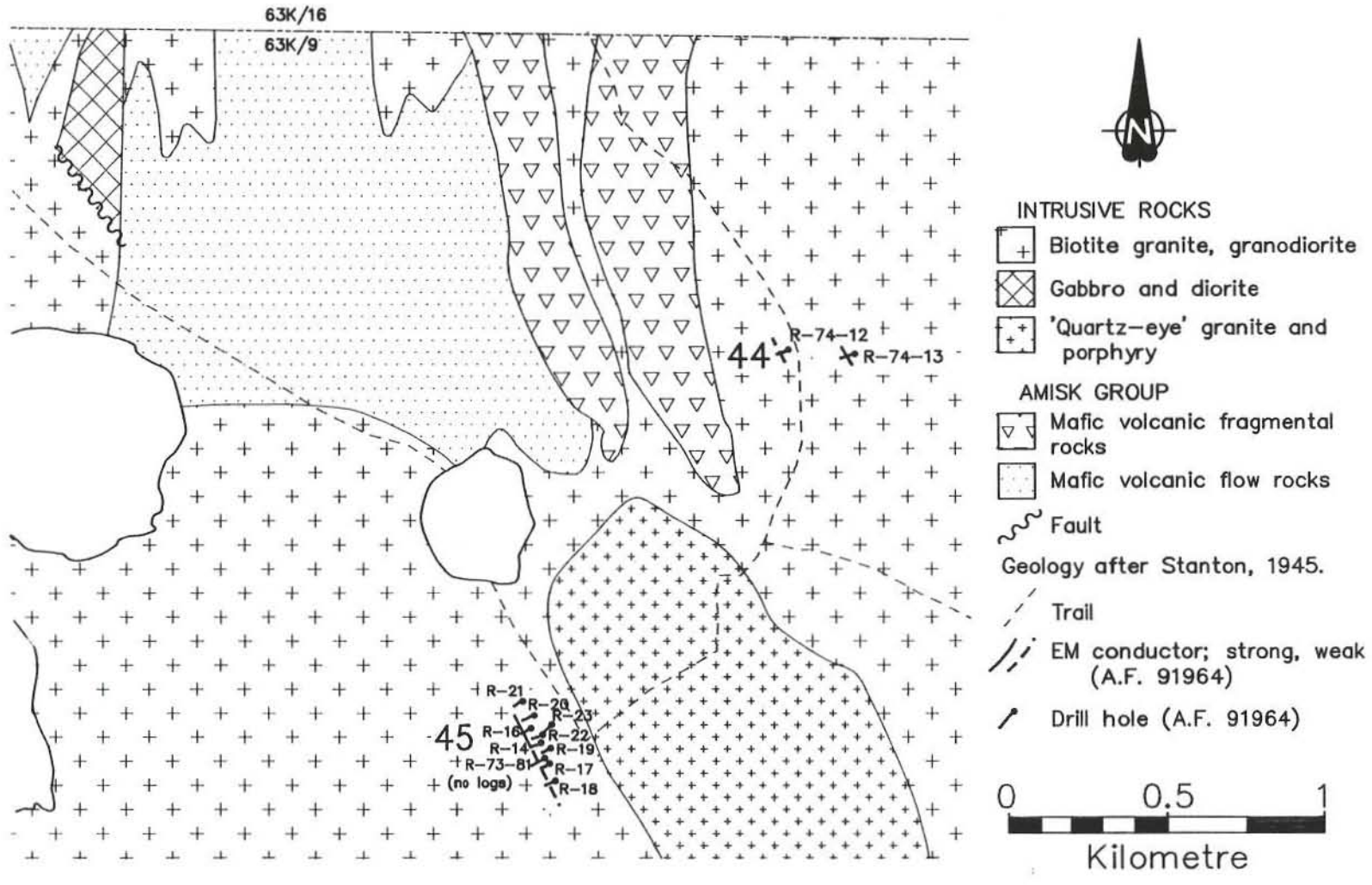

Figure 44-1: Geological setting and drill hole locations at occurrences 44 and 45.

LOCATION: 44

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6066175N/422625E

ACCESS: Winter road and traverse.

AREA: 3 km west of Bujarski Lake.

AIRPHOTO: A26367-120

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag conducted an airborne magnetometer survey (A.F. 91963) and a HLEM survey in 1973 (A.F. 91964), and drilled DDH R-74-12 and R-74-13 in 1974 on CB 1048 (A.F. 91964). W. Bruce Dunlop Limited staked claim Char 2 in 1979, transferred its interests to HBED from 1980 to 1983, and then to Granges Exploration Limited in 1987.

GEOLOGICAL SETTING:

The area is underlain by biotite granite and granodiorite, flanked to the west by mafic volcanic rocks, and to the south by 'quartz-eye' granite and porphyry (Fig. 44-1). DDH R-74-12 intersected felsic volcanic rocks, and DDH R-74-13 intersected diorite (A.F. 91964).

MINERALIZATION:

DDH R-74-12 intersected moderate to near solid pyrrhotite, minor pyrite and trace chalcopyrite in 1.7 m of dacite. Additionally, minor pyrite and trace chalcopyrite are scattered in bands throughout the felsic fragmental sequence. The only possible alteration described in this drill hole is 1-2% garnet, locally disseminated in nonmineralized dacite. DDH R-74-13 contained up to 30% pyrrhotite, 80% pyrite, and 30% graphite in 5.0 m of diorite, as well as two other intersections, <1 m, of diorite with minor pyrrhotite (A.F. 91964).

