ONTARIO GEOLOGICAL SURVEY

Open File Report 5630

Gold Occurrences, Prospects, and Deposits of the Beardmore–Geraldton Area Districts of Thunder Bay and Cochrane

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Volume I

Gold Occurrences, Prospects, and Deposits of the Beardmore-Geraldton Area
Districts of Thunder Bay and Cochrane

by

John Mason and Gerry White

1986

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Mason, John, and White, Gerry

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V.G. Milne

V.G. Milne, Director
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FOREWORD

To explorationists, gold became the metal of the 1980's. Extensive exploration commenced during this time period in several Archean terrains within Ontario, including the Beardmore-Geraldton area. The Beardmore-Geraldton Economic Geologist Program - NORDA Project #61-2625 (April 1, 1981 - March 31, 1985) was created to stimulate exploration, and meet the exploration demands of mining companies and prospectors in a gold camp that had already produced over 4 million ounces of gold. The Economic Geologists supervised an area bounded by Lake Nipigon to the west, the east boundary of the Thunder Bay Mining Division to the east and the Lansdowne House area to the north. Exploration activity and gold production in the Beardmore-Geraldton area increased relative to the start of the program. In 1984, despite falling gold prices, $12-14 million was spent on exploration; as of March 1, 1985, over 11,000 active mining claims were held in the Beardmore-Geraldton area, all record figures in recent decades.

The report is basically divided into two parts: 1) geology and mineral deposits and 2) detailed descriptions of many of the 270 occurrences, prospects or deposits in the Beardmore-Geraldton area.

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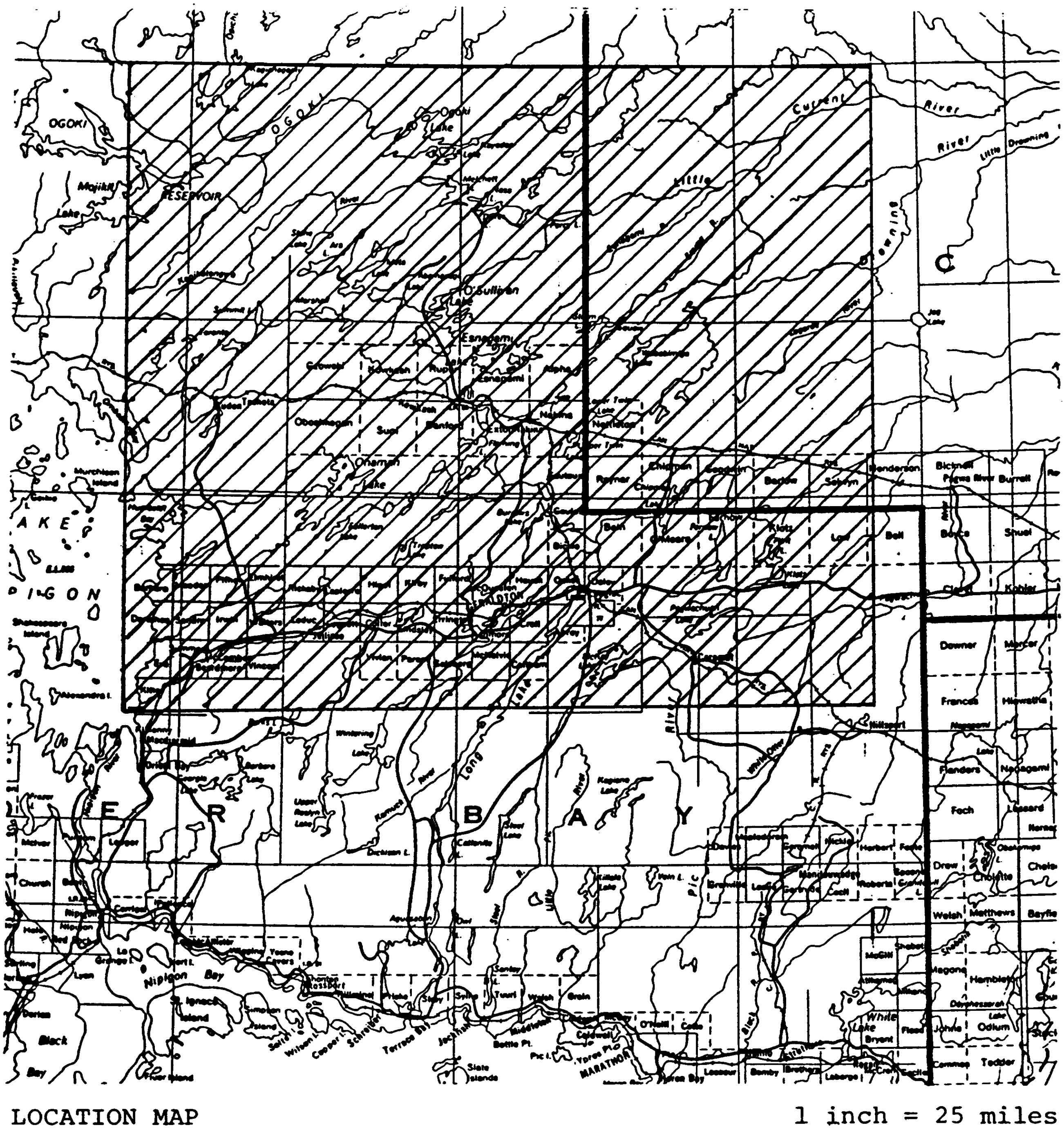

LOCATION MAP

1 inch = 25 miles

GOLD OCCURRENCES, PROSPECTS, AND DEPOSITS OF THE BEARDMORE-GERALDTON AREA

by John Mason[1] and Gerry White[1]

INTRODUCTION

The Beardmore-Geraldton Economic Geologist Program (Project #61-2625) was initiated to stimulate exploration in the Beardmore-Geraldton area by assisting prospectors, geologists and mining companies with property visits, mapping, sampling, assaying, literature searches, leading field trips to "orient" new companies and other reseachers, documenting all mineral occurrences, acting as a liaison contact between prospector and mining companies, and publication of geological data. The program is a community-based Northern Ontario Rural Development Agreement (NORDA) Program funded jointly by the Ontario Ministry of Northern Affairs and the Federal Department of Regional Industrial Expansion. The Beardmore-Geraldton Economic Geologist Program commenced in April 1981. The Beardmore-Geraldton Economic Geologist since the program's inception has been John Mason, assisted by Craig McConnell (April 1981-May 1983), Gerry White (June 1983-November 1985), Scott Mooney (October 1984-March 1985), Pat Perry (September 1985-March 1986) and Mike Hine (October 1985-March 1986).

[1]Economic Geologists, Thunder Bay Resident Geologists' Office.

Manuscript approved for publication by A.C. Colvine, Chief, Mineral Deposits Section, Ontario Geological Survey, November 3, 1986.

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SUMMARY OF PROGRAM HIGHLIGHTS

Exploration Activity

Diamond drill hole footage within the Beardmore-Geraldton area during 1984 totalled approximately 100,000-150,000 feet. Drill costs average approximately $20 per foot drilled. Therefore, direct diamond drill expenditures alone, totalled $2-$3 million (Table 7). As of March 1, 1985, 11,081 claims were held in the Beardmore-Geraldton area approximately 1/3 of the total in the North Central Region which was 34,560 claims (November 30, 1984) (Table 8).

Papers (reports) published include:

Mason, J. K. and McConnell, C. D.
1983: Gold Mineralization in the Beardmore-Geraldton Area; p. 84-97 in The Geology of Gold in Ontario, edited by A. C. Colvine, Ontario Geological Survey, Miscellaneous Paper No. 110, 278 p.

Mason, J. K., White, G. D. and McConnell, C. D.
1985: Field Guide to the Beardmore-Geraldton Metasedimentary-Metavolcanic Belt; Ontario Geological Survey, Open File Report 5538, 73 p.

Papers presented include:

1. "Gold Mineralization in the Beardmore-Geraldton Area", presented at the Ontario Geological Survey and Ministry of Natural Resources Geology Seminar, Thunder Bay, February 21, 1983.

2. "Gold Mineralization of the Southern Metavolcanic Belt, Beardmore-Geraldton Area", presented at the Canadian Institute of Mining and Metallurgy, District 4 Meeting, Thunder Bay, October 6, 1984.

Miscellaneous Activities

The Beardmore-Geraldton Economic Geologist acted as Technical Chairman (geology papers) for the 1984, District 4, CIM Meeting.

A display depicting precious and base metal mineralization and typical rock types was presented each of four years at the Ontario Geological Survey, Geoscience Research Seminar, December 1981-85.

Mineral occurrences, producing and past-producing mines of the Tashota-Geraldton Compilation Sheet, were updated for publication (1983).

Prospectors Information Classes were conducted in Beardmore (1982) and Geraldton (1982 and 1984).

Field trips were conducted by the program for government (Ontario Geological Survey, Geological Survey of Canada, Republic of China, (industry and university geologists in 1982, 1983, 1984 and 1985.

The Beardmore-Geraldton Economic Geologist Program participated in Ministry of Natural Resources, Land Use Planning Open House in Nipigon and Geraldton Districts.

Founders (G. White, B. R. Schnieders and J. Mason) of the "Thunder Bay Geological Discussion Group" of the Canadian Institute of Mining and Metallurgy.

PREVIOUS MAPPING

Robert Bell and Peter McKellar, working for the Geological Survey of Canada, initiated a geological investigation of the shore of Lake Nipigon and immediate watershed in 1869. This project represented the first geological mapping in the Beardmore-Geraldton area and marked the beginning of mapping by the Geological Survey of Canada.

By 1870 Bell had mapped north to the Kawashkagama River. Not until 1894 was work continued by W. McInnes. D. G. Dowling furthered the mapping in 1898. A. H. A. Robinson (1901) mapped the Omababika River and E. V. Neelands mapped north to Howard Falls and the Kawashkagama River.

W. A. Parks (1901) completed detailed mapping north and south of the Sturgeon (Namewaminikan) River. A. W. G. Wilson mapped portions of the Kenogamisis River system and Little Current River.

Initial mapping for the Ontario Bureau of Mines was undertaken in 1906 and 1907 by A. P. Coleman, E. S. Moore and T. L. Goldie on iron occurrences east of Poplar Lodge, Lake Nipigon. Map 17d, Ontario Department of Mines, was published in 1908. Coleman and Moore (1907, 1908) geologically mapped the Onaman Lake Iron Range.

A. W. G. Wilson and R. Harvie (1908) mapped the shoreline of the Blackwater River and the Sturgeon River for the G.S.C.

In 1910, Wilson published "Geology of the Nipigon Basin", Memoir 1, (accompanied by Map 8A), Geological Survey of Canada, a culmination of G.S.C. mapping started in 1869.

In 1916, A. G. Burrows mapped the bedrock geology along the Canadian National Railway from Beardmore to Nezah. T. L. Tanton (1917) mapped the Windigokan Lake area and the Beardmore to Jellicoe portion of the Canadian National Railway. Geological Survey of Canada Map 1836, Long Lac to Nipigon (Canadian National Railway), published in 1921, was basically a summation of Tanton's work.

Provincial government mapping, commencing in 1917, was extensive. P. E. Hopkins (1917) published "The Kowkash Gold Area", Ontario Department of Mines, Vol. 25, part 1, and Map 25A. G. B. Langford (1928) completed Map 37k (Beardmore-Nezah Gold Area) accompanied by Ontario Department of Mines Annual Report, Vol. 37, part 2. A follow-up to Hopkins (1917) work was the 1931 L. F. Kindle report "Kowkash-Ogoki Area", Vol. 40, part 4, accompanied by Map 40f. H. C. Laird and E. L. Bruce completed the only comprehensive regional report for the Beardmore-Geraldton area by 1936. The report was published in Ontario Department of Mines, Vol. 45, part 2, accompanied by Map 45A. The report includes three sections: "The Eastern Part of the Sturgeon River Area", "New Development in the Little Long Lac Area" by Bruce, and "The Western Part of the Sturgeon River Area" by Laird.

H. C. Laird (1936, p. 63, 64) published a chronological bibliography of major work published to that time:

Bell, R.
"Report on the Geology of the Northwest Side of Lake Superior and of the Nipigon District", Geol. Surv. Can. Rept. of Progress, 1866-69, pp. 339, 340, 342, 343, 351, 356, 360, and accompanying Map No. 78.

Report of the Royal Commission
"Mineral Resources of Ontario and Measures for Their Development", 1890, p. 22.

McInnes, W.
Geol. Surv. Can. Summ. Rept. 1894, p. 51A.

Dowling, D. B.
Geol. Surv. Can. Summ. Rept. 1898, pp. 95A, 98A.

Parks, W. A.
"The Country East of Nipigon Lake and River", Geol. Surv. Can. Summ. Rept. 1901, pp. 105A-107A.

"Region Lying Northeast of Lake Nipigon", Geol. Surv. Can. Summ. Rept. 1902, pp. 214A, 216A, 218A, 220A, 221A.

Bain, J. W.
"The Iron Belt on Lake Nipigon", Ont. Bur. Mines, Vol. X, 1901, pp. 212-214.

Miller, W. G.
"Iron Ranges of Northern Ontario", Ont. Bur. Mines, Vol. XII, 1903, pp. 310-311.

Coleman, A. P.
"Iron Ranges East of Lake Nipigon", Ont. Bur. Mines, Vol. XVI, pt. 1, 1907, pp. 105-135.

Moore, E. S.
"Iron Ranges East of Lake Nipigon-The Ranges around Lake Windigokan", Ont. Bur. Mines, Vol. XVI, pt. 1, 1907, pp. 136-148.

Wilson, W. J. & Collins, W. H.
"Geological Map of Portions of the Districts of Algoma and Thunder Bay, Ontario", 1907, Geol. Surv. Can., Map No. 964 (accompanies Repts., Nos. 980 and 1081).

Coleman, A. P.
"Iron Ranges East of Lake Nipigon", Ont. Bur. Mines, Vol. XVII, 1908, pp. 136-169, and accompanying coloured geological map.

Wilson, A. W. G.
"The Region in the Vicinity of Lake Nipigon, Thunder Bay District, Ontario", Geol. Surv. Can. Summ. Rept. 1908, pp. 95-96.

"Trap Sheets of the Lake Nipigon Basin", Bull. Geol. Soc. Amer., Vol. 20, 1909, pp. 197-222.

"Geology of the Nipigon Basin, Ontario", Geol. Surv. Can., Mem. 1, 1910, and accompanying Map No. 1090.

Burrows, A. G.
"Long Lac to Jellicoe and Orient Bay", Ont. Bur. Mines, Vol. XXVI, 1917, p. 247.

Tanton, T. L.
"Canadian National Railway between Nipigon and Long Lac, Northern Ontario", Geol. Surv. Can. Summ. Rept. 1917, pt. E

Lindeman, E. & Bolton, L. L.
"Iron Ore Occurrences in Canada", Mines Br., Can. Dept. Mines 1917, Vol. II, pp. 67-70.

Map 1836
"Explored Routes in a Belt Traversed by the Canadian National Railway (between Long Lac and Nipigon)", Geol. Surv. Can. 1921.

Report of the Iron Ore Committee
1923, Ont. Dept. Mines, pp. 134-136.

Burrows, A. G.
"Occurrences of Gold near Beardmore, Ontario", Can. Min. Jour., Vol. 46, 1925, pp. 839, 840.

Langford, G. B.
"Geology of the Beardmore-Nezah Gold Area", Ont. Dept. Mines, Vol. XXXVIII, pt. 4, 1928, pp. 83-108.

Moore, E. S.
"Keewatin-Timiskaming Boundary", Bull. Geol. Soc. Amer., Vol. 40, 1929, pp. 553, 554, 556.

Rorke, L. V.
"List of Water Powers in the Province of Ontario", Ont. Dept. Surveys, 1931, p. 56.

Tanton, T. L.
"Geology of Sturgeon River Area", Trans. Can. Inst. Min. & Met., Aug. 1935, pp. 341-347.

Map 312A
"Sturgeon River Area", Geol. Surv. Can., 1934.

Map 308A
"Lake Nipigon Sheet", Geol. Surv. Can., 1935.

Provincial government mapping from 1937 to 1951 was undertaken throughout the Beardmore-Geraldton area. Fairbairn (1938) mapped the Northern Long Lake area and MacDonald (1938, 1941) mapped the Pagwachuan Lake and Hutchinson Lake Area. Moorhouse (1939) mapped the South Onaman Lake Area. P. A. Peach (1951) mapped the Blackwater-Beardmore Area. H. C. Horwood and E. G. Pye (1951) and Pye (1951) published reports and maps covering Errington and Ashmore Townships. Recent mapping from 1951 to 1985, was relatively extensive in the Beardmore-Geraldton area.

The Thunder Bay Mining Recorder should be consulted for up-to-date geological map and report indexes.

EXPLORATION HISTORY

Wilson (1910) provides the first record of exploration in the Beardmore-Geraldton area:

> "Some attempts at gold mining were made on...veins in the Poplar Lodge area in 1884, by C. J. Morris, but they appear to have been unsuccessful...Robinson (1901) obtained an assay of 80 cents per ton (price of gold was $17.10 per ounce) from a sample brought from near Summit Lake (42L5)".

Early exploration (1900-1910) was mainly restricted to the search for iron ore deposits. The two areas of interest were Poplar Lodge-Sturgeon River, and the Onaman Lake-Kowkash area. The Lake Nipigon Central Range Prospect (Mining Location AL 414, AL 416), Eva Township was originally diamond drilled by the United States Steel Corporation Limited (1901) and the Algoma Commercial Company (1902). S. F. Walsh (1919-20) and the Bethlehem Steel Company (1922) delineated one orebody on Mining Location AL 414 estimated to contain 3.5 million tons of 33.5% Fe. On AL 416, 2 zones totalling 5 million tons averaging 30% Fe were drilled. The geology of the deposit has been described by Shklanka (1968, p. 377) as jasper-hematite-magnetite banded ironstone. In the Kowkash area exploration was undertaken as early as 1906 on the North Onaman Range Iron Prospect. In that year, R. H. Flaherty initiated diamond drilling in a banded chert-magnetite ironstone hosted in metavolcanics. Exploration was later followed up by Cliffs of Canada Limited and Can-Fer Mines Limited in the 1950's. International Mining Development Company (1917) sunk a shallow shaft on the Watson Lake Iron Prospect, Irwin Township on interlaminated magnetite-hematite-chert ironstone.

The first well documented gold discovery in the Beardmore-Geraldton area was the King-Dodds Occurrence, discovered in 1915.

The Richardson-Loudon-Ogilvie, Devanney (Edge Lake), Wells (Wascanna), Hull (Kipper-Tashota), Hendrickson and Cline (Paulpic) occurrences were discovered within the next year.

Gold was discovered in 1916 by A. G. Burrows in a rock cut on the Canadian National Railway 1.6 km (1 mile) west of Jellicoe. Burrows also reported low gold values at Kinghorn, at the north end of Hutchison Lake and the main narrows and west arm of Kenogamisis Lake (Little Long Lake). From 1901-1922 iron was the main commodity explored for in the Beardmore-Geraldton area. By 1925, T. G. Powers and P. Silam had staked a gold-bearing vein near Beardmore that later became the Beardmore Mine (Northern Empire Mine). Exploration for gold was initiated in the Twin Falls area of the Sturgeon River during 1929. By 1931, T. W. Johnson discovered a high grade auriferous vein north of Atigogama Lake which later became the Dik-Dik (Orphan) Mine. During June 1934, Rene Maloney made a discovery of spectacular gold mineralization 2 miles (3.2 km) north of Twin Falls on what became the Maloney Sturgeon property. R. H. Barnum and J. J. Green staked adjoining claims which became the Sturgeon River Gold Mine. The Brennen-Kenty Group worked veins along the Sturgeon River. In Irwin Township the Brookbank and Knox occurrences were staked. Most of the exploration activity was conducted during 1934 and contributed to a rush that resulted in the entire Beardmore-Jellicoe area being staked. By 1935, the rush had quieted and work was concentrated on the development of the Macjoe Sturgeon, Casey Contact (Brenbar), and Standingstone River properties (see "Beardmore-Geraldton"). The largest producer developed from the original Sturgeon River rush was the Sturgeon River Gold Mine (1936-42), which produced a total of 73,438 ounces of gold (0.51 ounce gold per ton) and 15,922 ounces of silver.

The exploration of the immediate Geraldton area commenced in earnest by 1931. Bruce (1935) described the early history of the Geraldton gold camp:

> "The story of the discovery of the orebody of the Little Long Lac Mine, which led to the renewed interest in the Little Long Lac area, is a somewhat unusual one. During the war, Tony Oklend went to Little Long Lac and built himself a cabin on the property now held by Long Lac Lagoon Gold Mines. In the course of his trapping along the shores of the lake, he discovered, south of the Main narrows, a boulder in which there was a metallic mineral. Oklend took samples of this to the Hudson's Bay post at Long Lac, where it was identified as gold. It is said that he chiselled a considerable quantity of gold out of this boulder. Later, rumours of this got abroad, and claims were staked covering the country in which the boulder had been found. No discoveries seem to have been made, and most of the claims were allowed to lapse. In 1931, gold was found by W. Smith on the point where the shaft of the Hard Rock Mine is now being sunk. The claims to the west were optioned by the Homestake Mining Company, and a large amount of exploration work was done. Only small values were found, and work was discontinued.
>
> The revival of interest was undoubtedly due to the discovery of the vein of the Little Long Lac Mine by T. A. Johnson. There is some difference in the minor details of the story of the discovery as told by Johnson and by Oklend, who was with Johnson, but the main facts correspond. Johnson, accompanied by Robert Wells, came to the Little Long Lac area in the fall of 1931 and after visiting the Smith find, went up the creek, from Barton Bay of Little Long Lac to Magnet Lake. As the morning of October 3 was showery, they cruised around the shoreline and Johnson noticed an outcrop of rock in the middle of the lake. Going out to it he found a shear zone containing quartz with some metallic minerals and, after some further examination, a piece which contained gold. The

following day Johnson and Wells staked a group of 18 claims, part of which are now the property of Bankfield Gold Mines. Johnson discovered the south zone on the Bankfield early in May 1932, by panning rusty material.

Toward the end of June 1932, Johnson and Oklend met at Bankfield station and arranged to prospect together. They first visited the place where Oklend claimed he had obtained several hundred dollars worth of gold from a boulder. Some gold could be panned from a shear zone near a pit at that place, but apparently nothing was found that seemed to Johnson to be of importance. The two men then visited Eldee Lake and the next day examined the shore of part of the east end of Little Long Lac. They next went to the west end of the lake and camped on the large island in Barton Bay. Apparently they found nothing of interest and decided to return to the east end, where the boulder had been found, and attempt to get some material from the lake bottom with a long-handled shovel. On the way there, they observed shearing on a point on the south shore of the bay. On landing they found two quartz stringers, in one of which there was some dark mineral. Johnson was of the opinion that it was bismuthinite and might be gold-bearing. Oklend recalled that he had seen a shear zone a short distance southwest, and they decided to inspect it. In passing the point where the Little Long Lac vein outcrops Johnson's claims that he saw veins in the water and insisted on stopping to examine them. In one of these gold was visible, and they were able to pan gold from the rusty material. On the evening of that day, July 5, Johnson staked the discovery claim, TB10560 and, in the following couple of days, the adjoining claims now forming the property of Little Long Lac Gold Mines. Through P. E. Hopkins, the Sudbury Diamond Drill Company became interested; the properties were examined by A. A. Barton, and on his recommendation it was decided that development work should be undertaken."

The Little Long Lac Mine commenced gold production in 1934, the same year as the Dik-Dik (Orphan) Mine in Rickaby Township, north of Jellicoe and the Beardmore (Northern Empire) Mine in Summers Township, east of Beardmore. The Little Long Lac mill processed 125 tons of ore per day until closing in 1956. The mine produced 605,449 ounces of gold (0.34 ounce per ton gold), 52,750 ounces of silver and minor amounts of tungsten.

The early history of the Bankfield Mine was similar to that of the Little Long Lac. After discovering the south zone on the Wells-Johnson claims at Magnet Lake, T. A. Johnson optioned the ground to the Sudbury Diamond Drilling Company through Percy Hopkins. A consortium of southern Ontario and Winnipeg individuals purchased the property and formed Bankfield Consolidated Mines Limited; diamond drilling and shaft development followed. By early 1937 the Bankfield Mine became the second producer in the Geraldton Camp. A 100-ton per day mill processed 66,972 ounces of gold (0.29 ounce per ton gold) and 7,259 ounces of silver between 1937 and 1947.

Bert Rae incorporated Hard Rock Gold Mines in 1934. By 1938 the Hard Rock Mine was milling gold ore at a rate of 200 tons per day (later increased to 300 tons per day). Production continued until 1951, and totalled 269,081 ounces of gold (0.18 ounces per ton gold) and 8,009 ounces of silver.

To the west of the Hard Rock Mine, F. MacLeod and A. Cockshutt had staked claims in 1931. By 1933, MacLeod-Cockshutt Gold Mines Limited was incorporated. Initial development and diamond drilling were disappointing. Encouraging diamond drilling results during a 1936 program close to the Hard Rock Mine boundary prompted a production decision. The Number Two shaft was started in 1936 on the strength of these results. A gold mill was constructed on site by 1938 with a capacity of 350 tons per day. The MacLeod-Cockshutt Gold Mines was to become one of the major producers in the Superior Province (Bertoni, 1983). From 1938 to 1968, 10,337,228 tons of gold ore was milled, recovering 1,475,728 ounces of gold at a grade of 0.14 ounces of gold per ton. Silver production totalled 101,388 ounces (0.09 ounces silver per ton). Gold reserves of 837,000 tons of 0.10 ounce gold per ton remain (MacLeod-Mosher) (Berton, 1983). MacLeod-Cockshutt Gold Mines Limited, Consolidated Mosher Mines Limited to the west and Hard Rock Gold Mines Limited to the east, amalgamated in 1967 to form MacLeod-Mosher Gold Mines Limited. By 1968 Lake Shore Mines Limited acquired all three properties.

In 1938 the Magnet Consolidated Gold Mines went into production. The company was formed from the amalgamation of Wells Long Lac Gold Mines Limited and Magnet Lake Gold Mines, the original discoverers and developers of the deposit located at the companies' common boundary. Newmont Mines, which purchased controlling interest in 1938, was responsible for bringing the mine into production. By 1938, Newmont had two producers in the Beardmore-Geraldton Camp: the Northern Empire and Magnet Mines. Ore was initially shipped to the nearby Tombill Gold Mine mill just west of the adjoining Bankfield Mine. The Tombill Mine was nearly completed but ore was not developed underground on the Tombill Mine, therefore a deal was signed between two companies. The Magnet Consolidated mill was completed by 1939. The Magnet produced 152,089 ounces of gold and 16,879 ounces of silver during years 1938 to 1943, and 1946 to 1952. The grade of gold ore was 0.42 ounce gold per ton.

Tombill Gold Mines in Lindsley Township was incorporated in 1935 to develop an orebody west of the Bankfield Mine. Production commenced in 1938 and totalled 68,739 ounces of gold at a grade of 0.36 ounce gold per ton (1939 to 1942, 1955). The Tombill Mine became the sixth producer in the Geraldton camp.

Jellicoe Consolidated Gold Mines Limited, Lindsley Township, evolved from two companies: White Horse Gold Mines Limited and Jellicoe Gold Mines. A shaft was sunk in 1933 on a gold orebody discovered three years previously. The Jellicoe Mine produced, from 1939 to 1941, a total of 5,620 ounces of gold (0.39 ounce gold per ton) and 515 ounces of silver.

The Talmora Long Lac Gold Mines became the eighth producer in the Geraldton camp. Elmos Gold Mines Limited, held by Newmont Mining Corporation, sunk a shaft to a depth of 540 feet (164.6 m) between 1938 and 1939. In 1940 Tombill Mines took over assets of Elmos and gold production commenced by 1942. The wartime situation caused temporary closure until 1948 when the mine and the 40 ton mill were reopened. The mine finally closed the same year. Total production was 1,415 ounces of gold (0.21 ounces gold per ton) and 66 ounces of silver.

The Theresa Gold Mine (4,785 ounces of gold), located south of Long Lac, Bankfield Gold Mine, Magnet Consolidated Gold Mine, Tombill Gold Mine and Talmora Long Lac Gold Mine, all closed temporarily during WWII due to manpower shortages.

The Maylac (Hutchinson Lake) Mine, a minor producer located north of Geraldton, produced 792 ounces of gold from 1946 to 1947.

The tenth producer to come on stream in the Geraldton Camp was the Mosher Long Lac Mine in Errington Township, which produced between 1962 and 1966, after which the Mosher was amalgamated with the MacLeod-Cockshutt Gold Mine. Production (1962 to 1966) totalled 330,042 ounces of gold (0.12 ounce gold per ton) and 34,604 ounces of silver (0.01 ounce silver per ton).

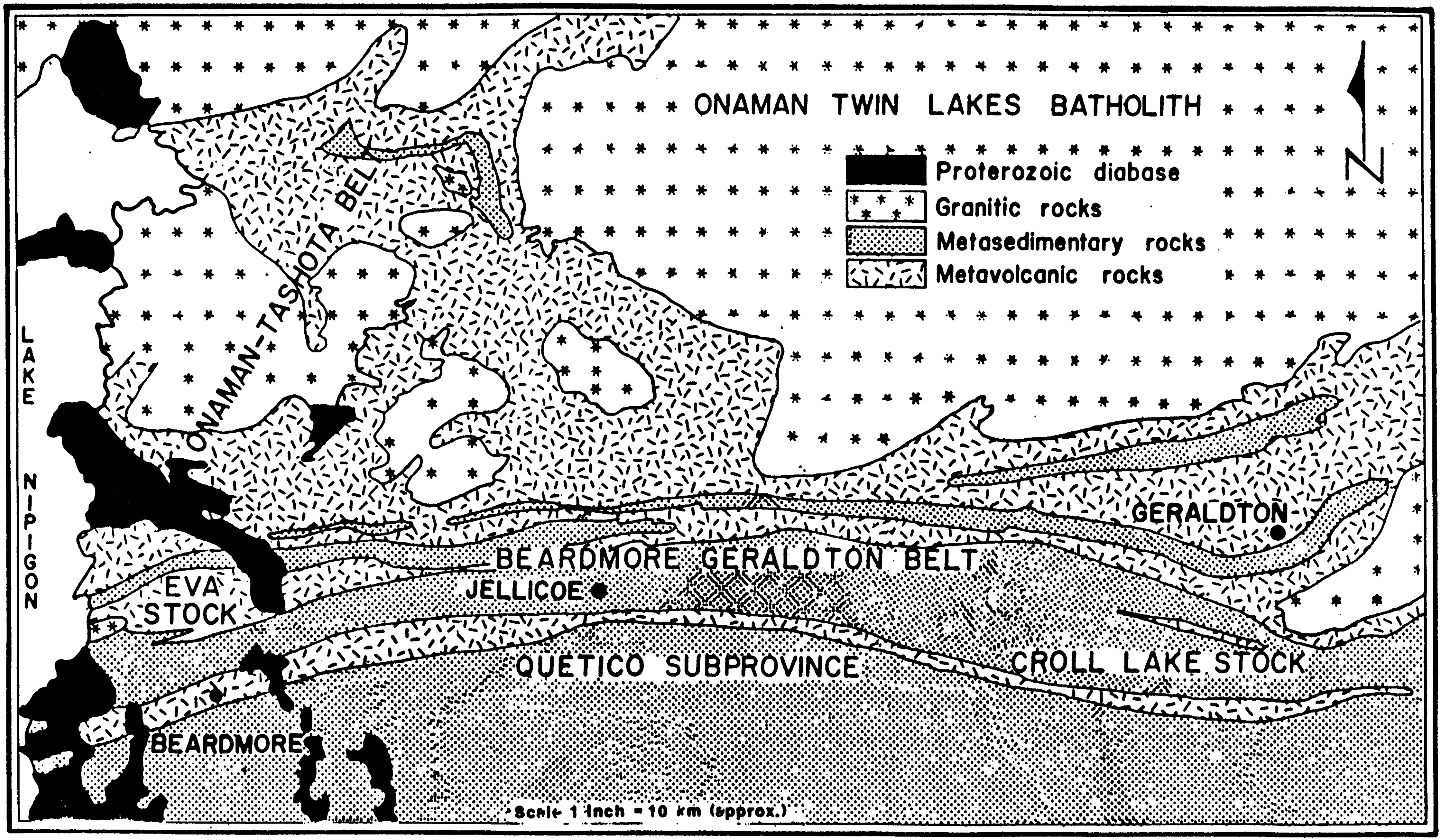
The immediate "Beardmore Gold Camp" was born in 1925 with the discovery of an auriferous quartz-carbonate vein east of Beardmore by T. G. Powers and P. Silam. The property became the Beardmore and later the Northern Empire Mine after Newmont brought the mine into production in 1934. The mine produced continuously from 1934 to 1941. Production totalled 149,493 ounces of gold (0.35 ounce gold per ton) and 19,803 ounces of silver (0.05 ounce silver per ton).

The Leitch and Sand River Mines are the other two producers in the Beardmore Camp. Over one million ounces of gold were produced within an 8 kilometre (5 mile) radius of Beardmore, Ontario.

The Sand River Gold Mine, Eva Township, was discovered by Russell Cryderman in 1934. From 1937 to 1942, 50,065 ounces of gold (0.32 ounce gold per ton) and 3,128 ounces of silver (0.02 ounce silver per ton) were recovered.

The Leitch Gold Mine was discovered in 1935 by Russell and James Cryderman after prospecting the east extension of the Sand River No. 1 vein. From an initial surface showing, consisting of a lenticular quartz vein hosted in metasediments, the Leitch became one of the richest gold mines in Ontario. The Leitch Mine produced 65.6 ounces of gold from 770 pounds of selected high grade ore from an open cut on No. 1 vein. Total gold production to mine shutdown (1936 to 1968) was 847,690 ounces of gold at a spectacular grade of 0.92 ounce gold per ton. Silver production totalled 31,802 ounces at a grade of 0.03 ounces silver per ton.

Total production within the Beardmore-Geraldton Belt to date has exceeded 4.1 million ounces of gold and 300,000 ounces of silver (Mason and McConnell, 1983 and Resident Geologist's Files, Ministry of Northern Development and Mines, Thunder Bay) (Appendix B, Table 9). Production has come from nineteen gold mines, 9 of which are located in the Geraldton area.



after Pye et al, 1966

A generalized geological map of the Beardmore Geraldton Area.

Figure 2

GENERAL GEOLOGY AND STRUCTURE

Work in recent years in the Beardmore-Geraldton area, the southern portion of the Wabigoon Sub-province, by provincial government geologists J. K. Mason, A. J. Macdonald, G. P. Beakhouse, G. D. White and M. J. Lavigne (Geologists, Ontario Ministry of Northern Development and Mines) has led to its subdivision into two belts: the Beardmore-Geraldton Belt and the Onaman-Tashota Metavolcanic Belt. The belts are separated by the Paint Lake Fault (a major transcurrent fault) and are distinguished on the basis of: (1) lithologies, (2) structural style and (3) age, based on zircon (U/Pb) and lead (Pb/Pb) geochronology.

The Beardmore-Geraldton Belt is situated within an east-trending isoclinally folded metavolcanic-metasedimentary sequence. Lithologic units have been tectonically transposed into a series of alternating slices of metavolcanics and metasediments within a wrench or mega-shear zone. The Beardmore-Geraldton Belt has been divided lithologically into the: (1) Southern Metavolcanic Sub-belt and (2) Southern Metasedimentary Sub-belt. The Southern Metavolcanic Sub-belt is composed of magnesium to iron tholeiites forming east-trending narrow belts. The metavolcanics consist of massive, pillowed, amygdaloidal and rarely variolitic flows. Iron tholeiite flows are 15 m to 25 m thick consisting of a massive, medium-grained basal part, crudely fining upward, becoming aphanitic and commonly pillowed. Intermediate to mafic tuffs are medium to fine-grained light green rocks which display a weak foliation due to the alignment of metamorphic biotite and other mineral and rock fragments. Chemical metasediments including iron formation are common and occasionally occur with rare thin beds of clastic sediment. Beds trend 70° to 85° and generally are 1 to 2 m wide. The chemical metasediments form continuous regional features, 100 m to 1 km in strike length.

The Southern Metasedimentary Sub-belt hosts eleven past-producing gold mines. Metasedimentary rocks consist of wacke, conglomerate, siltstone, and magnetite-hematite-chert (± jasper) iron formation. Isoclinal folding and tight drag-folding occur in the Beardmore area and the Geraldton area. Drag-folds and ore-bearing structures throughout the Beardmore-Geraldton Belt plunge typically westward at 30° to 40°. In the Geraldton camp, most gold production has come from the rocks adjacent to, and north of, the Bankfield-Tombill Fault and south of the Portage Shear Zone-Little Longlac Fault within the Barton Bay Lithotectonic Zone (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

The Onaman-Tashota Metavolcanic Belt, is a felsic to mafic metavolcanic (calc-alkaline and tholeiitic) sequence bounded to the south by the Beardmore-Geraldton Belt's northern contact, the Paint Lake Fault. Metavolcanic rocks of the Onaman-Tashota terrain are deformed into arcuate shapes by the emplacement of intervening granitic intrusions. Regional lineaments or faults trend north and northeasterly. Preliminary age determinations suggest the Onaman-Tashota

Metavolcanic Belt predates the main Beardmore-Geraldton Belt. U/Pb zircon dates of 2770 ± Ma were realized at the Headway Coulee lead-zinc-silver deposit near the Onaman River; lead isotope model ages ranging from 2,800 to 3,000 million years have been established for the Onaman River and Armstrong area, respectively (Dr. J. M. Franklin, Research Scientist, Geological Survey of Canada, Ottawa, personal communication, 1984). The Onaman-Tashota Metavolcanic Belt may be the eastern extension of the Wabigoon Diapiric Axis, a basement complex, documented by Thurston and Davis (1985).

Mafic metavolcanics in the Onaman-Tashota Metavolcanic Belt are intercalated with felsic pyroclastic rocks with minor quartz porphyry and rhyolitic flows. The mafic metavolcanics consist of massive to foliated, pillowed, porphyritic and amygdaloidal flows, chlorite schist, tuff, lapillistone, tuff breccia and agglomerate. Felsic metavolcanics consist of rhyolite to rhyodacite, rhyolite porphyry, crystal tuff, lapilli-tuff, tuff breccia, rhyolitic quartz feldspar porphyry and pyroclastic breccia. Metasediments are also present as argillite, arkose, wacke, sandstone, conglomerate and minor chemical metasediments.

Gabbro, diorite, granodiorite, quartz-diorite, monzonite, feldspar porphyry and quartz-feldspar porphyry have intruded rocks of the Beardmore-Geraldton Belt and the Onaman-Tashota Belt. Late felsic intrusions include pegmatite and felsite. Late Precambrian diabase intrudes all rock types. Metamorphic grade is commonly greenschist but ranges to amphibolite grade.

GOLD DEPOSITS

Relative to other gold producing regions in the province Beardmore-Geraldton is a young camp having commenced production in the mid-1930's. The Beardmore-Geraldton Gold Camp has produced 4.12 million ounces of gold from some nineteen past-producing mines (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay). Much of the gold was produced from narrow high grade veins. However, new discoveries by Metalore Resources on the Brookbank Zone, Irwin Township and by Atlantic Mining Corporation-Noranda Exploration Company Limited on the Twin Falls Occurrence, Irwin Township occur within large fault-shear zones (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay). The tonnage potential of this type of structurally controlled gold deposit is leading to a re-evaluation of the entire Beardmore-Geraldton area with particular emphasis on major structures.

Beardmore-Geraldton Belt

Southern Metavolcanic Sub-belt

Eighteen gold occurrences, prospects, and deposits have been examined and/or mapped in detail in the Southern Metavolcanic Sub-belt for this study. Examples of the mineralogy from a number of properties will be used to illustrate the type of gold mineralization present.

(1) Shear Zones

The Pichette shear zone, first documented by Peach (1951), occurs in eastern Vincent Township and represents a unique type of gold mineralization in the Southern Metavolcanic

Sub-belt. Gold mineralization occurs in highly sheared, pillowed and massive basalts and in highly contorted sugary quartz veins. Gold is associated with pyrite and carbonate. Values are erratic with visible gold detectable by gold panning.

(2) Iron Formation

Conclusions, regarding the mineralogy of the iron formation or distal exhalites, have been drawn from observations made at the following properties: Delbridge, Blacksmith, Dominion, Maki-Eldor Option, Maki East, McWilliams-Beardmore, Vega, Craskie, Thorco, Dalton and Lattimer-McGowan properties. The iron formations are banded, consisting primarily of chert, magnetite, iron amphiboles and carbonate mesobands. The mesobands range up to 20 cm thick (e.g. Maki Occurrence).

Chert mesobands are composed of massive to recrystallized chert. Magnetite does occur as discordant veinlets in chert, but is found primarily as bands of massive magnetite forming a matrix for subhedral to euhedral granular magnetite (e.g. Dalton Occurrence). Quartz and tourmaline veinlets, and carbonate occurs throughout the iron formations, particularly in or adjacent to chert bands (e.g. McWilliams-Beardmore Prospect).

Sulphides, including arsenopyrite, pyrite, pyrrhotite and chalcopyrite, occur as vein related replacement minerals within quartz veins or in association with mafic mesobands. Sulphides are also present in crude discontinuous layers or knots, consisting of coarse subhedral to euhedral grains. Gold is associated with the sulphides mainly as disseminated microinclusions or as coarse gold. Locally, structurally favourable sites for gold are fracture zones, fold-noses, contacts and axial planes.

Iron amphiboles, primarily grunerite and minor cummingtonite, are associated proximal to the chert-magnetite contacts. One of the most economically significant properties is the Craskie Mines Prospect, Vincent Township, currently held by Tombill Mines Limited. It consists of four auriferous iron formation zones, forming a small gold deposit:

"Ore Shoot	Length	Width	Indicated Grade
West "G"	131.1 m	2.0 m	0.17 oz gold/ton
Centre "G"	106.7 m	2.1 m	0.19 oz gold/ton
East "G"	45.7 m	2.1 m	0.18 oz gold/ton
North "H"	61.0 m	1.5 m	0.25 oz gold/ton"

(Tombill Gold Mines Limited Annual Report, 1953, Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

(3) Quartz-Carbonate Veins

Quartz-carbonate veining has intruded the mafic metavolcanics, often discordantly spatially proximal to the iron formations. The veins are up to 2.5 m wide, milky white, vitreous to sugary, and can form a stockwork vein system with erratic but good visible gold (e.g. Maki property). In contrast, the Neelin-Braggan vein and Northern Empire-Spooner boudinaged composite vein systems are generally concordant with the foliation (Benedict and Titcombe, 1948).

Geochemistry

Some general trends and conclusions useful to exploration can be drawn from geochemical analysis of various iron formation in the Southern Metavolcanic Sub-belt. A total of 75 samples of iron formation (which includes banded chert, chert-magnetite and chert-iron carbonate) and associated mafic metavolcanics were taken. The samples that contained no visible sulphides had background gold values ranging from 6 to 75 ppb. In the samples that contained sulphides there appears to be a direct relationship between the arsenic and antimony, and gold concentration. Specific examples are as follows:

	Au (ppb)	As (%)	Sb (ppm)
McWilliams-Beardmore Property, Summers Twp. 83-MMV-3	670	1.75	1.7
Dalton Occurrence, Vincent Twp. 84-MWD-3 1%	340	1.10	1.0

Samples from the Delbridge Occurrence, McComber Township, have gold values ranging up to 35.1 ppm with corresponding arsenic and antimony values ranging up to 16.3% and 17.0 ppm, respectively (see Table 10).

Note: All Samples were analysed by atomic absorption. It is also important to recognize the existence of signal interference between arsenic-antimony-bismuth-selenium and that these values may be biased to some extent, (Chris Chan, Chemist, Geoscience Laboratories, Toronto, personal communication, 1984).

Alteration and Mineralogy

A weak to moderate pervasive carbonate alteration is present throughout much of the Southern Metavolcanic Sub-belt. Locally, within the iron formation and adjacent wall rocks, silicification and carbonatization can be moderate to strong. This type of local alteration in the metavolcanics representsfilling of primary porosity by silica during recrystallization. Carbonate and quartz veining appears to have followed. Pyrite, arsenopyrite and gold were introduced during this phase, replacing magnetite, often in the mafic layers throughout the rock.

Grunerite-cummingtonite is present as a result of the loss of CO_2 during metamorphism in banded oxide-carbonate iron formation or banded oxide iron formation that has experienced quartz flooding. Chert (or quartz) reacts with the carbonate to form new silicates, as documented by Klein (1973). During progressive metamorphism, often accompanied by decarbonatization and dehydration, carbonates, including the dolomite-ankerite series, siderite and calcite, and chert, react to form the cummingtonite-grunerite series. The CO_2 content can vary locally. Some portions of the iron formations may have locally high CO_2 levels and as a result during metamorphism only recrystallization and increased grain size will result.

Conclusions

Gold mineralization of potentially economic quantities in the Southern Metavolcanic Sub-belt is associated with zones of deformed and hydrothermally altered banded iron formations. Gold is associated with sulphides in veins and mesoband replacements. The ductility contrast during deformation between cherty iron formation and mafic metavolcanics created a permeability that allowed the penetration of auriferous fluids into the iron formation and locally into fractures in the volcanics. No primary gold-bearing sulphides were observed. Banded iron formation, void of sulphides, contain 6 to 75 ppb gold. These values are anomalous relative to the main sedimentary belt where banded iron formation contains 2 to 5 ppb gold. Chemically, gold appears

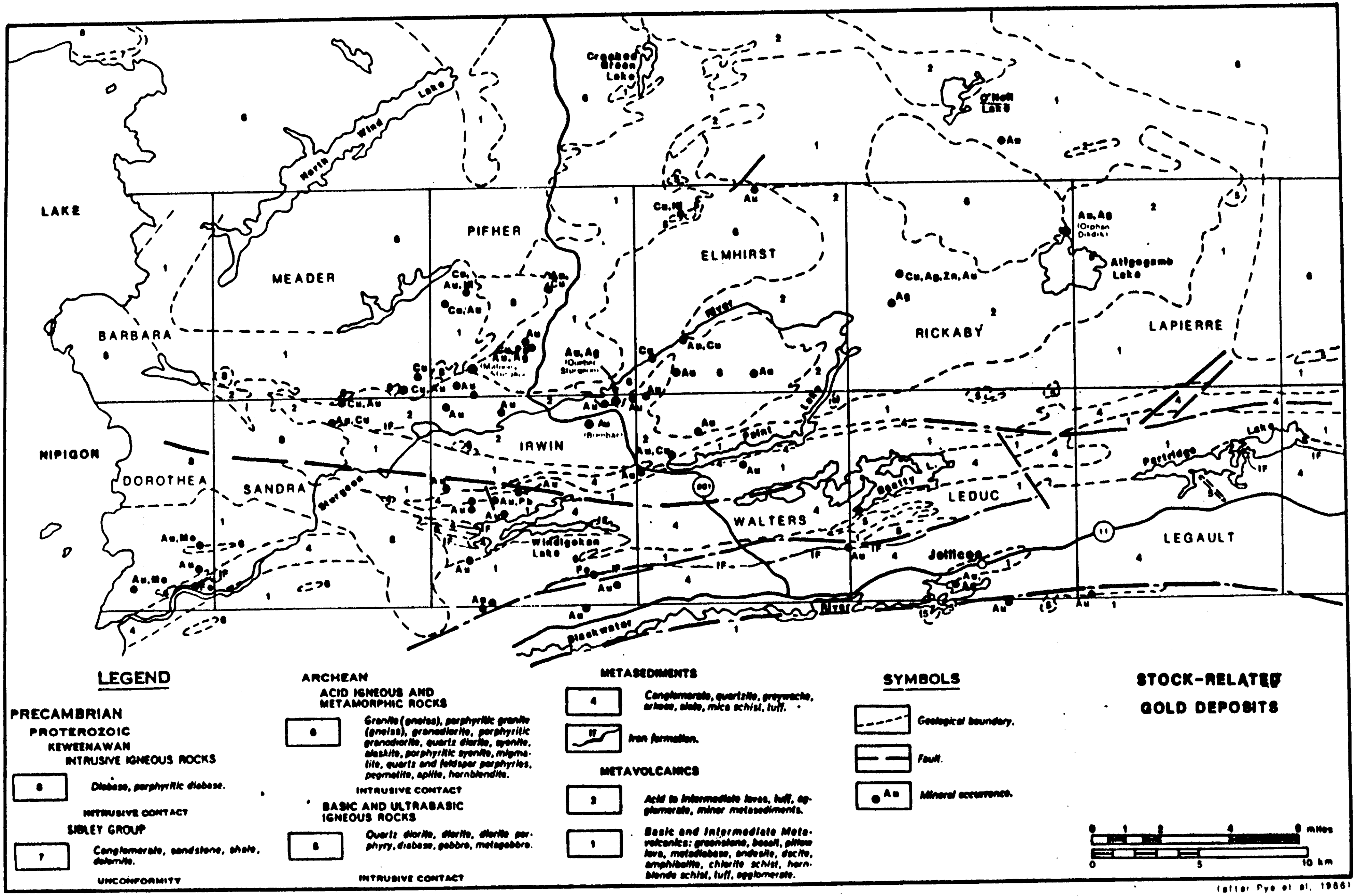

LAKE
NIPIGON
North Wind Lake
Crooked Green Lake
O'Neill Lake
BARBARA
MEADER
PIFHER
ELMHIRST
RICKABY
LAPIERRE
DOROTHEA
SANDRA
IRWIN
WALTERS
LEDUC
LEGAULT
Windigokan Lake
Allegogama Lake
Jellicoe
Blackwater
Beatty L.
Partridge Lake
Point Lake
River
LEGEND
PRECAMBRIAN
PROTEROZOIC
KEWEENAWAN
INTRUSIVE IGNEOUS ROCKS
Diabase, porphyritic diabase.
INTRUSIVE CONTACT
SIBLEY GROUP
Conglomerate, sandstone, shale, dolomite.
UNCONFORMITY
ARCHEAN
ACID IGNEOUS AND METAMORPHIC ROCKS
Granite (gneiss), porphyritic granite (gneiss), granodiorite, porphyritic granodiorite, quartz diorite, syenite, alaskite, porphyritic syenite, migmatite, quartz and feldspar porphyries, pegmatite, aplite, hornblendite.
INTRUSIVE CONTACT
BASIC AND ULTRABASIC IGNEOUS ROCKS
Quartz diorite, diorite, diorite porphyry, diabase, gabbro, metagabbro.
INTRUSIVE CONTACT
METASEDIMENTS
Conglomerate, quartzite, greywacke, arkose, slate, mica schist, tuff.
Iron formation.
METAVOLCANICS
Acid to intermediate lavas, tuff, agglomerate, minor metasediments.
Basic and Intermediate Metavolcanics: greenstone, basalt, pillow lava, metadiabase, andesite, dacite, amphibolite, chlorite schist, hornblende schist, tuff, agglomerate.
SYMBOLS
Geological boundary.
Fault.
Mineral occurrence.
STOCK-RELATED GOLD DEPOSITS
0 1 2 4 6 miles
0 5 10 km
(after Pye et al. 1986)

FIGURE 3

plated on secondary sulphide minerals and through sulphidation (MacDonald, 1985; Fyon et al, 1983) a portion of iron-rich mesobands are preferentially replaced by pyrite, arsenopyrite or pyrrhotite containing gold.

Southern Metasedimentary Sub-belt

In the Southern Metasedimentary Sub-belt gold mineralization occurs in shear zones, quartz veins and breccia zones hosted in clastic metasediments, felsic intrusions, gabbro intrusions, sulphides within oxide iron formation, and minor mafic metavolcanics.

Due to the deformation and failure characteristics of the albite porphyry, wacke and iron formation units, brittle fracturing has provided a plumbing system for hydrothermal auriferous fluids (Horwood and Pye 1951; Macdonald, 1983a). The granitic stock in Croll Township, east of Geraldton, is thought to underlie much of Ashmore Township, and it has been postulated to be the magmatic source of heat and a possible source of the fluids (Horwood and Pye, 1951, p. 47). In the Geraldton camp, there is a trend of diminishing total gold production from mines west of the MacLeod-Cockshutt Mine.

In the Beardmore-Geraldton area, alteration adjacent to veining consists of narrow zones of sericitized, carbonatized and silicified metasediments and albite porphyry. At Geraldton, gold occurs in two of five generations of quartz (Horwood and Pye, 1951). Pyrite, arsenopyrite, galena, scheelite, pyrrhotite, calcite and tourmaline occur with gold in the Beardmore-Geraldton area. Galena appears to be an indicator mineral for gold and gold tellurides. At Beardmore, specifically the Leitch Mine, pyrite was considered the indicator mineral for gold.

(1) Vein Type Deposits

Despite the traditional small gold yield associated with vein type deposits, stockwork or en echelon vein sets have produced moderate to large tonnage gold deposits at Geraldton. Gold is associated with en echelon vein sets within an arkose unit at the Little Long Lac Mine and in a stockwork system within albite porphyry termed the "F Zone" at the MacLeod-Cockshutt Mine (10 million tons of 0.15 ounces gold per ton) (Macdonald, 1982).

The Magnet Consolidated Mine, Geraldton, and Leitch Gold Mines, Beardmore, are examples of clastic metasediment vein-hosted gold deposits. Both properties are underlain by conglomerate, arkose, wacke, sandstone, siltstone, argillite and iron formation. The iron formation is composed of magnetite and/or hematite layers interbedded with argillite (chloritic mudstone), greywacke and jaspilitic chert. Metasediments are intruded by diorite, diorite porphyry, albite porphyry (Magnet) and diabase.

On the Magnet Consolidated Mine property Z-shaped folds plunging 30° to 40°W are overprinted on what Pye (1951) had termed the Ellis Syncline. The Magnet Vein, the main production vein, and other auriferous quartz veins are parallel to the Bankfield-Tombill Fault Zone (105°). The fault zone is a silicified and carbonatized zone up to 30 m wide and traverses the property 345 m south of the shaft. The initial rupture along the fault zone occurred previous to the formation of the orebodies, since at the Magnet Mine, the minor folds are cut by the ore-bearing structures (Pye 1951).

The Magnet Vein is a persistent composite vein with one main vein up to 0.3 m wide. Parallel quartz stringers give the composite vein a maximum width of 4.5 m. The near vertical Magnet Vein exhibits roll structures. The vein intersects the iron formation at 5°-10°.

Carbonate, pyrite, arsenopyrite, chalcopyrite, sphalerite, galena and gold occur in the vein. Gold is present as blebs and fracture fillings in pyrite and arsenopyrite, as irregular grains within a grey quartz and as fracture fillings along contacts between quartz and host rock (within the crack-seal texture). Later quartz and calcite veining contains gold along cleavage planes (Pye 1951). Wallrock alteration adjacent to veins typically exhibits sericitization, carbonatization and silicification within the wacke, and chloritization in the iron formation.

The Leitch Mine produced 847,291 ounces of gold at an average grade of 0.92 ounces gold per ton. The mine workings follow easterly and southwesterly plunging fissure-type quartz veins in fractured metasediments. This structure is mimicked at outcrop scale by west-plunging drag folds. Production veins range up to 0.6 m in width and are crack-seal type veins; portions of the altered wallrock now represented by sericite and chlorite seams have been incorporated within the generating vein. Gold, pyrite, scheelite, and bournonite occur in the veins. Veins exhibit sericitization and carbonatization.

The MacLeod-Cockshutt, Mosher, Hard Rock, Little Long Lac, Magnet, Bankfield, Talmora, Tombill, Jellicoe Mines, Sand River and Leitch Mine, are examples of Vein Type Deposits.

(2) Iron Formation Replacement Sulphide - Vein Related Deposits
The Solomon's Pillars Prospect and MacLeod-Cockshutt-Hardrock North Zone are examples of iron formation replacement sulphide - vein related gold deposits.

The Solomon's Pillars property is located near Jellicoe, Ontario. Gold mineralization occurs within a sequence of ferruginous chemical metasediments, portions of the regional east-trending iron formation near the north boundary of the Southern Metasedimentary Sub-belt. Magnetite-chert (± jasper) iron formation is interbedded with wacke, siltstone and slate. The siltstone and slate display cleavage subparallel to bedding. Refractive cleavage was noted in some wackes (Mackasey 1976).

Gold on the Solomon's Pillars property is associated with quartz-pyrite-arsenopyrite veins that replace and cut magnetite-chert (± jasper) ironstone. Initial exploration and development by Oremond Gold Mines Limited (1936) identified auriferous sulphide lenses. A 100 m shaft, with levels at 45 and 85 m, was developed, but no gold was mined from the property. Assays of selected grab samples ranged up to 0.92 ounces of gold per ton. Pyrite, the most prevalent sulphide, is medium to coarse-grained and typically equant. Gold fills fractures and occurs as irregular blebs with the pyrite and arsenopyrite.

Macdonald (1982) described the geology and mineralization of the most prominent iron formation associated gold deposit in the Beardmore-Geraldton Camp; the North Zone, MacLeod-Cockshutt and Hard Rock Gold Mines:

"Structure and Lithology - Preliminary Results

The north ore zone is located in a "Z"-shaped drag fold on the north limb of the approximately west-north-west-striking Hard Rock Synclinorium (Ferguson 1967, Section 1). The synclinorium is located in the footwall of a major break, the Bankfield-Tombill Fault. Indicated motion of the fault is dextral strike slip. Both the major and minor fold structures and the contained ore zone plunge to the west at between 28° and 29° (Horwood and Pye, 1951).

Four prominent lithologies are exposed in the Glory Hole:
1. banded iron formation
2. metasediments, principally siltstone and wacke
3. porphyry sills
4. felsite sills and dikes (or sandstone)

The banded iron formation consists of three sub-units:
1. lean iron formation: discrete beds of magnetite (typically up to 1 cm thick) in wacke and siltstone
2. magnetite iron formation: alternating beds (typically 1 cm) of magnetite (with minor hematite) and silicified mudstone or dark chert
3. magnetite/jasper iron formation: alternating 1 cm beds of magnetite and jaspelitic quartz or red chert

All sub-units may, in addition, contain varying amounts of iron-bearing carbonate.

The metawacke and metasiltstone show gradational contacts with both the northern and southern flanks of the iron formation. The rocks are locally carbonate rich and structurally disturbed. Considerable shear strain has been localized by the finer grained material, disrupting and rafting apart metawacke horizons and resulting in an intraformational breccia: the resulting rock contains apparently randomly distributed, but uniformly aligned, clasts of metawacke (typically 5 cm in long dimension, but up to 50 cm) in metasiltstone. All primary bedding is frequently destroyed; the principal planar feature is a shear-related cleavage.

The porphyry sills rarely exceed 1 m in thickness, and are feldspar-phyric with minor quartz, phenocrysts. The feldspar is altered by chlorite and sericite.

Although concordant on a large scale, in detail the porphyry sills cut sedimentary contacts and may possess chilled margins up to 10 cm in thickness. The felsite intrusions (very fine-grained), which are similar to the matrix of the porphry sills, may be concordant, or may cut sedimentary contacts at angles of up to approximately 40°.

On an outcrop scale, extensive folds are present within the iron formation and porphyry units, with amplitudes up to 5 m. Fold axes are sub-parallel to the main synclinorium axis. The folds all exhibit a Z-fold style, reflecting on a smaller scale the drag fold in which the orebody is located. Shear zones, up to 1 m in thickness, and sub-parallel to fold axes, are commonly located along the porphyry-iron formation and metasediment-iron formation contacts but may also cut across stratigraphy in the iron formation. Where evidence is unequivocal, dextral shear is indicated. On a hand specimen scale, extremely delicate kink structures are present in the iron formation in response to the drag folding event. Feldspar phenocrysts in the porphyry sills are stretched parallel to the fold axes and direction of the shear. This foliation remains unaffected by the outcrop-scale folds, suggesting that final penetrative shear post-dates final folding.

Mineralization

Metal and metal sulphide mineralization are found in three structural types:

1. relatively undeformed quartz-carbonate-sulphide veins striking approximately west-northwest, often localized by shear faults
2. deformed quartz-carbonate-sulphide veins, striking obliquely (east-northeast) to the major structures
3. quartz-carbonate-sulphide replacement ore after iron formation, spatially associated with type "1" veins

The mineralogy of all three types is essentially identical. Gangue mineralogy includes quartz-ankerite-calcite-tourmaline-scheelite and a green sheet silicate (possibly a chromium-rich mica). In addition to pyrite, other sulphide minerals present, in decreasing order of abundance, are arsenopyrite, pyrrhotite, sphalerite, chalcopyrite and galena.

Type "1" veins locally comprise a sheeted vein system of subparallel veins (striking west-northwest and dipping steeply northwards) with vein frequency reaching 4 or 5 per metre. Typical vein widths vary between 2 and 10 cm. In the Glory Hole, sheeted veins are located solely within the porphyry unit. Where the sills are thickened in fold hinges, widths up to 7 or 8 m are attained. The sheeted veins commonly terminate at contacts with enclosing iron formation.

Types "1" and "3" ore are apparently unaffected by folding, indicating generation of the structures after folding. Type "2" veins and veinlets, which strike obliquely to the other veins, are often highly folded due to approximately west-northwest shear, producing shortenings of considerable magnitude (e.g. a type "2" vein may be attenuated by up to 80% of its original strike length by tight isoclinal folding in response to shear within the host rock). These structures have led Horwood and Pye (1951) to refer to type "2" veins as "wiggly" veins. The same veins are seen throughout the MacLeod-Cockshutt and Hard Rock Mines.

Relative ages of the three vein types are equivocal. Type "2" veins are seen to both cut and be cut by mineral salvages in type "1" veins. Both may be displaced by type "3" shear-related structures, although this motion may only reflect late stage adjustment along shear planes."

(3) <u>Domain Boundary Fault-Related Deposits</u>

Gold mineralization occurs at the fault contact between major wedges or slices of metasediments and metavolcanics. The recently discovered Metalore Resources (Brookbank Prospect) deposit occurs within the Brookbank Fault Zone, a secondary fault related to the Paint Lake Fault. The Metalore-Brookbank property is underlain by mafic metavolcanics in fault contact with metasediments to the north. The metasediments consist of coarse clastic rocks. An altered diorite-gabbro unit occurs proximal to the Brookbank Fault. Gold is associated with finely disseminated euhedral to subhedral pyrite grains (2-10%). Potassium, silica, carbonate and hematite alteration is present in the host lithologies.

The potential for other fault zones within the Beardmore-Geraldton Belt being mineralized is currently being investigated by prospectors and mining companies.

Onaman-Tashota Belt

(1) Vein Type Deposits

Gold is associated with quartz (carbonate) veins hosted by felsic to intermediate metavolcanics, and located often marginal to felsic intrusions (dikes or stocks) (stock-related).

The largest producer of this type was the Quebec-Sturgeon River Mine-Phoenix Gold Mines which produced 73,438 ounces of gold (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay). Veins are typically sigmoidal or lenticular within the Onaman-Tashota Belt, and free gold is common. Sulphide content within such veins ranges from nil to 40%. Pyrite, pyrrhotite, chalcopyrite, sphalerite, galena may be present in the veins. Gold usually occurs in the vein as free gold, or as microinclusions in sulphides or more rarely within the sulphide crystal lattice. Gold can occur in sheared wall rocks. The Phoenix Gold Mines veins (e.g. Allard Vein), Greenoaks (currently in production by B. Miron and Canadian Concentrators), Crooked Green Creek, Gerry Bruce-Sweany Gold Corp-Nodaden Resources Limited, Wascanna, King-Dodds, Consolidated Louanna, Kenty (Andaurex) Resources properties, and Dik-Dik (Canadian Gold Resources Inc.) are examples of this type of mineralization).

(2) Chemical Metasediment Type

Gold is hosted by chemical metasediments (chert, iron formation) at the Paulpic-Canamax property, Harte Resources and the New Goldvue property. This type of deposit is rare within the Onaman-Tashota Belt. Banded chert-magnetite iron formations can host pyrite and gold mineralization. Quartz stockwork or stringer zones related to the chert or distal exhalite can also have gold values.

(3) Shear Disseminated Type:

Shear zones with disseminated pyrite, pyrrhotite and/or chalcopyrite with related gold mineralization cut felsic metavolcanic rocks, typically crystal tuffs, lapilli-tuffs, volcanic breccias, rhyolite, dacite and related feldspar (quartz) porphyry. Gold mineralization of this type is located within the Pifher, Irwin, Meader, Sandra Townships area, northeast of Beardmore and is currently under extensive exploration. Most of these occurrences are new discoveries found either in 1985 or 1986 (e.g. Twin Falls-Noranda Occurrence).

The Twin Falls-Noranda Occurrence is located in northwestern Irwin Township. The Musca Lake Fault traverses the southern boundary of the claim group and may be responsible for the intense shearing observed at the Twin Falls Occurrence. Regional foliation ranges from 90° to 110°. A major backhoe program by Atlantic Mining Corporation has exposed a 60 m wide shear zone. Pyrite occurs as disseminated subhedral grains and massive veinlets in the shear zone, and appears to be directly associated with gold values. Carbonatization, silicification and sericitization are present in the Twin Falls-Noranda Occurrence. Noranda Exploration is conducting a multi-phase exploration program.

Extensive backhoe prospecting at times combined with I.P. and/or VLF surveys have outlined disseminated sulphide and/or shear associated gold occurrences within felsic metavolcanics in the Onaman-Tashota Belt. Main gold targets for this area, northeast of Beardmore, are within a geological environment previously explored for base metals (1960-1975).

Sweany Gold Corporation-Nodaden Resources Limited's Cowan Occurrence, Peddle Lake Resources Occurrence, Portfield Industries Junction property and Carling Gold Resources Inc. Occurrence also are examples of the Shear Disseminated Type of Deposit.

BASE METAL DEPOSITS

Base metal deposits are restricted to the Onaman-Tashota Belt. N.W.T. Copper Mines Limited holds the largest base metal deposit in the Beardmore-Geraldton area at Marshall Lake. This deposit has drill-indicated reserves of 2,211,000 tons averaging 1.22% copper, 4.20% zinc, 2.45 ounces silver per ton and 0.012 ounces gold per ton (Canadian Mines Handbook, 1985 to 1986).).

Mineralization has been described by Wells (1981*):

> "Syngenetic dissemination and epigenetic copper-rich veinlets which probably represent remobilization and concentration of syngenetic sulphides during metamorphism."

(See Table 11 listing other base metal deposits in the Beardmore-Geraldton area).

(*denotes Thunder Bay, Resident Geologist's Files, Ontario Ministry of Northern Development and Mines).

TABLE 11.

BASE METAL DEPOSITS

DEPOSIT	GEOLOGY	WORK	TONNAGES & GRADES	REMARKS
JUNEAU LAKE Intl Mogul ML and North Coldstream ML 42L/5 50°22'40" 87°56'55"	Po, py, cp, pn, violarite and mag in zone localized along a siliceous tuffaceous metasediment horizon within volcanics	pre-1967:airborne mag and EM. 1967-69:ground mag and EM, dd, metallurgical tests.	ind:2,200,000 at 0.87% Ni, 0.59% Cu (undil) 1969 (Int Mogul ML, 1969 AR) *	Low nickel recovery ind by metallurgical tests led to a discontinuation of exploration.
JACOBUS Chesterville ML (in 1976) 42E/13 49°49'37" 87°44'05"	Mineralized Archean diorite and gabbro sill complex intruding volcanics. Ni-Cu assays.	1957:trenching, mag and EM surveys, 46 ddhs. 1968-69:dd, EM and mag surveys. 1971-72:further dd. 1974:property evaluation	ind:937,538 at 0.41% Ni, 0.42% Cu 1969 (NM 22/07/71) *	The deposit is open down plunge. A decline was planned but the companies went out of business.
HEADVUE Lynx-Canada Expls. L Dejour ML Reynolds Metls CL 42L/4 50°01'14" 87°39'38"	Tuffaceous sediments are cut by parallel shear zones which contain several qtz-sph-gal lenticular bodies	1950-52:ground EM, 29,951' dd. 1971-72:geol, geochem and geoph surveys, dd. 1973:IP survey, dd.	ind:A+B Zones 250,000 at 4.44% Zn, 1.32 oz/t Ag, plus poss:A+L 49,600 Zn-Ag, grade unstated 1952 (Thurston, 1980) *	Pb at 10¢/lb, Au at $35/oz. Deeper drilling by Noranda in 1974 suggested an additional 150,000 tons are available.
LYNX CANADA-ONAMAN LAKE Lynx-Canada Expls. L 42L/4 50°01'04" 87°38'57"	Stringer zones in Archean mafic to intermediate volcanics.	1950-52: prospecting. 1971-78:geol. geochem, IP, EM, and mag surveys, dd, trenching	(i) No. 2 zone:200,000-300,000 at 2% Cu, 1 oz/t Ag 1977 (ii)No. 1 zone:25,000 at 4% Cu 1976 *	This property is owned by a joint venture with Lynx-Canada holding 37.5%, Dejour ML (37.5%), and Reynolds Mtls Cl (25%)

RECOMMENDATIONS FOR EXPLORATION

Gold

Over 94 percent of the gold produced from the Beardmore-Geraldton Camp was associated with the Southern Metavolcanic Sub-belt and was hosted in veins, breccia zones, shear zones and replacement iron formation-related sulphides.

Folded iron formation should be investigated for replacement sulphides and veining as it can host zones of dilatancy and potential structural traps for gold. Detailed magnetometer surveys along iron formations could detect magnetic lows corresponding to alteration zones; zones of sulphidation (pyrite, arsenopyrite) are potentially auriferous. In portions of the iron formations, 2-3 percent sulphides can be present, therefore, I.P. surveys following up the magnetometer surveys are recommended. The magnetic signature of the north contact of the Southern Metasedimentary Sub-belt, which corresponds to a persistent iron formation unit, extends under the Paleozoic rocks east-northeast from Longlac and continues west-southwest to Black Sturgeon Lake (southwest of Nipigon).

One of the main targets in the Southern Metavolcanic Sub-belt of the Beardmore-Geraldton Camp should be porphyry-associated gold deposits similar to the "F-zone" of the MacLeod-Cockshutt Gold Mine, which produced approximately 10 million tons of 0.15 ounce gold per ton. At Geraldton these porphyries and metasedimentary hosted gold deposits are restricted to the Bankfield-Tombill Fault of the Barton Bay Lithotectonic Zone. The Bankfield-Tombill Fault extends further east (power stripping by Hardrock Extension Inc.) than was documented by Horwood and Pye (1951). Recent power stripping by M. Malouf on the Hardrock Extension property, east of the Hard Rock Mine, has uncovered not only the zone of influence of the Bankfield-Tombill Fault but also a new auriferous porphyry zone (see Hardrock Extension in Appendix A). Gold is associated with arsenopyrite in a quartz-tourmaline stockwork system hosted by altered feldspar porphyry.

Pyritic porphyry and wacke or arkose host gold mineralization in several of the Geraldton deposits. Scintrex, under a NORDA grant, using IP and Mag-IP, detected an auriferous pyritic-arsenopyritic deposit, part of the original Jellicoe (Jelex) gold deposit. Therefore, the potential for IP on other properties in the belt should be investigated.

The Eva-Summers Township area should be prospected for Leitch-type crack-seal, gold-bearing quartz veins. Although the Leitch Mine was a vein-type deposit, the high grade of the veins (0.92 ounce gold per ton) makes such a deposit an attractive exploration target.

The Melchett-Briarcliffe Lake belt should be prospected for gold occurrences with geological similarities to the Southern Metasedimentary Sub-belt. The Melchett-Briarcliffe Lake belt is composed of a banded oxide facies iron formation hosted in clastic metasediments.

The Southern Metavolcanic Sub-belt should be explored for gold mineralization. Gold is associated with zones of deformed and hydrothermally altered banded iron formations. Gold occurs within sulphides in veins and mesoband replacements. For reasons outlined under the preceding Southern Metasedimentary Sub-belt, magnetometer and IP surveys are recommended. Lithogeochemical data illustrates a gold, arsenic and antimony association which could be used by explorationists.

Within the Onaman-Tashota Belt, felsic and mafic metavolcanic rocks host high grade, vein-type gold deposits and auriferous sulphide zones. Contact areas between volcanic rocks and granitoid stocks (granodiorite, granite, feldspar porphyry) should be prospected for quartz veins, which can be up to 6.0 m wide and contain <1%-30% sulphides. Gold is usually free and can be associated with galena, chalcopyrite, sphalerite, pyrite and pyrrhotite. Shear zones hosting sulphide minerals (chalcopyrite or pyrite) should be prospected, in light of the Twin Falls and Peddle Lake finds (see Appendix A). Barbara, Meader, Pifher, Elmhirst, Rickaby, Lapierre, Sandra, Irwin and Walter Townships and the Onaman Lake area, traditionally a target for base metal mineralization, should be prospected for gold mineralization.

Major transcurrent faults, including not only the Bankfield-Tombill Lithotectonic Zone (Bankfield-Tombill Fault) but also the Paint Lake Fault and associated splay faults, should be examined. The discovery of an economic gold deposit on the Brookbank Prospect, by Metalore Resources, proximal to a tectonic contact, supports this approach.

Overburden drilling in the lineated till plain between Jellicoe and Geraldton is recommended in combination with magnetometer and IP surveys.

Surface prospecting, power stripping, and channel and/or bulk sampling are suggested on vein- and iron formation-hosted gold ocurrences or prospects and their possible extensions. The backhoe or skidder/backhoe has been very useful as a prospecting tool in the Beardmore-Geraldton-Onaman area.

Bulk sampling is recommended as a necessary part of most gold exploration programs in the area, especially due to the availability of the Teck "GOMILL" custom mill at Beardmore.

Mine dumps (and tailings) should be re-examined. This is supported by the recent sampling success of Aggen Inc. on selected dumps in the Beardmore-Geraldton area, and especially the success Teck has had milling size-sorted Leitch dump material. Size, photometric or conductivity sorting could increase the grade of mill feed from dumps and tailing ponds prior to conventional milling.

Base Metals

A chloritoid alteration zone has been noted by S. Osterberg, University of Minnesota-Duluth (J. M. Franklin, Geological Survey of Canada, Ottawa, personal communication, 1984) in the Onaman River area. Deposits such as Headvue (Headway-Coulee) zinc-lead-silver deposit and other known base metal occurrences are located within this alteration zone. Pb, Zn, Cu, Ag and Au are hosted in distal exhalites-volcanogenic massive sulphide deposits and epigenetic vein or breccia zones. Regional lithogeochemistry, till prospecting and diamond drilling of untested geophysical conductors are recommended. Structural complexities have presented problems in the Marshall Lake area, a second area of high potential for base metal mineralization, in the Beardmore-Geraldton area. This belt has good potential from the Armstrong area (Caribou Lake) east to the O'Sullivan Lake area. "Metasediments" in the Marshall Lake area have been reinterpreted as felsic pyroclastic rocks by Amukun (1978).

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1983c: Crescent Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 12, 22 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983d: Deeds Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 21, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983e: Durer Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 33, 20 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983f: Eager Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 36, 14 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983g: Esnagami Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 23, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983h: Falcon Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 13, 20 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983i: Gledhill Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 25, 26 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983j: Junior Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 14, 18 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983k: Kassagimini Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 35, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983l: Kirby Township Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 45, 14 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983m: Linklater Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 9, 26 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983n: Lucy Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 22, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983o: Mann Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 37, 14 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983p: Maun Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 18, 20 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983q: McQuesten Township Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 46, 20 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983r: Metcalfe Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 24, 28 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983s: O'Sullivan Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 17, 26 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

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1983u: Pikitigushi Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 11, 18 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983v: Sollas Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 16, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

1983w: Stewart Lake Area, District of Thunder Bay; Ontario Geological Survey Geological Data Inventory Folio 31, 16 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

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1983z: Toronto Lake Area, District of Thunder Bay, Ontario Geological Survey Geological Data Inventory Folio 19, 18 p. Accompanied by Property Location Map, Exploration Data Map, scale 1:31,680.

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Appendix A

Deposits, Prospects, Occurrences of the Beardmore-Geraldton Area

Mineral Deposits, Prospects, and Occurrences of the Beardmore-Geraldton Area
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Appendix

Note:

(1) All chemical analyses, unless otherwise stated, are results produced by the Geoscience Laboratories, Ontario Geological Survey for grab samples submitted by the Beardmore-Geraldton Economic Geologists.

(2) Asterisk (*) implies reference is unpublished document filed in Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

(3) Tonnage and grade figures, unless noted, are taken from OBM, ODM, ODMNA, OGS statistical reports.

(4) Most mineral deposit write-ups and other occurrences and prospects are numbered and plotted on location map (in pocket).

1) PROPERTY NAME: **Adair Occurrence (1)**

DATE(S) VISITED: July 5, 1984

2) ALTERNATE NAME(S): Tashota Creek
W.J. Cummer Property

3) COMMODITY: MAIN: Au SECONDARY: Ag, Pb, Zn, Cu

4) DEVELOPMENT HISTORY AND OWNERSHIP:
PAST:

1924-1925: George H. Adair made a gold discovery along Tashota Creek approximately 3.2 km (2 miles) south of the Canadian National Railway station at Tashota in October 1924. The property consisted of six claims KK2205, KK986, KK987, KK989, KK990 and KK999. Considerable surface work was done on the property including channel sampling, grab and chip sampling, and trenching. A 27 foot (7.9 m) vertical shaft was sunk on a "high grade" quartz vein on claim KK990.

1929-1930: The shaft was deepened to a depth of 70 feet (20 m).

1934-1937: Tashota Gold Creek Gold Mines Limited controlled the Adair property in 1934. However, this company became bankrupt after completion of stripping, sampling, road cutting, and erection of buildings. Its charter was cancelled in 1937.

1944-1948: In 1944, Invaday Mining and Exploration Limited was incorporated. The company owned and controlled a group of ten contiguou claims including the six Adair claims. Invaday Mining and Exploration Limited continued to conduct surface work and tried to option the ground to Sylvanite Gold Mines Limited in 1948. No agreement was apparently negotiated.

1961: The six Adair claims were known as the Rowan "990" claim group. Four diamond drill holes totalling 167.3 m (549 feet) were drilled by the holders; no encouraging results were acquired.

1965: A self-potential survey as well as a ground magnetometer survey was conducted by V. Feely and D. Seppa over the claim group. Several anomalies were located by the survey, and three of these were proposed to be tested by shallow diamond drill holes.

The proposal was apparently not followed up.

1973: W. J. Cummer performed geological and magnetometer surveys on the Adair property.

1976: Cameron M. Ross performed manual and mechanical work and benefication studies over the property.

CURRENT:

1982-1984: In February, 1982, John Koski of Beardmore staked the following claims covering the Adair property: TB406050, TB406051, TB406052, TB406053, TB406054, TB406055, TB406056, TB406057, TB406058, TB406059, TB406060, and TB406061. In March 1982, the above claims were transferred to Teck Explorations Limited. The shaft is located on claim TB406053. Linecutting, magnetometer and electromagnetic surveys were performed in 1983 and 1984.

5) LOCATION AND ACCESS:

N.T.S. 42L4/NE
U.T.M. Zone 16 Northing 5561087
Easting 452041

GENERAL LOCATION:

The property is located in the Tashota area, 3.2 km south of the former C.N.R. Tashota station.

ACCESS:

The property is accessible by travelling 7.0 km east of Jellicoe on Highway 11 and then north on Abitibi's Camp 40 Road to the former Camp 40 site. Continue north on the Auden Road to within approximately 6.0 km of Auden. At this point, take the right fork in an east-northeasterly direction toward Tashota. A winter drill road covers the final 2.5 km north to the Canadian National Railway and Tashota. Amukun (1977) indicates a trail south from Tashota to the Adair Occurrence.

Helicopter is the best means of access. A clearing at the shaft allows landing of a helicopter.

An alternative route to the area involves branching off the Camp 40 Road to the Con Creek Road. One drives a connecting Buchanan Bros. cutting road terminating north of Gzowski Creek, northeast of Metcalfe Lake. The Adair shaft is less than 3.0 km cross-country north-northwest of the road end.

REFERENCES:

Amukun (1977).
Gledhill (1925).
Halstead (1947)*.
Hopkins (1917).
Kindle (1931)*.
Leigh (1973)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 26a, Kowkash Gold Area (Hopkins, 1917).
Map 34g, Tashota-Onaman River Area (Gledhill, 1925).
Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1965).
Map 2354, Tashota Area (Amukun, 1977).

6) GENERAL GEOLOGY AND STRUCTURE:

Amukun (1977) described the geology at the Adair property:

"The mineralized quartz veins of the area are injected into highly sheared mafic to intermediate metavolcanics (and derived chlorite schist) which are extensively intruded by swarms of narrow quartz and/or feldspar porphyry dikes and derived quartz-sericite schist. The rocks in the vicinity of the shaft consist of pillow lava, chlorite schist, quartz-sericite schist, porphyry dikes and gabbro, all with a foliation of north 25 degrees east, and a dip of 75 to 85 degrees east. At the western end of the property is an intrusive contact between the metavolcanics and derived schists, and the Elbow Lake Stock."

Quartz biotite schists are interpreted to be a highly altered equivalent of the mafic metavolcanics. Disseminated pyrite is present in shear zones within the quartz biotite schists.

7) MINERALOGY:

Amukun (1977) stated:

"At the Adair property, gold occurrences are almost exclusively associated with narrow veins of quartz predominantly within sheared mafic metavolcanics and derived schist. Sheared quartz and/or feldspar porphyry dikes and derived quartz-sericite schist are invariably intruded into the mafic metavolcanics in the vicinity of the mineralization. The metallic minerals associated with the gold in the veins and identified in field are: pyrite, pyrrhotite, chalcopyrite, galena and sphalerite.

When the shaft was sunk in 1925, it exposed a vein of quartz 0.6 metres (2.0 feet) wide extending downward for 1.5 metres (5.0 feet), and carrying over an ounce in gold, and also a quartz vein about 0.9 metres (3.0 feet) wide, widening out to 1.2 metres (4.0 feet) at the 7.6-metre (25.0-foot) level; also, channel assay results gave over 9 ounces per ton gold, (Halstead 1947, Resident Geologist's Files, Ontario Ministry of Natural Resources, Thunder Bay) and silver. Other grab and chip sample results from the surface and underground workings returned encouraging values of gold and silver."

Leigh (1973) described gold occurring in narrow quartz veins associated with rusty weathering shear zones in quartz biotite schists which in turn are intruded by numerous feldspar porphyry dikes. Four drill holes (1961) directed at possible extensions of the zone intersected irregular sulphide mineralization and apparently nil to trace gold values. Leigh (1973) collected 17 large chip samples from the rusty shear zones and quartz veins. One sample assayed 0.02 ounces gold per ton and the remainder assayed trace to nil.

8) ECONOMIC FEATURES:

PAST PRODUCTION:

During 1931, 34 tons of gold ore were milled and 15.12 ounces of gold and 6.0 ounces of silver were recovered.

1) PROPERTY NAME: **Airways Occurrence (4)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Morehouse-Johnson Option

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT HISTORY AND OWNERSHIP:

PAST:

1944:	The property covering the occurrence was staked by Tena Rissanen (TB30790).
1944-1949:	The claim was optioned to Airways Exploration Limited who dug several trenches, and drilled five holes totalling 167 m (548 feet). The drilling was done in 1948.
1950:	The claim was cancelled.
1958-1971:	The property was staked five times; Remi Miron in 1958 (TB90939), William Morehouse in 1960 (TB98339), 1962 (TB103688) and 1965 (TB115850), and John Haahti in 1971 (TB319806). In all cases no work was performed.
1973:	The claim was cancelled and restaked by William Morehouse (TB352126).
1974:	The claim was optioned as part of a block of four contiguous claims owned by William Morehouse and T. Johnson (2 claims each) to Rickaby Mines Limited, at which time a grid was cut, and magnetometer and electromagnetic surveys were completed.
1975:	Rickaby Mines Limited drilled one hole (171 m (560.5 feet)) and later dropped the option. The claim was transferred to Shawmin Exploration Limited.
1976:	Shawmin Exploration Limited changed its name to Shawmin Consolidated Limited and the claim was cancelled.
1979:	The property was staked by Nolan Cox (TB518631 and TB518632).
1980:	Power stripping was done by Nolan Cox.
1981:	The claim was cancelled and restaked by David Thorsteinson (TB602229).
1982-1983:	Diamond drilling was done by David Thorsteinson (four holes totalling 225.9 m (741 feet)).
1984:	Power stripping was performed by David Thorsteinson.

CURRENT:

The claim is presently held by David Thorsteinson.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5507423
Easting 445258

GENERAL LOCATION:

The property located along the western boundary of Walters Township, 1.1 km north of Bearskin Lake.

ACCESS:

The property is accessible by travelling north from Nezah (10.1 km west of Jellicoe) on secondary Highway #801 for about 8 km, then southwest on a gravel road for 0.8 km.

REFERENCES:

Mackasey (1976).
Pudifin (1975)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet, (Pye et al., 1966).
Map 2356, Walters and Leduc Townships, (Mackasey, 1976).
Map P2516, Irwin Township Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Warren Occurrence for the general geology and structure of Walters Township.

Pudifin (1976) describes the property:

"The claim group is largely underlain by volcanic rocks of andesitic composition. They strike in a direction slightly north of east and dip steeply to vertical.

The northwest corner of the group is underlain by meta-sedimentary rocks including conglomerate, argillite and greywacke.

These rocks are generally sheared in a northeasterly direction with dip of schistosity predominantly steep to the north and occasionally to the south. A regional fault (Paint Lake Fault) crosses through the area in an east-west direction, about 600 feet (183 metres) north of the property. A branch of this fault similarly passes about 200 feet (61 metres) north of the property. Several northeasterly trending shears and lineaments cross the claims.

Airborne magnetic survey results show a band of magnetic highs passing just to the south of the claims which is probably due to Iron Formation."

7) MINERALOGY:

Arsenopyrite and graphite are noted in drill logs. Alteration types recognized include hematitic staining, epidotization, and carbonatization (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

According to Mackasey (1976):

"Mineralization consists of a series of ½ to 1 inch (1.3 to 2.5 cm) pyritic quartz-carbonate stringers with minor amounts of chalcopyrite, which are parallel to schistosity and strike N75E and dips about 75° north.

...Rusty weathered mineralization can be traced for about 26 metres (985 feet) along strike at which point bedrock is covered by overburden. The zone appears to be about 0.3 to 1.2 metres (1 to 4 feet) wide.

A chip sample taken across a 46 inch (1.17 m) zone...assayed 0.16 oz Au/ton and a trace of silver. A selected grab sample...contained 0.18 oz Au/ton and a trace of silver."

9) CHEMICAL ANALYSES:

1983

Hole No.	Sample No.	Width	Oz/Ton Au	Description
PC-1	3679	0.4 m (1.3 ft.)	Trace	Andesite. Fragments light greenish-grey colour. Sheared and fractured with quartz, carbonate, minor disseminated pyrite.
PC-1	3682	0.36 m (1.2 ft.)	0.01	As 3679, rusty, cracked and broken with no pyrite.
PC-1	3585	0.98 m (3.2 ft.)	Trace	Slightly more acid than 3679, without pyrite. Reddish hematitic stain.
PC-1	3688	0.30 m (1.0 ft.)	Trace	As 3679 with about 70% quartz carbonate. Epidotized.
PC-1	3694	0.98 m (3.2 ft.)	0.01	As 3679.
PC-1	3696	0.64 m (2.1 ft.)	Trace	Agglomerate to agglomeratic tuff. Trachytic fragments with quartz carbonate.
PC-1	3698	0.36 m (1.2 ft.)	Trace	Tuff, fine-grained, light grey colour. Some carbonatization. Some quartz carbonate streaks (up to 50%).

1) PROPERTY NAME: **Bankfield Mine (11)**

DATE(S) VISITED:
June, 1981
June 23, 1984
June 13, 1985
August 29, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: **Properties were staked by T. A. Johnson and Robert Wells. Mining Operation Permits were filed for eighteen claims: TB10199 to TB10204 inclusive, TB10211 to TB10216 inclusive, TB10225, TB10226, TB10301, TB10302, TB20028, and TB20029.**

1932: **A total of 168 days work was filed for assessment credit on the claims held by Johnson and Wells.**

1933-1934: **A total of 92 days work was submitted for assessment credit. Forty percent of each claim was transferred to the Sudbury Diamond Drilling Company, and 50% of each claim was transferred to Percy Hopkins. Diamond drilling was done by the Sudbury Diamond Drilling Company.**

1934: **All interests from the Sudbury Diamond Drilling Company, Percy Hopkins, Robert Wells, and T. A. Johnson were transferred to Bankfield Gold Mines Limited, which completed 2254.9 m (7,398 feet) of diamond drilling after surface exploration. A three compartment vertical shaft was sunk to a depth of 158 feet (48.2 m) with one level established at 150 feet (45.7 m). In addition, a compressor plant and other facilities were constructed.**

1935: The shaft sinking continued to a depth of 552 feet (168.2 m) with second and third levels established at 275 feet (83.8 m) and 525 feet (160 m). Surface diamond drilling totalled 681.8 m (2,237 feet) and underground diamond drilling totalled 431.6 m (1,416 feet). An application for patent was made on the 18 claims and was subsequently approved.

1936: Bankfield Gold Mines Limited changed their name to Bankfield Consolidated Mines Limited. Construction began on a 125 ton per day mill. Underground development continued.

1937: Electric power was brought to the property and the entire plant was electrified. The mill was completed and put into operation. Underground development continued in the form of drifting, crosscutting, raising and sub-levelling on the first three levels. A three compartment vertical internal winze was sunk to a depth of 241 feet (73.5 m) from the 525 foot (160 m) level. A number of buildings were erected on surface.

1938: Underground development continued. The winze was deepened to 531 feet (161.8 m) below the 525 foot (160 m) level with levels established at 775 feet (236.2 m), 900 feet (274.3 m) and 1,025 feet (312.4 m). One hole was drilled from surface (91.44 m (300 feet)), and 59 holes totalling 2,082.4 m (6,832 feet) were drilled from underground. Production also continued.

1939: The winze was deepened to 772 feet (235.3 m) below the 525 foot (160 m) level, with levels established at 1,150 feet (350.5 m) and 1,275 feet (388.5 m). In addition to drifting, crosscutting and raising, 5 holes were drilled from surface totalling 618.1 m (2,028 feet) and 56 holes totalling 3,091.0 m (10,141 feet) were drilled from underground. The mill operated throughout the year.

1940: Production and underground development continued with 3,092.2 m (10,145 feet) of diamond drilling from underground, in addition to drifting, crosscutting and raising.

1941: Work continued as in 1940, with 12 holes drilled totalling 1,134.2 m (3,721 feet) from underground.

1942: Development consisted of four holes totalling 284.7 m (934 feet) drilled from underground. Operations were suspended in August due to exhaustion of ore reserves.

1947: The mine was idle though limited production resulted from mill clean-up. In 1946, six claims (TB10199, TB10201, TB10203, TB10204, TB10301, and TB10302) were leased to Magnet Consolidated Mines Limited.

1950-1952: The buildings and equipment were sold.

1963-1964: Geophysical surveys were conducted by Bankfield Consolidated Mines Limited.

1976: Bankfield Consolidated Mines Limited Ontario Charter was cancelled.

1977: Surface rights to the patented claims held by Bankfield were transferred to Catherine Lenergan.

1979: Notice of forfeiture was given to Bankfield Consolidated Mines Limited and all lands were returned to the Crown. Notice of forfeiture is also dated 1981.

1980-1981: Two applications to purchase the slimes and tailings from the Bankfield properties were received by the Crown. M. Leahy's application was filed in early 1980 and the application of Roxmark Mines was filed in early 1981. No decision was noted as the lands were not considered to be firmly in the Crown.

1981: Bankfield Consolidated Mines Limited was revived and restored to its legal position as a corporation.

1982: Hemglo Resources Limited held a mortgage for Bankfield Consolidated Mines Limited with a payment of $50,000 with interest at 16% repayable.

1983: Bruce Durham of Middleton Exploration mapped the Bankfield Mine property.

1984: Approximately 609.6 m (2,000 feet) was drilled by Field Resources (south of Highway #11) on VLF and magnetometer anomalies. The formation of Field Resources by Don McKinnon, Rocco Schiralli and Claude Bonhomme was a reorganization of Bankfield Consolidated Mines Limited, and included a 10 for 1 trade of Bankfield for Field shares.

CURRENT:

The claims are presently held by Field Resources.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5504615
Easting 494231

GENERAL LOCATION:

The claim block is predominantly in western Errington Township, immediately north of Trans-Canada Highway #11.

ACCESS:

The past-producer is located 8.25 km west of the turn-off to Geraldton (Highway #584) along Trans-Canada Highway #11 and is within 250 m of the road.

REFERENCES:

Armstrong (1943).
Bruce (1935, 1936).
Burton (1936a, 1936b)*.
Dunbar (1937)*.
Ferguson et al. (1971).
Gill (1938)*.

Hawley (1940)*.
Hoiles (1943).
Matheson (1948).
Paterson (1936)*.
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al. (1936, 1937, 1938, 1939, 1940).
Tower et al. (1941, 1942, 1946a, 1946b).
Trembley (1939 to 1941, 1945, 1946a, 1946b, 1947, 1948a, 1948b, 1949).

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map 241, Geraldton Sheet (Pye, Fenwick and Baillie, 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2519, Lindsley Township Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Pye (1951) described the general geology and structure of the Bankfield Mine area as follows:

"The oldest rocks in the vicinity of the mine are clastic sediments, which, in the Bankfield area, consist essentially of alternating beds of medium-grained, massive greywacke and fine-grained, slaty greywacke. Overlying these to the north are conglomerate, greywacke, black slate, and iron formation. Intrusive rocks include diorite, quartz albite porphyry... and diabase which cuts all other rock formations as a very prominent dike.

For the greater part of their length, the sedimentary beds on the Bankfield property strike about N60°-70°W, and dip 75°-80°S. In a few places, however, the beds assume a more east-west strike and somewhat flatter dips.

Anglin (1983, 1984) noted key exposures south of the shaft depicting the stratigraphic relationships. Albite porphyry intrudes the gabbro (diorite) and the sedimentary rocks, mainly wacke and iron formation. The albite porphyry contains angular clasts of gabbro possessing rotated foliation, oblique to the prominent fabric in the porphyry. Therefore, some deformation took place after gabbro intrusion but prior to introduction of the albite porphyry. The porphyry is kink folded and veined (L. Anglin, geologist, GSC, Ottawa and A. J. Macdonald, geologist, OGS, Toronto, personal communication, 1985). All surface and underground mapping suggests the gold mineralization post-dates the porphyry.

Pye (1951) further stated:

> "Just north of the main ore zone there is a strong fault zone, that strikes across the property N.70°W. and dips steeply 70°SW. This break, referred to as the Bankfield-Tombill or the No. 1 fault, is an outstanding structural feature that has been traced for several miles across the district. This zone has been described by Matheson, who states:
>
> > 'On the Bankfield and Tombill properties, as elsewhere for most of its length, the fault is now a highly silicified and carbonatized zone up to 200 feet wide. Mud seams and open vugs occur along the fault. Chalcopyrite is quite common and there is some pyrite. Gold is also known, but no ore has been found in the fault'."

7) MINERALOGY:

Pye (1951) described the mineralogy of the Bankfield Mine:

"The main or south ore zone at the Bankfield mine consists of a buff-coloured, fragmental zone and, locally, a band of partially silicified greywacke included between the porphyry-diorite complex and the relatively unaltered sediments to the north. The fragmental zone is made up of sheared and brecciated greywacke, highly silicified and impregnated with variable amounts of sulphides, and cut by numerous "opalescent" grey quartz veins. Locally, the main ore zone also included altered porphyry and, to a lesser extent, black slate. The principal sulphides are pyrite, arsenopyrite, and pyrrhotite. A little chalcopyrite and very minor amounts of sphalerite, galena, and grey copper have been noticed. This zone of mineralized and brecciated rock has been traced horizontally for about 2,000 feet across both the Bankfield and the Tombill properties. It has an average thickness of about seven feet, but pinches and swells along the strike, varying in width from as little as one foot to as much as twenty feet. At the No. 1 shaft, the zone strikes N.80°W. and dips 70°-78°S. Between the No. 2 fault and the Bankfield-Tombill boundary, however, the average strike is N.85°W. Here the zone dips about 80°S. down to the 525-foot level, below which it rolls slightly to the north, assuming an almost vertical attitude. West of the Bankfield-Tombill boundary the ore zone strikes N.72°W. and dips 71°S. down to the 525-foot level. At greater depths it assumes a nearly vertical dip as before.

Adjacent to and partly within the silicified breccia zone, three ore shoots have been developed and mined. The locations and attitudes of these are shown in the longitudinal section of the ore zone. All three raked steeply to the west at an angle of about 65°. They were characterized by the occurrence of much visible gold, somewhat erratically distributed, mainly along small fractures but also along well-defined and persistent shear planes. The heaviest gold mineralization was in partially silicified greywacke along the hanging wall or south side of the breccia zone. The ore shoots, however, locally included portions of the intensely silicified zone and less frequently masses of black slate one or two feet in width.

The No. 2 Ore Zone
On the 950-foot and the 1,025-foot levels, a small amount of good ore was mined from a body 40 to 60 feet north of the porphyry-diorite mass. It occurred near the nose of a small synclinal fold plunging easterly at about 50°. This ore body consisted of brecciated and silicified greywacke, which, like that in the main ore zone, was mineralized and cut by numerous "opalescent" grey quartz veins. The occurrence of porphyry masses cutting across the minor fold suggests that similar structural controls, such as influenced ore deposition in the main ore zone, have been operative here.

North Zone
About 2,300 feet northeast of the main ore zone, there is another gold-bearing zone, the location of which has been determined by diamond-drilling and by one outcrop on a small island in Magnet Lake. It was the discovery of visible gold in a shear zone cutting this reef that prompted T. A. Johnson to stake the Bankfield property in October, 1931. This zone, striking N.66°W. and dipping 70°S., has a width of about 400 feet, across which scattered gold values

> have been obtained. It consists of silicified and carbonatized greywackes, mineralized with small amounts of pyrite and arsenopyrite and cut by numerous stringers of grey to milky quartz. The gold-bearing quartz stringers in this zone are remarkably persistent, but nowhere have they been found of sufficient widths or in sufficient numbers to justify exploitation."

Five types of alteration have been recognized by Pye, (1951) who has spatially related each to the ore zone:

> "Farther from the ore zone is a general chloritization of the wall rocks with a subordinate sericitization where these rocks have been highly sheared. As the ore zone is approached, carbonatization overshadows the chloritization, but gradually gives way to silicification and subordinate albitization within the ore zone itself."

8) ECONOMIC FEATURES:

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1937	11,136	1,236	26,437	0.421	0.047
1938	18,393	2,019	47,500	0.387	0.043
1939	16,313	1,869	45,566	0.358	0.041
1940	11,125	1,292	42,699	0.261	0.030
1941	6,186	691	39,175	0.158	0.018
1942	2,838	334	27,632	0.103	0.102
1944	160	22	-		
1945	19	-	-		
1946	222	127	-	Mill Clean-up	
1947	24	-	-		
TOTAL	66,416	7,590	229,009		

9) CHEMICAL ANALYSES:

Sample	Au(oz/Ton)	Ag(oz/Ton)	Sample Description
1980			
1	0.56	0.14	Grab Sample
2	0.01	Trace	Grab Sample
1981			
81-MBF-1	0.02	Trace - <0.10	Tailings
81-MBF-2	Trace - <0.01	Trace - <0.10	Medium to coarse-grained quartz-carbonate (calcite) with metavolcanics (sericite, epidote). 10% pyrite.
81-MBF-3	0.05	Trace - <0.10	Mafic metavolcanics containing many seams of small pyrite cubs (30-40%) and quartz stringers.
81-MBF-4	0.11	0.14	Quartz-sericite-biotite schist containing sulphide stained quartz stringer and pyrite seams.

1) PROPERTY NAME: Big Long Lac Occurrence (13) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: Claims TB10311 to TB10313 inclusive were staked by Ed Joanis. Claims TB10314 and TB10315 were staked by Paul Chanier. Claims TB10316 to TB10318 inclusive and TB10322 were staked by Walter Cockburn, and claims TB10319 to TB10321 were staked by W. J. Gibson.

1932: Surface exploration was conducted on the above claims. Claims TB10348 to TB10351 inclusive were staked by H. Cockburn; the latter three claims were recorded in the name of Annie Cockburn.