GEOCHEMICAL DATA:

Drill core samples contain 0.01-0.03% Cu, 0.01-0.07% Zn, 0.01-0.1% Ni, <0.1 g/t Ag, and <0.1 g/t Au (A.F. 91964).

CLASSIFICATION:

Chemical sediment type deposit, sulphide facies iron formation. Moderate to near solid Fe-sulphide minerals with trace chalcopyrite occur in felsic volcanic rocks and diorite.

REFERENCES:

Assessment File 91963, 91964
Manitoba Energy and Mines, Minerals Division.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.

LOCATION: **45**

NAME: (A.F. - Mineralization intersected by diamond drilling)

UTM: 6065000N/421650E

ACCESS: Winter road and traverse.

AREA: 3 km west of Bujarski Lake (Fig. 44-1).

AIRPHOTO: A26367-120

EXPLORATION SUMMARY:

Granges Exploration Aktiebolag conducted an airborne magnetometer survey (A.F. 91963) and a HLEM survey in 1973 (A.F. 91964). Subsequently, an unknown amount of diamond drilling was conducted on CB 5668 by Granges Exploration AB in 1974. Locations of drill holes are shown in A.F. 91964 but logs for these holes were not included in the assessment file. Granges Exploration Limited provided drill logs for DDH R-19, R-22 and R73-81, from which the following description is based (E. Fluskey, written communication, 1989). Granges Incorporated holds mineral rights to CB 5668 (1989).

GEOLOGICAL SETTING:

The area is underlain by granite and granodiorite, flanked to the north by mafic volcanic rocks, and to the east by 'quartz-eye' granite and porphyry (Fig. 44-1). DDH R-22 intersected dacite, siliceous garnetiferous chlorite-biotite gneiss and quartz-sericite±biotite gneiss. DDH R73-81 intersected a suite of altered fragmental, reworked and massive, intermediate to mafic volcanic rocks and minor diorite. DDH R-19 intersected interlayered dacite, altered mafic volcanic flows and tuff, and siliceous chlorite-garnet-biotite±sericite gneiss.

MINERALIZATION:

DDH R-22 intersected 18.9 m of garnetiferous quartz-biotite-sericite gneiss with minor to moderate pyrrhotite, minor to solid pyrite, up to 4% chalcopyrite, trace to near solid sphalerite, trace galena, and quartz veins. The part of this intersection that contains near solid sphalerite is 0.1 m in core length. In DDH R73-81, 4.5 m of quartz-sericite schist, probably derived from a reworked tuff breccia, contains moderate to near solid pyrrhotite and pyrite with trace to 1% chalcopyrite, minor sphalerite and trace galena. In DDH R-19, 10.0 m of minor to solid pyrrhotite, minor to moderate pyrite, trace to 1% chalcopyrite, traces of sphalerite and galena, and minor quartz veinlets are hosted by quartz-sericite-biotite-garnet gneiss. The mineralization underlies coarse grained quartz-garnet-biotite gneiss. Further downhole, a 3.3 m unit of quartz-sericite-garnet-biotite gneiss contains minor to near solid pyrite, minor to moderate pyrrhotite and trace to 1% chalcopyrite.

The rocks in all three drill holes have been variably silicified, chloritized and sericitized, and contain disseminated garnet. In addition, altered rocks in DDH R73-81 contain staurolite and hornblende. Most of the garnet and staurolite is disseminated in minor amounts, but in DDH R73-81, 6.1 m of garnet-quartz-chlorite schist contains up to 40% garnets and the upper 1.1 m of a 5.4 m intersection of chlorite-hornblende-quartz schist directly downhole from the mineralized zone contains 30% garnets.

GEOCHEMICAL DATA:

Drill core assayed 0.01-1.18% Cu, 0.03-6.81% Zn, 0.03-0.66% Pb, 0.5-14.5 g/t Ag and 0.2-57.3 g/t Au. Significant assays from drill logs include:

(1) DDH R-22: 0.45% Cu, 0.13% Zn, 15.1 g/t Ag and 2.3 g/t Au over 5.7 m, including 1.18% Cu, 0.08% Zn, 12.7 g/t Ag and 1.2 g/t Au over 1.3 m;

(2) DDH R73-81: 0.38% Cu, 0.20% Zn, 9.6 g/t Ag and 0.6 g/t Au over 5.0 m, including 0.53% Cu, 1.04% Zn, 10.5 g/t Ag and 0.5 g/t Au over 0.5 m;

(3) DDH R73-81: 0.03% Cu, 1.80% Zn, 8.0 g/t Ag and 0.15 g/t Au over 1.1 m; and

(4) DDH R-19: 0.07% Cu, 2.54% Zn, 0.66% Pb, 2.6 g/t Ag and 1.7 g/t Au over 0.6 m.

CLASSIFICATION:

Massive sulphide type deposit; volcanic rock associated. Alteration products are similar to those found in the Chisel Lake area (cf., Fedikow *et al.*, 1989, locations 33, 34, 35).

REFERENCES:

Assessment Files 91963, 91964
Manitoba Energy and Mines, Minerals Division.

Fedikow, M.A.F., Ostry, G., Ferreira, K.J. and Galley, A.
1989: Mineral deposits and occurrences in the File Lake area, NTS 63K/16; Manitoba Energy and Mines, Mineral Deposit Series Report 5.

Stanton, M.
1945: Tramping Lake, Manitoba; Geological Survey of Canada, Map 906A, 1:63 360.