1933: Big Long Lac Gold Mining Company Limited was incorporated. The claims were transferred to H. Cockburn and subsequently to the company. Surface exploration (trenching, stripping and pitting) was done, and a number of samples were taken.

1934: Surface exploration continued. Approximately 640.1 m (2,100 feet) of diamond drilling was done to test the occurrence. Fourteen holes, spaced 61.0 m (200 feet) apart were drilled to an approximate depth of 45.7 m (150 feet). Results were discouraging so operations at this property were suspended. A block of nine claims on Suicide River, south and east of Long Lac were optioned, and work was concentrated on these claims.

1941: The claims were surveyed.

1946: Claims TB10316 and TB10317 were reduced in size, and the resulting sections were staked by J. Wilson as TB10316A and TB10317A respectively.

1947: The claims were patented and the company was listed as inactive in the Canadian Mines Handbook (1947).

1949: Big Long Lac Gold Mining Company Limited, (a junior company controlled by Becker-Banting interests) was noted as holding the 16 claim block in Coltham Township.

CURRENT:

The claims (which are still shown as patented on the most recent claim map) are held by Big Long Lac Gold Mining Limited, which is controlled by Becker-Banting interests.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5500100
Easting 521800

GENERAL LOCATION:

The property is located in northeastern Coltham Township, west of West Side Bay, Long Lake.

ACCESS:

The property can be reached by travelling the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584), and south and east on the Eldee Lake Road to Long Lake. From this point, the property is accessible by boat, approximately 6 km to the northeast on Long Lake. Alternatively the occurrence is accessible by boat from Longlac.

REFERENCES:

Canadian Mines Handbook (1947).
Fairbairn (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Long Lake, Pagwachuan Lake Area (Fairbairn and MacDonald, 1937).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map P1527, Ontario Mineral Potential-Long Lac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The general geology of the area has been described by Fairbairn (1938) as follows:

> "All the consolidated rocks are Precambrian. These are overlain by sands and gravels of glacial origin and in places by peat of poor quality. The pre-cambrian rocks include highly altered basic lavas, agglomerate, hornblende, chlorite, and biotite schists, which are grouped as Keewatin; conglomerate, greywacke, arkose, iron formation, and quartzite, grouped as Timiskaming; granite, granodiorite, quartz diorite, diorite, and quartz and feldspar porphyries, probably later than the sediments; and diabase dikes, which are definitely younger than the other rocks of the area and are grouped in the Keweenawan."

Fairbairn (1938) also noted that the stripping and trenching had exposed porphyry, iron formation, conglomerate and greywacke.

7) MINERALOGY:

Eight veins have been exposed in shear zones. Mineralization noted includes pyrite and free gold, (The Northern Miner, 33-8-24, p. 20).

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

Eight veins have been exposed with widths ranging from 2.5 cm (1 inch) to greater than 3.7 m (12 feet). Gold values range up to $23.30 (0.81 oz/ton gold), (The Northern Miner, 33-7-20, p. 5).

One zone has been exposed for a length of 121.92 m (400 feet) and averages 0.6 m (2 feet) in width. Gold values range from $10 to $62 (0.35 to 2.14 oz/ton gold) over mining widths, with free gold noted, (The Northern Miner, 33-8-24, p. 20).

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: Birch Bay Occurrence (14) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1929: The property covering the occurrence was staked by Stanley B. Watson (TB9016). Watson also staked a number of additional claims in the area (TB9012, TB9015, TB9017 to TB9020 inclusive), as did G. A. Bagshaw (TB9062 to TB9064 inclusive) and Joe Isherwood (TB9065 to TB9067 inclusive).

1930: The claims were transferred to Fred MacLeod.

1931: Surface exploration was conducted. Claims previously held by G. A. Bagshaw and Joe Isherwood were cancelled.

1932: The remainder of the claims were cancelled. The property covering the occurrence was restaked by Stanley B. Watson (TB10773). Some of the claims previously held by Fred MacLeod were also restaked; TB10774 and TB10775 by Stanley B. Watson, TB10776 to TB10778 inclusive by William W. Smith, and TB10779 by Thomas Rea.

1933: Claims TB10937 to TB10939 inclusive were staked by Gordon Duff and TB10940 to TB10942 inclusive were staked by Duncan Finlayson. The claims were previously held by Fred MacLeod. Surface exploration was conducted on these five claims. Stanley B. Watson's claims were transferred to Thomas Rea who transferred 30% of his claims to J. W. Bonbright.

1934: All of the claims were transferred to the newly incorporated Birch Bay Gold Mines Limited (Thomas Rea was president of the company). A considerable amount of trenching and stripping was done and the main showing (TB10773) was drilled. The claims were surveyed.

1938: Claims TB10939 and TB10940 were cancelled and the remaining 11 claims were patented.

1939-1945: Due to the discouraging results, no further work was done on the property.

1946: The company was listed as inactive in the Canadian Mines Handbook (1946).

1958: The company assets were sold and the charter was surrendered.

CURRENT:

The claims are shown on the most recent claim map as being patented.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5501250
Easting 522650

GENERAL LOCATION:

The claim block is located predominantly in the southeast corner of Croll Township, with portions of the claims in northeastern Coltham Township.

ACCESS:

The property can be reached by travelling the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584), and southeast on Eldee Lake Road to Long Lake. From this point, the property is accessible by boat, approximately 8.5 km to the northeast on Long Lake to Birch Bay, and 1.5 km to the western end of the bay. Alternatively, the occurrence is accessible by boat from Longlac.

REFERENCES

Fairbairn (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Long Lake-Pagwachuan Lake Area (Fairbairn and MacDonald, 1937).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Big Longlac Occurrence for the general geology of the area.

The mineralized shear zone strikes N75°E and dips 80° to the south. It occurs in a coarse, sheared, amygdaloidal agglomerate. Parallel to this zone, and several feet to the north, is a 0.9 m (3 foot) wide, highly sheared diorite porphyry dike (Fairbairn, 1938).

7) <u>MINERALOGY</u>:

The shear zone contains a number of small quartz veins up to 0.3 m (1 foot) in width. Mineralization in the "honey-combed and strongly fractured quartz" consists of abundant coarse pyrite, tourmaline and visible gold (Fairbairn, 1938).

8) <u>ECONOMIC FEATURES</u>:

The showing has been exposed for 114.3 m (375 feet), and the maximum width of quartz veins in the shear zone is 0.3 m (1 foot). Drilling results were described as "encouraging" (Fairbairn, 1938).

9) <u>CHEMICAL ANALYSES</u>:

None.

1) PROPERTY NAME: **Brenbar Mine (16)**

DATE(S) VISITED: June 4, 1981, June 18, 1981, July 14, 1981, August, 1981, September, 1981 (2), October, 1981, June 28, 1983, July 7, 1983, August 19, 1983, September 22, 1983, June 5, 1984, June 12, 1984

2) ALTERNATE NAME(S): Brengold Mine
Casey Contact Mine
Brennan and Kenty Brothers Property

3) COMMODITY: MAIN: Au SECONDARY: Ag, Cu, Pb, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: Claim TB13563 was staked by Lester Samuelson. Claims TB13564 to TB13566 inclusive were staked by F. S. Pentzer. G. Brennan staked TB13567, and William Dennis staked claims TB13568 and TB13569. Claims TB14001 to TB14003 were staked by John L. Kenty. The 12 claims were transferred to the Brennan and Kenty Brothers Prospecting Company Limited. A total of 30 assessment days were credited to each claim, presumably for surface exploration which resulted in the discovery of significant mineralization. Casey Contact Gold Mines was incorporated as a subsidiary of Mid-Canada Exploration Company, and optioned the property. (The company acquired the charter of Brookbank Gold Mines Limited.)

1934-1935: Surface exploration (1,737.4 m (5,700 feet) of stripping and trenching) was performed and 16 holes totalling 793.7 m (2,604 feet) were drilled. A two-compartment vertical shaft was sunk to a depth of 228 feet (64.4 m) with a station cut at 100 feet (30.48 m) and a level established at 200 feet (61.0 m). Lateral development continued until September when operations were suspended due to financial difficulties.

1936: Casey Contact Gold Mines Limited was reorganized to form Brengold Mines Limited. Underground operations were resumed on both levels. Development was suspended in December.

1937:	Surface exploration and prospecting were done. Diamond drilling consisted of 3 holes totalling 312.7 m (1,026 feet) drilled from surface, and 6 holes totalling 305.1 m (1,001 feet) drilled from underground.
1940:	The claims were surveyed and TB14001 to TB14003 inclusive were leased.
1941:	A small shipment of ore was sent to the Magnet Consolidated mill for treatment (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).
1938-1945:	The company was inactive (Canadian Mines Handbook, 1938-1945).
1945:	Brenbar Mines Limited was incorporated to take over the property of Brengold Mines Limited.
1946:	The remaining 9 claims were leased.
1949:	In September, the workings were dewatered and the two levels were mapped and sampled. A small shipment of ore was sent to the Magnet Consolidated mill for treatment.
1950-1980:	The company was idle, but was taken over by Becker-Banting interests in 1959.
1981:	The property was optioned to Goldwater Mines Limited. Three veins were stripped, trenched and a bulk sample was taken. Oversized waste dump material was screened and both vein and waste material were mill tested. The workings were dewatered, mapped and sampled, and a new, two-compartment headframe was constructed. Limited milling was done with a 35 ton per day portable concentrating mill on site. Mine road rehabilitation from Highway #801 was also done. The option went into default and operations were suspended.
1983:	The claims were optioned to Numbered Ontario Company 530260 (a subsidiary of Goldwater Resources). Thyssen Mining Construction of Canada Limited, representing the numbered

company, bulk sampled the mine. As of November, some 800 to 850 tons of ore had been shipped to the Pamour Mill, Timmins, for treatment.

CURRENT:

The claims are held by Numbered Ontario Company 530260, which is a subsidiary of Goldwater Resources.

Brenbar Mines Limited owns the property (12 leased claims).

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5510422
Easting 442364

GENERAL LOCATION:

The property is located in northeastern Irwin Township, immediately south of the Namewaminikan (Sturgeon) River.

ACCESS:

The mine site can be reached by travelling north from Nezah (9.6 km west of Jellicoe on Trans-Canada Highway #11) on Highway #801 for about 13 km. From this point, the mine site is located approximately 5.5 km northwest on a Ministry of Natural Resources garbage disposal road.

REFERENCES:

Arnoldi (1951).
Ferguson et al. (1971).
Laird (1936).
Mackasey (1975).
McIlwaine et al. (1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al. (1937 to 1939).
Trembley (1946).
Williams (1951).

MAP REFERENCES:

Map 45A, Sturgeon River Gold Area (Bruce and Laird, 1936).
Map P257, Lake Nipigon Sheet, District of Thunder Bay, Ontario (Pye and Harris, 1964).
Map P481, Irwin Township (Mackasey, 1968).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

Map 2294, Dorothea, Sandra, and Irwin Townships, (Mackasey, 1967).

6) GENERAL GEOLOGY AND STRUCTURE:

The general geology has been described by Mackasey (1975), who states:

> "The area is underlain by east-trending, deformed tuff-breccia, pyroclastic breccia, and fine-grained flows and tuffs of intermediate to felsic composition. ...Tourmalinization has occurred in some of the volcanic rocks. Quartz feldspar porphyry outcrops in the northeastern part of the claim group."

Units dip about 70° to the south.

7) MINERALOGY:

A number of quartz veins have been uncovered, the descriptions of which have been given by Laird (1936), as follows:

> "The more important showings are located along an east-west ridge that extends over parts of three claims, T.B.13,563 and T.B.13,569. They occur in a highly chloritic tuff, which has been strongly sheared at N80°E. In places the rock becomes quite agglomeratic, but shearing commonly tends to destroy the usual fragmental appearance. The fine-grained tuff in places shows faint bedding parallel to the schistosity, and in one outcrop near the west boundary of claim T.B.13,568 excellent bedding was observed. The veins are more or less parallel to the schisting, but in some cases they cut across it.
>
> The discovery vein, No. 2, is located near the east boundary of claim T.B.13,566, and is exposed for a length of 200 feet along the contact between a "green" dike and highly altered tuff. It is lens-like in character, ranging from 12 to 50 inches in width. It strikes in an easterly direction, but toward the east end it turns sharply southward, more or less folding back on itself. Rather severe faulting complicates the vein system.
>
> ...About 60 feet southeast of the discovery vein is No. 7 vein, which is exposed in a cribbed trench and on surface for about 65

feet. It strikes N75°E and dips 80°S. ...The immediate wallrock is a rusty, bleached sericite schist carrying no gold values.

...Next in importance is No. 5 vein which is located in the extreme northeast corner of claim TB13565 and is exposed over a length of 275 feet. It strikes N25°E and dips steeply to the west. ...The country rock is a tuffaceous greenstone.

No. 6 vein,...occurs in a highly sheared sericitic tuff, arkose-like in appearance.

...No. 8 vein,...strikes N60°W and stands vertical. It pinches and swells in characteristic fashion, the width of quartz ranging from 2 to 24 inches.

...Vein No. 15, on the boundary between claims T.B.13,562 and T.B.13,565 has been traced for 300 feet. It strikes N80°E and stands vertical. ...Vein No. 15, has been uncovered for 500 feet.

...All but three of the veins thus far uncovered have a general easterly trend and seem to follow a definite fracture system, which continues on to the Macjoe Sturgeon and Sturgeon River properties lying to the east. Veins No. 3, 4 and 5 strike north, a fact suggesting that there may be two sets of vertical fractures in the pattern. There is some evidence, however, of folding, and it may be assumed that the northerly veins occur in drag folds. If this is true, there may not be as many veins as first supposed. What are known as veins Nos. 1, 2, 7, and 4 may be one and the same vein; and veins Nos. 6 and 3 may likewise be a single vein. Further work may establish similar relationships between other widely separated veins on this property.

> Most of the veins have features in common. They are narrow and lens-like in habit, follow curved fractures, and pinch and swell in a characteristic manner along both the strike and dip. They usually develop a characteristic banded or ribboned appearance due to the presence of chlorite or sericite along fractures and slip planes parallel to the walls."

The veins are crack-seal lenticular products of ductile deformation. Vein widths range from 1 cm to 1 m in width. A vein type differing from those commonly occurring on the property is also noted by Laird (1936). It consists of "a strongly mineralized shear zone in a volcanic tuff", which is host to abundant chalcopyrite and azurite with no vein quartz.

According to Laird (1936):

> "The mineralization is rather sparse and confined largely to the quartz. It consists of pyrite, galena, sphalerite, native gold, and a little chalcopyrite. The gold is a pale variety occurring as tiny specks, almost invisible without a lens, and also in coarse blobs of a spectacular nature. The gold is found in several associations. Galena and sphalerite appear to be favoured, since the presence of either of these minerals commonly indicates gold in greater quantities than ordinary. It has also been observed in tiny fractures in grains and cubes of pyrite, in association with chlorite and sericite in the fractures and various slip planes in the quartz, and far out into what appears to be otherwise barren and unfractured quartz."

Laird (1936) also states that:

> "Alteration of the wallrocks is not strong but results mainly in the addition of silica, carbonate, pyrite, and sericite. The quartz is rather milky, well-fractured, and finely grained."

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

The mine has been estimated to contain 1,000 tons averaging greater than 2.0 oz/ton gold (The Northern Miner, January 2, 1947).

The No. 2 vein was sampled on surface, and was found to carry values averaging 1.42 oz/ton gold over an average width of 63.5 cm (25 inches) for 25.9 m (85 feet) (The Northern Miner, June 10, 1936).

The No. 7 vein has also been extensively sampled. On surface, the vein was sampled and was found to carry values averaging 0.767 oz/ton gold over a calculated average width of 0.61 m (2 feet) for 25.91 m (85 feet). On the 100 foot (30.5 m) level, this vein was developed and carried values averaging 0.846 oz/ton gold over a calculated average width of 0.61 m (2 feet) for 33.53 m (110 feet) (The Northern Miner, October 29, 1936).

Four channel samples taken across the No. 17 vein are reported to have assayed 0.56, 0.74, 0.92 and 1.02 oz/ton gold, respectively (The Globe and Mail, June 24, 1937).

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1941	20.894	-	57.2875	0.365	-
1949	41.795	-	46.0	0.909	-
TOTAL	62.689		103.2875		
1941, 1949	134	-	46		

Note: Due to inconsistent values found in the files, two tables are given.

9) CHEMICAL ANALYSES:
1981

Sample No.	Location	Oz/Ton Au	Oz/Ton Ag	Sample Description
81-MBB-1	-	16.88	4.58	Medium to coarse-grained quartz with sulphide mineralization (30%) consisting of pyrite, galena.
81-MBB-2	-	3.16	1.79	Medium to coarse-grained quartz with minor carbonate and sheared, sericitized metavolcanic (25-30%) chalcopyrite, pyrite).
81-MBB-3	-	0.13	4.35	Medium to coarse-grained quartz with sheared metavolcanics (30-40% pyrite).
81-MBB-4a	Vein #7 (3' (1 m chip)	Trace-<0.01	Trace-<0.1	Medium to coarse-grained quartz with sections of weathered carbonate alteration.
81-MBB-5a	Vein #1	0.01	Trace-<0.1	Chloritized, medium to coarse-grained quartz. Barren of sulphides and staining.
81-MBB-6a	Vein #7	Trace-<0.01	Trace-<0.1	Metabasalt host rock adjacent to No. 7 vein.
81-MBB-4b	100' level Vein #2A	0.03	0.44	Coarse-grained quartz with chloritized and sericitized, sheared wallrock containing scattered galena and pyrite (15%).
81-MBB-5b	100' level Vein #2A	0.04	Trace-<0.1	Coarse-grained quartz with minor weathered out carbonate and 5-10% galena and chalcopyrite.
81-MBB-6b	Vein #2 2nd level 15' E of Tag 147	0.99	0.75	Chip sample of quartz vein containing 2-3% scattered chalcopyrite, galena and pyrite.
81-MBB-7	Vein #2 2nd level	0.01	Trace-<0.1	Quartz vein containing 2-3% pyrite as a single bleb of fine crystals.
81-MBB-8	2nd level Tag 152	3.98	1.26	Quartz vein containing 25-30% near massive pyrite with some visible galena.
81-MBB-9	2nd level 20' W of Tag 154	0.03	Trace-<0.1	Quartz vein with indications of calcium carbonate and sericitization. 10-15% pyrite cubes along sericitized margins of the vein.

81-MBB-10	Vein #7 2nd level between Tags 154 & 156	Trace-<0.01	Trace-<0.1	Medium to coarse-grained quartz-barren of sulphides with minor sericitization.
81-MBB-11	Vein #2 2nd level near Tag 160	Trace-<0.01	Trace-<0.1	Quartz vein with fine scattered pyrite cubes along sericitized margins of quartz vein. Very minor chromium mica.
81-MBB-12	2nd level E end of drift, Tag 160	0.02	Trace-<0.1	Felsic metavolcanic with an abundance of fine, highly disseminated pyrite cubes.
81-MBB-13	Vein #2 2nd level starting E on drift	2.47	0.93	Quartz vein with 2-3% pyrite.
81-MBB-14	Vein #7 2nd level 6.09 m (20') from W end	0.02	Trace-<0.1	Quartz with narrow stringers of sandy coloured carbonate. Sheared, sericitized wall-rock with scattered fine pyrite cubes.
81-MBB-15	Vein #7 2nd level 25.5 m (85') E of E end	0.05	Trace-<0.1	Quartz vein. Sheared sericitized chloritized wallrock containing 2-3% scattered pyrite.
81-MBB-16	Vein #7 2nd level 38.1 m (125') E of E end near Tag 161	2.47	0.81	Quartz vein with 10% pyrite and visible chalcopyrite.
81-MBB-17	Vein #7 2nd level 60.9 m (20') W of Tag 161	0.7	Trace-<0.1	Felsic metavolcanic with an abundance of fine, highly disseminated pyrite cubes (10-15% pyrite). Silicified and sericitized.
81-MBB-18	Vein #18	Trace-<0.01	Trace-<0.1	Saccharoidal quartz vein containing calcium carbonate and narrow chlorite seams.
81-MBB-19	Vein #18	0.03	Trace-<0.1	As above with abundant weathered and unweathered calcium carbonate.
81-MBB-20	Vein #8	0.01	Trace-<0.1	Medium to coarse-grained vein containing abundant calcium carbonate (weathered and unweathered) and chlorite seams.
81-MBB-21	Vein #8 0.76 m (30") chip	0.05	Trace-<0.1	Medium to coarse-grained quartz vein containing weathered and unweathered calcium carbonate and chlorite seams.

///

81-MBB-22	Vein #7	1.46	3.30	Primary jig concentrate.
81-MBB-23	Vein #7	0.74	3.10	Secondary jig concentrate.
81-MBB-24	-	11.10	16.98	Crushed material from between ball mill and jig.
81-MBB-25	Vein #7	0.34	Trace-<0.1	Quartz between 2nd crusher and ball mill.
81-MBB-26	Vein #7	0.52	Trace-<0.1	As above.
81-MBB-27		0.26	0.12	Concentrate from barrel exiting cord table.
81-MBB-28		0.16	0.12	New tailings from new mill.
<u>1983</u>				
83-MBB-1	New Vein #5	<0.01	-	Massive grey, white mottled quartz vein and minor sericite alteration along shear faces. No sulphide noted.

1) PROPERTY NAME: Brookbank Prospect (18)

DATE(S) VISITED:
September 22, 1981
July, 1982
December 14, 1982
September 22, 1983
October 12, 1983
August 7, 1984
July 18, 1985

2) ALTERNATE NAME(S): Brookbank Zone

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: Claims TB13524 to TB13526 inclusive were staked by L. G. Brookbank. Claims TB13527 to TB13529 inclusive were staked by Vaino Luukonen. Claims TB13530 to TB13532 inclusive were staked by W. H. Connell. Claims TB13533 to TB13535 inclusive were staked by J. F. McDonnell. Claims TB13536 to TB13538 inclusive were staked by J. Reid. Claims TB13539 to TB13541 inclusive were staked by F. M. Connell. The claims were acquired by the Connell Mining and Exploration Company Limited as part of a 24 claim block. Surface exploration (including trenching and pitting) and diamond drilling were done late in the year.

1935: The exploration program was suspended due to low and erratic gold values.

1941: The claims were cancelled and restaked by C. K. Brookbank, (TB29025 to TB29042 inclusive). Surface exploration was conducted and the claims were transferred to James Y. Murdoch.

1942: The claims were cancelled and reinstated.

1944: A total of 80 assessment days were credited to each claim for unspecified work and the claims were transferred to Noranda Mines Limited. A geological survey was conducted and a diamond drilling program was completed, which totalled 1,856.69 m (6,091.3 feet) in 40 holes.

1948: The claims were transferred to Dorion Red Lake Mines Limited.

1950: The claims were patented, and were subsequently acquired by Brookbank-Sturgeon Mines Limited from Dorion Red Lake Mines Limited. The latter was listed in the

Canadian Mines Handbook (1950) as having an underwriting on the property although they had been inactive in previous years. A. W. White was the president of both companies.

1951-1974: The company was listed as idle in the Canadian Mines Handbook (1951 to 1974).

1974: The property was optioned to Lynx Canada Exploration Limited (37.5%), Dejour Mines Limited (37.5%) and Canadian Reynolds Metals (25%). Lynx Canada managed the exploration program, which included prospecting, stripping, linecutting, magnetometer and geological surveys, and diamond drilling (6 holes).

1975: Six holes totalling 376.1 m (1,234 feet) were drilled by Lynx Canada Explorations Limited to test results obtained in 1974 drilling. Drilling was done on claims TB29037 and TB29030. The option was later dropped.

1981: The property was optioned by Metalore Resources Limited, who conducted magnetometer, VLF-EM and magniphase electromagnetic surveys. A diamond drilling program consisting of 30 holes totalling approximately 3,352.8 m (11,000 feet) was completed, 16 holes of which were drilled on the Brookbank zone. (It should be noted that the company had extensive holdings in the area).

1982-1983: Exploration was concentrated elsewhere on the claim block. A grid was cut over the property and a magnetometer survey was conducted. Three holes totalling 330.1 m (1,083 feet) were drilled.

1984: Metalore conducted a diamond drilling program from June through December on the Main Bookbank zone which totalled approximately 3,657.6 m (12,000 feet).

<u>CURRENT</u>:

The claims are held by Metalore Resources Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5506990
Easting 439846

GENERAL LOCATION:

The property is located in central Irwin Township, north of Windigokan Lake.

ACCESS:

The claims can be reached by travelling the Trans-Canada Highway #11, approximately 14 km east of Beardmore, north on Windigokan Lake Road for about 6.5 km and west by bush road for about 2.4 km.

REFERENCES:

Colcleugh (1946)*.
Ferguson et al (1971).
Laird (1936).
Lassila (1983)*.
Mackasey (1975).
McIlwaine (1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Ridler (1970).
Skrecky (1982)*.
Watson (1975, 1976)*.
Winter (1983)*.

MAP REFERENCES:

Map 45A, Sturgeon River Gold Area (Laird, 1936).
Map P481, Irwin Township (Mackasey, 1968).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2294, Dorothea, Sandra and Irwin Townships (Mackasey, 1975).

6) GENERAL GEOLOGY AND STRUCTURE:

The Brookbank property is underlain by Early Precambrian mafic metavolcanics, diorite, iron formation, arkose, slate, mudstone, greywacke, and conglomerate. The mafic metavolcanics are in fault contact with the metasediments to the north. The character of some of these rock types has been described by Colcleugh (1946)* as follows:

"The andesites are fine-grained, dark greenish and often schistose. Amygdules and ellipsoidal structures were rarely observed. Occasional narrow tuff horizons are interbedded with flows and such horizons have suffered the most intense shearing.

...The diorite is a medium-grained dark greenish rock which weathers to a rough surface with white and light grey colours predominant. An ophitic texture is sometimes easily seen in the hand specimen...

...(The arkose) is medium-grained, buff to cream coloured, and usually quite schistose. Highly schistose sericitic phases are quite common along the north margin of the ore zone. ...The presence of a few angular grains of red jasper is a very characteristic feature.

...The greywacke in hand specimen is a typical grey fine-grained rock showing a clastic nature in coarser varieties.

There is considerable lithological variation over short distances. In some places the greywacke grades directly into arkose, and in others, a fine, dense mudstone phase intervenes over a distance of several feet in the direction of stratigraphic sequence. The greywacke in the vicinity of the main ore zone gets progressively coarser going north (across the bedding) and hence there is a gradual change into coarser material, until the conglomerate, which contains well rounded large pebbles, is reached. Angular fragments predominate in the arkose and greywacke; rounded pebbles begin to appear frequently only in the northern reaches of the coarser greywacke.

...Conglomerate is characterized by an abundance of water worn pebbles in a rather fine-grained chloritic matrix. The pebbles vary in size from very small up to several inches in diameter. A pinkish granite is the most common type of pebble. Jasper and chert pebbles tend toward sub-angular outlines and are evenly distributed, but not abundant."

The Brookbank Prospect is situated on a splay of the Paint Lake Fault, a major regional transcurrent fault. The diorite unit is fault controlled similar to the diorite-gabbro intrusions within the Bankfield-Tombill Fault at Geraldton. Foliation of the rocks is generally northeasterly and steeply dipping to the south.

7) MINERALOGY:

The Brookbank Zone to the west is predominantly hos in sedimentary rocks. To the east the zone trends into the volcanic rocks.

According to Mackasey (1975):

> "The mineralized zone consists of a pyritized and silicified carbonate unit that extends some 2,000 feet (609.6 m) along the contact between mafic metavolcanic and overlying meta-sedimentary rocks."

Laird (1936) and Colcleugh (1946)* consider this zone to be a replacement of alteration of the metavolcanics. The alteration zone has been described by Colcleugh (1946)* as follows:

> "The usual sequence of material in the main ore zone from south to north is as follows: - First, there is a well fractured greenstone containing occasional small stringers of hard, reddish, siliceous material, with slight pyritization. A few narrow lenticular bands of schistose greenstone are present. The rock changes northward into a highly brecciated dark brown to buff coloured material largely composed of iron carbonate and finely dispersed quartz and a fine network of quartz and carbonate veinlets is commonly seen. Narrow irregular areas of pink to reddish fine-grained siliceous material are a consistent feature of the zone and seem confined largely to the greenstone side. Rather fine-grained pyrite is liberally distributed throughout the whole zone, but concentrated only in certain narrow bands, usually in the more siliceous phases. When the north margin of the zone is approached, the first evidence of a change is the appearance of a narrow band

of dense black cherty material in places less than one inch in thickness. Proceeding or following it for a few inches, there is usually a dark cherty phase of the alteration. This cherty horizon is interpreted as being originally a narrow band of iron formation. Following this northward is a highly schistose, sericitic phase which grades into a light cream coloured schistified arkose. The arkose within variable distances usually changes into a fine-grained dark slaty (mudstone) phase, and thence, into greywacke."

Drilling, in places, suggests a sharp contact between the mafic metavolcanics and the polymictic conglomerate to the north.

Mackasey (1975) reports the following:

"Sulphide mineralization in the 'alteration zone' consists mainly of fine disseminated pyrite. Specularite, chalcopyrite, and molybdenite are also present, the latter two being rare."

Gold mineralization is associated with fine disseminated euhedral to subhedral pyrite grains. Pyrite comprises from 2 to 10% of the rock.

Colcleugh (1946)* has noted that "visible gold is quite rare" and that "gold and chalcopyrite particles of extremely small size occur in fractures in pyrite, and sometimes appear completely enclosed in pyrite grains or in gangue".

At a depth the Brookbank Zone is a well brecciated fault zone as opposed to the pod-like structure noted on surface. Lassila (1983)* noted even at depth "high density drilling across the eastern half of the zone has indicated rather narrow (less than 15 foot) intermittant sections carrying "economic" values in gold."

Silicification, hematization, epidotization, and carbonatization are the main types of alteration noted in the Brookbank Zone.
Radioactive reddish potassium alteration is present.

8) ECONOMIC FEATURES:

The sheared, altered and mineralized contact zone has been tested for a strike length of 762 m (2,500 feet). Summaries of diamond drilling programs conducted on the property and significant intersections are tabulated below (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

Year	Company	Hole No.	Width	Oz/Ton Au
1944	Noranda	2	2.59 m (8.5 ft.)	0.16
"	"	3	0.85 m (2.8 ft.)	0.14
"	"	3	2.50 m (8.2 ft.)	0.15
"	"	3	1.25 m (4.1 ft.)	0.10
"	"	4	1.07 m (3.5 ft.)	0.41
"	"	4	0.88 m (2.9 ft.)	0.13
"	"	4	1.34 m (4.4 ft.)	0.10
"	"	5	1.34 m (4.4 ft.)	0.14
"	"	6	4.48 m (14.7 ft.)	0.143
"	"	7	3.32 m (10.9 ft.)	0.195
"	"	8	5.39 m (17.7 ft.)	0.288
"	"	9	1.16 m (3.8 ft.)	0.11
"	"	10	1.16 m (3.8 ft.)	0.135
"	"	12	1.77 m (5.8 ft.)	0.20
"	"	12	0.85 m (2.8 ft.)	0.105
"	"	13	1.13 m (3.7 ft.)	0.10
"	"	14	0.61 m (2.0 ft.)	0.68
"	"	17	0.76 m (2.5 ft.)	0.10
"	"	17	0.76 m (2.5 ft.)	0.12
"	"	17	0.61 m (2.0 ft.)	0.18
"	"	18	0.49 m (1.6 ft.)	0.10
"	"	19	0.76 m (2.5 ft.)	0.32
"	"	20 S	0.73 m (2.4 ft.)	0.10
"	"	21	1.95 m (6.4 ft.)	0.634
"	"	21	1.31 m (4.3 ft.)	0.10
"	"	22	0.85 m (2.8 ft.)	0.14
"	"	22	4.97 m (16.3 ft.)	0.126
"	"	28	3.44 m (11.3 ft.)	0.118
"	"	29	1.07 m (3.5 ft.)	0.11
"	"	31	1.89 m (6.2 ft.)	0.107
"	"	34	1.10 m (3.6 ft.)	0.18
"	"	35	1.25 m (4.1 ft.)	1.12
"	"	36	2.50 m (8.2 ft.)	0.126
"	"	37	1.31 m (4.3 ft.)	0.12
1974	Lynx Can.	BB-1	0.30 m (1.0 ft.)	0.30
"	"	BB-2	0.30 m (1.0 ft.)	0.28
"	"	BB-2	0.76 m (2.5 ft.)	0.12
"	"	BB-2	0.76 m (2.5 ft.)	0.12
"	"	BB-4	0.91 m (3.0 ft.)	0.13
"	"	BB-4	0.73 m (2.4 ft.)	0.08
"	"	BB-4	0.24 m (0.8 ft.)	1.59
"	"	BB-5	0.40 m (1.3 ft.)	0.08
"	"	BB-6	0.30 m (1.0 ft.)	0.25

Metalore Contact zone DDH intersections (east to west).

1981	Metalore	M-16	1.82 m (6.0 ft.)	0.14
"	"	M-16	1.62 m (5.3 ft.)	0.14
"	"	M-17	0.37 m (1.2 ft.)	0.14
"	"	M-17	1.71 m (5.6 ft.)	0.14
"	"	M-25	1.43 m (4.7 ft.)	0.10
"	"	M-19	0.55 m (1.8 ft.)	0.14
"	"	M-19	1.31 m (4.3 ft.)	0.11
"	"	M-15	0.61 m (2.0 ft.)	0.09
"	"	M-20	2.77 m (9.1 ft.)	0.03
"	"	M-22	1.52 m (5.0 ft.)	0.09
"	"	M-21	1.13 m (3.7 ft.)	0.07
"	"	M-29	5.88 m (19.3 ft.)	0.10

Metalore Hanging Wall DDH intersections (east to west).

"	"	M-18	0.55 m (1.8 ft.)	0.20
"	"	M-16	1.43 m (4.7 ft.)	0.13
"	"	M-16	0.67 m (2.2 ft.)	0.30
"	"	M-16	0.49 m (1.6 ft.)	0.29
"	"	M-17	0.37 m (1.2 ft.)	0.11
"	"	M-25	1.34 m (4.4 ft.)	0.22
"	"	M-20	2.13 m (7.0 ft.)	0.11
"	"	M-22	2.29 m (7.5 ft.)	0.50
"	"	M-22	2.23 m (7.3 ft.)	0.10
"	"	M-21	2.29 m (7.5 ft.)	0.11

Metalore second tier (800 ft. @ -65°) DDH intersections (Contact zone only - east to west).

"	"	M-26	2.99 m (9.8 ft.)	0.11
"	"	M-26	1.98 m (6.5 ft.)	0.09
"	"	M-27	2.71 m (8.9 ft.)	0.12
1982	"	82-4	0.76 m (2.5 ft.)	0.099
1983	"	83-M1	0.91 m (3.9 ft.)	0.04
"	"	83-M2	14.63 m (48.3 ft.)	0.002 to 0.12

9) <u>CHEMICAL ANALYSES</u>:

<u>1981</u>

Sample No.	Location	Oz/Ton Au	Oz/Ton Ag	Sample Description
81-MGC-1	Old pit, 22E, 1 mile east of mineral-ized zone	0.06	Trace-<0.1	Mafic metavolcanic containing small stringers of hard, reddish (hematitic) siliceous material with 10% pyrite and minor carbonate.
81-MGC-2	Float, 33E	0.01	Trace-<0.1	Small stringers of hard reddish, (hematitic) siliceous material containing abundant pyrite (15%) cubes. Also hard, block slaty material.

81-MGC-3	Float, 23E	0.01	Trace- <0.1	Medium to coarse-grained, smokey quartz with 15% pyrite and narrow stringers of weathered iron carbonate.
81-MGC-4	Noranda Showing	0.02	Trace- <0.1	Silicified metavolcanic containing hard, reddish (hematitic) siliceous (cherty) material. High carbonate content.
81-MGC-5	Noranda Showing	0.87	0.29	Sheared, chloritized mafic metavolcanic with blebs of hard, reddish (hematitic) siliceous (cherty) material with 15% fine pyrite cubes.
81-MGC-6	Noranda Showing	0.22	Trace- <0.1	Sheared, chloritized mafic metavolcanic with some red, siliceous material and much weathered calcite iron carbonate.
81-MGC-7	Float	0.11	Trace- <0.1	Hard, reddish (hematitic) siliceous (cherty) material with pyrite (20-25%) crystals throughout. Much weathered iron carbonate.
<u>1983</u>				
83-MGC-1	Strip zone-Noranda Holes	0.01	-	Quartz carbonate vein (fractured milky quartz) in volcanics near fault contact with sediments. <1% disseminated pyrite.

1) PROPERTY NAME: Burroughs Syndicate Occurrence (West) (22) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
It should be noted that the claim covering the occurrence was part of a 21 claim block held by the Burroughs Syndicate.

PAST:

1934: The claim covering the occurrence was staked by E. M. Howells (TB13316). Surface exploration was performed.

1935-1937: Surface exploration and trenching was completed.

1938: The claim was transferred to William B. McPherson (of the Burroughs Syndicate).

1939: The claim was optioned to J. E. Greenburgh. Magnetometer and geological surveys were conducted, following which, trenching and diamond drilling were done. One hole was drilled to test the occurrence.

1940: Thirty-one percent of the claim was transferred to J. E. Greenburgh.

1941: The claim was surveyed and further surface work was performed.

1942: All interest held by William McPherson was transferred to J. E. Greenburgh, who subsequently patented the claim.

1945: Miami-General Development Mines Limited was incorporated to explore and develop mining properties. (The company was 75% owned by Miami Copper Company and 25% owned by General Development Company). J. E. Greenburgh was the president of the newly formed company.

1983: The property was restaked by Michael Malouf of the Quaternary Mining and Exploration Company Limited (TB677046).

1984: A grid was cut and magnetometer and electromagnetic surveys were conducted. The claim was later sold to Geraldton Longlac Gold Incorporated. (A company in which Michael Malouf is also involved).

CURRENT:

The claim is held by Geraldton Longlac Gold Incorporated and is part of a 34 claim block in Croll and Coltham Townships.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 549900
Easting 516000

GENERAL LOCATION:

The claim is located in north central Coltham Township.

ACCESS:

Follow the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584) and southeast on Eldee Lake Road for about 4.8 km to the east-west baseline which crosses the property. The occurrence is located approximately 1.4 km east along the baseline and is less than 137.2 m to the south.

REFERENCES:

Archibald (1983)*.
Fairbairn (1938).
MacDonald (1942).
Malouf (1984)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sirola (1940)*.

MAP REFERENCES:

Map 46B, Long Lake, Pagwachuan Area, Thunder Bay District, Ontario (Fairbairn and MacDonald, 1937).
Map 49M, Kenogamisis River Area, Thunder Bay District, Ontario (MacDonald, 1940).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Burroughs Syndicate Occurrence (Central).

7) MINERALOGY:

Gold values were obtained in quartz-chlorite veins mineralized with disseminated pyrite.

8) ECONOMIC FEATURES:

1939 - J. E. Greenburgh (Option from the Burroughs Syndicate)

Hole #	Sample #	Type	Width	$ Au	Oz/Ton Au Gold @ $38.50/oz
11	75	Core	6.1 cm (0.2 ft.)	10.15	0.26
11	76	Core	6.1 cm (0.2 ft.)	5.25	0.14

It should be noted that the Burroughs' drilling was done with an x-ray drill which could not penetrate heavy overburden. For this reason, some showings were not explored along strike and geophysical anomalies were not tested at these locations (Sirola, 1940)*.

9) CHEMICAL ANALYSES:
None.

1) PROPERTY NAME: **Burroughs Syndicate Occurrence (Central) (23)** DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

It should be noted that the claims covering the occurrence were part of a 21 claim block held by the Burroughs Syndicate.

PAST:

1938: The claims covering the occurrence were staked by Rob Hobs (TB26256 and TB27050). Surface exploration was performed.

1939: The claims were transferred to J. E. Burroughs of the Burroughs Syndicate, and was later optioned to J. E. Greenburgh. Magnetometer and geological surveys were conducted, following which, trenching and diamond drilling were done. Ten holes were drilled to test the occurrence

1940: Thirty-one percent of the claims were transferred to J. E. Greenburgh.

1941: The claims were surveyed and further surface work was performed.

1943: J. E. Burroughs died and all interests were transferred to Mary Burroughs.

1944: All interests were transferred to J. E. Greenburgh who subsequently patented the claims.

1945: Miami-General Development Mines Limited was incorporated to explore and develop mining properties. (The company was 75% owned by Miami Copper Company and 25% owned by General Development Company). J. E. Greenburgh was the president of the newly formed company. The patents were later revoked.

1983: The property was restaked by Michael Malouf of the Quaternary Mining and Exploration Company Limited (part of TB677041, TB677042, and part of TB677043).

1984: A grid was cut and magnetometer and electromagnetic surveys were conducted. The claims were later sold to Geraldton Longlac Gold Incorporated.

CURRENT:

The claims are held by Geraldton Longlac Gold Incorporated and are part of a 34 claim block in Croll and Coltham Townships.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5500100
Easting 518500

GENERAL LOCATION:

The property is located in north central Coltham Township.

ACCESS:

The property can be reached by travelling the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584) and south and east on Eldee Lake Road for about 4.8 km, to the east-west baseline which crosses the property. The occurrence is located approximately 4.0 km east along the baseline and 300 m to the south.

REFERENCES:

Archibald (1983)*.
Fairbairn (1938).
MacDonald (1942).
Malouf (1984)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sirola (1940)*.

MAP REFERENCES:

Map 46B, Long Lake, Pagwachuan Area, Thunder Bay District, Ontario (Fairbairn and MacDonald, 1937).
Map 49M, Kenogamisis River Area, Thunder Bay District, Ontario (MacDonald, 1940).
Map P241, Geraldton Sheet, (Pye et al., 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The geology and structure of the property has been described by Archibald (1983)* as follows:

"The property is underlain by...Timiskaming sediments and basic to intermediate metavolcanic units wrapped around the southern flank of a large granite pluton.

...The Keewatin volcanic rocks in the southern belt consist mainly of chloritic tuffs and breccias. They appear to be related to the units found south-east of the MacLeod-Cockshutt and Hard Rock Mines and lie strati-graphically above the massive andesite and basalt flow rocks.

These units are dark green, fine to medium-grained and dioritic in texture. Shearing and metamorphism obliterate much of the primary pillow structures. The metamorphic grades range from greenschist to amphibolite facies. Mineral assemblages are high in amphibole, chlorite, epidote, carbonate and biotite.

Tuffs, agglomerates and lenses of greywacke are found interflowed with the volcanic sequences. These units generally strike east-west and dip steeply to the south.

...The volcanics lie disconformably below the...sediments which also strike east-west and dip 75 degrees south."

According to Sirola (1940)*, the iron formation "marks the north limb of a major syncline," but Archibald (1983)* believes the units described above "form part of the southern limit of an overturned synclinal structure."

C. W. Archibald (1983)* believes that "the property lies along the extension of the Bankfield-Tombill strike fault which is expressed as shearing in the units found on the property." To the east, quartz porphyry intrusions are intercalated with iron formations and conglomerates.

7) MINERALOGY:

Sirola (1940)* noted that gold occurs in:
"fissures or irregular quartz-filled openings in greywacke and iron formation...in coarse sulphides as in veins 1, 3, 3A, 3B.

...similar veins with gold occurring in finer and more disseminated sulphides.

...Gold occurs...where the vein openings intersect iron bands. Sulphides occur in a matrix of quartz broken iron formation, chlorite or a combination of these. The best combination is believed to be coarse sulphides in quartz. Where the veins pass into greywacke, the sulphides disappear..."

8) CHEMICAL ANALYSES:

1939 - J. E. Greenburgh (Option from the Burroughs Syndicate)

Hole #	Vein #	Sample #	Type	Width	$ Au	Oz/Ton Au Gold @ $38.50/oz
-	1	6	Channel	0.46 m (1.5 ft.)	12.95	0.34
-	1	12	Channel	0.51 m (0.5 ft.)	41.65	1.08
-	1	12	Check of #12	0.51 m (0.5 ft.)	58.80	1.53
-	3	26	Channel	0.40 m (1.3 ft.)	21.00	0.55
-	3A	60	Channel	0.12 m (0.4 ft.)	17.50	0.45
6	3B	56	Core	0.40 m (1.3 ft.)	12.95	0.34
7	3B	66	Core	0.30 m (1.0 ft.)	14.00	0.36

It should be noted that the Burroughs' drilling was done with an x-ray drill which could not penetrate heavy overburden. For this reason, some showings were not explored along strike and some geophysical anomaliės were not tested (Sirola, 1940)*.

1) PROPERTY NAME: Burroughs Syndicate Occurrence (East) (24)   DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
It should be noted that the claim covering the occurrence was part of a 21 claim block held by the Burroughs Syndicate.

PAST:

1938: The claim covering the occurrence was staked [illegible] Morton Long (TB27049). Surface exploration w[illegible] performed.

1939: The claim was transferred to J. E. Burroughs of the Burroughs Syndicate, and was later optioned to H. E. Greenburgh. Magnetometer and geological surveys were conducted, following which, trenching and diamond drilling were done. Two holes were drilled to test the occurrence.

1940: Thirty-one percent of the claim was transferred to J. E. Greenburgh.

1941: The claim was surveyed and further surface work was performed.

1943: J. E. Burroughs died and all interests were transferred to Mary Burroughs.

1944: All interests were transferred to J. E. Greenburgh, who subsequently patented the claim.

1945: Miami-General Development Mines Limited was incorporated to explore and develop mining properties. The company was 75% owned by Miami Copper Company and 25% owned by General Development Company. J. E. Greenburgh was the president of the newly formed company.

1983: The property was restaked by Michael Malouf of the Quaternary Mining and Exploration Company Limited (TB677050).

1984: A grid was cut and magnetometer and electromagnetic surveys were conducted. The claim was later sold to Geraldton Longlac Gold Incorporated.

CURRENT:

The claim is held by Geraldton Longlac Gold Incorporated and is part of a 34 claim block in Croll and Coltham Townships.

5) LOCATION AND ACCESS:
N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5500550
Easting 518400

GENERAL LOCATION:
The claim is located in north central Coltham Township.

ACCESS:
Follow the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584) and southeast on Eldee Lake Road for about 4.8 km to the east-west baseline which crosses the property. The occurrence is located approximately 4.8 km east along the baseline and <300 m to the south.

REFERENCES:
Archibald (1983)*.
Fairbairn (1938).
MacDonald (1942).
Malouf (1984)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sirola (1940)*.

MAP REFERENCES:
Map 46B, Long Lake, Pagwachuan Area, Thunder Bay District, Ontario (Fairbairn and MacDonald, 1937).
Map 49M, Kenogamisis River Area, Thunder Bay District, Ontario (MacDonald, 1940).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:
Refer to the Burroughs Syndicate Occurrence (central).

7) MINERALOGY:
According to Sirola (1940)*, long, straight shears occur in arkose. The gold is associated with pyrite and chalcopyrite in quartz stringers. Veins 4 and 5 occur in this zone.

Alteration types noted by Sirola (1940)* include silicification and brown alteration of sheared sediments.

8) <u>ECONOMIC FEATURES</u>:

<u>1939</u>

J. E. Greenburgh (Option from the Burroughs Syndicate).

Hole #	Vein #	Sample #	Type	Width	$ Au	Oz/Ton Au Gold @ $38.50/oz
-	4	77	Channel	0.18 m (0.6 ft.)	39.55	1.03
-	5	83	Channel	0.09 m (0.3 ft.)	4.20	0.11

It should be noted that the Burroughs' drilling was done with an x-ray drill which could not penetrate heavy overburden. For this reason, some showings were not explored along strike and as a result geophysical anomalies were not tested (Sirola, 1940)*.

9) <u>CHEMICAL ANALYSES</u>:
None.

1) PROPERTY NAME: Carling Copper (31)

DATE(S) VISITED:
June 3, 1982
September, 1982
October, 1982

2) ALTERNATE NAME(S): Kengate Prospect
River Showing, Garvey,
Morrison Option, Copconda Mines,
Norlex, Martin-Sturgeon Property

3) COMMODITY: MAIN: Zn, Cu SECONDARY: Au, Ag, Pb

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934-1957: First recorded staking of the claim on which the River Showing was later discovered (TB13892). The claim was subsequently restaked by four prospectors, and though work was performed in each case, locations of significant showings were not noted.

1958: Claims TB91022 to 91028 were staked by L. F. Morrison.

1959: Surface exploration uncovered a copper showing on claim TB91025 (River Showing). The property was optioned by W. C. Martin.

1960: An electromagnetic survey was conducted over the property by Scope Mining and Exploration Consultants on behalf of W. C. Martin.

1961: A diamond drilling program consisting of eight holes totalling 670.6 m (2,200 feet) was carried out to test a conductive zone coinciding with the River Showing.

1966: The claims were cancelled and the property was restaked as part of a larger 36 claim block that was transferred to Norlex Mines Limited. A diamond drilling program (19 holes totalling 2,290 m (7,513 feet)) was initiated in the vicinity of the River Showing (claims TB128006, TB12016, TB128040 and TB128041). Norlex drilled 7 holes before the property was optioned to Canadian Javelin Mines Limited.

1967: Canadian Javelin Limited completed the drilling programs (an additional 12 holes). The claims were optioned to Kerr Addison Mines Limited which conducted an electromagnetic survey before dropping the option. Adjoining claim TB127874 was staked by W. Garvey and 3 holes totalling 204 m (668 feet) were drilled.

1969: Claim TB128041 was transferred to C. Fortier who did some surface prospecting.

1970: Claim TB128041 was transferred to J. Grant.

1971: Carling Copper Mines Limited acquired part of the former Norlex property as well as some adjoining claims. The property comprised claims TB128033 to TB128039, TB286973 to TB286988, TB128006 to TB128008, TB128016, TB128017, TB128040, TB128041 (River Showing), TB221343 and TB221344 (former Garvey claim TB127874). Work performed by the company included geophysical surveys (induced polarization, VLF, electromagnetic), linecutting, and trenching. A diamond drill program was initiated to test geophysical conductors and previously known mineralized zones.

1972: Trenching, assaying, and diamond drilling were performed by Carling Copper Mines Limited. The drilling program continued.

1973: The drilling program by Carling Copper concluded with a three year total of 2,703 m (8,867 feet) drilled in 27 holes. Claims TB349222 to TB349226, adjoining Carling Copper ground to the east, were acquired by Copconda Mines Limited who conducted surface prospecting. Carling Copper drilled one hole on claim TB349222 (274.6 m(901 feet)).

1977: The claims were cancelled.

1978: The property was restaked by E. Maruska.

1980: A grid was cut on the property and electromagnetic and magnetometer surveys were conducted.

1981: The Maruksa claims were optioned by Kengate Resources Limited. The property consisted of claims TB511425 to TB511444 and TB512499 to TB512508. This includes part of the former Carling Copper ground (including the Garvey claim, now TB55437, the River Showing, now TB512500) and part of the former Copconda ground (TB349222 to TB349224 now TB511444, TB511443 and TB511436 respectively).

1982-1983: Kengate Resources Limited delineated 5 zones of gold mineralization and did detailed mapping and trenching of the zones. A drill program was initiated that concluded in May, 1983 with a total of 64 holes being drilled.

CURRENT:

1985: The property is presently held by E. Maruska (A. Mitto).

5) LOCATION AND ACCESS:

N.T.S. 42E13/SW
U.T.M. Zone 16 Northing 5512881
Easting 446423

GENERAL LOCATION:

The property is located in southwestern Elmhirst Township, straddling the Namewaminikan (Sturgeon) River.

ACCESS:

The claims can be reached by travelling north from Nezah (10.1 km west of Jellicoe) on secondary Highway #801 for 19 km to the Namewaminikan (Sturgeon) River, then easterly on a lumber road for approximately 1.6 km.

REFERENCES:

Mackasey and Wallace (1978).
Pudifin (1971a, 1971b, 1973, 1982)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Zurowski (1970)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1978).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Mackasey and Wallace (1978) describe the geology as follows:

"Claims 221344, 128041 and 128007 are for the most part underlain by intermediate to felsic metavolcanics. Most of the other claims in Elmhirst Township are underlain by intrusive rocks of both the Coyle Lake and Elmhirst Lake stocks. In the claims immediately north of the Namewaminikan River, silicified metavolcanics occur intermixed with hybridized granodiorite.

The metavolcanics on the property strike northeastward and dip moderately to steeply to the northwest. Although cut off by intrusive rocks to the north, east and west, the metavolcanics continue to the southwest through property held by Jupiter Minerals Incorporated. The metavolcanics on the Carling Copper Mines Limited property are mostly dacite, rhyolite, and andesite flows intercalated with agglomerate and tuff-breccia units which are abundant in the northern part of the property. Silicification and chloritization has affected the more mafic flows, particularly in zones of shearing. Near contacts with plutonic rocks, the metavolcanics have been recrystallized and slightly metasomatized, taking on the appearance of porphyritic diorite which grades into the hybridized granodiorite of the intrusions.

Numerous chloritized shear zones, which generally parallel the foliation, occur on the property in both metavolcanic and intrusive rocks."

Pudifin (1982)* describes the structure:

"The major structural direction in the area of the property is about 35°. Numerous zones of shearing and fractures have this direction with moderate to steep northwesterly dips. A system of fractures with quartz veins up to several feet wide occur in the volcanic rocks extending from the Sturgeon River Mine, northeastward and on the Kengate property. They have a strike varying from just east of north to northeast. They have an en echelon relationship and cut across the main trend of the volcanic band at a low angle to its contacts. In places, some are nearly parallel.

A more major structure is believed to occur along the Sturgeon River, having a strike of about 55°. Geophysical data suggests that this fault occurs just south of the diorite outcrop area in the western part of the Kengate property.

...Another dominant structural direction strikes at 40° along which more chloritization and copper-zinc mineralization occurs.

A third fracture and shear direction, often mineralized, both in the volcanics and in the granodiorite and quartz diorite has a strike of 25°-30°."

7) MINERALOGY:

Pudifin (1982)* describes the mineralogy as follows:

"Two wide zones of light to heavy disseminated pyrite occur -- one somewhat along the Sturgeon River, and a second general zone crossing the larger part of claim TB511441.

...Zinc and copper mineralized zones occur within the main pyrite zones, in places closely related to secondary faulting and shearing at a strike of 25°-30° and 40° respectively. Gold and silver often occur with the zinc-copper mineralization and at one location, spectacular free gold occurs in a brecciated zone in quartz-diorite.. The copper-zinc mineralization is found predominantly in altered rhyolitic to dacitic volcanic rocks and related tuffs and agglomerates. Gold and silver often occur with zinc mineralization, and in some places is associated with chalcopyrite.

...The main copper occurrence is the "River Showing" located on claim TB512500 in the bed of the Sturgeon River which may be observed only at low water. Heavy streaks and masses of chalcopyrite with minor occasional pyrite occurs in sheared chloritized dacite volcanics. The mineralization is exposed for a length of about 30 feet and across a width of about 3.0 feet.

...The results of the drilling indicate a wide zone of lightly disseminated pyrite mineralization in sheared dacitic volcanics which strikes at 50° and dips north-westerly at 50 to 60°. Width of the zone generally is about 50 to 100 feet with enlargements up to 500 feet along strike and down dip. Within this pyrite zone, lenses of chalcopyrite and sphalerite have been partially outlined.

...The sphalerite mineralization in this area appears to occur on the hanging wall side of the pyrite zone, with chalcopyrite occurring more in the central part. It appears that the chalcopyrite mineralization occurs in a shear zone which transgresses the main shear zone at a shallow angle. The zone appears to be pipe-like in form with a shallow plunge rather than a sheet-like occurrence hence it could have been largely missed in the drilling."

The Garvey showing on claim TB55437 (formerly TB221344) is described by Pudifin (1982) as follows:

"Nine short holes were put down in an area south of the river, the first of which investigated a 55 foot (16.8 metre) wide zone with copper zone exposed by a surface trench. This showing occurred at the end of an Induced Polarization anomaly. Some copper occurred where the hole collared in bedrock. The next hole was backed up 75 feet (22.9 metres) to investigate for possible extension of the copper mineralization. This hole, C-9, cut in a silicified and brecciated zone 2.3 feet (0.7 metres) which assayed 16.69 ounces gold/ton, and 7.32 ounces silver/ton. The following 2.7 feet (0.8 metres) assayed 0.10 ounce gold/ton. The remainder of the holes in this group were put down to trace the extension of the structure and gold mineralization. The breccia zone was picked up in two of the holes."

The 5 zones of mineralization on claim TB511441 are described by Pudifin (1982)* as follows:

"A total of five zones varying from 1 ft. to 3 ft. wide occur in an exposed area about 75 feet wide, and over a length of 290 feet. Zinc mineralization with a small amount of chalcopyrite and galena occurs in quartzose breccia zones within a dacitic, with some tuff hostrock. Shearing and some faulting is evident.

The zones are sub-parallel, strike at 30° and have a vertical attitude on surface.

Chip samples of the veins returned assays varying from 0.01 oz. gold/ton across 4.0 ft. to a high of 0.41 oz. gold/ton, 1.35 oz. silver/ton, 13.4% zinc and 2.0% lead across 2.0 feet.

Zones 1, 2 and 4 are highly siliceous to quartzose with brecciation to mylonitization in places. They are mineralized with 5% to 10% fine and coarse pyrite. Locally pyrite may vary up to 30%. Fine and medium grained sphalerite is present, disseminated and near massive in places. Fine disseminated to small masses of galena occurs irregularly. Chalcopyrite and minor malachite and azurite are also found irregularly. Some of the material in zone 4 appears to be a fragmental tuff with angular siliceous chards.

Zones 1, 2 and 3 occur in a dacitic host rock. Zone slickensides were observed on small masses of pyrite.

Zone 5 is similar to Zones 1 & 2 in that it is brecciated with largely pyrite mineralization up to about 5%.

Zone 4 is the heaviest mineralized, averages about 2 feet wide, is exposed for a length of 50 feet. Of seven grab samples taken from Zone 4, the average assays returned 0.16 oz. gold/Ton, 0.915 oz. silver/ton, and 4.96% zinc.

Zone 4 would appear to line up with intersections obtained in previous Carling Copper Mines Limited Holes C-19 which assayed 0.10 oz. gold/ton, 1.44 oz. silver/ton, 0.2% copper, 11.0% zinc and 1.85% lead and Hole No. C-23 which assayed 0.06 oz. gold/ton, 0.51 oz. silver/ton, and 3.12% zinc over a core length of 9.2 feet. This would give a length of about 200 feet known, to this zone."

9) CHEMICAL ANALYSES:

1966

Norlex Mines Limited/Canadian Javelin Limited
- River Showing

Hole	Length	Assays:	%Cu	%Zn	Oz Ag/T	Oz Au/T
66-4	12.0ft.		0.17	16.17		0.02
	1.7ft.		0.75	6.29	3.16	0.16
66-5	2.0ft.		0.15	16.10	0.08	0.18

(Pudifin, 1982*)

1982 (5 Zone Area Sampling) (Grab Samples)

Sample No.	Gold (oz/T)	Silver (oz/T)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Sample Description
82-MAM-8	0.02	0.11	1770	228	3.00%	Brecciated vein S.S.W. end of 80 m long zone-3-5% pyrite-smokey qtz
82-MAM-9	0.02	0.09	1630	42	3.55%	(same as 82-MAM-8)
82-MAM-10	0.19	1.43	9320	1.38%	17.1%	Centre of 80 m long zone-3-5% pyrite-minor sphalerite
82-MAM-11	0.17	3.93	1730	810	7.15%	Centre of zone sp, cpy, py
82-MAM-12	0.02	<0.10	745	130	645	N.N.E. end of 80 m zone pyritized fracture in intermediate meta-volcanics
82-MAM-13	<0.01	<0.10	72	50	500	Intermediate meta-volcanics

1) PROPERTY NAME: Cerro Occurrence (177) DATE(S) VISITED

2) ALTERNATE NAME(S): Douglas properties

3) COMMODITY: MAIN: Cu SECONDARY: Zn, Ag, Au

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
Early history of the occurrence is uncertain due to the claim locations relative to the township boundary to the east. Plotted claim locations vary from map to map and make accurate tracing of the history difficult.

PAST:

1971: Properties covering the occurrence were staked by Arthur J. Douglas (TB303239 and TB30324). A number of pits and trenches were dug before the claims were optioned to Cerro Mining Company of Canada, Limited. At this time, Cerro held options on a block of 53 claims (4 claims numbered TB303238 to TB303240 inclusive and TB304689 under the name of A. J. Douglas, and 49 claims numbered TB282654 to TB282663 inclusive and TB282755 to TB282793 inclusive under the name of C. E. Bye).

1972-1973: Cerro conducted geological, ground electromagnetic and magnetometer surveys, and dug six trenches. The claims were later cancelled.

1976: The properties were staked by Amede Lafontaine and were cancelled the following year (TB456546 and TB456547).

1979: The west claim (formerly TB456546) was restaked by Amede Lafontaine (TB518395).

1981: Lafontaine's claim was cancelled and the properties were staked by Ross Toms (TB636850 and TB636851).

1982: The claims were transferred to John S. Grant.

1983: Magnetic and electromagnetic geophysical surveys were conducted.

1984: Geological and geochemical surveys were conducted.

CURRENT:

The claims covering the occurrence are held by John S. Grant.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5513592
Easting 453847

GENERAL LOCATION:

The claims are located in southeastern Elmhirst Township. The main showing is located on claim TB303240 about 650 m west of the east township boundary and approximately 2.4 km north of the south boundary.

ACCESS:

Follow secondary Highway #801, north from Nezah (10.1 km west of Jellicoe) for 11.3 km and northeast on a lumber road for about 9.7 km.

REFERENCES:

Giblin (1971, 1972)*.
Mackasey and Wallace (1978).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1977).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Wilkinson Lake property for the general geology of Elmhirst Township.

Mackasey and Wallace (1978) state:
"Most of the claims are underlain by felsic to intermediate coarse pyroclastic rocks such as tuff breccia, lapilli tuff, and crystal tuff. The metavolcanics strike at about N70°E and dip quite steeply to the south. Patches of gossan covering the felsic metavolcanics are common, and in some places pyrite forms as much as 10 percent of the rock."

Refer to the Wilkinson Lake property for the structural geology of the township.

7) MINERALOGY:

Giblin (1971)* describes the mineralogy:
"In Pit 5, massive chalcopyrite and pyrite occur in quartz-sericite schist over a width of 0.6'. A chip sample across the width assayed 3.32% Cu, 0.08% Zn, 0.01 oz./ton Au, and 0.43 oz/ton Ag. The sulphide mineralization is concordant with the schistosity.

The second most interesting occurrence is that of Pit 1, where stringers of chalcopyrite, pyrite, and pyrrhotite occur in chlorite schist, at the contact of the schist with fragmental felsic metavolcanics, across a width of 4.4'. A chip sample across this width assayed 0.70% Cu, 0.03% Zn, trace Au, trace Ag. A grab sample assayed 0.81% Cu and 0.04% Zn.

...Trench B, located 44' southwest of Pit 1, exposed a narrow lens of high-grade chalcopyrite located 6.6' north of the south end of the trench. A narrow shear zone, 0.1'-0.2' thick, consisting of chlorite-quartz schist, carries lenses of chalcopyrite and minor pyrite. The sulphides comprise 10-30% of the shear zone material. The mineralized zone has an exposed length in the trench of 2.3'. It strikes N55°E and dips 65°S. A silicified zone, 0.5' wide, borders the chlorite-quartz schist and carries traces of chalcopyrite. A small quartz vein, 0.5' wide and having an exposed length of about 1', occurs south of and sub-parallel to the chlorite-quartz schist. The exposed vein material is barren, but quartz-vein rubble from the trench carries large patches of chalcopyrite and pyrite."

9) CHEMICAL ANALYSES:
None

1) PROPERTY NAME: Chemalloy Occurrence (254)

DATE(S) VISITED: August 7, 1981; August 27, 1981

2) ALTERNATE NAME(S): Mitto Showing

3) COMMODITY: MAIN: Mo SECONDARY: Au, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1947: The claim covering the occurrence was staked by Isabel Garvey (TB37362).

1949: The claim was cancelled.

1957: The property was staked by Lucy Staunton (TB85059), who transferred all interests to John S. Grant.

1958: A total of 190 days was credited to the claim for unspecified work, and the claim was later cancelled.

1970: The property was staked by Lucien Sylvain for A. Mitto (TB296949), who discovered the molybdenum showing the following summer.

1971: All interests were transferred to Chemalloy Minerals Limited which performed manual and mechanical trenching, assaying, and diamond drilling (four holes totalling 152.4 m (500 feet)). A geological survey was also conducted.

1973: The claim was cancelled.

1975: The property was staked by Harold S. Watts (TB444886).

1976: The claim was cancelled with no recorded work.

1978: The property was staked by Richard D. Middaugh (TB484568).

1980: All interest was transferred to John E. Ternowesky, who optioned the claim to Falconbridge Nickel Mines Limited. Falconbridge conducted an induced polarization survey.

1981: A grid was cut, and magnetometer and electromagnetic surveys were conducted by Falconbridge. Two holes totalling 173.1 m (568 feet) were drilled. The option was later dropped.

1984: The claim was cancelled.

CURRENT:

1985: The claim covering the occurrence is presently open.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5519754
Easting 448576

GENERAL LOCATION:

The claim is located in northwestern Elmhirst Township.

ACCESS:

Travel north from Nezah (10.1 km west of Jellicoe) on secondary Highway #801 for 19.6 km, then east on a lumber road for approximately 9.7 km.

REFERENCES:

Mackasey and Wallace (1978).
McIlwaine et al (1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Wheadon (1971)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1972).

6) GENERAL GEOLOGY AND STRUCTURE:

Elmhirst Township is underlain by the Elmhirst Lake and Coyle Lake Stocks. The Elmhirst Lake Stock "is relatively homogeneous having a composition between that of granodiorite and quartz diorite" (Mackasey and Wallace, 1978). Inclusions of metavolcanic roof pendants are noted in the area of the northwestern contact of the Elmhirst Lake Stock and felsic to intermediate metavolcanics. The Chemalloy Occurrence crops out in the northwestern contact area. The metavolcanics are dacite and andesites, commonly feldspar porphyritic. Intruding the metavolcanics is the Pinel Creek Intrusion which is leucocratic to melanocratic gabbro, hosting minor magnetite, pyrrhotite, chalcopyrite and pentlandite. The intrusion may be a portion of a larger diorite-quartz diorite body in the Crooked Green Lake area. The Pinel Creek Intrusion strikes 70°, dips 50° north and may be up to 185 m thick (Mackasey and Wallace, 1978).

7) MINERALOGY:

The Chemalloy Occurrence is a stock work of discontinuous quartz veining hosted in granodiorite. Within the granodiorite mafic minerals have been altered to chlorite and plagioclase has been altered to sausserite. Molybdenite occurs as films and plates, or may be represented by a blue-grey colouration within the quartz veins. Wheadon (1971)* noted molybdenum within the granodiorite adjacent veining.

Shearing and veining within the occurrence may be related to the Pinel Creek Lineament, a major northeast-trending structure.

Mackasey and Wallace (1978) noted:

> "...Pyrite and minor chalcopyrite occur disseminated in both the quartz veins and sheared granodiorite, particularly around the southeast end of the exposure where they constitute 1 to 5 percent of the vein material. No mineralization was observed in the massive granodiorite.
>
> A selected grab sample of the blue-grey quartz collected by the field party was analysed by the Mineral Laboratory Branch, Ontario Division of Mines, and found to contain 0.51 percent MoS_2, 0.02 ounce gold per ton and 0.36 ounce silver per ton. A grab sample of the sheared granodiorite was also analysed and found to contain 0.32 percent MoS_2 and 0.01 ounce gold per ton."

A diamond drilling program consisting of four holes totalling 152.1 m (499 feet) was conducted by Chemalloy Minerals Limited. Holes 1, 2 and 4 intersected zones of shearing 6.1 to 7.6 m (20 to 25 feet) wide. Core from this zone from holes 1 and 2 assayed trace to 0.08 percent MoS_2 and samples from the zone in hole 4 yielded values up to 0.2 percent MoS_2 with an average grade of 0.1 percent MoS_2 over 6.1 m (20 feet) (Wheadon, 1971)*.

The 1981 drilling by Falconbridge was conducted in anticipation of intersecting more fractured and veined granodiorite suggestive of a porphyry molybdenum deposit. Drill logs state neither fractured granitic rocks nor good molybdenum values were encountered.

1) PROPERTY NAME: Coniagas Occurrence (32) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1936: Claims TB21137, TB21138 and TB21377 were staked by M. Simmons. Claims TB21373 to TB21376 inclusive were staked by Lorne Hawke. Surface exploration was conducted.

1937: The claims were transferred to Alexander Longwell, who was the general manager of Coniagas Mines Limited.

1938-1940: A total of 146 assessment days were credited to each claim.

1944: The claims were surveyed and patented by Coniagas Mines Limited. The patents were later revoked.

1970: The southeast portion of the original block was restaked as part of a group of four claims (TB251963 to TB251966 inclusive). The claims were subsequently transferred to Canadian Nickel Company Limited.

1971: Two holes were drilled totalling 90.8 m (298 feet) on claims south of the original seven claim block.

1973: The claims were cancelled.

1979: The property was restaked by Mike Milani (TB513915 to TB513918 inclusive), Duncan Walkom (TB456088, TB456089, TB456096, TB456097 and parts of TB456084 and TB456088) and Albert Hopkins (part of TB506519) as part of a much larger claim block. TB506519 was later cancelled. The claims were transferred to Shell Canada Resources Limited, which conducted an airborne magnetometer survey.

1982: The claims were cancelled and restaked in part by Michael Malouf. The claims covering part of the original group are TB561814 to TB561821 inclusive. These claims are part of a 36 claim block comprising claims TB561814 to TB561827 inclusive, TB610553 to TB610562 inclusive, and TB632001 to TB632012 inclusive in the McBean Lake Area - Abrey, Croll and Coltham Townships. Coniagas trenches were sampled by Eldorado Nuclear Limited.

1983: The eastern claims of the original block were staked by Michael F. Cowan as part of a six claim block (TB768732 to TB768737 inclusive).

1984: A grid was cut over the Malouf property, and magnetometer and electromagnetic surveys were conducted. Power stripping was also performed elsewhere on the claim block. Michael F. Cowan conducted magnetometer and geological surveys on his claims.

CURRENT:

The majority of the original claims are held by Michael Malouf and are part of a 36 claim block to a newly formed public company called Ferau Resources Incorporated (Malouf, 1984)*. The remainder of the original claims are held by Michael F. Cowan.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5500700
Easting 526900

GENERAL LOCATION:

The property is located in the McBean Lake Area, 2 km east of Long Lake or 3.4 m to the northwest of McBean Lake.

ACCESS:

The property is accessible by travelling the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584) and southeast on Eldee Lake Road to Long Lake continued northeast on Long Lake for approximately 8.5 km to Birch Bay, and east to the shore of the lake. From this point, proceed eastward on foot for approximately 2 km.

REFERENCES:

Archibald (1983)*.
Fairbairn (1938).
Malouf (1984)*.
Oliver and Macdonald (1983)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Long Lake - Pagwachuan Lake Area (Fairbairn, 1938).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Fairbairn (1938) has described the showing as consisting of, "an altered greywacke band 35 to 50 feet wide enclosed by coarse hornblende schist and gneiss." The host unit has been described by Oliver and MacDonald (1983)* as:

"...a medium to coarse-grained, moderately deformed quartz hornblende schist (QHS...). Compositional layering trends approximately 070-090 degrees and is generally subvertical. Towards the eastern portion of the Coniagas prospect... the characteristic foliation and schistosity of the host is suppressed and a more hornefelsed appearance is adopted. The southern portions of trenches 3 and 4 appear to be metavolcanics as opposed to metamorphosed pelitic sediments, i.e. the QHS unit."

...The sediments exposed on these properties (Coniagas, MacFarlane, West Side Longlac, and Longlac Adair) especially on the East shore of Long Lake, tend to be finer-grained than those seen in the Geraldton camp i.e. a dominance of metapelites and the fine-grained mafic sediment precursor to the QHS, as opposed to wackes and arkoses. This may reflect upon original sedimentary facies - possibly a more distal depository. Considerably more field work is required to support such a hypothesis, based as it is upon scant observational data.

The grade of metamorphism is markedly higher than that found in the sedimentary package 8 km to the west, where upper greenschist facies prevails. On these properties, the lithologies have undergone amphibolite facies grade metamorphism, possibly resulting from the proximity of large felsic intrusion."

7) MINERALOGY:

According to Oliver and Macdonald (1983)*:
"Irregular and possibly discontinuous sulfide quartz and carbonate lenses, 1-2 m wide, which cross-cut foliation - and hence, are later than the major phase of deformation - form the dominant style of mineralization in the Coniagas trenches. Well formed acicular laths and coarse prisms of arsenopyrite are the outstanding mineralogic feature in these trenches. Arsenopyrite is found as vein selvages and disseminated throughout the iron-stained QHS. Sulfide content in the sediment, of both arsenopyrite and pyrrhotite, may approach 3% in some lenses."

Fairbairn (1938) has also noted the presence of pyrite, bornite, chalcopyrite, and gold.

8) ECONOMIC FEATURES:

Coniagas Mines trenched and sampled the showing for some 61.0 m (200 feet). Fairbairn (1938) has described the gold values reported as "fair but erratic". A trench sample yielded a value of 0.106 oz/ton gold over a width of 0.91 m (10 feet) in trench #4 (Archibald, 1983)*.

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: Consolidated Louanna Gold Mines (33)

DATE(S) VISITED:
May 21, 1981
June 30, 1981
September 17, 1981
June 8, 1982
September 21, 1983

2) ALTERNATE NAME(S): Lake Osu Mines Limited

3) COMMODITY: MAIN: SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1935: The original nine claims of the property were staked by Jack Miller of Swastika, Ontario. The ground was optioned and drilled by McIntyre Porcupine Mines Limited and the claims were allowed to lapse.

1945: The property was restaked by Jack Miller and transferred to D. F. Hurd. Twenty-seven additional claims were staked and the entire claim group was taken over by Osulake Mines Limited. An extensive diamond drilling program revealed the presence of good gold values in a mineralized zone in sheared tuffs and quartz porphyry.

1947: Osulake Mines Limited sunk a shaft and the mineralized zone was developed on the 150 foot level (45.7 m).

1950: The reorganized company, Lake Osu Mines Limited, developed a second level at 300 feet (91.4 m).

1960: Lake Osu Mines Limited performed a magnetometer survey over the claims followed by 2,162.5 m (7,028 feet) of surface diamond drilling.

1964-1965: Louanna Gold Mines Limited, during February and March, 1964, drilled ten holes from surface for a total depth of 1,835.7 m (5,966 feet). (See section on Economic Features for results). The decision was made that the zones could be explored more efficiently from underground. During the 1964-1965 underground program, underground diamond drilling consisted mainly of testing the drift walls and the area between the 150-foot and 300-foot levels as follows:

Level	Drifting in metres (ft.)	Raising in metres (ft.)	Diamond Drilling in metres (ft.)
150	363.1(1,180)	43.3(141)	1,539.7(5,004
	195.2(634.5)	171.1(556)	800.2(2,601
	558.3(1,814.5)	214.5(697)	2,340.0(7,605

Some holes were put down below the 300 foot (91.4 m) level. The down holes indicated that the mineralization continues to at least 23.1 m (75 feet) below the level. Seventeen down holes were drilled in the shaft area and to the east. Seven of the holes were drilled beneath barren sections on the 300 foot (91.4 m) level and intersected the zones but were below ore grade. (See Economic Features section for ore-grade results from the remaining 10 holes).

1973-1974: Consolidated Louanna Gold Mines Limited dewatered the underground workings and the shaft was sunk to approximately 420 feet (129.2 m) with the establishment of the third level. A further program of underground diamond drilling from the 300 foot level station was completed in February 1974. A series of 7 holes were fanned from the station to test the zones at depths of 23.1 m (75 feet) to 46.2 m (150 feet) vertically below the 300 foot level, the results of which indicated that the mineralized zones continue to at least the 420 foot (129.2 m) horizon.

1981-1982: Over 13,230 m (43,000 feet) of surface and underground drilling had been done on the property by late 1981, together with some 1,046 m (3,400 feet) of lateral development work. Graham Mining Limited, project managers hired by Consolidated Louanna Gold Mines Limited, were responsible for final development and the production stage. Financing was provided by Cumo Resources of Vancouver, B.C. A (3.7 m by 5.5 m) 12 foot by 18 foot -18° decline (ramp) was put down on the property in the vicinity of the old shaft, to a depth of 15.4 m (50 feet) below the second (300 foot) level.

Also during 1981 and early 1982, a 200 ton per day mill was installed on the mine site, with a planned mill rate of 140 tons per day on a five day week or 36,000 tons per year.

As of September 1982, mining and milling operations had ceased and all but the security staff were terminated.

1983: Consolidated Louanna Gold Mines' shares were suspended from trading and were placed under cease-trading order pending OSC receiving an annual financial report.

Mining Corporation of Canada Limited entered into an agreement with Cumo Resources and Consolidated Louanna Gold Mines Limited in June, 1983. The contract called for Mining Corporation to dewater the workings and salvage 54,000-70,000 tons of the orebody. Lacanna Mines had an arrangement whereby they conducted exploration on the Consolidated Louanna Gold Mine patented claims and on their own staked claims on the south portion of O'Sullivan Lake.

As of September, 1983, the mill was concentrating 190-200 tons per day. Pamour Mines, Timmins, refined the float concentrate and Johnson Matthey, Don Mills, refined the jig concentrate. Cumo was to receive 100% of the first $3,000,000 in profits, plus interest; then 85% of the next $3,000,000 profit, 33 1/3% thereafter, plus 1/3 ownership of the mine. There are no royalties on mine production.

Two stopes were in production and a third was being developed.

J. Karosen, President, Consolidated Louanna Gold Mines Limited, stated 900 ounces of gold was recovered in the first 17 days of October.

The haulage ramp was extended to a vertical depth of 390.0 feet (118.9 m).

Consolidated Louanna Gold Mines Limited transferred 66 2/3 percent interest in the mine to Cumo Resources pending shareholder approval. Consolidated Louanna stated Cumo will discharge all debts and pay Louanna a 4 percent net smelter return.

CURRENT:

1984: The Consolidated Louanna Gold Mine, O'Sullivan Lake, operated by Mining Corporation of Canada Limited, milled approximately 70,000 tons or ore grading 0.22 ounce gold per ton, from late 1983 until the mill closed in October, 1984 (G. MacDonald, Manager, Mining Corporation of Canada Limited, personal communication, 1984).

5) LOCATION AND ACCESS:

N.T.S. 42I6/NE
U.T.M. Zone 16 Northing 5587671
Easting 493681

GENERAL LOCATION:

The mine is located on O'Sullivan Lake, 40 km (25 miles) northwest of Nakina, Ontario.

ACCESS:

The property can be reached via all-weather Highway #584 which extends north from Highway #11 at Geraldton, Ontario, to a point at the intersection of Highway #643 approximately 8 km west of Nakina, Ontario. One continues northwest along Highway #643 to the northwest shore of O'Sullivan Lake where the mine road follows in an east-northeasterly directon to Osulake Peninsula.

REFERENCES:

Carter (1979)*.
Moorhouse (1955).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 1955-2, O'Sullivan Lake Area (Moorhouse, 1955).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Moorhouse (1955):

"Rocks exposed on the property are chiefly pillowed lavas and metadiabases, which are cut by a variety of quartz porphyry dikes and several diabase dikes. Two narrow bands of highly sheared, more or less silicified, and mineralized tuffs occur interbedded with lavas east of the bay on claim KK3334. The south band has also been traced for some distance west of the bay, and it is possible that it represents the sheared tuffaceous rocks in which the known mineralization occurs at the mine itself. A similar band of sheared, mineralized tuff is exposed in the northern part of the group... These tuff bands thus appear to have been structures favourable to mineralization. On Osulake Peninsula they strike in a general east or east-southeast direction".

7) MINERALIZATION:

Gold mineralization occurs in two parallel quartz veins hosted in a quartz-feldspar porphyry emplaced in sheared mafic tuffs. Veins are lenticular, laminated or brecciated and average <2m in width: veins are of multiple generations. A white massive quartz intrudes the typically dark laminated and/or brecciated quartz (both generations of quartz are auriferous). A third generation barren quartz (carbonate) vein cuts the other veins. Mineralization consists of arsenopyrite, pyrite, pyrrhotite, sphalerite, galena, and gold.

Moorhouse (1955) states:

"The underground work and much of the diamond drilling have been directed to investigate an occurrence of mineralization in sheared tuffs and quartz porphyry on claims KK3202 and KK3205...the only surface outcrop of the mineralized zone, is a complex mixture of schist and sheared quartz porphyry. Mineralized quartz occurs in two types of structures, in dragfold-shaped masses in schist and at the contact of schist and porphyry, and in irregular lenses in the sheared porphyry. Some of the quartz is well mineralized with sulphides, and some visible gold is exposed.

> Carbonate alteration occurs adjacent to the veins. Locally, the veins may pinch out leaving only the zone of carbonate alteration.

Mineralization elsewhere has been documented by Moorhouse (1955):

> ...Mineralization has been encountered in other parts of the property. The two tuff bands mentioned earlier...have been mineralized to some extent. Gold is said to have been panned from a silicified zone in the south tuff band on the bay on claim KK3334. West of the bay, dragfolded quartz lenses were uncovered by stripping in the continuation of this zone. A little gold is also reported to have been obtained from a sheared and altered, north striking porphyry on a small island south of the mine. On the point on claim KK3357, two mineralized zones have been stripped, and two drill holes have been sunk on the east zone. The east zone consists of a series of quartz lenses and veins, of which the largest is 6 feet wide and 12 feet long, located at the north-east side of an aplitic porphyry dike 15 feet wide that strikes N40°W. The quartz is glassy and much fractured and contains patches of chlorite, white mica, and chalcopyrite, with occasional pyrite. Secondary copper minerals have been produced by weathering. The quartz zone has a total exposed length of 80 feet. The mineralization to the west is in a highly sheared, altered, and silicified zone in greenstone. The quartz is rather watery in appearance, fine-grained, and contains inclusions of altered schist. It occurs in lenses and stringers, which have been locally dragfolded and have a maximum width of 10 inches. The maximum width of the

silicified zone is 30 inches, but it pinches and swells rapidly. The zone strikes N25°W and has been traced at intervals from the south to the north side of the point. The silicified zone is well mineralized with pyrite and chalcopyrite where exposed at the south end. Similar northwest-striking veins, associated with porphyry dikes and mineralized with chalcopyrite were found...on the large island within claims KK357 and KK3356."

8) <u>ECONOMIC FEATURES</u>:
<u>PAST PRODUCTION</u>:

According to Carter (1979)* a series of 10 surface diamond drill holes completed from 1964 to 1965 indicated the following results:

"A row of four holes 50 feet apart intersected the mineralized zone at approximately 360 feet (60 feet below the second level). These holes each carried good values and showed an average cut grade of 0.62 oz/ton gold across 7.1 feet. Two deeper holes intersected the zone at 420 feet below surface... but the values were below ore grade. ...The remaining surface holes were drilled to test a magnetic anomaly to the east of the mine, which it was thought might indicate another mineralized zone. Results there indicated that pyrrhotite mineralization caused the anomaly."

Of the seventeen down holes drilled from the 300-foot level in the shaft area (1964-65), the following ore grade intersections were obtained (mainly from 15.4 to 18.5 m (50 to 60 feet) below the level)):

1.53 oz/ton gold for 3.4 metres (11.2 feet);
7.35 oz/ton gold for 0.7 metres (2.3 feet);
0.08 oz/ton gold for 1.5 metres (4.9 feet);
0.53 oz/ton gold for 0.5 metres (1.5 feet);
0.68 oz/ton gold for 0.9 metres (3 feet);
0.08 oz/ton gold for 1.3 metres (4.3 feet);
0.29 oz/ton gold for 0.9 metres (3 feet);
0.39 oz/ton gold for 0.8 metres (2.5 feet);
0.23 oz/ton gold for 0.8 metres (2.5 feet);
0.20 oz/ton gold for 0.6 metres (2.0 feet);
(Carter, 1979)*.

Hole No.	Metres	Footage	Core Length Metres	(Ft.)	Grade (ozAu/T)	Average Metres (Ft.)
169	37.9-41.3	123.2-134.1	3.4	(10.9)	0.36	0.152 oz over 11.3 (36.8)
	41.3-48.6	134.1-158.1	7.4	(24.0)	0.042	
	48.6-49.2	158.1-160.0	0.3	(1.9)	0.35	
170	38.9-39.6	126.5-128.7	0.7	(2.2)	0.14	0.103 oz over 1.4 (4.7)
	39.6-40.4	128.7-131.2	0.8	(2.5)	0.17	
171	31.9-32.2	103.8-104.8	0.3	(1.0)	0.32	0.32 oz over 0.3 (1.0)
	43.4-44.8	141.0-145.7	1.4	(4.7)	0.133	0.133 oz over 1.4 (1.7)
172	32.4-32.8	105.2-106.6	0.4	(1.4)	0.34	0.34 oz over 0.4 (1.4)
	45.0-46.1	146.4-149.7	1.0	(3.3)	0.17	0.17 oz over 1.0 (3.3)
173	48.6-49.2	158.0-160.0	0.6	(2.0)	0.192	
	49.2-51.4	160.0-167.0	2.2	(7.0)	0.037	
	51.4-51.8	167.0-168.5	0.5	(1.5)	0.127	0.137 oz over 5.1
	51.8-53.2	168.5-172.9	1.4	(4.4)	0.057	
	53.2-53.7	172.9-174.5	0.5	(1.6)	0.67	
	68.8-69.4	223.6-225.4	0.5	(1.8)	0.245	0.245 oz over 0.5 (1.8)
174	46.2-47.7	150.0-155.0	1.5	(5.0)	0.28	
	47.7-50.3	155.0-163.5	2.6	(8.5)	0.054	0.133 oz over 4.6 (15.0)
	50.3-50.8	163.5-165.0	0.5	(1.5)	0.09	
175	51.3-51.6	166.7-167.7	0.3	(1.0)	0.107	0.107 oz over 0.3 (1.0)

(Carter, 1979)*.

Consolidated Louanna, from 1981 to 1982, outlined the original mineralized zone as 152.6 m (496 feet) of ore in two parallel veins on the first (150 foot) level averaging 0.41 ounces per ton gold (cut). A similar length was outlined on the second (300 foot) level where the grade averaged 0.48 oz per ton gold (cut) across 1.8 m (5.8 feet), (The Northern Miner, 1981, September 24, p. 4).

A new mineralized zone was encountered in underground development during 1981, none of which was included in any earlier tonnage estimates. The zone was intersected in four short drill holes put out from the production ramp as well as previous holes drilled from surface. Drilling results indicated a section that assayed 1.37 oz per ton gold (uncut) or 0.82 oz per ton gold (cut) across a core length of 7.7m(25 feet). Follow up drilling from the underground ramp on a section 24.6 m (80 feet) further east intersected 0.56 oz per ton gold across 0.98 m (3.2 feet), with a second hold cutting 0.95 m (3.1 feet) assaying 2.57 oz per ton gold, (The Northern Miner, 1981, September 24, p. 4 and November 19, p. 8).

TONNAGE AND GRADE ESTIMATES:

Carter (1979)* summarized existing data:

	Ringsleben & Burns (prior to new work 1959)		G. Moorhead (addition of new work 1965)		G. Moorhead (independent of Ringsleben)		W. A. Carter	
	Tons	Grade (ozAu/T)	Tons	Grade (ozAu/T)	Tons	Grade (ozAu/T)	Tons	Grade (ozAu/T)
bable	55,811	0.41	81,500	0.39	94,500	0.33	86,625	0.367
sible	26,504	0.30	26,504	0.30	26,504	0.30	26,504	0.30

Note:
"In calculating average grade, all assays over 2 ounces were cut to 2 ounces and assays between 1 and 2 ounces were cut to 1 ounce. In all the new work, a minimum width of 48 inches was maintained and a 20% dilution factor was used". (Carter, 1979*).

Tonnages and grades to a depth of 23 m (75 feet) below the 300-foot level had been estimated at 113,129 tons averaging 0.352 oz gold per ton, (Carter, 1979)*.

PAST PRODUCTION:

Approximately 70,000 tons of ore grading 0.22 ounce gold per ton was milled during 1983-1984 (G. MacDonald, Manager, Mining Corporation of Canada Limited, Nakina, personal communication, 1984).

9) CHEMICAL ANALYSES:

Sample No.	Gold (oz/T)	Silver (oz/T)	Sample Description
1981			
81-MCL-1	<0.01	<0.10	Narrow quartz stringers displaying hanging and footwall of highly sheared chloritized meta-volcanics.
81-MCL-2	1.48	0.38	Medium to coarse-grained quartz vein and intermediate to mafic meta-volcanics with scattered arseno-pyrite crystals.
81-MCL-3	0.48	0.16	Dump material of quartz with 2-3 percent fine scattered pyrite cubes.
1983			
83-MCL-1	2.70		(250 foot sub-level) main quartz vein, disseminated pyrite along shears in metavolcanics.

1) PROPERTY NAME: **Consolidated Mosher Longlac Mine (34)**

DATE(S) VISITED: June 12, 1982

2) ALTERNATE NAME(S): Mosher, MacLeod Mosher

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: The claim block was staked by a number of prospectors including Alex C. Mosher, (TB10044 to TB10052 inclusive with claims TB10047, TB10050 and TB10051 staked for Mrs. D. Moore and claims TB10048, TB10049 and TB10052 staked for H. Grazelle), C. V. Taylor (TB10053 to TB10055 inclusive), M. Mosher (TB10056 to TB10061 inclusive with claims TB10056, TB10057 and TB10058 staked for T. E. Mosher, and claims TB10059, TB10060, and TB10061 staked for H. Grazelle) and E. Maloney (TB10062 to TB10065 with three claims staked for M. Mosher and TB10065 staked for Ronnie Maloney).

1932: Surface work was performed on the claims. Mrs. D. Moore and H. Grazelle transferred their interests to A. C. Mosher.

1933: All 22 claims were transferred to C. H. Moore (Canadian Prospecting Syndicate, Empire Prospecting Syndicate).

1934: Mosher Longlac Gold Mines Limited was incorporated to develop the 22 claims acquired from the Canadian Prospecting Syndicate and the Empire Prospecting Syndicate. The claims were surveyed, a total of 10,668 m (35,000 feet) of trenching and 717.2 m (2,353 feet) of diamond drilling were completed, after which operations were suspended.

1935: The claims were patented by Mosher Longlac Gold Mines Limited.

1936: Ventures Limited and Associates bought 260,000 company shares at 25¢ each and were given an option to buy an additional 740,000 shares. This agreement financed further prospecting, surface development and diamond drilling on the property.

1937: The drilling program was suspended after a two year total of 8,230 m (27,000 feet) had been drilled.

1938-1939: Further drilling was done but was discontinued due to discouraging results.

1940: Two of the most easterly claims (TB10045 and TB10047) were sold to MacLeod-Cockshutt Gold Mines Limited.

1944: The four northern claims (TB10050, TB10053, TB10054 and TB10055) were sold to Talmora Longlac Gold Mines Limited.

1945-1949: Talmora, from its underground workings, extended a drive on the 500-foot (152.4 m) level onto one of these claims and did some exploration work.

1949: Talmora returned the four claims to Mosher Longlac Gold Mines Limited.

1950: Further drilling was done before the company was reorganized to form New Mosher Longlac Mines Limited. Diamond drilling was also done by the newly formed company and the Hard Rock property was acquired (17 claims).

1952: Work began on a three-compartment vertical shaft, located about 304.8 m (1,000 feet) west of the MacLeod-Cockshutt boundary. By the end of the year, the shaft had been sunk to a depth of 1,200 feet (365.8 m) with levels established at 500 feet (152.4 m) and 1,000 feet (304.8 m). Sub-levels were developed at 250 feet (76.2 m) and 750 feet (228.6 m). One hole, 335.3 m (1,100 feet), was drilled from surface and one hole, 61.0 m (200 feet), was drilled from underground. A number of buildings were constructed on surface.

1953: The No. 1 shaft was extended to a depth of 2,041 feet (622.1 m) with new levels established at 1,250 feet (381.0 m), 1,500 feet (457.2 m), 1,740 feet (530.4 m), 1,890 feet (576.1 m) and 2,040 feet (621.8 m). Underground development was completed and 25 holes totalling 2,893.5 m (9,493 feet) were drilled, all on the 1,740-foot (530.4 m) level.

1954: The company was reorganized to form Consolidated Mosher Mines Limited. The No. 1 shaft was extended to a depth of 2,069 feet (630.6 m). Underground development was done on the lower levels and 71 holes totalling 5,916.2 m (19,410 feet) were drilled from underground. A second shaft, located about 914.4 m (3,000 feet) west of the No. 1 shaft, was sunk to a depth of 15.85 m (52 feet).

1955: Underground development continued and 112 holes totalling 6,775.7 m (22,230 feet) were drilled from underground.

1956: The No. 1 shaft was extended to a depth of 2,530 feet (771.1 m) and new levels were established at 2,180 feet (664.5 m), 2,327 feet (709.3 m) and 2,474 feet (754.1 m). Nineteen holes totalling 4,283.1 m (14,052 feet) were drilled from underground.

1957: Limited underground development was done. One hole of 182.6 m (599 feet) was drilled from surface. Operations were suspended in July at which time both shafts were capped.

1959: Control of the company was acquired by Little Longlac and Associates. Development continued under the management of MacLeod-Cockshutt Gold Mines Limited. The workings were dewatered, and connections were made between the Mosher and MacLeod-Cockshutt underground to the east. Three holes totalling 96.9 m (318 feet) were drilled from surface and 191 holes totalling 4,523.8 m (14,842 feet) were drilled from underground.

1960: The tenth level was established 1,580 feet (481.6 m) below the No. 1 shaft collar. Underground development continued throughout the year and 338 holes totalling 9,736.8 m (31,945 feet) were drilled from underground.

1961: Underground development continued and 155 holes totalling 5,284.3 m (17,337 feet) were drilled from underground.

1962: Underground development continued and 35 holes, totalling 2,120.8 m (6,958 feet) were drilled from underground. The mine was brought into production with mill capacity at 600 tons per day.

1963: Underground development continued. An internal vertical shaft was collared on the 2,040-foot (621.8 m) level and was sunk 286.8 m (941 feet) to a depth of 903.1 m (2,963 feet) below surface. Levels were established at depths of 168, 315, 462, 609, 756 and 903 feet (51.21, 96.01, 140.82, 185.62, 230.43, and 275.23 m, respectively) below the collar. This shaft (No. 3) is located 914.4 m (3,000 feet) west of the No. 1 shaft. Three holes totalling 468.2 m (1,536 feet) were drilled from surface and 14 holes totalling 1,071.4 m (3,515 feet) were drilled from underground.

1964: Underground development continued throughout the year. The No. 3 internal shaft was sunk a further 64.0 m (210 feet) to a depth of 967.1 m (3,173 feet) below surface with new levels established. Diamond drilling consisted of 73 holes totalling 3,445.2 m (11,303 feet) completed from underground.

1965: Underground development continued throughout the year. Diamond drilling consisted of 166 holes totalling 6,319.4 m (20,733 feet) completed from underground.

1966: Underground development continued throughout the year and 150 holes totalling 7,160.1 m (23,491 feet) were drilled from underground. Downward extensions of the ore zones were not thought to contain profitable ore and the decision was made to put the mine on a salvage basis in the new year.

1967: MacLeod-Cockshutt Gold Mines Limited, Consolidated Mosher Mines Limited, and Hard Rock Gold Mines Limited were amalgamated to form MacLeod Mosher Gold Mines Limited. Mining progressed at both properties and 2 holes totalling 392.3 m (1,287 feet) were drilled from underground. A total of 170,555 tons of tailings was treated to demonstrate the feasibility of gold recovery.

1968: Underground development continued and 15 holes totalling 484.94 m (1,591 feet) were drilled from underground. In December, Lake Shore Mines Limited took over all assets of MacLeod Mosher which became the MacLeod Mosher Division of Lake Shore Mines Limited. All involved companies are controlled by Little Longlac Gold Mines Limited interests.

1969: Underground development continued and 5 holes totalling 165.8 m (544 feet) were drilled from underground.

1970: Underground development continued until July when operations ceased, terminating a three-year salvage period.

1973: Lake Shore Mines considered proposals from two companies to reactivate the property.

CURRENT:

The claims are currently held by Lake Shore Mines, which is controlled by Little Longlac Gold Mines Limited. The property remains inactive.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5502499
Easting 502742

GENERAL LOCATION:

The property is located in southeastern Errington Township, approximately 4.5 km south of Geraldton.

ACCESS:

The mine is easily accessible by Trans-Canada Highway #11 which passes immediately to the south, 1.5 km west of the turn-off to Geraldton (Highway #584).

REFERENCES:

Bruce (1935).
Burton (1936, 1937)*.
Ferguson et al (1971).
Field (1954 to 1958, 1960).
Kelly (1964).
Matten (1971, 1972).
Ontario Department of Mines (1961).
Pye (1952).
Resident Geologist's Files, Ontario Ministry of Natural Resources, Thunder Bay.
Rico (1939)*.
Riddell (1965, 1966, 1968a, 1968b, 1969, 1970).
Teare (1937)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map P435, MacLeod Mosher Gold Mines Limited (Ferguson, 1967).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Horwood and Pye, 1951).
Map 2120, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

The property is underlain by clastic metasediments, intruded by hornblende diorite, albite porphyry and quartz diabase. The most important structural feature on the property is the Bankfield-Tombill Fault zone. Movements along the fault are thought to be multiple, the last movement resulting in the lateral displacement of the quartz diabase dikes by 670.6 m (2,200 feet) to the west (Pye, 1952).
Refer to the Hard Rock description for more details.

7) MINERALOGY:

Ferguson et al.,(1971) states that:

> "Mineralization occurs adjacent to feldspar porphyry located in a synclinorium plunging (20-25°) in a westerly direction. The ore represents the western extension of the "F" zone exploited at the MacLeod-Cockshutt Mine."

The F Zone occurs along a wacke-porphyry contact.

Rico (1939)* has described the mineralization of the deposit as follows:

> "The ore bearing sections contain both pyrite and arsenopyrite but it seems to be the latter that influences the grade. Ore sections that contain little quartz are always observed to be well mineralized with arsenopyrite, which occurs in the familiar needle-like form. There may be two ages of this mineral since it is observed in a fine, crushed condition in low grade sections along with the needle types..."

Free gold was seen in several quartz veins and was noted to have a tendency to occupy fractures within the quartz. Other minerals noted include chalcopyrite, tetrahedrite and black chlorite (Rico, 1939).

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Proven and probable ore reserves were calculated to be 869,873 tons with an average tenor of 0.107 oz/ton gold (including ore from the MacLeod-Cockshutt Mine) as of December 31, 1969 (Riddell, 1971).

In 1967, MacLeod Mosher Gold Mines Limited treated 170,555 tons of tailings to demonstrate the feasibility of gold recovery from these.

PAST PRODUCTION:

Mosher Longlac

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1962	63,206	6,179	462,841	0.137	0.013
1963	79,704	8,155	563,064	0.142	0.014
1964	75,856	8,406	605,351	0.125	0.014
1965	59,059	6,326	544,393	0.108	0.012
1966	52,217	5,520	535,008	0.098	0.010
SUB-TOTAL	330,042	34,586	2,710,657		

MacLeod Mosher (Statistics for Mosher Longlac and MacLeod-Cockshutt)

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1967	57,034	5,455	469,442	0.121	0.012
1968	52,040	5,025	464,642	0.112	0.011
1969	44,294	4,378	494,852	0.090	0.009
1970	27,208	2,463	229,477		
SUB-TOTAL	180,576	17,321	1,656,413		

*Note: MacLeod Mosher taken over by Lake Shore Mines Limited, which completed a three year salvage operation.

9) CHEMICAL ANALYSES:

1982

Sample No.	Oz/Ton Au	Oz/Ton Ag	Sample Description
F-64-82	17.50	0.68	Quartz from the dump near No. 1 shaft.

1) PROPERTY NAME: Craskie-Vega Prospect (35, 36)

DATE(S) VISITED: August, 1982; August 1, 1984

2) ALTERNATE NAME(S): Nezah Prospect
Tombill Prospect

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1928: Messrs. Collins, Webster, Holmes, Humphries and McPhee held claims covering an iron formation unit.

1935: Tombill Gold Mines Limited was incorporated on 7th October to carry out work on a gold prospect. The company held 6 patented claims in the Little Longlac area, previously known as the Tom Johnson claims, adjoining Bankfield Gold Mines to the west.

1937: Work on the Nezah property was carried out by Vega Mines Limited on 16 unpatented claims. Gold was found, erratically distributed. There is no record of property ownership.

1939: Five of the 15 claims comprising the present day Craskie Mines Limited property were staked by H. Craig (TB27791-TB27795).

1940: Craig carried out 40 days work on the property.

1944-1950: Six more of the 15 claims were staked by J. M. Kilpatrick, and all interest was transferred to J. M. McIntosh who completed 200 days work on the property throughout 1945 and 1946. The claims were cancelled in 1950 on December 12th.

1951: Ten claims were staked by Ernest Thompson adjacent and to the east of the claims staked by H. Craig. All interest was transferred to James A. Grant. Work on the property was done in late 1951 and throughout 1952, when Tombill Mines Limited (of which James A. Grant was a director) carried out a program of surface work and diamond drilling (5,000 feet +). The survey showed that gold occurred erratically throughout the property. Thirty-two holes were drilled by P.A.T. Mines.

1954: Tombill Gold Mines Limited formed a subsidiary company, Craskie Mines Limited to acquire 23 claims in Vincent Township, where 2 gold orebodies of low to medium grade had been inferred by diamond drilling.

1957: All interest in the 10 claims staked by Ernest Thompson was transferred to Craskie Mines Limited and the company applied for a lease. On 25th July, the lease was in preparation.

1959: In May, Tombill Gold Mines Limited changed its name to Tombill Mines Limited.

1972-1977: A block of 16 claims (TB349000-349015) was staked by Waino Lahti on 2-5th October. On December 7th, all interest was transferred to Tombill Mines Limited. The claims were cancelled on 6th June, 1973 and re-instated on 7th January, 1974. During March of 1974 and 1975, 200 days of diamond drilling based on the results of geophysical and geochemical surveys, were completed.

The geophysical survey consisted of an electromagnetic study using military V.L.F. radio transmitters.

A soil survey formed the geochemical part of the study; samples were analysed for copper, silver and arsenic.

A number of coincident geochemical and geophysical anomalies were isolated. By the end of February, 1974, 5 diamond drill holes had been completed.

1978-1981: Claims TB349000-349015 were restaked as TB513158-513165 and TB513701-513708 during mid-October to early November 1978 by Albert Hopkins (mining and geological consultant). He was given access to the information available about his property by Tombill Mines Limited and delineated a further exploration program. Fourteen holes were drilled by mid-February, 1979, 5 of which intersected gold mineralization. Three work extensions were granted by the Mining Recorder; to August 29th, 1980, February 28th, 1981 and August 28th, 1981.

A proposal was made in 1981 to reorganize Tombill Mines Limited taking the company out of the mining industry and making it an investment company. To achieve this, the company's assets would be sold. Strong opposition to the plan was voiced by the shareholders.

1983: Tombill (Craskie Mines Limited) optioned the Vega property from J. Ternowesky-P. Skalesky who had staked the same after Hopkins allowed his claims to lapse. Hopins retains 10%.

1983: Tombill (Craskie Mines Limited) selected a portal site for a decline on Craskie leases.

CURRENT:

1984: Tombill Mines (Craskie Mines Limited) held Craskie leased claims.
Tombill Mines (Craskie Mines Limited) held Vega option from vendors J. Ternowesky, P. Skalesky, A. Hopkins.
Craskie Mines Limited diamond drilled the north (chlorite) zone (TB614505). The Vega option reverted back to the vendors.
Terraquest Surveys conducted an air magnetic and VLF survey of the Vega and adjoining Ralph Lake claims.

5) LOCATION AND ACCESS:

42E12/NE
U.T.M. Zone 16 Northing 5498408
Easting 448301

GENERAL LOCATION:

The property is located in north central Vincent Township.

ACCESS:

The property can be reached from Highway 11 by following overgrown lumber roads. There are no bridges across the Blackwater River, but there are shallow patches which can be negotiated by a tractor.

REFERENCES:

Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Vincent Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The Craskie-Vega property is underlain by metavolcanics which strike 075°-090° and dip steeply to the north, with the exception of the southwest corner where the rocks dip steeply to the south.

To the south of the property, rocks are mostly chloritic schists and to the north they are fairly massive andesites and diorites.

Narrow banded ironstone units are interbedded with the metavolcanics throughout the sequence. They consist of sugary recrystallized chert alternating with magnetite. In places, pyrrhotite is a common constituent.

Medium-grained, white, quartz-porphyry sills, 0.5-1.5 m (2-5 feet) wide, intrude many of the ironstones. Apparently, these are related to a small "plug" 183 m x 305 m (600 feet x 1,000 feet) which straddles the eastern boundary of the property (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

7) MINERALOGY:

Mineralization consists of abundant pyrite with smaller amounts of arsenopyrite, pyrrhotite, magnetite, chalcopyrite and gold. Gold mineralization occurs in several areas, the most important of which, on the Vega, are two parallel ironstone units which are about 30 m (100 feet) apart, strike at 085° and dip 85°N. They have been named the Vega #1 (south) and Vega #2 (north). These contain magnetite and thus can be traced easily with a magnetometer. These discontinuous ironstones extend from the Vega east to the Craskie property where drilling has delineated four gold zones, (see Economic Features).

The ironstone units are siliceous and brittle, and have been fractured. The fractures acted as conduits for intrusive bodies and mineralizing fluids many of which contained secondary quartz, carrying gold. Replacement sulphides also contain gold values.

On the Vega the ironstones have an average width of 2-2.5 m (6-7 feet). Surface sampling indicates an average gold content of 0.24-0.30 oz gold per ton. The ironstones have been traced for 610 m (2,000 feet) by approximately 100 old trenches and test pits dug by prospectors (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

A diamond drilling program conducted in 1952 by Tombill Mines Limited outlined 4 mineralized zones

Zone	Length	Width	Indicated Grade (oz/Ton Au)
West	430.0 Ft.	6.6 Ft.	0.17
"G"	(131.1 m)	(2.0 m)	
Centre	350.0 Ft.	6.9 Ft.	0.19
"G"	(106.7 m)	(2.1 m)	
East	150.0 Ft.	6.8 Ft.	0.18
"G"	(45.7 m)	(2.1 m)	
North	200.0 Ft.	4.8 Ft.	0.25
"H"	(60.1 m)	(1.5 m)	
Midway	350.		

These zones were tested to 150.0 feet (45.7 m) (Tombill Mines Annual Report, 1953; The Northern Mine February 26, 1973).
The "Pond Prospect" is presumed to be the centre G Zone.

9) CHEMICAL ANALYSES:
1982

Sample No.	Au (oz/T)	Ag (oz/T)	Sample Description
82-MVV-1 (Vega Zone #1, Eldorado Pit #10)	0.14	<0.10	Coarse to very coarse-grained vein quartz with chlorite blebs and recrystallized saccharoidal chert at vein margin.
82-MVV-2 (Vega Zone #1, Eldorado Pit #10)	1.16	<0.10	Recrystallized, saccharoidal chert; chloritized; carbonate; 3-5% arsenopyrite.
82-MVV-3 (Vega Zone #1, Eldorado Pit #10)	0.02	<0.10	Recrystallized, saccharoidal chert with much carbonate stain and chlorite.
82-MVV-4 (Vega Zone #1, Eldorado Pit #24)	<0.01	<0.10	Coarse to very coarse-grained glossy vein quartz with rusty stain and fine chlorite-biotite blebs.
82-MVV-5 (Vega Zone #1, Riocanex Pit #34)	0.02	<0.10	Narrow bands of magnetite alternating with narrow bands of saccharoidal chert; chloritized, rusty

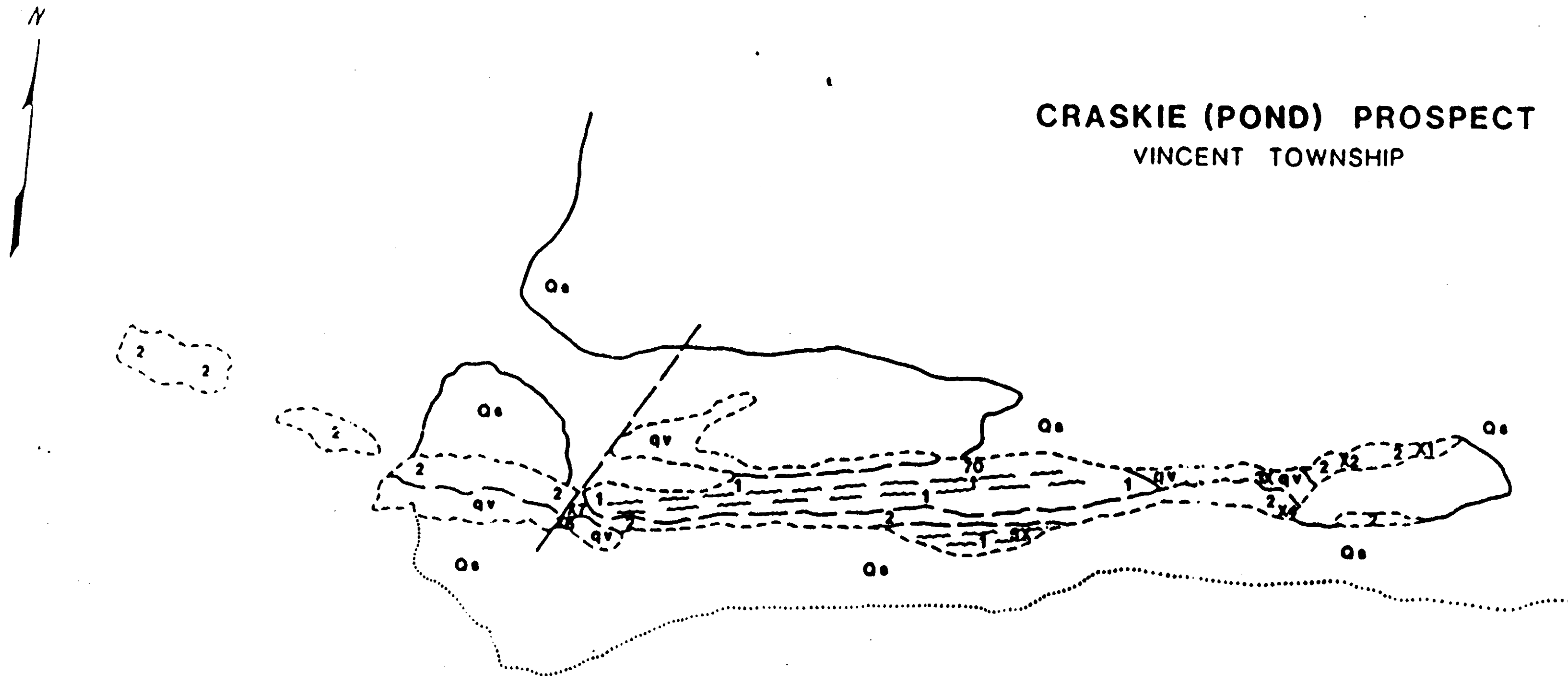
82-MVV-6 (Vega Zone #1, Eldorado Pit #35)	<0.01	<0.10	Narrow bands, very fine-grained and medium-grained euhedral magnetite alternating with quartz-chlorite-actinolite mesobands.
82-MVV-7 (Vega Zone #2, Eldorado Pit #1)	<0.01	<0.10	Narrow bands of very fine-grained magnetite alternating with quartz chlorite, iron amphibole (grunerite?) mesobands.
82-MVV-8 (Vega Zone #2, Eldorado Pit #1)	<0.01	<0.10	Saccharoidal to coarse-grained chert with fine-grained chlorite blebs and bands and some weathered rusty carbonate.

Craskie Prospect
1984

Sample No. (Grab)	As (ppm)	Sb (ppm)	Au (ppb)	Sample Description (Grab)
84-MWC-1	2250	1.0	10.0 ppm	Banded chert-magnetite ironstone containing <1% euhedral arsenopyrite.
84-MWC-2	1100	1.5	455	Banded chert ironstone with cross-cutting vitreous quartz veins. Sample contains rare magnetite and disseminated sulphides. (arsenopyrite and pyrite at <1%).
84-MWC-3	9500	2.4	16.7 ppm	Clear grey to white, highly fractured quartz, in contact with a sheared mafic metavolcanic. The metavolcanic exhibits prominent biotite alteration and contains 5 to 7% disseminated sulphides (pyrite, chalcopyrite, arsenopyrite).
84-MWC-4	9700	2.6	9190	The sample consists of banded chert ironstone with rare magnetite bands, sheared mafic metavolcanics, and quartz veining. Mineralization consists of 3% disseminated euhedral arsenopyrite.

84-MWC-5	82	0.1	21	Highly sheared, grey-green mafic metavolcanic wallrock containing no visible sulphides.
84-MWC-6	1200	2.4	6670	Grey-white vitreous quartz vein in contact with sheared, altered volcanics. The sample contains no visible sulphides.
84-MWC-7	370	0.7	1730	Banded chert ironstone.

CRASKIE (POND) PROSPECT
VINCENT TOWNSHIP



LEGEND

SYMBOLS

OUTCROP

GEOLOGICAL CONTACT

SHEAR ZONE

LINEAMENT

LAKE BOUNDARY

OVERBURDEN

X SAMPLE LOCATION

MAP UNITS

Qs QUATERNARY SEDIMENTS

qv QUARTZ VEIN

2 BANDED IRON FORMATION
- 0 TO 5% PYRITE
- 0 TO 3% ARSENOPYRITE

1 MAFIC METAVOLCANICS
- AMYGDALOIDAL
- VESICULAR
- SHEARED

ASSAY RESULTS

SAMPLE NO	Au (ppb)	As (ppm)	Sb (ppm)
84-MWC-1	10.0 ppm	2250	1.0
84-MWC-2	455	1100	1.5
84-MWC-3	16.7 ppm	9500	2.4
84-MWC-4	9190	9700	2.6
84-MWC-5	21	82	0.1
84-MWC-6	6670	1200	2.4
84-MWC-7	1730	370	0.7

METRES 0 3 6

0 10 20

FIGURE 4

1) PROPERTY NAME: Crooked Green Creek Mine (37)

DATE(S) VISITED:
July 14, 1981
July, 1982
August, 1982
June 21, 1983
July 7, 1983
September 20, 1983
September 27, 1983
October 24, 1983
June 5, 1984
June 12, 1984
July 20, 1984
August 7, 1984
August 28, 1984
October 11, 1984
June 12, 1985

2) ALTERNATE NAME(S): Cowan Mine

3) COMMODITY: MAIN: Au SECONDARY: Cu, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1946: Neil Smith (Neil Prospecting Syndicate) Nezah, Ontario found gold and staked claims including what later became TB113679 covering the No. 1 vein.

1947: Green Lake Gold Mines conducted trenching and diamond drilling (21 diamond drill holes).

1958-1960: Chellew Gold Mines acquired property.

Martin-Sturgeon Syndicate optioned the ground from Chellew Gold Mines Limited and conducted trenching, stripping, sampling and diamond drilling (20 holes totalling 1,940 m (6,366 feet)).

196?: Walter Brown optioned the ground and diamond drilled. The claims lapsed.

1964: T. Christianson restaked the property and held claims TB113679, TB113704, TB113705, TB117988, TB117989 and TB117990.

1965: Bulk sampling was done by Christianson.

1966: T. Christianson and G. W. Moore entered into an agreement.
TB113679 was brought to lease.

1966-1967: Crooked Green Creek Mine Limited drove an inclined shaft 7 feet (2.1 m) x 9 feet (2.7 m).
The shaft was sunk 45° to 38 feet (11.6 m).

Diamond drilling and sampling were completed.

The company held claims TB113679, TB113704, TB117988 to 117990 inclusive, TB119535 to 119541 inclusive, TB124392 to TB124409 inclusive, TB34902, TB340905, TB34908.

1972: Sol and Ben Cowan (Algoma Development Co.) acquired the property, less 6 claims, TB34902, TB34905, TB34908, TB602243, TB602244, TB602245, now held by Hillsborough Exploration Limited.

1981: The name was changed to Northern Concentrators.

The company has conducted seasonal small scale mining to the present day.

A mill rated at 25 tons per day was constructed in Thunder Bay to handle the ore.

1983: The Thunder Bay Joint Venture, comprised of Great Western Petroleum Corporation and Anglo-Canadian Mining Corporation, optioned 29 staked claims and 1 leased claim from Northern Concentrators Limited. Three staked and three leased claims were optioned from Hillsborough Exploration Limited.

CURRENT:

1984: Bulk sampling was initiated as part of the Thunder Bay Joint Venture-Cowan-Hillsborough agreement. Northern Concentrators' custom mill in Thunder Bay, has milled 327 tons of gold ore from the Crooked Green Creek #2 zone on the Pifher Township property. An additional 213 tons of ore was mined (all from the #2 zone) and trucked to Teck Corporation's custom mill facility.

1985: Diamond drilling commenced on No. 2 zone. Hillsborough option only retained. Northern Concentrators Limited milled approximately 200 tons from the Crooked Green Creek #2 Zone (B. Doucet, Mill Manager, Northern Concentrators Mill, Thunder Bay, personal communication, 1985).

1986: Diamond drilling planned on #2 Zone.

Presently the claims are held by:

	Claim No.	Owner
	TB518561	Northern Concentrators
	TB518652	"
	TB557581	"
	TB557582	"
	TB557583	"
	TB614044	"
	TB614045	"
	TB614737	"
	TB644990	"
	TB644991	"
	TB644992	"
	TB644993	"
	TB644994	"
	TB646035	"
	TB646036	"
	TB646037	"
	TB646038	"
	TB646039	"
	TB646040	"
	TB646041	"
	TB646042	"
	TB646043	"
	TB646044	"
	TB656582	"
	TB701436	M. F. Cowan
	TB701437	"
	TB701438	"
	TB701439	"
	TB701440	"
(lease)	TB113679	Northern Concentrators
	TB602243	Hillsborough Exploration Limited
	TB602244	"
	TB602245	"
(lease)	TB34902	"
(lease)	TB34905	"
	TB34908	"

5) LOCATION AND ACCESS:

N.T.S. 42E13/SW
U.T.M. Zone 16 Northing 5513727
Easting 440095

GENERAL LOCATION:

The property is located in central Pifher Township.

ACCESS:

The Crooked Green Creek Mine can be reached by travelling Highway #801 25.7 km north of Highway #11 to the "Mine Road". Follow the "Mine Road" for 3.2 km southwest.

REFERENCES:

Andrews (1972)*.
Laird (1936).
Mason and McConnell (1983).
Carter and Eccles (1984)*.
Patterson et al. (1984).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1965).

6) GENERAL GEOLOGY AND STRUCTURE:

Carter and Eccles (1984)* described the geology and structure:

"The oldest rocks are banded to massive felsic metavolcanic flows and tuffs of rhyolite-dacite composition, which underlie the eastern half of the property. Overlying these are intermediate to mafic massive flows and minor intrusives. Fine-grained, crowded feldspar porphyries occur as irregular masses intruding older rocks, although they may be extrusive in part. One north-striking diabase dyke was noted in the southern part of the claims.

Bedding attitudes are displayed only in banded rhyolite tuffs and where seen, predominant strikes are west-northwest with moderate to steep dips to the north.

Major faults strike north-easterly, as exemplified by Forge Creek drainage and the alignment of Smith Lake."

7) MINERALIZATION:

Three major mineralized zones occur on the property and are numbered 1, 2 and 4 (Claim TB113679 - No. 1 zone (map attached), (Hillsborough claims - No. 2 zone).

Mineralization in all veins consist of chalcopyrite, pyrrhotite and gold with minor sphalerite, pyrite, marcasite and hematite (Andrews, 1972)*.

The veins are typically coarse-grained, brecciated and smokey to blue-black. Sulphides can be very coarse and often are located in crushed quartz material surrounding larger quartz fragments. Gold is often free gold in the pyrrhotite or chalcopyrite.

Chalcopyrite, pyrrhotite and low gold values occur as jointing or fracture fillings in the host rock. Sulphide content ranges from 1 to 20%.

Altered host rock that is incorporated in the veins can be altered to chlorite.

The No. 1 zone vein, which has been the site of much of the exploration and development to date, is a sigmoidal, east-northeast-trending quartz vein cutting a feldspar porphyry hosted in dacite and minor rhyodacite. The vein dips 45° to 70°S and is 0.3 to 0.6 m wide near the abandoned inclined shaft; to the west the vein dips 70° and narrows to 5 cm.

The No. 2 zone is located 459 m (1,500 feet) west of No. 1 vein, strikes east-west and has been traced for 70 feet (21.3 m).

The No. 2 zone consists of a minimum of 3 veins and resembles the No. 1 vein in terms of texture and colour. The No. 2 zone is hosted by intercalated banded chert, rhyolite and andesite. During the summer of 1983, this occurrence was first opened up. Initially, two flat veins cut a third more steeply dipping vein, but after seven rounds of blasting and mucking, it was evident all three veins flattened to perhaps one vein. All veins are auriferous. Numerous discontinuous quartz lenses occur near the three veins.

8) <u>ECONOMIC FEATURES</u>:
<u>TONNAGE AND GRADE ESTIMATES</u>:

Green Lake Gold Mines (1947):
No. 1 Zone: Weighted average of 17 vein intersections is 1.32 oz gold per ton across 0.4 m (1.5 feet)

No. 2 Zone: 9 D.D.H. intersected an average of 1.4 m (4.7 feet) of 0.379 oz gold per ton. One deeper D.D.H. intersected 0.5 m (1.6 feet) of 0.77 oz gold per ton at a depth of 33.5 m (110 feet).

Crooked Green Creek Mine Limited (1967):
No. 1 Vein: 5.8 oz gold per ton, and 3.0% copper across 50.8 cm (20.0 inches) in channel sample over 46.3 m (152.0 feet). 170-ton bulk sample averaged 1.65 oz gold per ton, 0.44 oz silver per ton and 1% copper

No. 2 Zone: Chip samples by P. Kingston (1966) assayed 2.36 oz gold per ton over 0.8 m (2.5 feet). Chip samples by T. Christianson (1966) assayed 20.3 oz gold per ton over 0.9 m (3 feet)

No. 4 Zone: Arithmetic average of 80 samples over a length 45.7 m (150 feet) and over a width of 80 feet assayed 0.22 oz/ton gold. One channel sample assayed 0.12 oz/ton gold and 0.25% copper over 9.1 m (30.0 feet).

Great Western Petroleum Corporation and Anglo-Canadian Mining Corporation (1983):

"No. 1 Vein:
Drilling on the No. 1 Zone over strike length of 75.0 m indicates a weighted average grade of 0.7 oz per ton gold over an average core length of 0.54 m. Values grading up to 1.637 oz gold per ton over a core length of 0.9 m have been intersected in drill core on the No. 2 Zone".
(Patterson et al., 1984).

Further, Carter and Eccles (1984)* state:

"This program was successful in extending both of the principal gold-bearing quartz vein structures. No. 1 Vein Zone has a potential geological reserve of 25,000 tons grading 0.35 oz gold per ton, while No. 2 Vein Zone has potential reserves of 7,500 tons averaging 0.36 oz gold per ton. There is a potential for more than 10,000 oz of gold within the areas tested to date."

PAST PRODUCTION:

	Grade (Au oz/T)
1984 - 540 tons (No. 2 Zone)	213 tons at 0.394 327 tons at 0.44
1982 - 365 tons (No. 1 Vein)	0.19
1981 - 350 tons (No. 1 Vein)	0.25
1980 - 200 tons (No. 1 Vein)	0.43

9) CHEMICAL ANALYSES:

1982 Sample No. (Grab)	Au (oz/T)	Ag (oz/T)	Sample Description
No. 1 Vein			
82-MCG-1	0.01	0.10	Medium to coarse-grained smokey quartz, 2-3% chalcopyrite.
82-MCG-2	0.01	0.10	Medium to coarse-grained smokey quartz, 1-2% chalcopyrite.
82-MCG-1 Bell White	0.01	Trace	Pulp.
82-MCG-2 Bell White	0.135	0.06	Pulp.
1983			
No. 2 Vein			
83-MCG-1	0.24		Rhyolitic tuff (host), possible flow banding 4% pyrite blue-grey quartz vein in mafic flow rock cherty banded rhyolite minor sulphides very fine-grained to aphanitic texture.
83-MCG-2	0.03		
83-MCG-3	0.01		

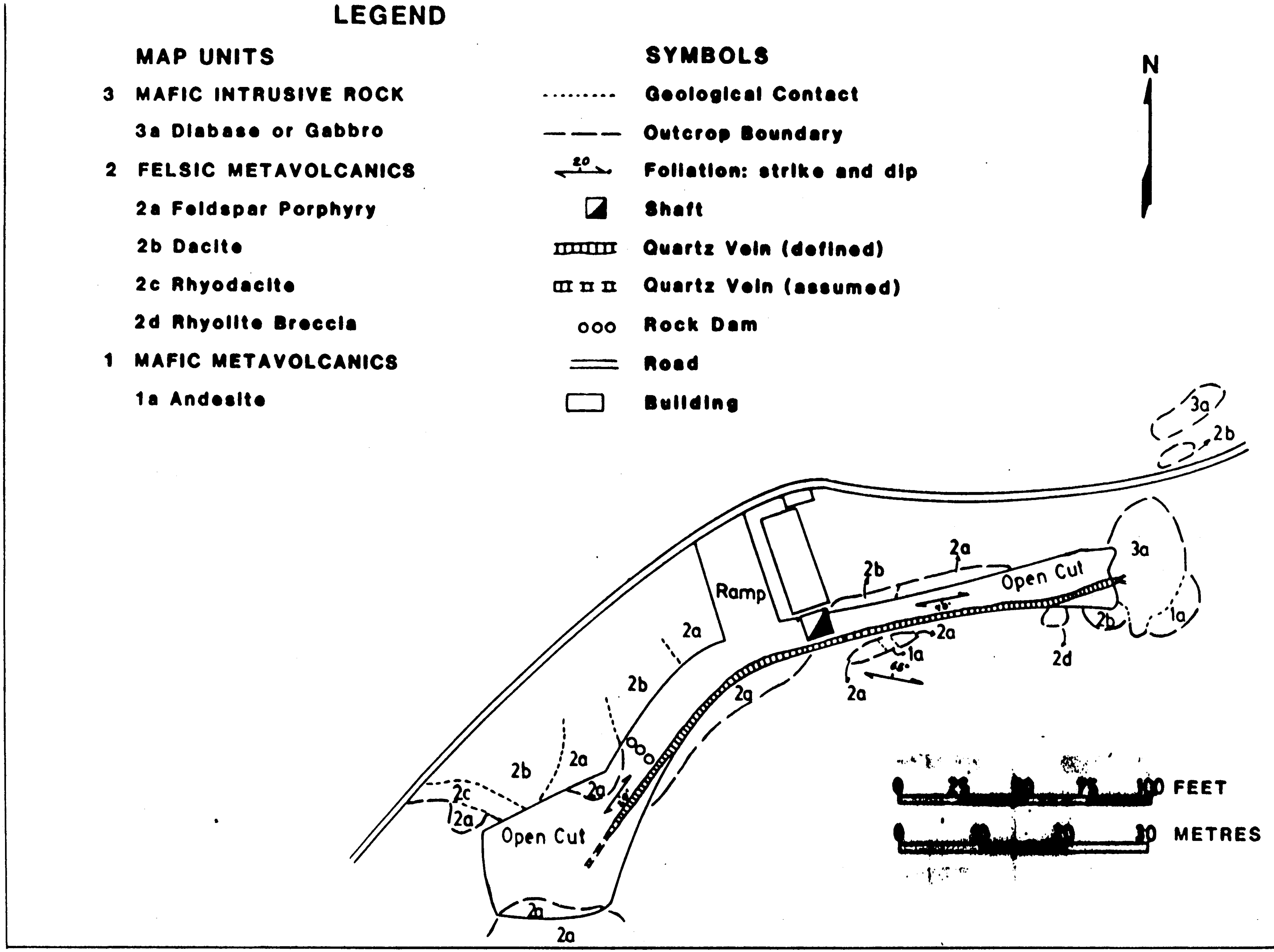

LEGEND
MAP UNITS
3 MAFIC INTRUSIVE ROCK
3a Diabase or Gabbro
2 FELSIC METAVOLCANICS
2a Feldspar Porphyry
2b Dacite
2c Rhyodacite
2d Rhyolite Breccia
1 MAFIC METAVOLCANICS
1a Andesite
SYMBOLS
Geological Contact
Outcrop Boundary
Foliation: strike and dip
Shaft
Quartz Vein (defined)
Quartz Vein (assumed)
Rock Dam
Road
Building
N
Open Cut
Ramp
Open Cut
FEET
METRES

FIGURE 5

1) PROPERTY NAME: Dajaty (Paint Lake) Occurrence (42)   DATE(S) VISITED:

2) ALTERNATE NAME(S): Paint Lake Group Occurrence

3) COMMODITY: MAIN: Au   SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1944: The property covering the occurrence was staked by George Perry (TB30784).

1945: A total of 45 assessment days were credited to the claim, which was subsequently transferred to Dajaty Mines Limited. Though an exploration program was proposed, there is no record of work done.

1947: The claim was cancelled and restaked by Waino Bohm (TB37146).

1948: The claim was transferred to Airways Exploration Limited, which was testing gold mineralization to the south. Five holes totalling 167 m (548 feet) were drilled on the claim block.

1953: The claim was cancelled.

1958: The property was staked by Remi Miron (TB90942).

1959: The claim was cancelled.

1960: The claim was staked by Jerry Walsh (TB98313).

1963: The claim was cancelled.

1971: The property was staked by John Haahti (TB319797).

1973: The claim was cancelled.

1974: The property was staked by John Keruse (TB419178).

1975: The claim was transferred to Rickaby Mines and was later cancelled.

1979: The property was staked by David Thorsteinson (TB518442).

1980-1984: Power stripping and diamond drilling (four holes totalling 225.8 m (741 feet)), were done to the south of this showing by David Thorsteinson.

CURRENT:

1985: The property is currently not available for staking (pending Supreme Court decision on claim dispute with Metalore Resources).

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5508250
Easting 445800

GENERAL LOCATION:

The property is located along the western boundary of Walters Township, 1.3 km north of Bearskin Lake.

ACCESS:

Travel north from Nezah, (10.1 km west of Jellicoe) on secondary Highway #801 for about 8 km, then west on a dirt-sand road for 0.8 km.

REFERENCES:

Mackasey (1976).
Pudifin (1975)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Tyson (1948)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2516, Irwin Township Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Warren Occurrence for the general geology of Walters Township.

The occurrence is comprised of a quartz sulphide replacement zone in sheared Archean lava. Strike of the zone is approximately east-west, and dips range from 75° to 85° to the south. Vertical and north dips are noted 152 m (500 feet) to the north.

The greenstone-conglomerate contact lies 152 to 183 m (500 to 600 feet) to the north and the Paint Lake Fault, a short distance further north (Tyson, 1948)*.

7) MINERALOGY:

Though the zone is described as being well mineralized, there is no mention of specific minerals.

The zone is greater than 2.4 m (8 feet) wide. Attempts to trench the area were abandoned due to ground water and overburden problems (Mackasey, 1976). The discovery occurs in a wet ravine (Tyson, 1948)*.

Grab samples from surface assayed up to 1.88 oz/ton gold. Channel samples from a trench were reported to be less than ore grade (Tysón, 1948)*.

1) PROPERTY NAME: Dajaty (Watson Lake) Gold Occurrence (43)

DATE(S) VISITED: June 12, 1985

2) ALTERNATE NAME(S): Central Manitoba Mines
Watson Lake Gold Occurrence
Undersill Gold Claims

3) COMMODITY: MAIN: Au SECONDARY: Fe

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1917: International Mining Development Company conducted trenching and shaft sinking to a depth of 36 feet (11 m) on the iron formation.

1920's: A. E. Tyson conducted trenching and prospecting on the eastern portion of the property.
An irregular zone of auriferous replacement sulphides was outlined in iron formation between Watson and Doris Lake.

1946: D. MacLeod conducted trenching, prospecting, magnetometer and induced polarization surveys on the western portion of the iron formation.

1957: Central Manitoba Mines Limited, exploring for iron, worked the entire Watson Lake area and completed 4 diamond drill holes, totalling 308 m (1,012 feet).

S. Cowan retained TB2415-2419 and TB35819.

1977: A. Hopkins staked the western portion of the property.

1983: Normine Resources Limited optioned the entire block and contracted Bema Industries Limited to conduct linecutting, geological, and geochemical and geophysical surveys to examine a gold-bearing quartz vein and other patented target areas.

Normine Resources held the following claims in Irwin and McComber Township: TB674353-63, TB674364-72, TB659026-29, TB674373, TB673829-34, TB701533, TB7015335, TB7015337.

1984: Normine Resources dropped the option.

E. Rentz and O. Theriault held claims TB701533, TB701537, TB673829-34, TB784624, TB784628, TB784629, TB815502-7 and TB813343-8 covering the Watson-Doris Lake (east) portion and optioned the property to Canamax Resources Incorporated.

Canamax Resources Incorporated conducted mechanical, magnetometer and VLF surveys.

CURRENT:

1985: Diamond drilling commenced on auriferous vein sulphide-related iron formation at Watson Lake and the volcanic-sediment contact to the north.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5502600
Easting 443500

GENERAL LOCATION:

The property is located in southeastern Irwin Township and northwestern McComber Township at Watson Lake.

ACCESS:

Drive east along Highway #11 from Beardmore 13.3 km to the Windigokan Lake Road. Proceed north approximately 3.2 km to the Watson Lake area.

REFERENCES:

Laird (1936).
Mackasey (1975).
Nordin (1984)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45A, Sturgeon River Gold Area (Bruce and Laird, 1936).
Map P481, Irwin Township (Mackasey, 1968).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2294, Dorothea, Sandra and Irwin Townships (Mackasey, 1967).

6) GENERAL GEOLOGY AND STRUCTURE:

The Watson Lake property is underlain by sedimentary rocks (Southern Metasedimentary Sub-belt) consisting of wacke, feldspathic and quartzose sandstone, siltstone, phyllite-argillite, conglomerate and oxide ironstone. The metasediments are in fault contact to the north with mafic metavolcanics. The metavolcanics include massive, amygdaloidal and pillowed metavolcanics, breccia, tuff and tuffaceous schist.

The Watson Lake Fault separates the two units and trends 079°. Regional foliation within the metasediment and metavolcanics is 075°-085°.

Nordin (1984)* described three lithologic units specifically on the Watson Lake property:

1) andesite tuff
2) thin bedded magnetite-hematite-jasper phyllite iron formation
3) massive to phyllite greywacke

A thin lenticular sequence of conglomerate-wacke-argillite (phyllite) a portion of which was mapped in detail, crops out east of Watson Lake immediately south of the Watson Lake Fault.

The iron formation is located south of and is conformable with the Watson Lake Fault. The ironstone unit is a significant marker unit that is spatially associated with gold production at Beardmore and Geraldton.

The ironstone unit east of Watson Lake consists of two specific units and have been described by Nordin (1984)*:

> "The northern strongly magnetic iron formation is 50 to 100 m wide on the eastern portion of the claims and a magnetic survey on the western portion of the claims indicate it is 30-50 m wide. It consists of beds of fine-grained, thinly bedded magnetite and hematite from 1-3 cm intercalated with thin beds of chlorite slate and quartz. It grades along strike and across strike from bands rich in magnetite making up greater than 50% of the rock to predominantly chloritic phyllite with thin bands of magnetite and quartz making up to 10-15% of the rock. In the section from line 16+50E to 19+00E it is highly contorted with numerous S, Z and M folds present and it has been structurally thickened from 50 to 100 m. The iron formation is thought to be a chemical sediment where iron and silica were precipitated from volcanic exhalations.
>
> The southern iron formation consists mainly of chloritic phyllite with thin interbeds of hematite-jasper-chert averaging 1-2 m thick. It has been sheared along the phyllite-iron formation contacts with injection of irregular quartz-carbonate-sulphide veins. On the western portion of the claims the stratigraphic position of the lean iron formation is marked by a narrow non-magnetic chloritic phyllite unit."

The two iron formations may represent limbs of an isoclinally folded syncline.

7) MINERALOGY:

Two main zones of quartz-carbonate veining and auriferous sulphide mineralization were described by Nordin (1984)*:

"(1) Watson Lake Grid
A 24 cm-wide zone of pyrite replacement mineralization is present in sheared phyllitic iron formation to the south of the Watson Lake fault on Line 28+00E to 31+50N. The zone assays 0.148 oz/ton gold and has been prospected by a shallow pit.

(2) Doris Lake Grid
Quartz-carbonate-auriferous sulphide veining and replacement is present along sheared contacts with jasper-hematite-chert iron formation along an irregular zone at 14+50E and from L16+00E to L17+50E (Figure 6-11). A total of 8 samples were taken from the quartz sulphide zone from L16+00E to L16+75E which assayed from 0.22 oz/ton gold to 1.144 oz/ton gold over widths from 30 cm to 90 cm the weighted average grade of the samples is 0.25 oz/ton gold. (See Table II). Cutting the one high grade sample to 0.30 oz/ton the weighted average of the samples is 0.11 oz/ton gold."

9) CHEMICAL ANALYSES:
Bema Industries (Nordin, 1984)*

TABLE II
SAMPLE RESULTS

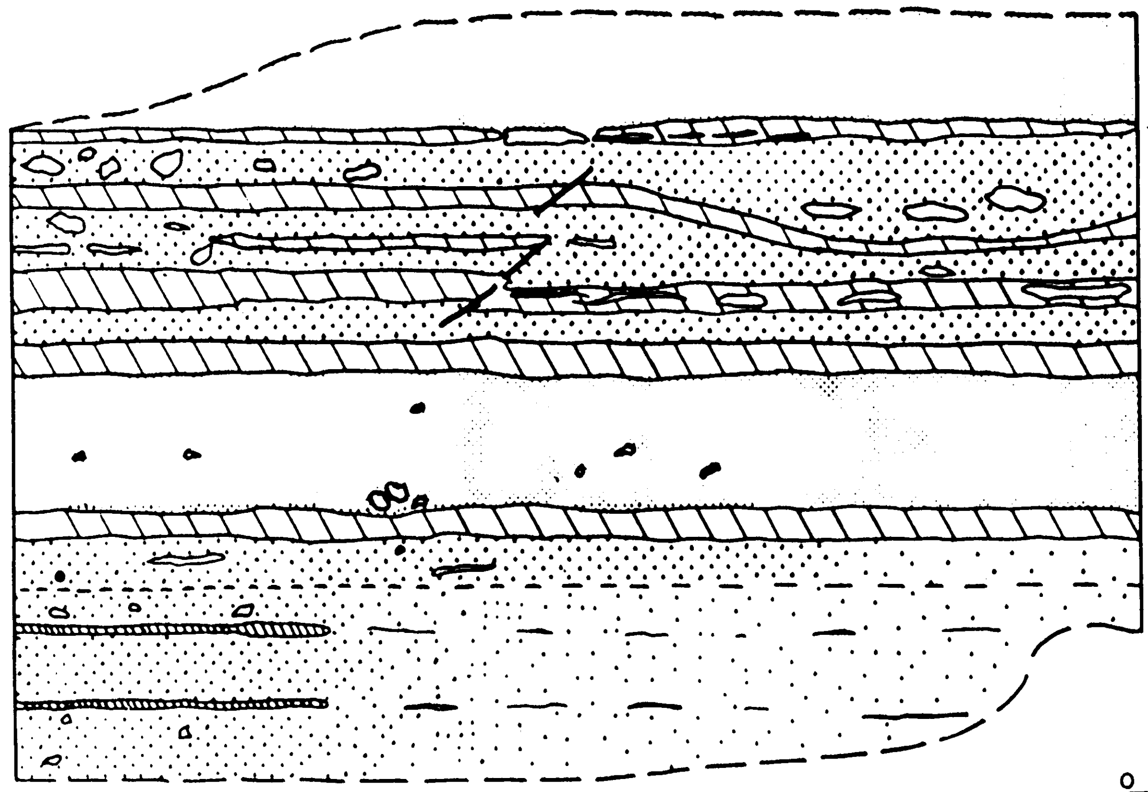
Sample Number	Interval	Assay Value Au(Oz/T)	Ag(Oz/T)
61553	50 cm	1.144	0.18
61854	45 cm	0.068	0.08
61855	45 cm	0.022	0.08
61833	20 cm	0.036	0.04
61844	80 cm	0.028	0.01
61848	20 cm	0.180	0.106
61849	20 cm	0.102	0.066

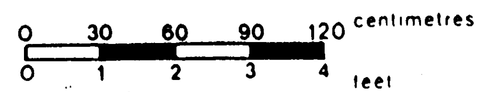
Weighted average - .25 oz/ton Gold, 0.07 oz/ton Gold.
Weighted average (cut to 0.3 oz/ton) - 0.11 oz/ton Gold, 0.07 oz/ton silver.

The shear zone continues to the east and west and is sporadically mineralized with pyrite as on L14+50 - trench 14 where a 50 cm sample assayed .084 oz/ton gold."

Weakly sheared metasediment host coincident quartz-carbonate veining, soil geochemical anomaly (5-10 ppb) and EM-16 anomalies, (Nordin, 1984)*.

WATSON LAKE IRON FORMATION





LEGEND

- HEMATITE-MAGNETITE IRON FORMATION -some units contain elongate red jaspilitic lensoid beds.
- MAGNETITE IRON FORMATION
- FINE TO MEDIUM-GRAINED SAND, generally massive. -contains broken remnants of cherty quartz beds in some units.
- COARSE-GRAINED SAND with some pebble -size fragments. -may contain up to 1% quartz-rich fragments (from .5 to 1.5cm.).
- CONGLOMERATE BED containing subrounded quartz-rich fragments. (range - 2 to 6cm.)

NOTE: This outcrop represents a finely bedded greywacke succession containing banded iron formation and two distinct conglomerate beds.

FIGURE 6

1) PROPERTY NAME: **Dalton Occurrence (44)** DATE(S) VISITED: July 11, 1984

2) ALTERNATE NAME(S): Greenlee Occurrence

3) COMMODITY: MAIN: Au SECONDARY: Fe

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1928: The Dalton brothers held the property.

1936: Greenlee Gold Mines Limited took over the Dalton claims. Trenching was conducted on 2 iron formations (TB5669 to TB5671) and the claims were brought to lease.

CURRENT:

1984: The Dalton estate controls the property which consists of 15 leased claims: TB5669 to TB5672, TB5698 to TB5700, TB5833 to TB5834, TB9043 to TB9044, TB10347, TB10869, TB28933 and TB28936.

5) LOCATION AND ACCESS:

N.T.S. 42E12/SE
U.T.M. Zone 16 Northing 5499150
Easting 453300

GENERAL LOCATION:

The occurrence is located in northeastern Vincent Township approximately 1 km north of Clist Lake.

ACCESS:

Access is via a trail that commences on the east side of Nezah Lake, east of the Canadian National Railway bridge.

REFERENCES:

Billings (1977).
Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 2102 Tashota-Geraldton Compilation Sheet, (Pye et al., 1966).
Map P2854, Vincent Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

A sequence of east-trending mafic volcanic rocks (South Metavolcanic Sub-belt) approximately 3 km wide is bounded on the north and south by a sequence of turbidites. The meta-volcanics are primarily basalt to andesite, minor tuff and ultramafic flows.

Carter (1983) described the flows as being 15 to 25 m thick and dark green to greenish-black. The flows in the southern belt can exhibit a massive to weakly foliated medium-grained basal part, a finer-grained middle portion and a fine-grained to aphanitic upper part which is commonly pillowed, amygdaloidal and/or variolitic.

East-trending ironstone units (chemical meta-sediments) occur in tuffaceous metasediments within the volcanic rocks. Ironstones are generally up to 2 m thick and consist of alternating bands of magnetite, hematite, recrystallized chert, and grunerite. Bands range from 4 to 10 mm thick (Carter, 1983).

"The mafic metavolcanics are intruded by lensoid northeasterly-trending, medium to coarse-grained metagabbroic plugs up to 800 metres long and 100 metres wide" (Carter, 1983). Narrow quartz-feldspar porphyry and porphyry dikes and sheets intrude the metavolcanics. Diabase dikes and sheets (particularly in the western portion of McComber Township) are Keweenawan in age.

The structure of Vincent-McComber Townships has been described by Carter (1983):

> "The supracrustal rocks in the map area have a regional northeasterly trend. The rocks of the northern sedimentary belt are overturned to the south dipping 70 degrees to 80 degrees southeasterly, and facing northwesterly. They overlie the mafic metavolcanics. Near the central part of the eastern boundary of the area, on the northern shore of Clist Lake, similar metasediments flanking the mafic metavolcanics on the south are overturned to the northwest, face southeast, and dip at 70 degrees. Within the central mafic metavolcanic belt, facing criteria are not common in the northern part of this belt, the foliation dips steeply southeasterly and in the southern part steeply northwesterly from 70 degrees to 85 degrees. In the northern part of this belt, pillow shapes and upward-fining of grain size

in the flows, together with amygdaloidal and variolitic textures, indicate that the flows face north. Ironstone units interlayered with the mafic metavolcanics dip southeasterly in the northern part of this belt and southwesterly in the southern part of the belt parallel to the foliation. On the basis of these observations, the supracrustal rocks are interpreted by the author to be folded about a northeasterly-trending anticlinal axis forming a fan-shaped downward-converging anticline (Billings 1972, p. 52-53). West of Clist Lake and south of the Blackwater River, the sediments dip steeply, 75 degrees to 80 degrees to the northwest and are the right way up. This is conformable with the attitude of the mafic metavolcanics to the north of the Blackwater River in this area. This elimination of the southern limb of the anticline is caused by a strike fault trending parallel to the Blackwater River with an interpreted downthrow to the south. Along the southern shore of Clist Lake outside the map area, intermediate tuffaceous metavolcanics overlie the metasediments which are the right way up, and resemble the tuffs in the northwestern corner of the map area. On the basis of all these observations, the supracrustal sequence is interpreted by the author to comprise a lower predominantly mafic metavolcanic unit, overlain by a clastic, predominantly metawacke unit, which is in turn overlain by an intermediate tuffaceous metavolcanic unit, all folded about a northeasterly-trending anticlinal axis. The structure can also be interpreted as an overturned anticline."

A feldspar porphyry dike up to 1.8 m (6.0 feet) wide cuts the volcanics and the iron formation.

7) MINERALOGY:

Two iron formation units are exposed on the property. Bruce (1935) described them as:

"One is 35 feet in width, the other about 20 feet. They are separated by 350 feet of lava. Both are much contorted and in places are fractured. The typical iron formation consists of black bands a quarter of an inch wide containing much magnetite, alternating with white bands of sugary quartz of the same width. In places the black bands consist mainly of chlorite rather than magnetite. Parts of the bands, usually where they are flexed, are fractured. The fractures are filled with quartz, with which there is pyrrhotite, pyrite, chalcopyrite, and a little arsenopyrite. The quartz veins are narrow, commonly not more than a quarter to half an inch in width, but locally they form approximately a fourth of the rock. Usually the sulphides are sparingly disseminated, but in places pyrrhotite is present in masses a foot in diameter. In most places it occurs as narrow lenses along the bedding of the iron formation. Gold has been found by assay. It is confined to the areas of secondary minerals. The feldspar porphyry dike cuts the quartz vein. The gold content is rather low and the distribution is erratic.

In addition to the gold-bearing zones in the iron formation, a north-south quartz vein has been uncovered. It lies entirely in greenstone. For 200 feet its width averaged 30 inches, and in places it is over 40 inches wide. Toward the south it becomes irregular in strike and narrower where it cuts through a feldspar porphyry dike 2 feet in width. Evidently it is younger than the fracture zones in the iron formation, since the dikes appear to be of the same kind.

> The quartz in this vein has an indistinct banded structure parallel to the walls. A little galena is present, and gold is reported to occur in those parts where there is galena."

The sugary quartz described by Bruce (1935) appears to be a recrystallized chert typical of other iron formations. The chert alternates with mesobands of magnetite and is ramified with disconformable magnetite veinlets filling fractures.

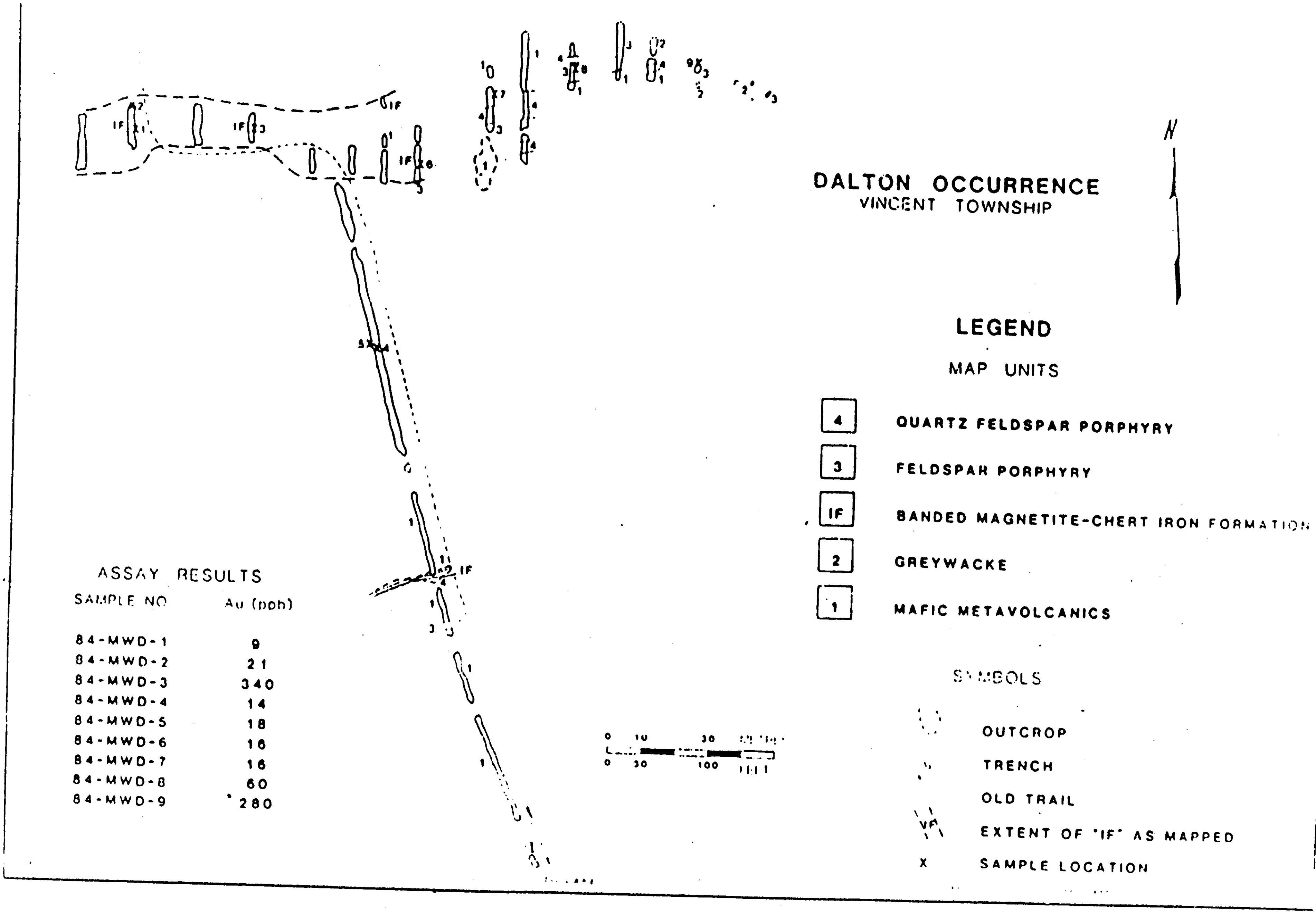
Lenses and veinlets of post-iron formation quartz veining generally are discordant. Pyrite was the main sulphide noted by the author.

9) CHEMICAL ANALYSES:

1984

Sample No.	As(ppm)	Sb(ppm)	Au(ppm)	Sample Description
84-MWD-1	24	0.5	9	Banded magnetite, cherty, I.F. magnetite bands from 1 to 5 mm. Chert up to 2 cm. Minor pyrite along seams <1% in chert.
84-MWD-2	5	0.6	21	Banded magnetite, cherty I.F. Disseminated pyrite along magnetite seams <1%.
84-MWD-3	1.10%	1.0	340	See previous descriptions banded magnetite, cherty, I.F. Disseminated euhedral pyrite throughout the rock <1%.
84-MWD-4	180	0.7	14	Grey-white vitreous quartz vein (possibly later veining). Shows some banding. Rare disseminated pyrite. Some gossan. (Sample not in place).
84-MWD-5	54	1.5	18	Altered, silicified andesitic volcanic wall rock. Chlorite alteration. Minor disseminated pyrite and pyrrhotite <1%: Same location 84-MWD-4.
84-MWD-6	16	0.6	16	Cherty banded magnetite I.F. and later? Grey-white vitreous quartz veining. Bands and stringers of magnetite. Prominent gossan. Minor disseminated pyrite <1%.

84-MWD-7	68	0.5	16	Sheared altered andesitic volcanics (possible tuff). Muscovite alteration. Chlorite. Minor rust. Fractures of pyrrhotite (magnetic) and disseminated pyrite 1%.
84-MWD-8	78	0.5	60	Grey-green, sheared and gossaned medium-grained sandstone. Minor disseminated pyrite <1%.
84-MWD-9	23	0.4	280	White sugary to vitreous quartz in contact with sheared greywacke sediments. Quartz shows rusty gossan. Metasediments contain fine disseminated pyrite-pyrrhotite (possible magnetite). Some pyrite in quartz.
84-MWD-10	3	0.4	20	Sheared and banded sugary chert. Magnetite I.F. (Although no magnetite in this sample). Gossan and a pyrite-rich zone.



ASSAY RESULTS

SAMPLE NO	Au (ppb)
84-MWD-1	9
84-MWD-2	21
84-MWD-3	340
84-MWD-4	14
84-MWD-5	18
84-MWD-6	16
84-MWD-7	16
84-MWD-8	60
84-MWD-9	280

FIGURE 7

1) PROPERTY NAME: **Dam Occurrence (45)**

DATE(S) VISITED: September 8, 1981

2) ALTERNATE NAME(S): Kenogamisis Lake Dam Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1961: An auriferous quartz vein was discovered by the Ontario Department of Public Works during dam construction.

N. A. West, A. Newhouse and N. Levesque staked claims TB100953-100961 and TB101154-101156.

1962: Scope Mining and Exploration Consultants completed a geology report and drill program.

CURRENT:

1981: Thor Johansen staked the occurrence.

1984: Thor Johansen completed one diamond drill hole to a depth of (306 m).

5) LOCATION AND ACCESS:

N.T.S. 42E15/NE
U.T.M. Zone 16 Northing 5515350
Easting 521550

GENERAL LOCATION:

The occurrence is located in Houck Township.

ACCESS:

Access is by way of the Dam Road 11 km north of Highway #11 and approximately 19.2 km east of Geraldton.

REFERENCES:

Fairbairn (1938).
Parliament (1962)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Northern Long Lake-Pagwachuan Lake Area (Fairbairn and MacDonald, 1938).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The property is underlain by mafic metavolcanics. The volcanic rocks are pillowed, massive or vesicular. Local shearing occurs in the dam area. Sedimentary rocks occur in the northern and southern portion of Houck Township. The metasediments consist of wacke, arkose, slate and iron formation. The Croll Lake Stock intrudes the metavolcanic-metasedimentary sequence to the east. Diorite and diabase intrude the metavolcanics.

7) MINERALOGY:

Parliament (1962)* described the occurrence:

"The quartz vein in the river bed is reported to be from 3 to 8 inches wide within a shear zone up to 10 feet wide in places with considerable sulphide mineralization. The strike of vein is 55°E and dip 80°S. Samples from the vein show drag-folding and are well mineralized with pyrite, pyrrhotite, arsenopyrite and traces of chalcopyrite. The vein was reported to be widest near the north cofferdam and open at both ends. A grab sample from the vein assayed 3.8 oz per ton in gold."

Two veins (#1 and #2) were examined by the author and may be part of the same structure. The veins strike 077° and dip 75-82°N. Carbonate, pyrite and minor chalcopyrite occur in the veins at surface. Pyrite and sphalerite were intersected in the 1984 drill program.

9) CHEMICAL ANALYSES:

1981

Sample No.	Au (oz/T)	Ag (oz/T)	Sample Description
81-MTJ-14	<0.01	<0.10	Coarse-grained quartz containing seams of chloritized mafic metavolcanics. Medium to coarse-grained white micro (sericite?) in metavolcanics - 5% pyrite.
81-MTJ-15	<0.01	<0.10	(Same as 81-MTJ-14).
81-MTJ-16	0.01	<0.10	Coarse-grained quartz containing seams of chloritized mafic metavolcanics with tourmaline.

81-MTJ-17	<0.01	<0.10	Coarse to very coarse-grained glassy quartz containing sheared, chloritized mafic meta-volcanics - 5% pyrite.
81-MTJ-18	<0.01	<0.10	Coarse to very coarse-grained glassy containing sheared, chloritized mafic meta-volcanics.
81-MTJ-19	<0.01	<0.10	Coarse-grained glassy quartz containing stringers of calcitic carbonate and sheared chloritic metavolcanic -10-15% pyrite.
81-MTJ-5	<0.01		A-Q Core Sample. Silicified andesitic tuff and minor vein material. Exhibits cross-cutting and parallel quartz-carbonate veinlets (some shearing evident - 022°AZ). Sample contains 1% disseminated pyrite.
84-MTJ-6	0.44		Split core sample of highly mineralized quartz vein (15.2 cm) and silicified andesitic tuff. The andesite wallrock contains coarse 1-5 mm subhedral pyrite surrounded by sphalerite in places. Some pyrrhotite present. Pyrite is concentrated along 022°AZ shear planes in amounts of 25-30%.
84-MTJ-7	<0.01		Grey-white vitreous quartz vein. Some shearing evident. Crack-seal texture containing <1% pyrite.

1) PROPERTY NAME: **Dickson Occurrence (223)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Martin

3) COMMODITY: MAIN: Zn, Ag, Pb SECONDARY: Cu, Au

4) **DEVELOPMENT, HISTORY AND OWNERSHIP:**

PAST:

1951: **The claims covering the occurrence were staked by Gordon Dickson (TB42551 and TB42552).**

1952: **The property was optioned to Chesterville Mines Limited which completed a diamond drill program consisting of fourteen holes. The option was later dropped.**

1957: **The claims were cancelled.**

1967: **The property was staked by Albert E. Tyson who optioned the claim to Rio Tinto Canadian Exploration Limited (TB131070). Detailed geological mapping and electromagnetic and magnetometer surveys were conducted.**

1968: **Geological mapping and a Turam electromagnetic survey were conducted.**

1970: **The claims were cancelled.**

1971: **Myron H. Nelson staked the property (TB302269 and TB302270).**

1973: **The claims were cancelled.**

CURRENT:

The property is currently open.

Note: Claim locations are not consistent on claim maps of different ages.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5514897
Easting 457241

GENERAL LOCATION:

The property is located in east-central Rickaby Township, approximately 3.3 km northeast of Seven Foot Falls on the Sturgeon River and 1,750 m south of the Kenty Showing.

ACCESS:

Travel north from Nezah (10.1 km west of Jellicoe) on secondary Highway 801 for 12.9 km and turn northeast on the River Road for approximately 12.9 km to Rickaby Township. Proceed east on gravel roads for about 2.6 km to the property.

REFERENCES:

Mackasey and Wallace (1978).
Pudifin (1972)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Shklanka (1969).

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1972).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

In the area of the showing, Mackasey and Wallace (1978) describe the geology as follows:

"In that area there is a high proportion of felsic, rocks within a volcanic succession having a stratigraphic thickness of 1,200 to 1,500 m (4,000 to 5,000 feet). The major rhyolitic rock units appear to form two groups, separated by a band of andesitic and dacitic flows and pyroclastic rocks.

...Spherulitic and flow banded rhyolitic rocks occur in both of the felsic-rich groups in the vicinity of the sulphide showings. Most of the felsic rocks however are fine pyroclastic rocks such as tuff, crystal tuff, lapilli tuff, and derived sericitic schist. Coarse-grained intermediate to felsic pyroclastics are also common. The more mafic rocks are basaltic and andesitic agglomerate, tuff breccia and massive and amygdaloidal andesitic flows. In general, units within the predominantly felsic metavolcanic sequence are similar in appearance and composition. The distinction between the units can only be made on the basis of subtle colour differences and the presence or absence of such features as quartz and feldspar phenocrysts, amygdules, and spherulites. Feldspathization of all of the volcanic rock types makes it difficult to distinguish between individual flows or pyroclastic units on the basis of petrographic examination. Most of the metavolcanics on the property are cut by irregularly shaped narrow intrusions of andesitic feldspar porphyry which are probably of Early Precambrian age. An east-trending lamprophyre dike about 9 m (30 feet) wide has been traced over several hundred feet in the vicinity of the Kenty Showing. Several north-trending, Keweenawan diabase dikes up to 30 m (100 feet) wide have been recognized on the property and coincide with several linear ground magnetic anomalies."

For structural geology, refer to the Kenty Showing.

7) MINERALOGY:

Mineralization consists of pyrite, sphalerite and silver-bearing galena (Mackasey and Wallace, 1978).

8) CHEMICAL ANALYSES:

1952 - Chesterville Mines Limited.

Hole No.	Width	Oz/T Au	Oz/T Ag	%Cu	%Pb	%Zn	Sample Description
1	1.0 Ft. (0.30m)	0.01	14.30	-	4.63	7.05	Grey-green trachyte. May be flow top. Some brecciation with quartz carbonate veining. 2% pyrite, 2% galena, 2% sphalerite, no chalcopyrite.
4	3.3 Ft. (1.0m)	0.01	4.86	0.11	2.12	7.53	Trachyte tuff with fragments to 3/4 of an inch. 2 inch bands of heavy sphalerite.

1) PROPERTY NAME: Dikdik Mine (46)

DATE(S) VISITED:
September 30, 1981
September, 1982
October 10, 1984
August 14, 1985

2) ALTERNATE NAME(S): Orphan Mine, J. B. McMartin Mine
Sarmac Property, J. K. Craibbe Property

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1933: The property was staked by T. A. Johnson who subsequently discovered gold. He applied for, and was granted, a Mining Operation Permit. The property was acquired by K. W. Fritzsche for Dikdik Exploration Company Limited (TB11070 to TB11078 inclusive).

1933-1934: Dikdik mined ore from an open cut 28.4 m (80 feet) long and 15.2 m (50 feet) deep. A shaft was sunk from the bottom of the open cut to a depth of 160 feet (48.8 m) with the first level established 150 feet (45.7 m).

1934: After suspending operations for the summer months, mining was resumed under the name of J. Bruce McMartin.

1934-1935: Work continued into November 1935, with the shaft deepened to 262 feet (79.9 m) and a second level established at 250 feet (76.2 m). Additional underground development work consisted of 218 feet (66.4 m) of drifting and 40 feet (12.3 m) of cross-cutting of the first level, and 360 feet (109.7 m) of drifting and 45 feet (13.7 m) of cross-cutting on the second level. Three small stopes were mined; two on the first level and one on the second level.

1935: A 20-ton per day mill was installed.

1935-1936: The claim was acquired by Orphan Gold Mining Corporation but no development or production took place.

1936: Sarmac Gold Mining Operations Limited was incorporated to resume operations at the J. Bruce McMartin Mine (Dikdik Mine).

1937: The workings were dewatered but operations were suspended before any further work could be done. The claim was patented in December.

1940-1964: The mine was acquired and held by Bruce B. Craibbe. Following his death in 1964, the claim was transferred to his widow, Evelyn E. Craibbe.

1965: The claim was transferred to Harold K. Craibbe.

1981: The claim was transferred to Canadian Gold Resources Incorporated, and later transferred to 466735 Ontario Limited (Northway Resources Incorporated).

1982: Northway Resources Incorporated accepted a takeover offer from Rockwell Mining Corporation.

1984: Rockwell Mining Corporation merged with seven private British Columbia Corporations to form Kidd Resources.

CURRENT:

1985: The Dikdik Mine is currently held by Kidd Resources.

5) LOCATION AND ACCESS:

N.T.S. 42E14/SW
U.T.M. Zone 16 Northing 5518288
Easting 465038

GENERAL LOCATION:

The property is located in northeast Rickaby Township, approximately 38.6 km northwest of Geraldton, and approximately 200 m north of Atigogama Lake.

ACCESS:

The property is accessible by travelling 8 km east of Jellicoe on Trans-Canada Highway #11, and following the Camp 40 Road northwest for 19.2 km to the Atigogama Lake, Ministry of Natural Resources access point. Proceed on foot to the first ridge north of the Camp 40 Road.

REFERENCES:

Bayne (1937)*.
Bruce (1936).
Mackasey and Wallace (1978).
McIlwaine et al.(1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al.(1935 to 1939).

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2372, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1977).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

The Dikdik Mine area is underlain by the Kaby Lake Stock which intrudes a felsic to intermediate metavolcanic unit, a portion of the Tashota-Onaman Belt. The Kaby Lake Stock is a "massive to light grey granodiorite to trondhjemite with local occurrences of granite and quartz monzonite" (Mackasey and Wallace, 1978). Metavolcanics at the mine have been described by Mackasey and Wallace (1978) as crystal tuff and laminated tuff but as andesites by Bruce (1936). The author feels felsic metavolcanics predominate throughout the immediate mine area.

Bruce (1936) provides a detailed description of the geology:

> "A large part of the block of nine claims of the Orphan Gold Mines is heavily drift covered; the scattered outcrops show that much of the consolidated rock on them is granite. Apparently lavas occur only on the southeastern claims, TB11070 and TB11071. Tongues of granite extend southwestward from the main mass into the greenstone.
>
> The lavas to the west of Atigogama Lake are fine-grained, dark green, massive rocks...Phenocrystal feldspars have the appearance of being recrystallized rather than original in character, but in other parts of this area, the feldspars are well formed. In any case, the lavas were probably andesites.
>
> The granite is a grey, fairly coarse-grained type, which has been badly altered.
>
> The contact between granite and andesite is remarkably sharp. There is no granodioritic contact phase such as that which borders the granite batholiths farther west. The attitude of the contact of the main

mass is unknown. In the nine workings the granite tongue seems to plunge southward at a high angle. Clearly, the fracturing occurred after the granite had solidified sufficiently to be sheared. The relationship between the veins and the granite may be purely a structural one, due to a difference in competency of the granite and lava under stress."

(Refer to the Kenty property for the structural geology of Rickaby Township).

7) MINERALOGY:

Bruce (1936) describes the mineralogy of the Dikdik property as follows:

"Quartz lenses occur in a shear zone crossing the contact between the granite and andesite. The strike is N40°W, and the dip nearly vertical. A parallel vein on the adjacent claim to the east is wholly in andesite, but the relation of this vein to the contact in depth is not known. The shear zones are clearly later than the consolidation of the granite, since the contact seems to be slightly offset and the granite is somewhat gneissoid along the vein. The ore bodies are parts of irregular lenses of quartz which in places bulge to widths of 6 feet. A width of 9 feet is recorded in one place. From the contact in both directions the vein becomes narrower and finally seems to feather out.

The gold content of the narrow lens that was removed in the open cut was exceptionally high. In general the values are higher and more consistent where the wallrock is lava. There are, however, lenses of good grade in the granite, but the gold seems to be much more erratically distributed in them than it is in lenses within the lavas. Apparently also the content diminishes rather rapidly as the lenses are followed into the granite. Fritzshe states that the widest as well as the riches parts of the ore lenses occur where narrow fissures now filled with calcite intersect the quartz-filled fissure.

The quartz of the vein is white and so fine-grained that it is almost chalcedonic. In parts of the lenses metallic minerals make up a considerable part of the vein filling. The most abundant of these is pyrite. Chalcopyrite is common; pyrrhotite, sphalerite, and galena less so. Under the microscope a little arsenopyrite and tetrahedrite have been recognized. Gold in visible amounts occur sparingly. It is very pale in colour on account of a large mixture of silver; the mineral can with propriety be called electrum. Under the microscope gold can be recognized as a late mineral. It usually occurs in pyrite and is commonly associated with galena.

Lava forming the walls of the vein was apparently not much affected by the vein-forming solutions. Granite wallrocks show considerable alteration. Lava from the wall of the vein is dark-green in colour, massive, and fine-grained. Pyrite occurs commonly as disseminated grains. In a specimen examined under a microscope no original minerals are recognized. Chlorite and epidote make up most of the rock. Quartz and calcite occur in stringers... The mineral most distinctive of the alteration is biotite. Crystals of it are disseminated through the slide, but none of them are well formed and all of them contain a quantity of foreign material. There has evidently been an introduction of potassium, but except for the presence of biotite the rock does not differ much from that at some distance from the vein.

Granite near the vein is a grey, granular rock with abundant quartz. Under the microscope it is found to be thoroughly altered. It contains quartz, sericite, calcite, pyrite and chlorite. Feldspars have been changed to a mat of sericite. Some quartz occurs as mosaics, probably formed by the breaking-down of silicates. Pyrite is evidently an introduced mineral, and veinlets of calcite and quartz traverse the section."

8) ECONOMIC FEATURES:

PAST PRODUCTION:

Year	Gold (oz)	Silver (oz)	Ore Milled (Tons)	Oz/Ton Au	Oz/Ton Ag	Remarks
1934	1,082	644	230	4.70	2.80	- Ore milled from the open cut.
1935	1,378	914	3,295	0.42	0.27	- Ore milled from underground workings.
TOTAL	2,460	1,558	3,525	0.70	0.44	

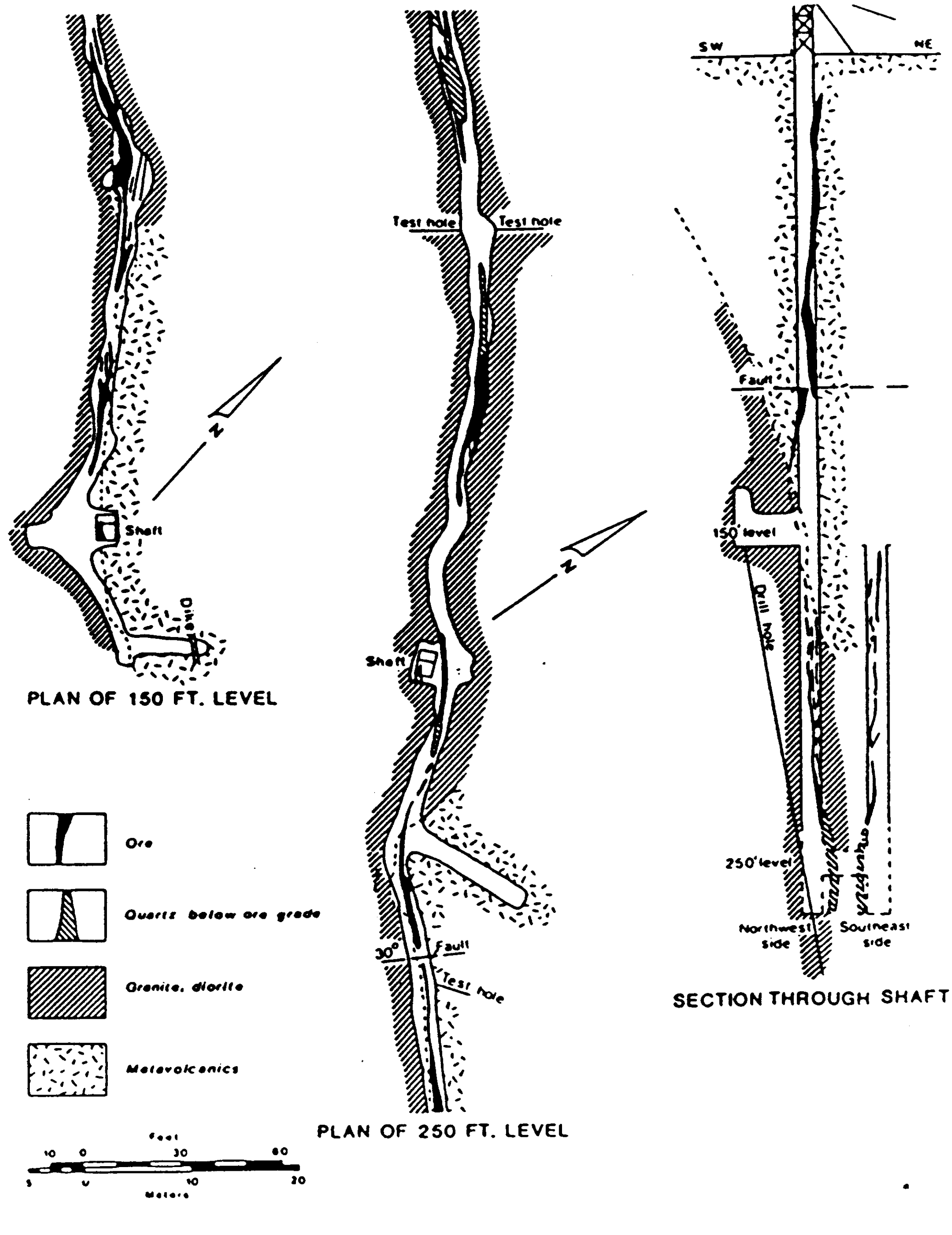
(Bruce, 1936)

9) CHEMICAL ANALYSES:

1981

Sample No.	Width	Au (oz/T)	Ag (oz/T)	Sample Description
81-MDD-1	-	3.62	2.58	Quartz from the waste dump. Saccharoidal quartz containing 5-10% fine pyrite crystals with wallrock of sheared felsic metavolcanics.
81-MDD-2	-	5.78	2.94	As 81-MDD-1 with 15% pyrite and minor blebs of sphalerite.
81-MDD-3	-	0.06	Trace to <0.10	Quartz from open stope. Bleached saccharoidal quartz with abundant sulphide staining (yellow - brown) 2-3% pyrite as fine cubes.
81-MDD-4	-	Trace to <0.01	Trace to <0.10	As 81-MDD-3 with metavolcanic wallrock. Abundant, scattered fine biotite crystals in quartz.
81-MDD-5	-	0.07	0.53	Metavolcanics from waste dump - silicified (quartz stringer) felsic metavolcanics with abundant coarse pyrite (25-30%).
81-MDD-6	-	0.01	Trace to <0.10	Quartz from waste dump. Barren fine-grained quartz displaying sericitization and chloritization of metavolcanic wallrock.
81-MDD-7 (N40°W of the shaft)	-	0.01	Trace to <0.10	Quartz vein and metavolcanics. Barren saccharoidal to fine-grained quartz with wallrock of quartz feldspar porphyry. 20% coarse pyrite in the wall-rock.
81-MDD-8 (76m) (250 ft.) N40°W of the shaft	0.91 m (3 ft.)	0.05	Trace to <0.10	Quartz vein in a host rock of quartz feldspar porphyry. Hematite staining in some of the quartz and 5% fine, scattered pyrite in much of the wallrock.

1982				
82-MDD-1 (west dump SE of the shaft)	-	Trace to <0.01	Trace to <0.10	Altered granodiorite with abundant quartz eyes, minor chloritization, 2% pyrite.
82-MDD-2 (west dump SE of the shaft)	-	0.62	0.66	Sericitized, chloritized felsic metavolcanics with 10-15% pyrite and gossaned surface.
82-MDD-3	-	0.05	2.43	Very fine to fine-grained rusty "concentrate" from a a barrel in the mill foundation.
82-MDD-4 (dump - west side of the west end)	-	0.01	Trace to <0.10	Pyritized (20-25%) highly gossaned stained vein material with quartz and carbonate.
82-MDD-5 (west dump, south side)	-	0.04	Trace to <0.10	Altered granodiorite with abundant quartz eyes, sericitized 10-15% pyrite, rusty surface.
82-MDD-6 (west dump - east side)	-	0.01	Trace to <0.10	Crushed waste 1.3 to 3.8 cm (½ to 1½ in.) somewhat rusty.
82-MDD-7 (west dump - west side)	-	0.12	0.28	Highly rusted crushed waste of pebble size.



PLAN OF THE 150- AND 250-FOOT LEVELS
AND SECTION THROUGH THE SHAFT, ORPHAN MINE

(W. O. Mackasey and H. Wallace, 1978)

FIGURE 8

1) PROPERTY NAME: **Exploration Banque-or Prospect (49)**

DATE(S) VISITED: June 13, 1984

2) ALTERNATE NAME(S): Morrow Prospect
Chowder Lake Prospect
Golden Tiger Prospect

3) COMMODITY: MAIN: Au SECONDARY: Cu, Mo

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1937: Leonard Morrow and A. H. Ward staked claims TB25093 to TB25097, TB25099, TB25100, TB25102, TB25104 to TB25107, TB28925, and TB28926.

1958-1961: Leonard Morrow held claims TB88141-44 and TB90258-63 and diamond drilled the showing.

CURRENT:

1981: Exchange Mining (Paul Martin and Wayne Holmstead) conducted diamond drilling, magnetometer and VLF surveys.

1983: Exploration Banque-or Incorporated diamond drilled 37 holes.
Getty Minerals optioned 73 claims (approximately) from Exploration Banque-or.

1984: Getty Minerals completed diamond drilling, mapping and sampling over the property.

5) LOCATION AND ACCESS:
42F13/NW
U.T.M. Zone 16 Northing 5531300
Easting 583000

GENERAL LOCATION:
The property is located in the Klotz Lake Area, southwest of Chowder Lake.

ACCESS:
Access is via bush road leaving Highway #11 at the east end of Klotz Lake. Travel south for 3 km to the prospect.

REFERENCES:
Amukun (1981).
Evans (1942).
MacDonald (1937).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:
Map 46B, Long Lake-Pagwachuan Lake Area (MacDonald, 1937).
Map 51H, Hearst-Longlac Portion of the Trans-Canada Highway (Evans, 1942).
Map 2202, Caramat-Pagwa River Compilation Sheet (Innes and Ayres, 1971).
Map 2469, Klob Lake (Amukun, 1983).

6) GENERAL GEOLOGY AND STRUCTURE:

The Banque-or Prospect is underlain by a unit of mafic to intermediate metavolcanics consisting of massive to foilated pillowed metavolcanics and pillow breccia, amygdaloidal and vesicular metavolcanics, flow breccia, feldspar porphyry, variolitic and spheruleritic rocks. Intruding the metavolcanics is a porphyritic granodiorite to diorite, possibly the east portion of the Paglamin Lake Stock.

Gold mineralization is associated with the contact of the two main lithologies.

7) MINERALOGY:

The Morrow Occurrence was described by Evans (1942):

> "Irregular quartz stringers in the hornblende schist and diorite are mineralized with native gold, pyrite and chalcopyrite. The quartz veinlets have not been traced for any distance along strike..."

Gold is associated with a silicified and sheared zone displaying potassium and epidote alteration. In contact with the shear zone is a foliated mafic tuff hosting pyrite, pyrrhotite and extensive biotite (an alteration product). Gold values are also associated with this unit.

Copper and gold values (minor molybdenum) were noted in diamond drill logs of Exploration Banque-or Incorporated and Exchange Mine Holdings Limited.

8) ECONOMIC FEATURES:

A mineralized zone, 200 m x 6 m x 150 m (deep) was defined by Getty Minerals.

Assays up to 2.34 oz per ton gold were realized by Exchange Mining.

9) CHEMICAL ANALYSES:

Sample No.	Au(oz/T)	Description
84-MBO-1	.01	Main prospect: highly silicified q. fp. 1 mm rounded black qtz eyes - 3 to 5% diss. subhedral to euhedral pyrite.
84-MBO-2	.07	Main prospect: pyritic tuff contains 2-3% subhedral to euhedral pyrite, chloritic knots (porphyritic texture).

1) PROPERTY NAME: Greenoaks Mine (52)

DATE(S) VISITED:
November 5, 1981
June, 1982
August, 1982
July 20, 1983
August 4, 1983
September 27, 1983
June 5, 1984
August 7, 1984
August 28, 1984

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Cu, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1947: A. E. Rissanen discovered the Greenoaks Mine consisting of the No. 1, 2, 3 and 4 zones on claim TB35563.

Stripping, trenching (No. 1, 2, 3 and 4 zones) and diamond drilling (22 holes - 448.7 m (1,472.0 feet)) were completed on the No. 1 zone by Continental Diamond Drilling and Exploration Company Limited.

1948: Greenoaks Mines Limited purchased 10 claims from H. Martin.

1952: The claims remained unsurveyed.

1953: Greenoaks Mines Limited purchased the 5 remaining claims and the entire property consisted of the following holdings: TB35571-74, TB35568, TB38746-47 - Elmhirst Township; TB35563-67, TB34818-20 - Pifher Township. Resistivity, magnetometer, and geological surveys were conducted by Geo-technical Development Company Limited.

1953-1954: Three diamond drill holes, totalling 508.1 m (1,667.0 feet), were drilled to test geophysical anomalies.

All 15 claims were brought to lease.

1960: Greenoaks Mines Limited diamond drilled 303 m (990 feet).

1973: Greenoaks Mines Limited charter was cancelled.

1975: The lease was renewed.

1981: Bill Miron and 487219 Ontario Limited optioned the Greenoaks Mine.

1982: 1,224 tons were mined by Thyssen Mining Construction (Canada) Limited for Bill Miron.

1983: Bill Miron optioned the property to Turner Energy and Resources Limited, Vancouver, B.C. Diamond drilling, geophysics, mapping, sampling were carried out.

1985: Bill Miron held Greenoaks Mine.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SW
U.T.M. Zone 16 Northing 5517231
Easting 445170

GENERAL LOCATION:

The property is located in Pifher and Elmhirst Townships.

ACCESS:

Travel north on Highway #801, which leaves Highway #11 approximately 23 km east of Beardmore, to the Namewaminikan (Sturgeon) River, a distance of 14 km. Continue north along Highway #801 for 6 km and turn east along a bush road, staying on the left fork, for about 1.5 km to the property.

REFERENCES:

Laird (1936).
Mackasey and Wallace (1978).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst, Rickaby Townships (Mackasey and Wallace 1978).

6) GENERAL GEOLOGY AND STRUCTURE:

The Greenoaks Mine property is underlain by intermediate to felsic metavolcanics, including andesite, dacite, rhyolite flows, tuffs, feldspar porphyry, porphyritic rhyolite and intermediate to mafic pyroclastic rocks. The Crooked Green Creek Mine and Greenoaks Mine are hosted in the same metavolcanic unit. Flow rocks appear to predominate over pyroclastic rocks (Mackasey and Wallace, 1978).

The Elmhirst Lake Stock (granodiorite to quartz diorite) intrudes the metavolcanics on the east portion of the property. A hybrid metavolcanic-granitoid contact zone prevents accurate identification of specific lithologies. Also to the east and northeast lies the sill-like Pinel Creek Intrusion which is thought to be in fault contact with the Elmhirst Lake Stock. The Pinel Creek Intrusion is gabbroic and hosts copper-nickel mineralization.

Steeply dipping diabase and lamprophyre dikes intrude the metavolcanics. Shearing trends 075°-085°.

7) MINERALOGY:

Gold mineralization occurs in quartz veins hosted within ductile shear zones cutting metavolcanics. Four zones (1-4) have been identified on claim TB35563. The No. 1 zone is the main zone. Zones 2, 3, and 4 were historically considered to contain low erratic gold values over narrow widths.

The No. 1 zone consists of a main quartz vein, subsidiary parallel veins (at least 3 others), fracture fillings and mineralized porphyritic host rock. The vein contains chalcopyrite, pyrrhotite and gold mineralization. The main quartz vein, which is typically blue-black (smokey), strikes 115° and dips 80°S to vertical. Much of the gold is present as free gold associated with the sulphides.

Disseminated pyrite-pyrrhotite zones were intersected in diamond drill core (1953) drilled to test past conductors (exact location unknown).

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

The Northern Miner (June 15, 1947) described the No. 1 zone as follows:

"Ore zone in the form of a fork, with the handle pointing west and two prongs diverging eastward."

North Fork Samples at 1.5 metre (5-foot) Intervals

Sample No.	Width (cm.)	(in.)	Au (oz/T)
#1	35.6	14.0	0.2
#2	50.8	20.0	1.16
#3	50.8	20.0	0.26
#4	76.2	30.0	2.4
#5	30.5	12.0	0.06
	38.1	15.0	0.58
#6	30.5	12.0	16.3
	53.3	21.0	3.8
#7	38.1	15.0	4.54
	38.1	15.0	0.06
#8	38.1	15.0	0.06
	38.1	15.0	4.5

Sample No.	Width (cm)	(in.)	Au (oz/T)
#1	50.8	20	0.04
	45.7	18	0.14
	45.7	18	20.36
#2	66.0	26	0.06
	55.9	22	0.20
#3	45.7	18	0.14
#4	20.3	8	0.74

In summary, channel sampling at 1.5 m (5-foot) intervals on the No. 1 zone indicated a zone 41.8 m (137.0 feet) long with an average width of 1.1 m (3.5 feet) averaging 0.776 oz gold per ton. Diamond drilling results at 15.0 metre (50.0-foot) depths indicated the zone to be over a length of 41.1 m (135.0 feet) with an average core length of 1.6 m (5.3 feet) and grading 0.563 oz gold per ton. (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

PAST PRODUCTION:

A total of 1,224 tons of ore was mined from the No. 1 zone in 1982. Following this 1,171 tons were milled at the Pan-Empire Joint Venture Mill, Beardmore, Ontario. The average grade was 0.182 oz gold per ton, 0.13 oz silver per ton and 0.254 percent copper. Northern Concentrators, Thunder Bay, milled 53 tons in December, 1982, at a grade of 0.504 oz gold per ton (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

9) CHEMICAL ANALYSES:

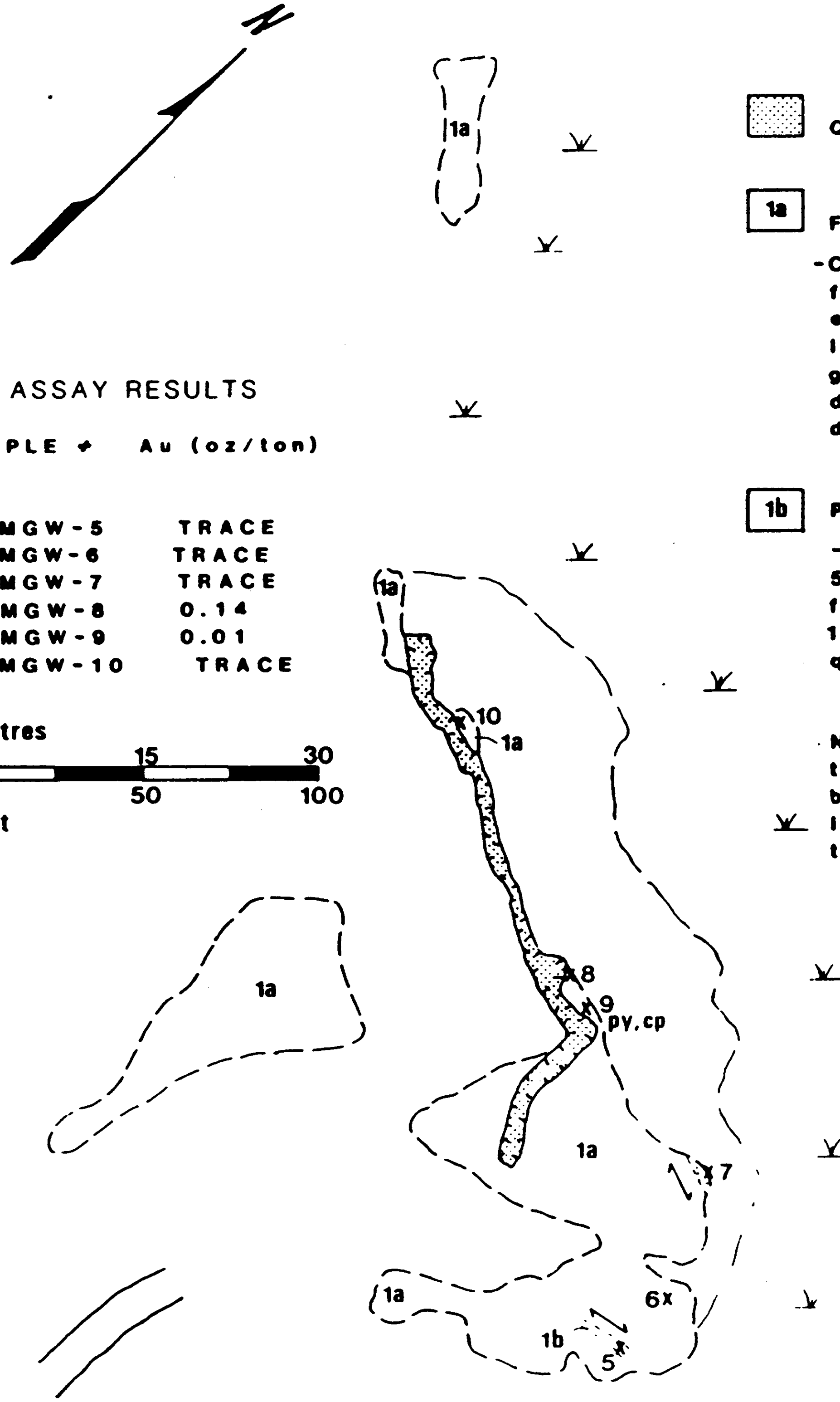
1981

Sample No.	Gold (oz/T)	Silver (oz/T)		Sample Description
81-MGO-1	0.09	0.27	Zone (Vein) #1	Saccharoidal to coarse-grained quartz with 15% chalcopyrite, minor pyrrhotite, pyrite and chloritized wallrock.
81-MGO-2	0.26	1.54	Zone (Vein) #1	Saccharoidal to coarse-grained quartz with 10-15% chalcopyrite, minor pyrrhotite and pyrite with sheared, chloritized wallrock.
81-MGO-3	0.03	0.14	Host	Sheared, metavolcanic taken adjacent to MGO-1 and MGO-2 containing 15-20% chalcopyrite.

81-MGO-4	0.01	<0.10 17-foot wide vein (lens)	Medium-to-coarse-grained smokey black quartz vein with rusty weathered surface and no visible sulphides.
81-MGO-5	<0.01	<0.10 17-foot wide vein (lens)	Coarse-grained smokey quartz vein with rusty weathered surface. Sample contains 5-10% chalcopyrite, pyrrhotite and pyrite.
81-MGO-6	<0.01	<0.10 S.E. ext. of 17-foot wide vein	Coarse-grained smokey quartz containing narrow parallel bands of chlorite, minor chalco-pyrite and carbonate alteration rusty surface.
81-MGO-7	<0.01	<0.10 vein at end of 1st cut road	Chloritic smokey quartz vein and associated metavolcanics.

1983 Sample No.	Gold (oz/T)	Sample Description
83-MGW-5	<0.01	A small lens of porphyritic rhyolite southeast of trench-contact. Well defined.
83-MGW-6	<0.01	Feldspar porphyry.
83-MGW-7	<0.01	Fractured quartz vein in fine-grained rhyolite, feldspar porphyry host and minor pyrite.
83-MGW-8	0.14	Dark grey-blue mottled quartz vein from east side of trench. White quartz veining in feldspar porphyry, disseminated pyrite, chalcopyrite patches and pyrrhotite along fractures.
83-MGW-9	0.01	Quartz-carbonate veining along east side of trench in grey-green feldspar porphyry. Finer-grained than main porphyry. Minor chalcopyrite.
83-MGW-10	<0.01	Fine dark grey feldspar porphyry with 1% pyrrhotite (some shearing along fracture surface). Exhibits gossan surface.

GEOLOGY OF THE GREENOAKS PROSPECT



ASSAY RESULTS

SAMPLE #	Au (oz/ton)
83-MGW-5	TRACE
83-MGW-6	TRACE
83-MGW-7	TRACE
83-MGW-8	0.14
83-MGW-9	0.01
83-MGW-10	TRACE

LEGEND

MAP UNITS

QUARTZ VEIN

1a FELDSPAR PORPHYRY

-Consists of 10%, 2mm, white feldspar phenocrysts and 2% euhedral chloritic hornblende laths in a siliceous groundmass. Unit is dissected by .5 to 1.0cm dark grey quartz veinlets.

1b PORPHYRITIC RHYOLITE

-Consists of 5%, 1 to 5mm, euhedral white feldspar laths and 1%, 1 to 2mm, blue-grey quartz eyes.

NOTE: Wall rock adjacent to the main trench has been recrystallized and is typically finer-graine[d] than surrounding rock.

SYMBOLS

TRENCH

SWAMP

ACCESS ROA[D]

OUTCROP BOUNDARY

GEOLOGICAL CONTACT

FOLIATION

FIGURE 9

1) PROPERTY NAME: Greenspar Occurrence (53)

DATE(S) VISITED: November 12, 1981

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Ag, Cu

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1936: Reed-Coyne Partnership held 20 unsurveyed claims centred in the Miner (Little Crooked Green) Lake area. Stripping and trenching were conducted on a sulphide mineralized zone, but no gold values were found.

1964-1965: Greenspar Mines Limited held six claims (TB113273-78) northwest of Miner Lake. Prospecting, trenching, a geological survey, an S.P. survey and diamond drilling (4 diamond drill holes totalling 141.1 m (463.0 feet) were conducted over the property.

1969: Greenspar Mining Company Limited (J. Wodian) drilled 2 holes totalling 95.7 m (314.0 feet).

1970-1977: J. Wodian conducted trenching on the northeast portion of the initial Greenspar Mine Limited claim block.

1981: E. Nelson, J. Nelson and A. Kapush staked and prospected claims covering the Greenspar occurrences.

1982: Anyox Metals Limited optioned the property, which consisted of claims TB604844-46 and TB604864-74. An electromagnetic survey defined 3 conductors.

1983: Anyox Metals completed 4 diamond drill holes totalling 589.8 m (1,935.0 feet) on claims TB604845-46 and TB604872-73 to test conductors.

5) LOCATION AND ACCESS:

42E13/SW

U.T.M. Zone 16 Northing 5518900
Easting 442650

GENERAL LOCATION:

The property lies approximately 1.5 km northwest of Miner (Little Crooked Green) Lake in Pifher Township.

ACCESS:

Travel north on Highway #801, which leaves Highway #11 approximately 23 km east of Beardmore, to the Crooked Green River (Second River Crossing), a distance of 22 km. From this point continue westward along Highway #801 for 1 km and turn north on a small gravel trail. The property lies 1 km along this trail.

REFERENCES:

Laird (1936).
Tyson (1965)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The Greenspar property is underlain by mafic to felsic metavolcanics, generally flow rocks but some feldspar porphyry (volcanic-related) also occurs. Small granodiorite intrusions have been noted by Greenspar Mines Limited.

The rocks are sheared locally. A set of vertical fracture zones was noted striking 060°-063° through the property.

7) MINERALOGY:

Pyrrhotite, chalcopyrite, pyrite and minor bornite are associated with gold mineralization. Sulphides occur in disseminated form in the volcanic rocks, fractures, shear zones and quartz veins.

The Number 1 Showing (named by J. Nelson in 1981) is within a 9.0 m (29.5 feet) wide, near vertical shear zone. The zone consists of quartz veining, pyrite, pyrrhotite and minor chalcopyrite (5-10 percent total sulphides).

The Number 2 Showing is exposed in a large trench 17.0 m (5.8 feet) long striking 020° and located 190 m (623.4 feet) east-southeast of the Number 1 Showing near the eastern boundary of claim TB604845. A quartz vein 10.2 cm (4.0 inches) to 25.4 cm (10.0 inches) in width strikes 070° and dips 67°S. The host rock is a feldspar porphyry and only trace values of gold and silver were received from sampling of the vein (Sample No. 81-MJN-9).

A shear zone (120° strike) was located south of the Number 2 Showing approximately 50.0 m (295.2 feet) north of post #2 on claim TB604845. The zone is rusty, pyritized and hosted by a porphyry. A grab sample of cherty iron formation (81-MJN-10) gave low gold-silver values.

8) ECONOMIC FEATURES:

Tyson (1965) for Greenspar Mines reported a 4.0 m (13.0 feet) wide zone assaying 0.07 oz per ton gold. One 0.15 m (0.5 feet) section assayed 0.64 oz gold per ton. Another channel sample assayed 2.28 percent copper across 2.1 m (7.0 feet). Low gold values were realized from diamond drilling. Copper assays up to 3.3 percent were noted over narrow widths.

All showings that were examined, sampled and are listed under "Chemical Analyses" by the Beardmore-Geraldton Economic Geologist Program in 1981 occur on claim TB604845. Anyox Metals Limited obtained low gold values in a drill program that intersected intermediate to felsic metavolcanics. These rocks host fracture filled or vein hosted pyrrhotite and chalcopyrite (5 percent total sulphides). Assays up to 0.25 percent copper and 0.255 oz silver per ton over narrow intersections were noted.

9) CHEMICAL ANALYSES:

1981

Sample No.	Au (oz/T)	Ag (oz/T)	Sample Description
81-MJN-1	<0.01	<0.10	Quartz in 9.1 m (30.0 feet) wide shear zone. Quartz is coarse to very coarse-grained with chlorite blebs and iron sulphide staining.
81-MJN-2	0.01	0.93	Chip sample 4.9 m (160.0 feet) long, located along the west wall at the south end of 15.2 m (50 feet) shear zone. 1.9 m (6.0 feet) of more massive intermediate metavolcanics is found here.
81-MJN-3	<0.01	<0.10	(same as 81-MJN-2).

81-MJN-4	<0.01	0.34	Chip sample 6.1 m (20.0 feet) long from east face near centre of trench. 6.1 m (20.0 feet) of rusty shear containing 5% sulphides in intermediate to mafic metavolcanics.
81-MJN-5	<0.01	<0.10	(same as 81-MJN-4).
81-MJN-6	<0.01	0.36	Chip sample 3.0 m (10.0 feet) long from the east face 0.9 m (3 feet)-1.2 m (4 feet) below surface at the north end of the trench. Rock type is massive intermediate metavolcanics.
81-MJN-7	<0.01	<0.10	Chip sample 3.0 m (10.0 feet) long from east face along upper 0.3 m (1.0 feet) of trench (North End). Rock type is massive intermediate metavolcanics.
81-MJN-8	0.01	<0.10	Chip sample 1.5 m (5 feet) long from small trench, 6.1 m (20.0 feet) south of main trench. Rock consists of massive intermediate metavolcanics.
81-MJN-9	<0.01	<0.10	Hematite stained quartz vein hosted by massive (metavolcanics) feldspar porphyry. Minor pyrite in quartz.
81-MJN-10	0.01	0.10	Porphyritic felsic meta-volcanic - sheared, iron sulphide staining and cherty iron formation throughout. Contains 10% disseminated pyrite.

1) PROPERTY NAME: Hardrock Extension Inc. (55)

DATE(S) VISITED: September 6, 1984; September 26, 1985

2) ALTERNATE NAME(S): Ashmore Gold Mines Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1932: William Gascon staked claims TB10666 and TB10667, and Peter Gascon staked claims TB10669 to TB10671 inclusive. Thirty assessment days were credited to the claims.

1933: Further surface work was performed on the claims.

1934: Claims TB10666 and TB10667 were transferred to Peter Gascon. An option agreement was filed with the Kenogamisis Exploration Syndicate, and 62 assessment days were credited to each claim.

1935: A total of 800 assessment days were credited to each claim.

1936: The option was dropped and the claims were transferred to Hard Rock Gold Mines Limited. Three holes totalling 127.7 m (419 feet) were drilled and a number of trenches were dug.

1937: Ashmore Gold Mines Limited was incorporated by Hard Rock Gold Mines Limited to further develop the claims. The five claims were transferred to Ashmore Gold Mines Limited, at which time diamond drilling and trenching continued. The claims were patented.

Ashmore Gold Mines Limited claims included TB10666, TB10667 and TB10669 to TB10671.

1939-1944: The company was listed as inactive (Canadian Mines Handbook, 1939-1945).

1945: A grid was cut over the claims and a number of trenches were dug and sampled by Hard Rock Gold Mines Limited.

The patents were cancelled.

CURRENT:

1981: The claims were restaked by Patrick A. Culhane, who transferred all interests to Michael Malouf (TB579209 to TB579212 inclusive and TB580863).

Quaternary Mining and Exploration Co. Limited obtained 23 claims, TB561798, TB561800 to TB561802, TB579209 and TB579210, TB579212, TB580864 to TB580867, TB580987 to TB580989, TB580991, TB686108 to TB686111, TB68612 TB68613. Linecutting, magnetometer and VLF-EM surveys were conducted over the western portion of the claim block.

1984: Quaternary Mining conducted stripping and channel sampling.

1985: The claims are presently held by Quaternary Mining and Exploration Company Limited.

5) LOCATION AND ACCESS:

42E10/NE
U.T.M. Zone 16 Northing 5501650
Easting 507200

GENERAL LOCATION:

The property is located in Ashmore Township.

ACCESS:

Follow Highway #584 extension south from the Geraldton turn-off to end of the road at the old Hardrock townsite. Proceed by boat to the east end of Hardrock Peninsula on Kenogamisis Lake.

REFERENCES:

Archibald (1983)*.
Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 1951-7, Geology of Ashmore Township (Horwood and Pye, 1951).
Map 2120, Tashota-Geraldton Compilation Sheet (Pye et al. 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Horwood and Pye (1951) described the geology of Ashmore Township. The area is underlain by tuff and volcanic breccia, intermediate to mafic metavolcanics (dacite, andesite and basalt), clastic-chemical metasediments (conglomerate, arkose, or quartz greywacke, greywacke, slate and ironstone), quartz diorite, albite porphyry, quartz albite porphyry, plagioclase diorite porphyry, diorite, hornblende diorite and hornblende gabbro. Diabase dikes intrude all rock types.

The Hardrock Extension occurrence is described by Horwood and Pye (1951) as being:

> "... underlain by a wide zone of tuffs and volcanic breccias, which occur in horizons alternating with sill-like masses of hornblende diorite and which, to the north and south, are enclosed by a series of greywackes and slates of east-west strike and steep southerly dip. Intrusive into the pyroclastic and clastic sediments and the hornblende diorite is a prominent, north-south dike of Keweenawan quartz diabase."

Stripping by M. Malouf in 1984 has exposed two other rock types: a pillowed basalt to pillow breccia and a feldspar porphyry. The latter intrudes the diorite and metavolcanics. Horwood and Pye (1951) state that:

> "The Bankfield-Tombill Fault extends through the Hardrock Extension and continue east of the peninsula into Kenogamisis Lake. The fault zone is a strongly sheared and brecciated zone which..., strikes N77° and dips about 70°S."

The zone of influence of the Bankfield-Tombill Fault is greater than 100 m wide.

7) <u>MINERALOGY</u>:

Three main showings occur on the property. Archibald (1983)* documented one occurrence:

> "Ashmore Gold Mines Limited was incorporated on these claims in 1937 and they trenched and diamond drilled five holes on what is now claim TB579210. Several zones of quartz stringers were located containing slight pyrite and arsenopyrite in sheared and silicified diorite and bedded tuffaceous sediments N75°E and dipping steeply south. The zones were lenticular and discontinuous and were reported "not to appear to contain gold in sufficient quantities to make ore." Trench samples in this area gave as high as 0.15 oz of gold per ton over a 5.0 foot width or 0.25 oz of gold over a 1.9 foot width. In the diamond drilling in the vicinity of these trenches, one section of drill core assayed 0.14 oz of gold per ton

over a 4.0 foot core length and a 79.0 foot length of core from the same hole assayed 0.02 oz gold per ton."

Intruding the diorite is an altered feldspar porphyry unit. The porphyry is well fractured and hosts narrow quartz-tourmaline veins in a stockwork. Gold is associated with arsenopyrite on the walls of the quartz veins. The porphyry is greater than 20 in width and controls the gold mineralization.

A narrow composite quartz vein subparallel to the Bankfield-Tombill Fault also hosts gold mineralization. It is indicated that three shallow drill holes were drilled into the showing by Ashmore Gold Mines. The vein system is lenticular and a minimum of 150 m in strike length. Visible gold, carbonate and minor pyrite were noted.

9) CHEMICAL ANALYSES:

1936 - Hard Rock Gold Mines Limited

Hole	Core Length	Dwts. Au	Au oz/T	Sample Description
No. 101	0.15 m (0.5')	1.6	0.08	Greywacke. Mostly quartz with pyrite and arsenopyrite.
No. 3	0.31 m (1.0')	1.7	0.085	Quartz with pyrite and arsenopyrite.

1984

Sample No.	Au (oz/T)	Location	Sample Description
84-MHE-1	<0.01	West Boundary (Sulphide Zone)	Sheared, silicified, pyritic mafic meta-volcanic. Some gossan, 5% stretched anhedral disseminated pyrite.
84-MHE-2	0.09	Main Showing (North End Trench)	Grey, silicified felds-par porphyry with grey vitreous quartz vein - 5 to 10% disseminated euhedral arsenopyrite.
84-MHE-3	0.06	Main Showing (South End Trench)	(Same as 2) - 3% disseminated arseno-pyrite.
84-MHE-4	0.86	"Visible Gold" Vein	Grey-white waxy to vitreous quartz vein, almost cherty in places. Some crack-seal grey sheared metavolcanics in contact. Minor disseminated pyrite (no gold visible) was noted.

84-MHE-5	0.04	Extension of Visible Gold Vein	Quartz tourmaline vein in contact with possible sheared mafic tuff or feldspar porphyry. Prominent with gossan 2-3% disseminated pyrite (no gold visible).
84-MHE-6	<0.01		Silicified, sheared pillowed mafic metavolcanics. Rare fine disseminated pyrite (<1%).
84-MHE-7	0.01		Vein structure - possible cobalt bloom? Magnetite-epidote alteration in veinlets and clots.
84-MHE-8	0.01	East of "Visible Gold" New Zone opened up Sept. 5/84, north of old drill collar	Rusty, sugary quartz-tourmaline in fine veinlets, containing 3-5% disseminated subhedral to euhedral pyrite.
84-MHE-8	0.07	West Boundary (Sulphide Zone)	Sulphide-rich, sheared mafic metavolcanic, highly gossaned and vuggy in places, possible fine banding or layering (up to 20% disseminations and bands of pyrite).

1984 Sample No.	Au (oz/T)	Description
84-MHE-9	<0.01	
84-MHE-10	0.11	
84-MHE-11	0.02	
84-MHE-12	0.05	
84-MHE-13	0.01	
84-MHE-14	0.24	
84-MHE-15	0.15	
84-MHE-16	0.08	
84-MHE-17	0.01	Malouf Channel Samples
84-MHE-18	<0.01	
84-MHE-19	<0.01	
84-MHE-20	<0.01	
84-MHE-21	<0.01	
84-MHE-22	0.09	
84-MHE-23	0.01	
84-MHE-24	0.31	
84-MHE-25	<0.01	
84-MHE-26	0.02	
84-MHE-27	0.02	
84-MHE-28	1.23	

84-MHE-29	0.15
84-MHE-30	0.06
84-MHE-31	<0.01
84-MHE-32	0.01
84-MHE-33	0.02
84-MHE-34	<0.01

1) PROPERTY NAME: Hard Rock Gold Mine (56)

DATE(S) VISITED:
August, 1982
June 13, 1985
August 28-29, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Ag, Cu, Pb

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: The original group of 12 claims was staked by Stanley B. Watson (TB9981 to TB9983 inclusive) and William W. Smith (TB9984 to TB9986 inclusive in his own name, TB9987 to TB9989 inclusive on behalf of Mrs. I. Smith, and TB9990 to TB9992 inclusive on behalf of Mrs. M. Richards). All claims were transferred to T. H. Rea, A. B. Gordon, and W. H. Connell of the Hard Rock Gold Syndicate.

1932: The claims were optioned to Homestake Mining Company which performed considerable surface work (predominantly trenching). The option was later dropped.

1934: The claims were surveyed, and fractions were staked by John Dumbrille (TB14484, TB14485 and TB14486). Hard Rock Gold Mines Limited was incorporated to take over the 15 claims. A total of 3,081.2 m (10,109 feet) of diamond drilling was done. A three-compartment vertical shaft was sunk to a depth of 140 feet (42.7 m). A number of buildings were constructed at the mine site.

1935: The 15 claims were patented and underground development continued. The shaft was sunk from 323 feet (98.5 m) to a depth of 463 feet (141.1 m) and levels were established at 200 feet (61 m) and 325 feet (99.1 m). Diamond drilling consisted of 409.1 m (1,342 feet) drilled from surface and 920.5 m (3,020 feet) drilled from underground.

1936: Underground development continued. The shaft was sunk an additional 12 feet (3.7 m) to a depth of 475 feet (144.8 m), and the third level was established at 450 feet (137.2 m). A two-compartment vertical winze was sunk to a depth of 141 feet (43.0 m) (180.1 m, 591 feet from surface), and the fourth level was established at 575 feet (175.3 m).

A second shaft was sunk approximately 762.0 m (2,500 feet) west of the No. 1 shaft. By the end of the year shaft sinking had progressed to 177 feet (54.0 m) and the first level had been established at 150 feet (45.7 m) in No. 2 shaft. A number of buildings were erected in the area of the No. 2 shaft.

1937: Underground development continued. Construction of a 200 ton per day cyanide mill was completed. The No. 2 shaft was deepened 329 feet (100.3 m) to a total depth of 506 feet (154.2 m) and levels were established at 250 feet (76.2 m), 360 feet (109.7 m) and 475 feet (144.8 m). It should be noted that the 450 foot (137.2 m) level of the No. 1 shaft coincides with the 475 foot (144.8 m) level of the No. 2 shaft. Diamond drilling was also performed.

1938: Underground development continued, predominantly on the workings of the No. 2 shaft. Diamond drilling consisted of 1,342.3 m (4,404 feet) drilled from the surface, and 2,038.8 m (6,689 feet) drilled from underground. The mill commenced operations.

1939: Mining operations continued. Diamond drilling consisted of 2,079.7 m (10,104 feet) drilled from underground. A roasting plant was designed and erected. Capacity was 100 tons per day.

1940: Mining operations continued. The No. 2 winze was collared on the 475 foot (144.8 m) level and was sunk to a depth of 243.8 m (800 feet) below surface. New levels were established at 625 feet (190.5 m) and 775 feet (236.2 m) below surface. Six holes totalling 1,230.8 m (4,038 feet) were drilled from surface and 159 holes totalling 7,160.1 m (23,491 feet) were drilled from underground.

1941: Underground operations continued. The No. 2 shaft was deepened 44 feet (13.4 m) to a depth of 550 feet (167 m). Four holes totalling 918.1 m (3,012 feet) were drilled from surface and 177 holes totalling 7,054.9 m (23,146 feet) were drilled from underground.

1942: Mining operations continued. The No. 2 shaft was deepened 760 feet (231.7 m) to a depth of 1,410 feet (429.8 m). New levels were established at 625 feet (190.5 m), 775 feet (236.2 m), 925 feet (281.9 m), 1,075 feet (327.7 m), 1,225 feet (373.4 m), and 1,375 feet (419.1 m). Diamond drilling consisted of 2 holes totalling 577.6 m (1,895 feet) drilled from surface, and 83 holes totalling 4,044.4 m (13,269 feet) drilled from underground.

1943: Underground operations continued. Diamond drilling consisted of 5 holes totalling 632.2 m (2,074 feet) drilled from surface, and 91 holes totalling 6,416.7 m (21,052 feet) drilled from underground.

1944: Underground development continued and 66 holes totalling 5,046.0 m (16,555 feet) were drilled from underground.

1945: Underground development continued from the No. 2 shaft and 126 holes totalling 7,364.0 m (24,160 feet) were drilled from underground. The mill was shut down for most of the year due to wartime conditions.

1946: Mining and milling operations continued throughout the year. Diamond drilling consisted of 22 holes totalling 2,674.0 m (8,773 feet) drilled from surface, and 121 holes totalling 5,512.3 m (18,085 feet) drilled from underground. A magnetometer survey was conducted in areas of the property under which there were no underground workings.

1947: Underground operations continued from the No. 2 shaft. Diamond drilling consisted of 9 holes totalling 1,727.3 m (5,667 feet) drilled from surface, and 186 holes totalling 5,794.9 m (19,012 feet) drilled from underground. The 11th level of the MacLeod-Cockshutt Mine 106.7 m (350 feet) below the bottom level of the Hard Rock Mine) was extended in an easterly direction to a point 86.0 m (282 feet) into the Hard Rock property to explore the area. Thirteen holes totalling 1,679.1 m (5,509 feet) were drilled to explore this area.

1948: Mining and milling operations continued from the No. 2 shaft. Diamond drilling consisted of 3 holes totalling 309.7 m (1,016 feet) drilled from surface, and 100 holes totalling 2,751.4 m (9,027 feet) drilled from underground. The sulphide ore body (the North Zone) was noted as being exhausted, though exploration had indicated another mineable ore zone.

1949: Mining and milling operations continued from the No. 2 shaft, and 89 holes totalling 2,085.4 m (6,842 feet) were drilled from underground.

1950: Mining and milling operations continued. The No. 1 shaft workings were dewatered and resampled. Diamond drilling consisted of 204 underground holes, totalling 8,459.7 m (27,755 feet). Mine plant and equipment were installed to increase tonnage to 500 tons per day.

1951: Mining and milling continued until August when operations were suspended due to exhaustion of ore. Seven holes totalling 1,119.2 m (3,672 feet) were drilled from surface and 38 holes totalling 2,434.1 m (7,986 feet) were drilled from underground. The Hard Rock property, plant, and equipment were sold to Mosher Longlac Gold Mines Limited for 550,000 shares of New Mosher Longlac stock. Total underground development to 1951 was as follows: drifting, 1,0572.0 m (34,685 feet); cross-cutting, 3,608.5 m

(11,839 feet); and raising, 1,878.5 m (6,163 feet).

1954: New Mosher Longlac Gold Mines was reorganized to form Consolidated Mosher Mines Limited.

1959: Control of the company was acquired by Little Longlac and Associates. Operations were managed by MacLeod-Cockshutt Gold Mines Limited.

1967: MacLeod-Cockshutt Gold Mines Limited, Consolidated Mosher Mines Limited, and Hard Rock Gold Mines Limited were amalgamated to form MacLeod Mosher Gold Mines Limited.

1968: Lake Shore Mines Limited took over all assets of MacLeod Mosher Gold Mines Limited, which became the MacLeod Mosher Division of Lake Shore Mines Limited. All companies were controlled by Little Longlac Gold Mines Limited interests.

CURRENT:

The claims are held by Lake Shore Mines Limited which is controlled by Little Longlac Gold Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5502391
Easting 505628

GENERAL LOCATION:

The mine is located in southwestern Ashmore Township, approximately 5.6 km southeast of Geraldton.

ACCESS:

The property is easily accessible by following Highway #584 south from Geraldton for 6.4 km across Trans-Canada Highway #11 and past the MacLeod-Cockshutt Gold Mines property.

REFERENCES:

Armstrong (1949)*.
Arnoldi (1950 to 1953).
Bruce (1935, 1936, 1946).
Burton (1936a, 1936b, 1936c, 1937)*.

Ferguson et al (1971).
Hoiles (1943)*.
Horwood and Pye (1951).
Howard (1940).
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Paterson (1936)*.
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Reid (1945).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al (1936 to 1940).
Tower (1941, 1942, 1946a, 1946b, 1946c, 1948a, 1948b, 1949).
Trembley (1940, 1941, 1945, 1946a, 1946b, 1946c, 1947, 1948a, 1948b, 1949).
Williams (1951).

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet, (Pye et al., 1964).
Map P435, Surface Geology, MacLeod Mosher Gold Mines Limited (Ferguson, 1967).
Map P436, Subsurface Plans and Longitudinal Projections, MacLeod Mosher Gold Mines Limited (Ferguson, 1967).
Map P437, Cross Sections, MacLeod Mosher Gold Mines Limited (Ferguson, 1967).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 1951-2, Township of Ashmore (Horwood and Pye, 1951).
Map 2102 Tashota-Geraldton Compilation Sheet, (Pye et al.,1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

The general geology of the Hard Rock property has been described by Horwood and Pye (1951) as follows:

"The oldest rocks in the vicinity of the Hard Rock Mine are tuff and volcanic breccia, which, with peridotite and hornblende diorite, form a low but conspicuous ridge along the south edge of the claim group. Grain gradations indicate that the tops of the tuffaceous beds face north, and that the volcanic horizon is overlain in this direction by a thick series of sedimentary rocks. Intrusive into the sediments are hornblende diorite, diorite porphyry, quartz-albite porphyry, quartz diorite, and quartz and olivine diabase.

The sedimentary rocks are the more interesting from the standpoint of mine geology; it is within them and along their contact with the quartz-albite porphyry that several important orebodies have been found. They consist mainly of greywacke and iron formation, as a glance at surface and level plans will indicate, but interbeds of slate occur locally and a continuous band of conglomerate has been traced across the property. Since it is not sharply separated from the enclosing greywacke, and in one or two places the pebbles become less numerous and smaller towards the margins of the band, the conglomerate is believed to be essentially intraformational in character...The greywackes overlying the conglomerate to the north are fine to medium-grained varieties. Bedding structures are not recognized readily in the underground workings except where interbeds of slate occur...the greywacke grades into finely stratified iron formation. Not all the iron formation bands are entirely of this nature, however, for in the vicinity of the No. 2 shaft many of the iron-rich laminae are separated by and alternate with narrow bands of dark-grey or dull-red cherty quartz, as well as the typical greywacke. Fine-grained slate is also present in many places, and where shearing has been intense, this has been made over into a dark-green chlorite schist that stands out in marked contrast to the adjacent, relatively massive, iron-rich or quartz-rich laminae.

Serpentinized periodite and hornblende diorite, the oldest of the intrusive rocks, occur together as a folded lens or sill-like mass along the north flank of the tuff-breccia horizon in the vicinity of the No. 1 shaft.

...Quartz-albite porphyry outcrops in the western part of claim TB9991. It forms a large, highly irregular, contorted mass, which plunges west at about 20 degrees and for the most part conforms to the highly complex pattern of the enclosing sediments.

...The close resemblance of the rock to quartzite, and an apparent interbanding with the enclosing greywackes along the borders of the mass, led early workers in the area to regard the porphyry as a member of the sedimentary series. It now appears, from evidence accumulated in recent years, that this assumption is wrong. Cross-cutting relationships, chilled margins, and other features leave little doubt as to the igneous origin of the rock.

Altered quartz diorite (?) has been found in several places cutting the greywackes and iron formation as narrow dikes and sill-like bodies too small to be shown on the map. The rock is a greenish, medium-grained, speckled variety not unlike a typical diorite in appearance.

...Narrow dikes of both quartz and olivine diabase, which cut all the other rock formations, have been found in several places in the underground workings. They invariably strike almost north and dip steeply east about 65 degrees, parallel to a prominent set of joints."

Horwood and Pye (1951) have also noted:

> "All of the rock formations in the vicinity of the Hard Rock Mine...have been intensely folded. These folds strike in a general east-west direction and, except for minor variations, plunge westerly at 20-25 degrees."

In addition to the Bankfield-Tombill Fault (represented by a strongly sheared zone), which extends across the southern part of the main property, there are many minor transverse faults of general north-south strike and steep easterly dip which have been encountered in the underground workings. (Horwood and Pye, 1951). Displacement has been small and they are not believed to be significant features, other than to slightly steepen the overall plunge of the orebody (Matheson and Douglas, 1948).

7) <u>MINERALOGY</u>:

Three distinct orebody types have been recognized at the Hard Rock Mine and Macleod-Cockshutt Mine. (1) "Quartz veins and mineralized zones occur within and along the contacts of the albite porphyry...and within greywacke and lean iron formation." (Horwood and Pye, 1951). These zones consist mainly of quartz veins and stringers along fractures, containing pyrite, pyrrhotite, arsenopyrite, chalcopyrite, carbonate, tourmaline and rare scheelite. The sulphides show a high tendency to concentrate in the wall rocks. Gold occurs in both altered wall rocks and veins, and is closely associated with sulphides. Zones of this type include the F Zone, No. 1 and No. 2 vein systems, the X vein and the 401E drift zone (Horwood and Pye, 1951).

(2) "Irregular, massive lenses of sulphides and quartz occur in a folded series of greywacke and iron formation..." (Horwood and Pye, 1951). These massive replacement lenses (up to 65% sulphides) cut the Z-folded iron formation and are related to quartz-carbonate veins up to 0.6 m (2 feet) wide. Veins are usually barren of gold mineralization except where they contain sulphides, consisting primarily of pyrite, arsenopyrite and pyrrhotite. Mineralization is preferentially concentrated in the wall rocks outward from the quartz veins and ore is locally banded due to the selective replacement of the

less competent wacke laminae in the iron formation by sulphides. The main ore zone (the North or No. 30) was of this type (Horwood and Pye, 1951).

(3) Finally, numerous thin, gold-bearing quartz stringers occur along shear fractures in zones of faulting, folding and shearing at the contact with wacke and albite porphyry. When stringers merge, elongate replacement or blow-out lenses up to 1 m (3 feet) long are formed. Normally, they occur as thin highly contorted veinlets which follow both shear and tension fractures and locally have a gash-like character. Carbonate (ankeritic-dolomite), sulphides (pyrite, pyrrhotite, arsenopyrite and chalcopyrite) and tourmaline are found to be associated with the quartz. Gold concentrations were relatively lower than in the first two types, and is gold free milling. Zones A through H were of this type. (Horwood and Pye, 1951).

The F Zone was the most spectacular zone, accounting for an orebody of some 10,000,000 tons of 0.15 ounce gold per ton (Macdonald, 1983a). The first hole drilled into the zone encountered 0.453 ounce gold per ton "over a width of 22.4 feet" (Horwood and Pye, 1951).

The A Zone has been described in detail by Horwood and Pye (1951) as follows:

> "The A orebody consists of innumerable quartz stringers localized within a wide zone of faulting, fracturing, and shearing at the east extremity and along the south side of the north porphyry tongue. Along the sheared contacts gold-bearing quartz veinlets of limited lateral and vertical extent have been found in the relatively competent porphyry, but the stringers for the most part appear to be confined to beds of greywacke and lean iron formation and occasional narrow dikes and sills of quartz diorite. The exact outline and extent of the orebody have yet to be determined. The development work completed, however, suggests a pitch length of at least 1,200 feet, a vertical height of 130-180 feet, and an average width of about 40 feet. Recovery to date indicates an average grade of about 0.115 ounces of gold per ton.

In the workings examined, many of the quartz stringers strike about N80°W and dip steeply to the south along numerous, closely-spaced shear fractures. They are generally of uniform narrow width, from a fraction of an inch to a maximum of about 4 inches, and are remarkably persistent, some being traceable along the back of a drift or stope for 200 feet or more. In a general way the walls of the stringers match fairly well and commonly exhibit knife-sharp contacts with the introduced quartz. The features are strongly suggestive of fracture filling as the dominant process of vein formation, a conclusion seemingly corroborated by the obvious comb structures occasionally observed in thin sections of the vein material and by the non-ribboned character of the quartz. In a few places, however, the stringers widen, and several of them merge to form elongate lenses up to 3 feet in width and 30 feet or more in length. The lenses are highly irregular, commonly pinch and swell along strike and frequently contain subangular to rounded inclusion of altered wall rock embayed and transected by the quartz. Book structures are common, but these have been highly silicified and in a few places all but completely replaced by quartz so that only ill-defined patches and streaks of dark material remain. It is apparent, therefore, that within the same stope the quartz stringers may exhibit along their strike a complete reversal of character, changing within a few feet from parallel, closely-spaced fracture fillings to replacement lenses or "blowouts" of irregular form. Since the sedimentary formations have been intensely folded and the stringers cut across the folded structures, it is thought that the passage of the stringers, from competent beds favourable to fracture filling to less competent, possibly more permeable strata favourable to shearing and replacement, may be one of the principal controlling factors."

Macdonald (1982), following a detailed study of the "Glory Hole" open stope, MacLeod-Cockshutt and Hard Rock Mines, noted three types of gold mineralization:

> "(1) relatively undeformed quartz-carbonate-sulphide veins striking approximately west-northwest, often localized by shear faults.
>
> (2) deformed quartz-carbonate-sulphide veins, striking obliquely (east-northeast) to the major structures.
>
> (3) quartz-carbonate-sulphide replacement ore often iron formation, spatially associated with type '1' veins."

(Type (1) are hosted in altered porphyry or tuff)
(Type (2) are "wiggly" veins) (Horwood and Pye, 1951).

Horwood and Pye (1951) have noted that:

> "Some of the quartz stringers are not accompanied by any visible alteration of the wall rocks, but most of them, and in particular those that are gold-bearing, are bordered by buff-coloured salvages of sericitized and carbonatized greywacke. The selvages may extend for as much as eight inches outward from the wall of a stringer not more than a quarter of an inch in thickness, and where several stringers occur along closely spaced, parallel fractures, altered zones several feet in width are common."

To summarize the mineralogy, sulphides recognized in order of abundance include pyrite (80%), arsenopyrite (15%), pyrrhotite, sphalerite, chalcopyrite, leucopyrite, galena, gold and cubanite. Non - metallic minerals recognized include ankerite, calcite, scheelite, tourmaline and graphite. Iron oxides occur in many places (Armstrong, 1943)*.

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

The ore at the Hard Rock Mine was exhausted in 1951. Production as of 1950 was 664,000 tons of ore grading 0.08 oz/ton gold (Canadian Mines Handbook, 1951).

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1938	18,378	2,316	76,074	0.242	0.03
1939	21,975	317	107,086	0.205	0.003
1940	31,108	52	119,255	0.261	0.0004
1941	30,504	264	135,337	0.225	0.002
1942	32,174	300	134,122	0.240	0.002
1943	24,064	173	97,373	0.247	0.002
1944	21,776	330	91,047	0.239	0.004
1945	1,338	107	6,337	0.211	0.017
1946	19,582	293	102,766	0.191	0.003
1947	19,280	420	98,818	0.195	0.004
1948	10,658	735	82,036	0.130	0.009
1949	15,314	1,588	128,974	0.119	0.012
1950	13,426	1,298	167,152	0.080	0.008
1951	9,504	816	111,998		
TOTAL	269,081	9,009	1,458,375		

(Trembley, 1940, 1941, 1945, 1946a, 1946b, 1946c, 1947, 1948a, 1948b, 1949; Arnoldi, 1952 to 1953).

9) CHEMICAL ANALYSES:

Sample No.	Au(oz/T)	Sample Description
F-63-82	0.11	Discovery Pt. - Dump quartz

1) PROPERTY NAME: **Hutchison Lake Mine (61)**

DATE(S) VISITED:
August, 1982
September, 1983
June 19, 1984

2) ALTERNATE NAME(S): Maylac Mine, Gulch Mine

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1934: Claims TB14228, TB14229, and TB14660 to TB14663 inclusive were staked by Frank Papineau. Claims TB15088 to TB15090 inclusive were staked by John Dougherty. Claims TB10591 to TB10593 inclusive were staked by John Dougherty on behalf of Ed Coates. Claims TB15582 to TB15584 inclusive were staked by J. Shewchuk on behalf of J. Belanger. Claims TB14146 to TB14148 inclusive were staked by R. G. George. Surface exploration was carried out on all claims except those held by R. G. George.

1935: The claims held by R. G. George were cancelled. All other claims were transferred to George Papineau. Hutchison Lake Gold Mines was incorporated (George Papineau was the vice-president of the newly formed company). The company name was later changed to Hutchison Lake Gold Mines Limited and all claims were transferred to H. J. Martin, the president of the company. A geological survey was conducted, surface exploration continued and a diamond drilling program began in November.

1936: The three claims cancelled in 1935 were restaked by J. K. Jones (TB21829 to TB21831). Exploration work continued, including trenching and stripping. Diamond drilling totalled 1,371.6 m (4,500 feet) by the end of the year. A three-compartment, vertical shaft was sunk to a depth of 75 feet (22.9 m). A number of buildings were constructed at the mine site. The claims were transferred to W. G. Chapman, who was the secretary-treasurer of the company.

1937: The vertical, three-compartment shaft was deepened 175 feet (53.3 m) to a total depth of 250 feet (76.2 m) and levels were established at 125 feet (35.1 m) and

250 feet (76.2 m). Underground development progressed on both levels. Diamond drilling consisted of 134.42 m (441 feet) drilled from surface and 115.21 m (378 feet) drilled from underground. All of the claims were patented. A 5-ton sampling mill was purchased from Hard Rock Gold Mines Limited, and a five ton sample was shipped to the Hard Rock Mill for treatment.

1938: Underground exploration and development continued until October when operations were suspended.

1939: Surface exploration resumed in June with some 152.4 m (500 feet) of trenching performed. A diamond drilling program began later in the year. The property was optioned to Howey Gold Mines Limited (with Coniagas Mines Limited as a financial partner). Howey Gold Mines also took over management of the exploration program. By the end of November, some 1,990.3 m (6,530 feet) of surface drilling had been completed. Despite some spectacular intersections, operations were suspended and the option was dropped.

1940: An agreement was negotiated with Newmont Mining Corporation whereby that company obtained the right to mine the small tonnage of high grade ore previously developed for a three month period. Ore was to be shipped to the Magnet Consolidated Mines' mill for treatment. After this period, a decision regarding the feasibility of further exploration was to be made, with the understanding that a company reorganization would be required if a positive decision was rendered.

1941-1945: No record was found with respect to the outcome of the agreement with Newmont. Hutchison Lake Gold Mines was inactive though drilling programs were apparently planned.

1946: Maylac Gold Mines Limited was incorporated and acquired the property of Hutchison Lake Gold Mines. After limited diamond drilling from surface, the shaft was dewatered and underground operations were resumed. A total of 530.96 m (1,742 feet) was drilled in 25 holes. Ore hoisted was shipped to the Hard Rock Mines' mill for treatment.

1947: Mining operations continued for most of the year. The shaft was deepened 200 feet (61.0 m) to a total depth of 450 feet (137.2 m). A station was cut at 325 feet (99.1 m) and a new level was established at 425 feet (129.5 m). The underground workings were mapped and 8 holes totalling 253.6 m (832 feet) were drilled from underground. Ore hoisted was shipped (one shipment each) to Hard Rock Mines' and Talmora Longlac Mines' mills for treatment. In October, the company was forced to suspend operations due to lack of finances.

1948-1957: The company was inactive due to lack of financing.

1958: Gulch Mines acquired the property of Maylac Mines. A number of buildings were constructed at the mine site. A mining plant was constructed and the shaft was dewatered. Underground development progressed on the 450 foot (137.2 m) level, and 13 holes totalling 576.7 m (1,892 feet) were drilled from underground. Ore grade material was not found and as a result, underground operations were suspended, the equipment was removed and the shaft was sealed.

1974: The company name was changed to Gulch Mines Incorporated.

1978: The company name was changed to Gulch Resources.

1979: An airborne geophysical survey was conducted over the property by Gulch Resources.

1981: Gulch Resources planned to reassess the property.

1982: The company was acquired by Camel Oil and Gas Limited, and is now a wholly owned subsidiary.

1984: The property was re-evaluated by Camel Oil and Gas Limited.

CURRENT:

The claims are held by Camel Oil and Gas Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E15/SE
U.T.M. Zone 16 Northing 5512839
Easting 502449

GENERAL LOCATION:

The property is located in southeastern Fulford Township, south of Hutchison Lake.

ACCESS:

The property is accessible by travelling north from Geraldton on Highway #584 for 5.5 km. The mine is located approximately 300 m west of the highway.

REFERENCES:

Fairbairn (1938).
Fenwick et al. (1980).
Ferguson et al. (1971).
MacDonald (1941).
Morrow (1949)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al. (1938, 1939).
Stevens and Nelson (1959)*.
Tower et al. (1941, 1949).
Trembley (1948, 1949).

MAP REFERENCES:

Map 50F, Hutchison Lake Area (MacDonald, 1941).
Map P241, Geraldton Sheet (Pye, et al., 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2593, Fulford and McQuesten Township (Beakhouse and Chevalier, 1983).
Map 30002G, Jellicoe Project, Aeromagnetometer (ODM-GSC, 1974).

6) GENERAL GEOLOGY AND STRUCTURE:

The Hutchison Lake geology consists of a metasedimentary belt trending ENE bordered to the north and south by belts of mafic to intermediate metavolcanics. Further to the north, the bedrock is of granitic composition. Metasediments and metavolcanics are intruded by diorite, felsic porphyries, and olivine and quartz diabase dykes (MacDonald, 1941).

Some of the rock types have been described by MacDonald (1941) as follows:

> "The lavas consist of dark-green, moderately sheared andesites and pillow lavas and grey-green, massive andesites. They are highly altered and consist dominantly of chlorite, altered feldspar, and calcite. A coarse-grained basic rock occurs in several places on the claims. In most cases it is massive and even-textured; some of the material from the diamond drill holes northwest of the shaft has a porphyritic appearance due to large crystals of chloritized hornblende. The rock may be a diorite or gabbro, but since it is everywhere associated with finer-grained andesite and shows no intrusive relations with it, it is considered to be a coarse-grained basic lava. A rock with a granular fragmental texture, consisting mainly of feldspar with slightly larger, well-formed amphibole crystals occurs on claim TB14661. It forms a band between andesite flows and is probably a basic fragmental tuff. Coarse agglomeratic fragmental material is also present in the western claims of the property. Bedded sedimentary tuffs are interbanded with the lavas in some places. They are typically more highly sheared than the lavas and are medium-grained to slaty in character. The coarser-grained ones consist dominantly of feldspar. Many of them are high in carbonate and weather to a rusty-brown colour. Some contain disseminated pyrite. A diabase dike with a maximum width of 175 feet cuts across claims TB14461 and TB14229.

...The rocks have been subjected to regional shearing, which strikes in the neighbourhood of N80°E. Regional folding has upturned the rocks to a steep or vertical position, and minor local folds are present. These features are shown best in the bedded tuffs. On claim TB14229 the minor folds drag southward on the east. In the outcrop to the north of the shaft, the strike of the tuff bedding swings from N35°W, on the west side of the outcrop to N80°E, on the south side, where it is finally obliterated by shearing. On claim TB14661, the trend is in the opposite direction, since the beds there fold northward on the east. The structure indicated is that of a westward-plunging syncline, but the evidence is not conclusive."

It should be noted that the structural information is fragmentary due to the massive nature of most of the lavas and the scarcity of outcrop (MacDonald, 1941).

The shearing and minor folding of the rocks are believed to have been the dominant control in the localization of veins. In the underground workings, the higher grade material has been found to occur at the crests of folds and where the shearing is more pronounced (MacDonald, 1941).

Post-ore faulting was noted by Morrow (1949)* to be a common feature but faults are of small magnitude and did not complicate mining operations.

7) <u>MINERALOGY</u>:

Morrow (1949)* has described the ore bodies as consisting of:

"...highly irregular, branching, mineralized quartz veins in sheared and carbonatized tuffs and dacites (altered andesite).

...Quartz is the dominant vein material, but in some places sulphide mineralization is heavy. The carbonate and ankerite is very common in the veins, and along the veins, and along the wall rocks have been extensively carbonatized. The metallic minerals are pyrite, pyrrhotite, sphalerite, chalcopyrite, galena and gold."

The occurrence of gold in the mine has been summarized by MacDonald (1941) as follows:

"It occurs in some specimens as coarse, easily visible blebs and has been observed in the following associations:

1. In quartz gangue that is free from any visible fractures; or in fractures in quartz gangue, either with galena or alone.
2. In pyrite, sphalerite, and galena as blebs and veinlets.
3. Along contacts between sphalerite and quartz and penetrating the sphalerite."

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

A number of significant sample values have been obtained.

Values reported by The Globe and Mail in 1937 (July 6) ranged from 2.0 to 20.0 oz/ton gold over a vein width of 0.91 m (3.0 feet). In 1938, 13 bulk samples were taken from the 125 foot (38.1 m) level, 42.67 m (140 feet) north of the shaft and 24.38 m (80 feet) west of the cross-cut, which returned values ranging from $0.70 (0.019 oz/ton gold) to $746.20 (20.6 oz/ton gold). Sample lengths were 18.3 m (60 feet) and the average vein width was 0.33 m (1.1 feet) (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

Diamond drilling by Maylac Gold Mines Limited intersected values up to $420.00 (11.60 oz/ton gold) over a width of 0.41 m (1.3 feet) (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

At the time of the mine closure in 1947, no estimate of remaining ore was recorded.

In 1959, diamond drilling by Gulch Resources intersected only low gold values, the best of which was 0.03 oz/ton gold (Stevens and Nelson, 1959)*.

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1946	588	34	761	0.773	0.045
1947	204	12	757	0.269	0.016

Gold at $36.00 per ounce
(Trembley, 1948, 1949)

1) PROPERTY NAME: **Jacobus Prospect (194)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Chesterville Mines

3) COMMODITY: MAIN: Cu, Ni SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1947: The properties were staked by Christiansen Prospectors Syndicate (TB36551 and TB36554). Four trenches were dug.

1948: The claims were optioned to the International Nickel Company of Canada Limited, which subsequently drilled nine deep holes. The option was later dropped.

1954: The claims were cancelled.

1956: The properties were staked by Dan Creamer (TB78422 and TB78423).

1957: The area was investigated by the Jacobus Mining Corporation Limited, which conducted geological and geophysical (magnetometer and electromagnetic) surveys. As a result, a 46 hole diamond drill program was also completed, predominantly in the area of the original trenches on claim TB78423.

1958: All interests were transferred to John S. Grant.

1962: The claims were transferred to Jacobus Mining Corporation Limited.

1967: Jacobus Mining Corporation Limited applied for a lease for mining and surface rights.

1968: The lease was approved. Chesterville Mines Limited drilled 9 holes to earn a 75% interest in the Jacobus properties.

1969: Chesterville Mines Limited conducted magnetometer, electromagnetic and geological surveys. Geochemical work and sampling of existing trenches was also completed.

1971: Chesterville Mines Limited conducted an induced polarization survey and a drilling program consisting of six holes.

1972: Chesterville Mines Limited drilled three vertical holes.

1976: Jacobus Mining Corporation Limited and Chesterville Mines Limited both had their Ontario Charters cancelled.

1979: The lease was discharged.

CURRENT:

The ground is no longer leased, but is not available for staking.

5) LOCATION AND ACCESS:

N.T.S. 42E13/E
U.T.M. Zone Northing 5519323
Easting 447134

GENERAL LOCATION:

The property is located in northwestern Elmhirst Township, 56 km west of Geraldton and 31 km northeast of Beardmore. The prospect is located approximately 1.6 km east and 0.8 km south of the township boundaries.

ACCESS:

Travel approximately 19.6 km north of Nezah (10.1 km west of Jellicoe) on secondary Highway #801, north on a lumber road for about 7.2 km and 0.8 km on foot.

REFERENCES:

Czikan (1969, 1972)*.
Faust (1973)*.
Mackasey and Wallace (1978).
McCulloch (1969)*.
McGill (1958)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Robertson and Klein (1971)*.
Shklanka (1969).
Wheadon (1971)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilaton Sheet (Pye et al., 1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1977).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Mackasey and Wallace (1978) describe the geology as follows:

> "Four of the southern claims in the block are underlain by the Pinel Creek intrusion, a body of gabbroic rock described in the section on Mafic Intrusive Rocks. This has been studied at length in a B.Sc. thesis by Faust (1973). The remaining claims to the north are underlain by felsic to intermediate metavolcanics, and parts of the eastern-most claims occur within the Elmhirst Lake Stock.
>
> ...The metavolcanics intruded by the metagabbro body are described by Faust (1973) as massive, porphyritic flows of dacitic to rhyodacitic composition. The upper contact of the intrusion is found to be sharp in drill core. From the drilling it is estimated that the body forms a sill striking about N70E and dipping between 45° and 60° to the north, and has a thickness of at least 180 m (600 feet). ...Faust's study suggests that the body is a differentiated layered mafic-ultramafic sill. Although gabbro and quartz gabbro are by far the most prominent rock types encountered, the occurrence of metapyroxenite and anorthositic gabbro suggested that more ultramafic differentiates may occur within the intrusion."

Refer to Wilkinson Lake for structural geology of Elmhirst Township.

7) MINERALOGY:

Mackasey and Wallace (1978) provide a detailed description of the mineralogy of the prospect:

"The sulphide mineralogy consists of pyrrhotite, chalcopyrite, and pentlandite which constitute between 4 and 6 percent of the gabbro within the mineralized zone. This zone is cylindrical or lensoidal, dipping to the north at about 45°, approximately parallel to the upper contact of the intrusion, and plunging westward at about 40°. Drilling has shown that it varies between 6 to 45 m (20 to 150 feet), averaging about 12 m (40 feet) in diameter, and extending for at least 300 m (1,000 feet) in a N60°W direction.

According to McCulloch (1969), the sulphide mineralization is disseminated interstitially within melanocratic gabbro which contains about 90 percent ferromagnesian minerals. Non-mineralized gabbro consists of approximately equal amounts of plagioclase and ferromagnesian minerals. Faust (1973), found that mineralization occurred in "normal" gabbro containing 40 to 50 percent ferromagnesian minerals, whereas no sulphides occurred in the quartz-rich leucocratic gabbro.

Examination of polished sections from this deposit by Faust led to the following observations:

1) Pyrrhotite, chalcopyrite, and pentlandite are present in that order of abundance. They occur alone or together in the same polished section.
2) Pyrrhotite occurs as large irregular blebs, 2 to 3 mm across, commonly rimmed by

chalcopyrite and pentlandite, as fine inclusions in the mafic silicates and subrounded blebs interstitial to the silicate minerals.

3) Chalcopyrite also occurs in discrete, irregular masses, in rounded to irregular blebs peripheral to and within the pyrrhotite and as interstitial droplets between silicate minerals.

4) Pentlandite occurs as grains peripheral to the pyrrhotite masses and forms flame-like exsolution lamallae along the basal pyrrhotite cleavage direction.

According to Faust (1973), all of the sulphides are embayed or replaced by silicate minerals. The silciates also fill fractures in the sulphide grains. The sulphide textures are attributed to the reaction of the first formed pyrrhotite with the residual sulphide melt to form pentlandite, the exsolution of pentlandite from pyrrhotite at a lower temperature, and the exsolution of chalcopyrite from pyrrhotite at a still lower temperature.

McCulloch (1968) and Faust (1973), both describe the sulphides as a syngenetic magmatic deposit formed after the separation of an immiscible sulphide melt from the crystallizing magma..."

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Reserves	Grade	Tons of Metal	Category	Reference
1969 937,538	0.41% Ni	3,844	Indicated	Canadian Mines Handbook 1974-75, p. 74
1974: 1,000,000 tons	0.94% (Ni+Cu)		Indicated	Northern Miner, April 25, 1974, p. 21

(Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay)

9) <u>CHEMICAL ANALYSES</u>:

Sample results from the four initial trenches and from diamond drill holes 71-1, 71-2, and 71-4 were reported. Mineralized sections in drill core yielded values from trace to 0.32% Ni and from 0.01 to 0.40% Cu. Core samples were generally 1.52 m (5 feet) in length. Surface sample results are tabulated below. (McCulloch, 1969*).

Trench	Avg. Cu	Avg. Ni	Width
A	0.47%	0.26%	21.33 metres (70 feet)
B	0.49%	0.26%	13.72 metres (45 feet)
C	0.43%	0.25%	13.72 metres (45 feet)
D	0.44%	0.21%	13.72 metres (45 feet)

1) PROPERTY NAME: **Jellicoe Gold Mine (63)**

DATE(S) VISITED:
March, 1983
September 25, 1985

2) ALTERNATE NAME(S): Jelex Mines
Key Lake Explorations
Whitehorse Gold Mines
Greenbank Gold Mining Company

3) COMMODITY: MAIN: Au SECONDARY: Ag, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: The property on which the shaft was later sunk was staked by C. Nabigon on behalf of Ailie Kay (TB12149). The claim was surveyed and transferred to T. J. Day. The Jellicoe Gold Mining Company was incorporated, in which T. J. Day was secretary-treasurer. Surface exploration was conducted on the property.

1935: Further surface exploration was performed by the Jellicoe Gold Mining Company Limited and 350 assessment days were credited to the claim.

1936: Jellicoe Consolidated Gold Mines Limited took over the property from the Jellicoe Gold Mining Company and after completing surface exploration began a diamond drilling program. A total of 4,391.6 m (14,408 feet). Late in the year the Greenbank Gold Mining Company, a subsidiary of Jellicoe Consolidated, took over the south group of the 54 claim block. The property consisted of the following claims in 1936:

TB12127-30	TB12143A
TB12133-36	TB12144A
TB12138-50	TB12150A
TB12402-04	TB12402A-04A
TB12420-24	TB12422A
TB12405, TB12405A	
TB12406-TB12416	
TB12128A-TB12129A	
2 claims unnumbered	

1937: A lease was applied for by T. J. Day and was subsequently granted (TB12149 became part of Parcel 6857). Drilling on surface totalled 4,142.8 m (13,592 feet). A vertical, three-compartment shaft was sunk to a depth of 536.6 feet (163.5 m) with levels established at 68.6 m 225 feet (68.6 m), 350 feet (106.7 m) and 500 feet (152.4 m). Underground development began on all three levels and consisted of 227.9 m (747.6 feet) of drifting and 156.8 m (514.5 feet) of cross-cutting. Plant and camp buildings were erected, a mining plant was installed and electric power was brought to the property.

1938: Underground development was continued and consisted of 1,327.1 m (4,354 feet) of drifting, 121.6 m (399 feet) of cross-cutting, 248.1 m 814 feet) of raising, and 4,802.3 m (15,757 feet) of diamond drilling. Some 19,976 tons of ore and waste were hoisted.

1939: Jellicoe Mines Limited was incorporated to take over the interests of Jellicoe Consolidated Gold Mines Limited, Greenbank Gold Mining Company Limited, Whitehorse Gold Mines Limited and Nipilac Goldfields Limited. Underground development work continued with 32.0 m (105 feet) of drifting, 6.1 m (20 feet) of raising and 442.9 m (1,453 feet) of diamond drilling (13 holes). Some 8,358 tons of ore was hoisted, transported to the Magnet Consolidated Mill for concentration, and to the Northern Empire Mill for cyanidation.

1940: Underground development consisted of 578.8 m (1,899 feet) of drifting. Approximately 914.4 m (3,000 feet) of diamond drilling was performed both underground and on surface. The entire ore body, totalling 14,722 tons, was mined out.

1948: Clean-up resulted in minimal production.

1964: Jellicoe Mines Limited changed its name to Jelex Mines Limited.

1970: The surface rights were transferred.

1973: Consulting geologist L. G. Phelan was hired by Jelex to re-examine the mine records and to write a report outlining any recommended work.

1974: Magnetometer and VLF surveys were conducted over a grid cut in the vicinity of the shaft. Diamond drilling was also done.

1978: Jelex Mines Limited changed its name to Key Lake Explorations Limited.

1982: Ten patented claims (TB12405-12408 and TB12150) were optioned to Dome Exploration Limited. The agreement was such that Dome could earn a 50% interest by spending $500,000.00 in a four year term, and another 1% for each additional $20,000.00 spent, to a maximum of 10%. Key Lake Explorations had the choice of retaining a 40% joint venture interest providing the company spent its share of prorated expenses, or reverting to a 25% net profit royalty position. Linecutting was completed, a magnetometer survey was conducted, and 36 holes were drilled totalling 5,890.6 m (19,326 feet).

1983: Diamond drilling by Dome Exploration totalled greater than 3,048 m (>10,000 feet) in 22 holes. An induced polarization survey was also conducted.

1984: Diamond drilling by Dome Exploration has amounted to greater than 914.4 m (>3,000 feet) in at least 6 holes.

1985: Dome Exploration drilled 5 holes totalling 914 m (3,000 feet).

CURRENT:

The ten patented claims are currently held by Dome Exploration (Canada) Limited and Key Lake Exploration Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5505839
Easting 492285

GENERAL LOCATION:

The property is located in the eastern portion of Lindsley Township.

ACCESS:

The mine site is accessible by travelling approximately 14 km (8.7 miles) west of the turn-off to Geraldton along the Trans-Canada Highway #11. The mine is located 0.9 km northeast of the highway.

REFERENCES:

Arnoldi (1949).
Bruce (1935).
Burton (1936, 1938a,b,c)*.
Field (1955)*.
Matheson (1948)*.
Phelan (1974a,b,c)*.
Resident geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al (1939, 1940).
Tower et al (1941, 1942).
Trembley (1940, 1941, 1942).

MAP REFERENCES:

Map 44d, Little Longlac Gold Area (Bruce, 1935).
Map P241, Geraldton Sheet, (Pye et al., 1936).
Map P1527, Ontario Mineral Potential, Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2310, Ontario Mineral Map (ODM, 1974).
Map 2519, Lindsley Township Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

As the entire property is overburden-covered, interpretation of the geology is dependent on information from the diamond drill holes and the underground work. In general, the deposit lies within an elongated trough of metasediments and metavolcanics bordered by younger granitic batholiths (Matheson, 1948)*.

Specifically, the property is part of the south limb of a regional synclinal structure and is underlain entirely by metasediments consisting of arkose, wacke, and ironstone (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

One and a half to three metre (5-10 feet) wide dikes of quartz-feldspar porphyry and narrower diorite dikes intrude conformably and non-conformably, as do quartz veinlets and stringers. The strike of the bedding is about 290° with a steep southerly dip. A steeply dipping right-hand fault cutting across the property with a northerly strike offsets the formations by about 700 m (200 feet) (Matheson, 1948)*.

The 91.5 m (300 feet) wide arkose horizon, which is closely associated with the auriferous veins, contains interbedded lenses of wacke and shale and is intruded by numerous porphyry dikes. This horizon occurs in the central portion of the property. To the north, the rocks are predominantly wacke with interbeds of arkose and to the south, chloritic wacke with ironstone and minor arkosic interbeds occur. Several sheared and silicified zones occur throughout the property (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

7) MINERALOGY:

Gold (occurring both in the free state and associated with sulphides) is found in dark-coloured quartz stringers, quartz veinlets, sheared and silicified zones of brecciated arkose, and in saddle-shaped veins. Associated minerals are pyrite, arsenopyrite, sphalerite and silver (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

The only mineable ore body found occurred as an S-shaped vein in a shear zone in the arkose horizon. Averaging 0.6 m (2 feet) in width, the longest section had a westerly strike and a dip of 60° to the south. The offshoots at either end had steep northerly dips (Matheson, 1948). This resulted in a wedge-shaped mined section, about 107 m x 30.5 m x 1.5 m (350 feet x 100 feet x 5 feet) (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Drilling by Dome Exploration has intersected a number of significant mineralized sections as follows:

Hole No.	Location	Core Length	Oz/T Au	Vertical Depth	Reference Northern Miner
195-1	30.5m(100') W of the shaft	9.69m(31.8')	0.11	213m(700')	82-9-23, p. 8
		0.49m(1.6')	1.04	"	"
195-2	As above	3.6m(11.8')	0.986	"	"
195-3	457m(1,500') E of the shaft	6.40m(21.0')	0.266	"	"
		2.99m(9.8')	0.486	"	"
		8.35m(27.4')	0.087	"	"
195-5	As above	3.96m(13.0')	0.068	"	"
195-6	610m(2,000') E of the shaft	1.00m(3.3')	0.65	"	"

195-8	284m(900') W of the shaft	4.88m(16.0')	0.063	87m(285')	"
		1.34m(4.4')	0.140	"	"
		1.13m(3.7')	0.165	"	"
195-9	396m(1,300') W of the shaft	1.37m(4.5')	0.136	"	"
195-22	As 195-3	2.74m(9.0')	0.106	93m(306')	82-11-11, p. 1
195-23	As 195-3	1.89m(6.2')	0.117	134m(441')	"
		2.19m(7.2')	0.128	142m(466')	"
195-24	As 195-3	3.26m(10.7')	0.187	40m(131')	"
195-25	As 195-3	2.80m(9.2')	0.208	118m(387')	"
195-40		2.10m(6.9')	0.06	35-106m (115-511')	83-10-13, p. 10
195-41		3.20m(10.5')	0.27	"	"
		3.11m(10.2')	0.065	"	"
195-42		1.78m(5.9')	0.1	"	"
		0.91m(3.0')	0.09	"	"
195-43		0.33m(1.1')	0.49	"	"
		1.98m(5.9')	0.1	"	"
195-44		0.30m(1.0')	1.98	"	"
195-45		2.41m(7.9')	0.47	"	"
195-46		1.01m(3.3') or	4.38	"	"
		3.41m(11.2')	1.3	"	"
195-52		0.73m(2.4')	0.146	"	"
195-53		2.01m(6.6')	0.135	"	"
195-62		5.70m(18.7')	0.127	152m(500')	84-2-23, p. 16

In addition, numerous lower grade sections have been intersected. Holes 195-20, 21, 27, 28, 29 and 33 have intersected mineralization of 0.1 oz/ton gold over widths up to 17.6 m (57.6 feet).

An excerpt from an article in The Northern Miner (February 2, 1984, p. 16) has summarized the findings to date.

> "The 64 holes have located numerous gold-bearing zones in silicified arkose and porphyry, but with an exception there are difficulties in identifying continuous mineralization.
>
> This exception, referred to as Area A (approximately 457 m (1,500 feet) west of the shaft) appears to be a pipe-like mass of irregular cross-section that plunges west at about 27°. The strike length is about 600 feet (183 m) and is still open in both direction."

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1939	1,188	145	3,015	0.394	0.048
1940	3,914	370	10,116	0.387	0.037
1941	518	-	1,591	0.326	-
1949	55	-	-		
TOTAL	5,675	515	14,722		

1) PROPERTY NAME: T. Johansen-Errington Occurrence

DATE(S) VISITED: July 18, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

None.

CURRENT:

1984: T. Johansen staked claim TB784874 to cover the occurrence. The claim is bounded to the north, east and west by the Tombill Main Group of patented claims.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5502400
Easting 498200

GENERAL LOCATION:

The occurrence is located in south central Errington Township.

ACCESS:

Travel approximately 1.2 km (0.8 miles) south on Goldfields Road from Highway #11 to blazed trail on west side of Goldfields Road. Proceed west less than 200 m to the occurrence.

REFERENCES:

Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 44d - Little Longlac Gold Area (Bruce, 1935).
Map 1951-7 - Township of Errington (Pye, 1951).
Map 2102 - Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The T. Johansen-Errington occurrence is underlain by a turbidite-wacke-siltstone sequence. The occurrence is located 1.2 km south of the Bankfield-Tombill Fault, a major dextral strike-slip (transcurrent) fault. Pye (1951) noted that the metasediments young to the north.

7) MINERALOGY:

Wackes host sulphide and gold mineralized quartz-carbonate veins associated with a narrow fault zone. Gold, pyrite, arsenopyrite, specularite and tourmaline occur in the veins. The zone is silicified, carbonatized and sericitized, and hosts arsenopyrite. Foliation of the wackes strikes 265°. Two prominent vein sets were noted. The main set is parallel to the fault and regional foliation and the second set strikes 240°. The north side of the fault is not exposed.

A vitreous, dark grey to white, discontinuous quartz vein, conformable to foliation hosted two samples of visible gold.

9) CHEMICAL ANALYSES:

All assays returned trace (<0.01 oz/ton gold).

1) PROPERTY NAME: Jorsco Prospect (64)

DATE(S) VISITED: May 2, 1981

2) ALTERNATE NAME(S): Thor Johansen

3) COMMODITY: MAIN: Au, Ag SECONDARY: Cu, Pb, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
Though a number of trenches are located on adjacent claims, the main showing is the railway cut and the history of the two claims (north and south) covering this occurrence is given.

PAST:

1917: The discovery of the occurrence was made by A. G. Burrows of the Ontario Division of Mines.

1936: The claims covering the occurrence were staked by Gordon New (TB22107) and Jas Knough for Grace Couney (TB21970).

1936-1940: Unspecified work was performed on both claims.

1941: The claims were cancelled.

1946: The property was staked by J. W. Smith, (TB34706, north) and D. Livingstone (TB34710, south).

1947: The north claim was cancelled and restaked by W. F. Draper (TB37084), who performed unspecified work in the following year. The south claim was cancelled and restaked by R. Nacey (TB37091).

1950: The south claim was cancelled and restaked by R. Nacey (TB40160).

1952: The south claim was cancelled.

1956: The north claim was cancelled.

1961: The property was staked by Thomas E. Tansley (TB101686 and TB101691, north and south claims, respectively).

1962: The claims were transferred to Sam Taylor, who optioned them to Jorsco Explorations Limited. In the same year a geological survey was conducted and three holes totalling 215.8 m (703.7 feet) were drilled.

1963: Magnetometer and electromagnetic surveys were conducted, and nineteen holes totalling 1,260.4 m (4,110 feet) were drilled.

1966: The claims were cancelled.

1969: Parts of the claim block previously held or optioned by Jorsco were staked by David Walsten. The claims are located to the south and southwest of the occurrence. He transferred the claims to the Canadian Nickel Company Limited, which drilled four holes totalling 272.6 m (889 feet). The south property was staked by Amede Lafontaine (TB204775).

1970: The south claim was cancelled.

1980: The south property was staked by Gerald Bruce (TB557703).

1981: The south claim was cancelled and the north property was staked by Thorwald Johansen.

1982: The north claim was cancelled.

1983: The north property was staked by Daniel Laureneau (TB715758) and the south property was staked by Robert Craig (TB715653).

1984: Both claims were cancelled and restaked by Daniel Deschenes (TB784662 and TB784667, the north and south claims, respectively).

CURRENT:

The claims are presently held by Daniel Deschenes.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5502294
Easting 459639

GENERAL LOCATION:

The property is located in south central Leduc Township, between Blackwater Lake and Blackwater Bay.

ACCESS:

The claims are located 2.2 km west of Jellicoe and are readily accessible by Trans-Canada Highway #11 which lies approximately 200 m to the north of the showing. The main line of the Canadian National Railway crosses the property.

REFERENCES:

Burrows (1917).
Ferguson et al. (1971).
Mackasey (1976).

Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Szetu (1963)*.
Williams (1961)*.
Williams (1962)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al. 1966).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2517, Nezah Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Mackasey (1976):

"The area is underlain by small lenses of mafic metavolcanics and gabbroic intrusives that are surrounded by metasediments, then pyritic bands are present in the metavolcanics."

Further, Szetu (1963)* states:

"...at the south part of the property there is an isolated occurrence of Keewatin basic volcanics which are strongly sheared and surrounded by younger Timiskaming sediments. The occurrence of the volcanic body is not in line with any other bands of volcanics in the general area. It follows that the general structure is probably in the form of a dome-shaped anticline."

Williams (1962)* states:

"The property is underlain by basic lavas which have been sheared. The trend is N70°E with steep dips to the south and the extensions are covered by ponds or gravel. A quartz stockwork is related to the footwall side of the shear, and there is evidence of fracturing in a NNE direction."

7) MINERALOGY:

According to Williams (1962)* mineralization is found:

"...in a quartz rich (filled) blocky structure. Pyrite, chalcopyrite are present in both the shear and the stockwork.

...Prospecting on claims TB104889, 104888 and 104674 has shown up gold and silver, associated with lead, copper and zinc sulphides in quartz stockworks.

> ...It is evident that the gold and gold-silver bearing structures are related to the east-northeast-trending shears.
>
> From the exposures seen...there are two ages of quartz carrying pyrite, pyrrhotite, chalcopyrite, argentiferous galena as well as free gold."

The shear zone is exposed for 61.3 m (200 feet) and true width is reported to be 6.2 to 9.3 m (20 to 30 feet). The zone is open horizontally and vertically. Drilling completed by Jorsco indicated a greater true width at depth (up to 15.5 to 18.6 m (50 to 60 feet)) (The Northern Miner, September 13, 1962).

8) ECONOMIC FEATURES:

Assays reported for the showing by Williams (1962)* include two samples with values of 0.01 oz/ton and 0.04 oz/ton gold. To the northeast of the showing a rusty shear assayed 0.01 oz/ton and 0.10 oz/ton gold. To the south of the showing, chip samples yielded values of 1.03 oz/ton and 0.14 oz/ton gold, and 4.39 oz/ton and 5.44 oz/ton silver, respectively. To the southwest a grab sample from a trench assayed 0.04 oz/ton gold, 5.26 oz/ton silver, and 2.16% copper (Williams, 1962)*.

Four holes drilled by Jorsco Exploration Limited intersected significant mineralization and is tabulated below.

Hole No.	Oz/T Au
4	0.03 to 0.1
5	0.04 to 0.14
7	0.03 to 0.12
8	0.03 to 0.11

(The Northern Miner, August 2, 1962, p. 22).

1) PROPERTY NAME: Kenogamisis Prospect (71) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1939: The occurrence was staked by W. H. Cranston (TB27826).

1939-1944: W. H. Cranston performed unspecified work on the claim and accumulated a total of 133 days of assessment credit.

1944: The claim was cancelled.

1950: The property was staked by E. Sunde (TB39462), who transferred the claim to Kenogamisis Gold Mines Limited. A five hole diamond drill program totalling 893.5 m (2,931.5 feet) was completed.

1958: The claim was cancelled.

1979: The property covering the occurrence was staked by Gilles Desautels (TB547658 and TB547664).

1980: The claims were transferred to Dome Exploration Limited, which cut a grid and conducted magnetometer and electromagnetic surveys. Two holes were drilled (totalling 206.0 m (674 feet) to test electromagnetic anomalies.

1983: The claims were cancelled.

CURRENT:

The ground is presently available for staking.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5503900
Easting 463900

GENERAL LOCATION:

The prospect is located in southeastern Leduc Township.

ACCESS:

Follow the Trans-Canada Highway #11 east of Jellicoe for 2.0 km. The property is located immediately north of the highway.

REFERENCES:

Mackasey (1976).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1960).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2518, Partridge Lake Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Leduc Township is underlain principally by Archean igneous and metamorphosed rocks. The oldest rocks are metavolcanics, which are intruded by quartz diorite, gabbro and related rocks in the form of stocks, lenses and dikes. Metasediments form three east-trending belts that are separated by mafic metavolcanics. The southern belt in which the property is situated consists of interbedded argillite, siltstone and greywacke sandstone. Middle to Late Precambrian diabase dikes cut all rocks. Pleistocene sand and gravel deposits cover much of the bedrock (Mackasey, 1976).

Mackasey (1976) states that:

> "The area forms part of the Wabigoon Belt of the Superior Province and the Early Precambrian rocks have been tightly folded along east-west axes. Well preserved primary sedimentary and volcanic features are used to determine the superposition of strata. Several prominent post-diabase faults are recognized."

7) MINERALOGY:

According to Mackasey (1976) drilling performed by Kenogamisis Gold Mines Limited intersected:

> "...fine-grained metasediments containing quartz stringers and minor amounts of pyrite, pyrrhotite, and a trace of chalcopyrite. For the most part only trace amounts of gold were encountered. ...References is made to minor amounts of dark metallic mineralization along slips in core from drill hole No. 1 that has been tentatively classed as a sulphur antimonide. Mention is also made in the drill logs of the presence of graphitic zones..."

Drilling performed by Dome Exploration Limited intersected a similar lithology, as well as a carbonaceous, sulphide-bearing metasediment noted as the probable cause of the electromagnetic anomaly. Arsenopyrite is also recognized (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

8) ECONOMIC FEATURES:

The best assays obtained by Kenogamisis Gold Mines Limited were two values of 0.08 oz/ton gold over a 0.3 m (1 foot) core length. All samples obtained by Dome Exploration returned assay values of trace or nil gold.

9) CHEMICAL ANALYSES:

Selected Core Samples

1950 - Kenogamisis Gold Mines

Hole No.	Core Length	Au (oz/T)	Sample Description
Jel #1 (#2100)	0.30 m (1 foot)	0.08	Greywacke, fine to medium-grained with narrow quartz stringers and trace pyrrhotite.
Jel #2 (#2152)	0.33 m (1.1 feet)	0.08	As #2100, with trace pyrite and pyrrhotite.

1980 - Dome Exploration Limied

Hole No.			
144 G-2	1.52 m (5 feet)	Trace	Carbonaceous metasediments with black, fine-grained, quartz carbonate veining parallel to bedding. Bands and nodular concretions of zoned pyrite to 5%.

1) PROPERTY NAME: Kenty Au-Mo Prospect (72)

DATE(S) VISITED: July 9, 1985

2) ALTERNATE NAME(S): Langridge Prospect
Jorsco Prospect

3) COMMODITY: MAIN: Au SECONDARY: Mo

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1924: Messrs. Brennan and Kenty discovered the showi staked claims KK800 and KK831. Trenching and channel sampling were conducted. Messrs. (Menifee, A. Poulin, R. Yapput and A. Shaw staked the present group which included leased claims: TB41922, TB41944, TB41748 to TB41749, TB41751 to TB41754 and TB41769 to TB41770.

1951: W. Langridge Jr. acquired the claims. Chontor Mining Corporation Limited conducted surface work.

1952: Chontor Mining conducted linecutting and an electromagnetic survey.

1955: Chontor Mining drilled 3 holes totalling 419 m on claims TB41751 (#1 - 235 m) and TB41944 (#2 - 42 m; #3 - 92 m).

1957: The claims were surveyed.

1960: The claims were brought to lease (September 21, 1960).

Jorsco Mines Limited optioned the showing. Five drill holes totalling 325 m (1,070 feet) were completed on claims TB41752 and TB41748.

1961-1962: Jorsco Explorations Limited optioned claims from Chontor Mining and staked 9 claims (total) east and west of the option. Magnetometer surveys were conducted on the west 9 claims, a portion of the Chontor Mines option (claims TB41769 and TB41770) and on the adjoining eastern group of a unsurveyed claim. Two narrow magnetic bands and isolated magnetic zones were outlined. An electromagnetic survey was completed. Twenty-six (26) holes totalling 2,364 m (7,755 feet) were drilled.

1975: A new 21 year lease was granted (September 25, 1975).

1984: Cominco optioned the claims and conducted power stripping and sampling. Cominco dropped the option.

PRESENT:

1985: The property is presently held by William Z. Langridge.

5) LOCATION AND ACCESS:

N.T.S. 42E13/NW
U.T.M. Zone 16 Northing 5535800
Easting 447750

GENERAL LOCATION:

The Kenty Au-Mo Prospect is located 1.6 km (1 mile) south of the east end of Conglomerate Lake.

ACCESS:

The Kenty Au-Mo Prospect is accessible via the Camp Road 40 Road to the Con Lake Road and west on the Mine Road. Proceed west of the Con Lake Road and Mine Road intersection for approximately 3.4 km (2.2 miles) to a bush road. Proceed south for approximately 200 m and turn east on a road for approximately 600 m to the property.

REFERENCES:

Amukun (1980).
Gledhill (1925).
Kindle (1931).
Moorhouse (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 47h, South Onaman Area (Moorhouse, 1938).
Map 2429, Conglomerate Lake (Amukun, 1980).

6) GENERAL GEOLOGY AND STRUCTURE:

The Kenty property is underlain by massive, altered and recrystallized mafic flows and tuffs of the Tashota-Onaman Metavolcanic Belt, (Amukun, 1980).

A narrow sequence of intermediate felsic metavolcanics crops out west of the Kenty property and consists of feldspar porphyry, quartz porphyry and breccia.

Intruding the metavolcanics is a small porphyritic quartz monzonite-granodiorite complex immediately southeast of the 8 leased claims. The Castlewood Lake Intrusion (Amukun, 1980) crops out 7.6 km south of the prospect and is a large sub-circular diorite-gabbro body. Two small lenticular gabbro units intrude the mafic metavolcanics northwest of the Castlewood Lake Intrusion.

Regional foliation strikes 077°.

7) <u>MINERALOGY</u>:

Sheared mafic tuffs are interbanded with quartz feldspar porphyry dikes. Large euhedral to subhedral pyrite cubes occur along shear planes striking 057°-065°. A crenulation cleavage striking 140°-142 is well displayed in the mafic tuffs. Quartz veining on the east end of the property striking 085° is associated with a biotite lamprophrye intruding the mafic metavolcanics. Quartz can be vitreous or saccharoidal (2 generations of quartz) and pyrite is hosted in the quartz. Metavolcanics have been silicified and carbonatized. Water has filled most of the old workings, but Gledhill (1925) described the Kenty Au-Mo Prospect:

> "The mineralized zone extends east and west with the schistosity strike. The dip is nearly vertical. Recrystallized greenstone bounds the mineral zone on the north; on the south, the mineralization can be traced to where the rock is covered by muskeg. The mineralization was no doubt produced from solutions coming from the granite.
>
> Some quartz veins up to three feet in width lie on the north side of the mineralized belt. Channel samples taken by J. Kenty across 8 to 10 feet of mineralized schist carried values ranging from $4 to $14 in gold per ton. Gold pannings were made by the writer in several places on the discovery. Portions of the schist are silicified. Pyrite, molybdenite, and gold appear to be the only ore minerals. Claims lying east and west of Kenty's discovery have mineralized schist which give gold assays. This part of the camp has an overburden of glacial drift which makes prospecting somewhat difficult."

<u>Note</u>: Gold price 1924 - $20.79 per ounce.

9) CHEMICAL ANALYSES:
Grab Samples Collected in 1985

Sample No.	Molybdenum(ppm)	Au(Oz/T)	Sample Description
85-MWK-1	8	0.01	Kenty Prospect Centre. Highly sheared limonite-stained feldspar porphyry.
85-MWK-2	3	<0.01	Kenty Prospect- rusty, highly sheared, grey-green mafic tuff.
85-MWK-3	10	0.01	Kenty Prospect - East highly sheared rusty-stained feldspar porphyry, some pyrite.
85-MWK-4	3	<0.01	Kenty Prospect - Far east lamprophyric dike.
85-MWK-5	3	<0.01	Kenty Prospect - Far East grey white vitreous quartz vein with rusty, seams and sericite chloritic wallrock inclusion.
85-MWK-6	3	0.01	Kenty Prospect - Far East (same location 85-MWK-4 & 5). Grey-white sugary quartz seams in feldspar porphyry-minor disseminated euhedral pyrite.

1) PROPERTY NAME: Kenty Prospect (73) DATE(S) VISITED: July, 1983

2) ALTERNATE NAME(S): Douglas Option
Phelps Dodge Corporation
Rickaby
Lafontaine Option

3) COMMODITY: MAIN: Cu, Zn SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1949: Two claims covering the occurrence were staked by W. H. Cranston (TB39129 and TB39132).

1950: The claims were transferred to Barymin Company Limited, which discovered the showing and conducted a resistivity survey.

1955: The claims were cancelled and subsequently staked by Jack L. Kenty (TB75502 and TB75505).

1956: The claims were transferred to Noranda Mines which completed a diamond drill program of thirteen holes totalling 1,231.4 m (4,040 feet).

1961: The claims were cancelled.

1962: Angus MacDonnell staked the west claim (TB104960) but performed no work.

1964: The claim was cancelled.

1965: The east claim (formerly TB75505) was staked by Brian W. Taylor. This claim was cancelled and the property was restaked by Alfred J. Taylor (TB120912 and TB122915 respectively).

1966: TB122915 was transferred to N. Aubrey and the claim was cancelled later the same year. Reginald Essa staked the occurrence (TB130502 and TB130503).

1967: The claims were transferred to Rio Tinto Canadian Exploration Limited. In addition to trenching and stripping, geological, ground electromagnetic, magnetic and Turam electromagnetic surveys were conducted.

1970: The claims were staked by Arthur J. Douglas (TB287794 and TB287733).

1971-1972: Pits and trenches were dug by Arthur J. Douglas who subsequently optioned the claims to Phelps Dodge Corporation of Canada Limited. They conducted an induced polarization survey and drilled a total of 27 holes, most of these in the vicinity of the Kenty showing. Detailed geological mapping and a further induced polarization survey were conducted. Three deep holes were drilled to test previously encountered mineralization.

1973: The claims were transferred to B.B.M. Investments Limited.

1974: Diamond drilling was performed, and the claims were optioned to Rickaby Mines Limited (B.B.M. Investments Limited is the parent company of Rickaby Mines Limited).

1975: Rickaby Mines drilled four holes totalling 483.1 m (1,585 feet).

1977: Claim TB287733 was cancelled and restaked by Amede Lafontaine (TB455113).

1978: TB455113 was optioned to Rickaby Mines Limited. Claim TB287794 was cancelled.

1979: The property (formerly TB287794) was staked by Amede Lafontaine and subsequently optioned to Rickaby Mines Limited.

1981: The claims were cancelled.

1982: The occurrence was staked by A. J. Lambert (TB646762 and TB646760) who transferred the claims to Arthur Rosenblatt.

1984: Power stripping was done by Arthur Rosenblatt.

CURRENT:

The claims are currently held by Arthur Rosenblatt.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5516563
Easting 457542

GENERAL LOCATION:
The occurrence is located in east-central Rickaby Township approximately 3.2 km northeast of Seven Foot Falls on the Sturgeon River.

ACCESS:
Travel north from Nezah 10.1 km west of Jellicoe, on secondary Highway #801 for 12.9 km then northeast on gravel roads for approximately 14.5 km.

REFERENCES:
Beckman (1968)*.
Bell (1972)*.
Mackasey and Wallace (1978).
Pudifin (1972)*.
Pye (1965)*.
Randell (1950)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Shklanka (1969).
Spence (1967)*.

MAP REFERENCES:
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1972).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:
According to Mackasey and Wallace (1978), in the area of the Kenty Showing:
"...there is a high proportion of felsic rocks within a volcanic succession having an apparent stratigraphic thickness of 1,200 to 1,500 m (4,000 to 5,000 feet).

The major rhyolitic rock units appear to form two groups, separated by a band of andesitic and dacitic flows and pyroclastic rocks. The northern felsic group, which is interpreted to be stratigraphically lower, appears to consist of a major rhyolitic flow or a number of continuous units and at least two minor rhyolitic units. This group, which is about 2,200 m (7,000 feet) long and from 100 to 180 m (300 to 600 feet) thick, includes the Kenty Showing and most of the other sulphide occurrences on the property.

...Spherulitic and flow banded rhyolitic rocks occur in both of the felsic-rich groups in the vicinity of the sulphide showings. Most of the felsic rocks however are fine pyroclastic rocks such as tuff, crystal tuff, lapilli-tuff and derived sericitic schist. Coarse-grained intermediate to felsic pyroclastics are also common. The more mafic rocks are basaltic and andesitic agglomerate, tuff breccia and massive and amygdaloidal andesitic flows. In general, units within the predominantly felsic metavolcanic sequence are similar in appearance and composition. The distinction between the units can only be made on the basis of subtle colour differences and the presence or absence of such features as quartz and feldspar phenocrysts, amygdules and spherulites. Feldspathization of all of the volcanic rock types makes it difficult to distinguish between individual flows or pyroclastic units on the basis of petrographic examination. Most of the metavolcanics on the property are cut by irregularly shaped, narrow intrusions of andesitic feldspar porphyry, which are probably of Early Precambrian age. An east-trending lamprophyre dike about 9 m (30 feet) wide has been traced over several hundred feet in the vicinity of the Kenty Showing. Several north-trending, Keweenawan diabase dikes up to 30 m (100 feet) wide have been recognized on the property and coincide with several linear ground magnetic anomalies."

Rickaby Township lies within the Wabigoon Belt of the Superior Structural Province. The metavolcanics in the map-area from the southern limb of a broad west-trending regional fold, and are locally only moderately deformed, with primary volcanic features well preserved. Faults do not form prominent topographic features, but several faults have been inferred at major lithological contacts.

Pillows in the mafic sequence in the township and flow top phenomena in intermediate metavolcanics in southern Elmhirst Township indicate stratigraphic tops to the south. Mackasey and Wallace (1978) also state that:

> "The simplest interpretation based on the available evidence is that the volcanics within most of the map area (Elmhirst and Rickaby Townships) form an essentially homoclinal sequence dipping steeply to the south.
>
> ...All of the metavolcanics are affected to some degree by a regional east-west foliation...interpreted to parallel the axis of the regional fold...
>
> ...Faults within the map area are rarely observed in outcrop, and are generally associated with narrow low lying linear areas best seen on air photographs.
>
> ...East to northeast-trending shows zones and associated quartz vein systems are common within the metavolcanics. No large displacements are suspected along these zones."

Metavolcanic rocks on the property strike N70°E and generally dip steeply southeast. According to Pye (1965):

> "The weakly developed schistosity of the rock exposed in the trenches, however, indicates that the zone may dip steeply northwest rather than southeast,"

Pudifin (1972)* adds:

> "Most of the rocks in the area are... sheared in an east-west to slightly south of the direction."

7) MINERALOGY:

Mackasey and Wallace (1978) describe the mineralogy as follows:

> "Lightly disseminated pyrite mineralization is very common on this property, particularly in the rhyolitic rocks.
> ...A study of polished sections of the mineralization indicates that sulphide mineralization consists of chalcopyrite, pyrrhotite, pyrite, marcasite, sphalerite, and minor galena."

Traces of tin were found in some samples but no tin minerals were identified in polished section. One sample contained significant manganese (6.80%) but no manganese minerals were identified (Mackasey and Wallace, 1978).

Spence (1967)* indicates that:

> "The more southerly trenches show rhyolitic breccia with scattered irregular seams and pools of pyrite, with lesser amounts of sphalerite, galena and chalcopyrite.
> In the southernmost trench... massive magnetite occurs in several lenses near the contact. The rhyolite here is massive and fine-grained or it may be massive chert. Black weathering carbonate occurs with chlorite with the magnetite."

According to Pye (1965)*: "The sulphides are disseminated irregularly throughout the rock, but are concentrated along or close to gently dipping fractures, forming closely-spaced thin (2" or less) but conspicuous replacement veinlets."

Silver and gold were encountered in drill core samples (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

Mackasey and Wallace (1978) indicate the following:

"...the higher grade mineralization forms a pipe-like zone trending 225°E to 235°E and plunging 25° to 30°. This is approximately parallel to other linear features such as rodding of clasts, spherulites and amygdules observed by the authors in this vicinity. The mineralized zone, as it is presently known, is approximately 360 m (1,200 feet) long and a maximum of 60 m (200 feet) in diameter.

On the basis of diamond drill logs (Assessment Files, Research Office, Ontario Division of Mines, Toronto) the mineralization appears to be crudely layered. Very little zinc is reported in the upper part of the mineralized zone but zinc grade increases with depth, and is highest at the base of the zone."

Pye (1965)* states that:

"Core samples range in value up to 2.60 percent copper and 2.7 oz per ton silver over a length of 1.2 feet, and to 1.08 percent copper, 4.68 percent zinc, and 1.26 oz per ton silver over a length of 3.0 feet. The average grade of the deposit, across the widths exposed in the trenches, however, is low."

9) CHEMICAL ANALYSES:

1956 - Noranda Mines Limited, Selected Core Samples

Hole & Sample No.	%Cu	Oz/T Au	Oz/T Ag	%Pb	%Zn	Description
#3 KLD 16 0.70m (2.3')	0.15	0.14	0.15	Nil	0.78	Fine to medium-grained felsic fragmental.
#4 KLD 18 0.37m (1.2')	2.68	Tr	2.7	Nil	0.09	Fine to medium-grained felsic fragmental. A few narrow 1/16" -1" pyrite and chalcopyrite stringers in calcite.
#4 KLD 20 0.91m (3.0')	1.08	Tr	1.6	Nil	4.68	Fine to medium-grained felsic fragmental. Irregular sulphide stringers in calcite.
1972 - Phelps Dodge, Selected Core Samples						
#2 12.19m (40')	0.48	-	0.70	-	0.15	
#9 21.34m (70')	1.03	-	0.468	-	-	
#16 3.05m (10')	0.58	-	1.24	-	0.49	
1974 - Rickaby Mines, Selected Core Samples						
R-27 1.52m (5')	0.78	0.01	1.32	-	0.27	Fragmental tuff, rhyolitic.
R-28 Avg. for 33.5 m (110')	0.70	-	0.40	-	-	

(Resident Geologist's Files, Ontario Ministry of Natural Resures, Thunder Bay)

1) PROPERTY NAME: King-Dodds Occurrence (74)

DATE(S) VISITED: July 5, 1984; May 7, 1985

2) ALTERNATE NAME(S): Howard Falls Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1915: A high grade narrow quartz vein was discovered hosted in mafic metavolcanics. Claim KK2424 was staked. A staking rush was initiated. Stripping and trenching were conducted.

1916: A shaft was sunk to 56.0 feet (17.1 m).

CURRENT:

1983: D. Thorsteinson and N. Cox staked the occurrence.

1984: D. Thorsteinson, N. Cox and P. Lassila formed a private company, T.C.L. Incorporated. D. Thorsteinson officially holds claims TB815023-28 covering the King-Dodds Occurrence.

5) LOCATION AND ACCESS:

N.T.S. 42L6/S
U.T.M. Zone 16 Northing 5578900
Easting 477800

GENERAL LOCATION:

The occurrence is located in the Kowkash area.

ACCESS:

Drive north from Geraldton on Highway #584 to Highway #643. Continue on #643 to the Ogoki Road. Canoe south on Kawashkagama (Kowkash) River from the bridge at Ogoki Road to the first major bend in the river downstream from the island below Howard Falls. Proceed on foot approximately 300 m north to the occurrence.

REFERENCES:

Spearman (1915)*.
Hopkins (1917).
Resident Geologist's Files, Ontario Ministry of Natural Resources, Thunder Bay.

MAP REFERENCES:

Map 8A, Lake Nipigon (Wilson, 1908).
Map 2311, Howard Falls Area (Amukun et al., 1979).

6) GENERAL GEOLOGY AND STRUCTURE:

The Howard Falls area is underlain by massive and pillowed mafic metavolcanics. Minor quartz porphyries occur. Regional foliation strikes approximately 075° and dips to the south (Amukun, 1979).

7) MINERALOGY:

The Northern Miner, September 11, 1915, described the occurrence:

"The quartz vein is four inches wide and fourteen feet long, beyond that mineralization continued but there is no quartz at one end of the vein, at the other it dips under a swamp. This four inches of quartz is almost as rich as the Munro ore, many of the specimens are a quarter metal and it is said that they are characteristic of the vein."

Hopkins (1917, p. 216) described the occurrence:

"The quartz vein strikes 10° south of east and dips 75° to the north, thus conforming in strike and dip with the country rock. The wall rock is pillow lava (meta-basalt) altered in places to schist. Numerous quartz porphyry dikes, up to 30 feet wide, occur on the claim. The vein has been traced 100 feet on the surface, over which it will average three inches in width. The quartz is white, somewhat glassy in appearance and largely free from sulphides. An abundance of free gold occurred for four or five feet along the vein on the surface next to the hanging wall. Lying along the north side of the quartz is a rusty-schist band, six inches wide and heavily impregnated with iron pyrites."

The vein is a crack-seal type, fractured quartz vein with sericite-chlorite seams representing former portions of the wall rock. Pyrite and spectacular free gold are present in the quartz. Small quartz porphyry intrusions occur south of the occurrence.

A shaft was sunk on the vein to 9.0 m (30.0 feet) and spectacular free gold was reported at the bottom.

8) <u>ECONOMIC FEATURES</u>:
<u>PAST PRODUCTION</u>:
Small scale hand-cobbing but no official production.

1) PROPERTY NAME: **Kirby Lake Zinc Occurrence (198)**

DATE(S) VISITED:
June 3, 1981
July 1, 1982
May 23, 1985

2) ALTERNATE NAME(S): Oster Occurrence

3) COMMODITY: MAIN; Zn SECONDARY: Au, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1952: The property north of Kirby Lake was staked by Neil Smith and J. Murchison and was subsequently transferred to J. M. MacIntosh, (TB42854). A total of 40 days assessment credit was earned.

1953: The claim was transferred to Pic Nickel Mines Limited.

1954: The claim was cancelled and restaked by Neil Smith (TB69418).

1955-1958: A total of 280 days assessment credit was accumulated. Work performed included stripping and trenching.

1961: Claim TB100787 was cancelled and restaked by N. H. Black. The claim was optioned to Kateri Mining Company Limited, which had airborne electromagnetic and ground electromagnetic surveys conducted. The option was later dropped.

1962-1969: The claim was cancelled and restaked six times by three different prospectors, the first time by Neil Smith, the following four times by William G. Ferring and the sixth time by David Walsten (claim numbers TB104318, TB109322, TB123058, TB132133, TB136932 and TB221435). TB221435 was transferred to the Canadian Nickel Company Limited.

1970: Two holes were drilled totalling 98.2 m (322 feet).

1971: The claim was cancelled.

1979: The claims covering the occurrences were staked by Joseph A. Oster (TB456133 and TB456132).

1981: The claims were cancelled and restaked by Joseph Oster (TB603679 and TB603678).

1982: Manual and mechanical work was performed on the claims by Joseph Oster.

1983: TB603679 was cancelled and restaked by Joseph Oster (TB766582).

1984: The claims were cancelled.

1985: Claims TB784878-83 and claims TB873497-9 were staked by J. Oster.

CURRENT:

The property covering the occurrence is presently open.

5) LOCATION AND ACCESS:

N.T.S. 42E14/SW
U.T.M. Zone 16 Northing 5515050
Easting 489900

GENERAL LOCATION:

The claims are located in central Kirby Township on the north shore of Kirby Lake.

ACCESS:

The property is accessible by travelling east from Jellicoe on Trans-Canada Highway #11 for about 17.5 km and north and west on Wildgoose Beach Road for approximately 10 km. A small trail can be followed north and west from the end of Wildgoose Beach Road to Kirby Lake, a distance of about 5 km, and the lake must be crossed by boat.

REFERENCES:

Beakhouse and Chevalier (1983).
Kustra (1983).
MacDonald (1941).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Shklanka (1969).

MAP REFERENCES:

Map 50F, Hutchison Lake Area (MacDonald, 1941).
Map P1206, Distribution of Zinc in Organic Stream Sediments in the Wildgoose Lake Area (Closs, 1976).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The typical bedrock of this area consists of mafic to intermediate metavolcanics (flows, tuffs, and agglomerates) interbedded with metasediments (generally greywacke, conglomerate and ironstone). Intrusions of massive to gneissic granite and granodiorite, as well as lesser amounts of diorite, felsic porphyries, and olivine and quartz diabase dikes are confined mainly to the northern parts of Kirby, Fulford and McQuesten Townships. In the vicinity of Kirby Lake the metavolcanic rocks occur in the form of a coarse amphibolite. They are distinguished from the diorites by the absence of intrusive contacts, and by their less massive nature (MacDonald, 1941).

7) MINERALOGY:

A shear zone striking 260° and dipping 58°S occurs in mafic metavolcanics. The zone is up to 1.5 m wide, with a 0.48 m portion mineralized with sphalerite and minor galena. The shear zone occurs as a quartz-sericite-garnet-biotite schist. The zone has been silicified, carbonatized and sericitized. A sulphide iron formation averaging 0.3 m wide is situated conformably at the north contact. All units are folded about a 105° axial plane.

8) ECONOMIC GEOLOGY:

Chip samples across two 0.3 m sections gave assays of 4.87 and 3.16 oz silver per ton and 0.01 oz gold per ton and trace gold, respectively.

9) CHEMICAL ANALYSES:

1982

Sample No.	Width	Au (oz/T)	Ag (oz/T)	Zn	Pb	Sample Description
82-MJO-1		0.01	4.87	1.16%	-	Quartz sericite schist and silicified (fine-grained) shear with less than 2% sphalerite.
82-MJO-2		Tr <0.01	0.01	125 ppm	-	Quartz sericite schist, highly weathered with yellow-brown gossan. Saccharoidal quartz is present.
82-MJO-3		0.01	Tr <0.01	155 ppm	-	Quartz sericite. Same as above as well as broken weathered material.
82-MJO-4		Tr <0.01	3.16	1.78%	1.74%	Quartz vein with sphalerite. Gossaned with v.f. grained quartz vein chloritized wallrock contains 2-3% sphalerite.

82-MJO-5	Tr <0.01	Tr <0.10	300 ppm	-	Gossan-stained intermediate metavolcanics. Yellowish to purple (pyrrhotite) gossaned intermediate metavolcanics.
82-MJO-6	Tr <0.01	Tr <0.10	57 ppm	-	As above.
82-MJO-7	Tr <0.01	Tr <0.10	-	-	Magnetic iron formation containing saccharoidal quartz and <5% sulphides
82-MJO-8	Tr <0.01	0.91	1.89%	5,000 ppm	Quartz sericite schist. Saccharoidal quartz with sericite alteration and 2-3% fine-grained sphalerite in bands.
82-MJO-9	Tr <0.01	Tr <0.10	8,950	2,890	As above with 1-2% sphalerite in bands.

1) PROPERTY NAME: **Kuhner-Long Lake Occurrence**

DATE(S) VISITED: September 26, 1985

2) ALTERNATE NAME(S): Hogg Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1935: C.A.L. Hogg discovered a gold showing east of Smith-Elliott Occurrence.

1972: K. Kuhner conducted stripping and trenching on TB274303, TB274346 and TB325685, TB325686.

CURRENT:

1985: Sixteen claims, TB828866-TB828881 were staked by M. Malouf for C.A.L. Hogg. All trenching occurs on claims TB28876 to TB828879.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5504400
Easting 529750

GENERAL LOCATION:

The Kuhner-Long Lake Occurrence is located in Abrey Township approximately 2.8 km southeast of Seven Mile Point, Long Lake.

ACCESS:

Access is by helicopter or pace and compass from Long Lake via boat from the town of Longlac.

REFERENCES:

Fairbairn (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Long Lake-Pagwachuan Lake Area (Fairbairn and MacDonald, 1937).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Intermediate to mafic metavolcanics underlie the area of the Kuhner-Long Lake Occurrence. The volcanic rocks consist of basalt, chlorite schist, hornblende schist and agglomerate (Fairbairn and MacDonald, 1937).

The metavolcanics are in contact with the eastern extension of the South Sedimentary Belt approximately 0.4 km (0.25 miles) to the south. Sedimentary rocks consist of wacke, arkose, quartzite, mica schist, slate and iron formation.

The Croll Lake Stock, a multi-phase felsic intrusion consisting of granite, granodiorite, granite gneiss, syenite, porphyritic syenite, pegmatite and aplite, intrudes the metavolcanic-metasedimentary rocks 2.0 km (1.2 miles) north of the occurrence.

A feldspar porphyry dike intrudes the metavolcanics. The regional foliation strikes 075°.

7) MINERALOGY:

Gold mineralization is associated with a 9 m (20 foot) wide feldspar porphyry dike intruding a hornblende mafic schist (gabbro). The gabbro has been silicified and weakly foliated. Pillow shapes, generally 20.3 cm (8.0 inches) long, occur in the gabbro. They may be tectonic or the gabbro may be a hornfelsed pillowed mafic volcanic rock. Foliation strikes 082°.

The porphyry is silicified, weakly foliated and hosts discontinuous recrystallized to vitreous quartz-tourmaline veins. The porphyry displays sericite alteration and hosts 1% disseminated euhedral pyrite grains associated with quartz veins. C. A. L. Hogg (Consultant, Calgary, personal communication, 1985), reported he removed visible gold (1935) from the porphyry.

9) CHEMICAL ANALYSES:

1985

Sample No.	Gold (Oz/T)	Sample Description
85-MWH-1	<0.01	Silicified feldspar porphyry-sericite alteration, minor rust, no visible sulphides.
85-MWH-2	0.01	Silicified feldspar porphyry hosting quartz vein <1% diss. euhedral sulphides.
85-MWH-3	<0.01	Silicified feldspar porphyry.

1) PROPERTY NAME: **Lafayette Longlac Prospect (78)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Marquette Longlac Prospect

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1933: Claims TB10943, TB10944, and TB11222 were staked by G. Papineau. J. Burda staked claim TB11321 and T. J. Gaffney staked claims TB11577 and TB11578. Surface work was performed.

1934: G. Papineau staked claims TB11891, TB11892, and TB12484. A. Tarraut staked claims TB12486, TB12487 and TB12488, and T. J. Gaffney stake claims TB13013, and TB13014. A number of the claims were surveyed. Claims TB11321, TB11577, TB11578, TB13013, and TB13014 were transferred to J. H. Collins. The remainder of the claims were involved in an agreement between the respective holders and S. C. McLaughlin, for Swayze-Rand Gold Mines Limited. Lafayette Longlac Gold Mines Limited was incorporated and took over the holdings of Swayze Rand Gold Mines Limited. J. H. Collins was associated with the newly formed company and subsequently transferred his claims to J. H. Martin, also of Lafayette Longlac Gold Mines Limited.

1934-1935: Lafayette Longlac Gold Mines Limited performed considerable surface work on the claim block and drilled a total of 2,133.6 m (7,000 feet).

1936: Marquette Longlac Gold Mines Limited was incorporated by the directors of Lafayette Longlac Gold Mines Limited and acquired the 14 claims. A magnetometer survey was conducted on claim TB11222, after which 609.6 m (2,000 feet) of diamond drilling was done to investigate the anomalous areas.

1938-1943: The 15 claims were patented.

1944: Surface exploration and diamond drilling were done by Marquette Longlac Gold Mines Limited.

1945: The diamond drilling program was completed. A two year total of 3,230.9 m (10,600 feet) was drilled.

1947: The company was listed as inactive in the Canadian Mines Handbook (1947).

1959: The company was no longer listed in the Canadian Mines Handbook (1959).

CURRENT:

1984: As of August, claims were still shown on the claim map as patented.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5506450
Easting 501700

GENERAL LOCATION:

The property is located in east central Errington Township, immediately west of Geraldton.

ACCESS:

The eastern claims of the block are situated within the town limits of Geraldton, so the block is easily accessible by all season roads.

REFERENCES:

Beaton (1936)*.
Bruce (1935).
Burton (1944)*.
Heisey (1936)*.
Lundberg (1936)*.
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Pye (1951) has described the rocks underlying the property as:

> "lavas and tuffs that have been intruded by large, sill-like and irregular masses of diorite, and one north-south dike of quartz diabase. The lavas, although highly altered, are believed to be mainly of andesitic to basaltic character. Most of them have been highly sheared, and any original structures have, to a large extent, been obliterated. Vestiges of amygdaloidal and pillow structures are locally evident, and in one outcrop of dacitic lava on the east-central side of claim TB11321, well developed pillows, the tops of which face south, have been observed. Narrow beds of iron formation and greywacke, interbanded with the lavas, have been noted in cores from several diamond drill holes. A large portion of the diorite exposed on the Marquette claims is a fine-to-medium-grained variety, not unlike some andesites in appearance. Many outcrops, however, consist of coarse-grained diorite with large, well developed, blocky crystals of hornblende.
>
> ...A belt of...sediments occurs south of the diorite-greenstone complex on claims TB11222 and TB10943. This belt consists largely of medium-grained arkosic greywackes intercalated with narrow beds of slaty greywacke and iron formation. Conglomerate has not been observed at the base of this series on either of these claims."

7) MINERALOGY:

The most important mineralized section occurs in an east-west zone, 121.9 m (400 feet) in length, which cuts andesite and diorite on claim TB11321 (Pye, 1951).

The zone has been described by Bruce (1935) as follows:

"The zone is 8 feet in width, shows some silicification, and contains a considerable amount of fine-grained pyrite with a little chalcopyrite. Quartz veins up to an inch in width cut through the shear zone; and in one of these, which is an eighth of an inch in thickness and cuts transversely through the shear zone, gold occurs in visible quantities in several places. To the west of this occurrence, massive diorite contains irregular quartz lenses, which are cut transversely by veins containing calcite and ankerite."

The second and third zones, located on claims TB10943, occur in shear zones cutting pillowed lava and an arkosic phase of the conglomerate horizon, respectively. Scattered sulphides were noted (Pye, 1951).

8) <u>ECONOMIC FEATURES</u>:

Two diamond drill holes, collared 24 m (80 feet) apart, intersected the most significant gold mineralization in the main zone described above. A sample from hole #1 assayed 1.95 oz/ton gold over 1.3 m (4.24 feet) and a sample from hole #2 assayed 9.57 oz/ton gold over 1.4 m (4.73 feet) (Heisey, 1936)*.

The second zone, traced for some 335.3 m (1,100 feet) by stripping, has an average width of 0.9 to 1.2 m (3 to 4 feet). Veins average 38.1 cm (15 inches) in width and have yielded samples assaying from 0.01 to 0.09 oz/ton gold (Beaton, 1936)*.

The third zone averages 0.5 m (1.5 feet) in width for a length of 106.7 m (350 feet). It is roughly parallel to the second zone at N30°E (Pye, 1951).

Drilling results from this zone are tabulated below:

Hole No.	Core Length	Oz/T Au
15+	1.1 ft. (0.34 m)	0.69
16+	2.4 ft. (0.73 m)	0.08
17+	1.1 ft. (0.34 m)	0.01
18+	3.5 ft. (1.07 m)	0.40
19+	3.0 ft. (0.91 m)	0.02

(Pye, 1951).

Trench samples from claims TB10943 and TB10944 contained significant amounts of gold, with two samples assaying greater than 2 oz/ton gold. Trenching on claim TB11321 (two claims to the east of TB10943) exposed another zone of mineralization in which free gold is noted (Beaton, 1936)*.

1) PROPERTY NAME: Lafayette Longlac Occurrence (79) DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: Claims TB13093 and TB13094 were staked by George Papineau. Claims TB10395 to TB13097 inclusive were staked by R. G. Alison for E. Sewell. Claims TB13098 to TB13100 were staked by R. G. Alison, and claims TB13101 to TB13103 were staked by R. G. Misen for D. Paquette.

1935: All eleven claims were transferred to H. J. Martin of Lafayette Longlac Gold Mines Limited. Surface mapping and trenching was performed on the claim group.

1937: The claims were surveyed.

1938: Claims TB13093 and TB13098 were patented.

1945: After a number of extensions, and after the claims had been cancelled and reinstated, the remaining 9 claims were patented. Seven holes totalling 3,230.9 m (10,600 feet) were drilled such that the north-south boundary of Lafayette Longlac Gold Mines Limited and Marquette Longlac Gold Mines Limited was sectioned. This work was financed jointly by the two companies.

1947: The company was listed as inactive in the Canadian Mines Handbook (1947).

1957: The company acquired 10 patented claims in Errington Township.

1958: Lafayette Longlac was inactive but held 20 patented claims.

1963: The company held no properties.

1964: The company charter was cancelled.

CURRENT:

The claims are still under patent as part of the Barker Estate.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5507050
Easting 502600

GENERAL LOCATION:

The property is located in east central Errington Township, immediately west of Geraldton.

ACCESS:

The eastern claims of the block are included within the boundary of the area assigned to the corporation of the town of Geraldton. A road constructed in the mid-forties provides access to the property from the town of Geraldton.

REFERENCES:

Beaton (1936a, 1936b)*.
Brown (1946)*.
Burton (1944)*.
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye et al., 1964).
Map 1951-7, Township of Errington, Thunder Bay District, Ontario (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Pye (1952) has described the geology as follows:

"The Lafayette claims are underlain by...lavas and tuffs intruded by sills of diorite. For the most part, the lavas are of andesitic character, but acidic varieties, approaching rhyolite in composition, occur in a few places. In the few outcrops found by surface-mapping, they are generally massive. Vestiges of amygdaloidal and pillow structures are evident locally, and in the large outcrop on claim TB13099, well-developed pillows have been observed, the tops of which face north. Interbanded with the lavas in several places are narrow beds of volcanic breccia. Highly sheared and altered phases of this rock type are exposed on the north and south side of the large outcrop mentioned above.

...Toward the north side of the diorite-greenstone complex, the lavas are interbanded with narrow beds of Keewatin sediments, which grade from slates through greywackes to pebble conglomerates. During 1945, the Marquette-Lafayette, north-south boundary was sectioned by diamond drilling. The most northern hole drilled core sediments for its entire length and indicated the south boundary of the north belt of Timiskaming sediments. The rocks consist of greywackes interbedded with a rock lithologically identical to the arkose found at the Little Longlac Mine."

A bed of banded iron formation was also intersected in the drilling program. Strike of the sedimentary beds is approximately N70°W (Brown, 1946)*.

7) MINERALOGY:

Pye (1951) has noted that:
"Quartz veins of limited lateral extent have been located in shear zones along the contact between the lavas and the diorites. These veins contain considerable carbonate, and frequently small amounts of pyrite and pyrrhotite."

No major shear zones were indicated in the iron formation, but mineralized quartz veins and zones of silicification were frequently found along bedding planes in the metasediments up to several feet in width (Brown, 1946)*.

8) ECONOMIC FEATURES:

During the cross sectional drilling done by Lafayette Longlac Gold Mines Limited and Marquette Longlac Gold Mines Limited in 1945, values were predominantly trace and 0.01 oz/ton gold with one sample assaying 1 oz/ton gold (Burton, 1944)*.

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: Lattimer Occurrence (8) DATE(S) VISITED: July 28, 1983

2) ALTERNATE NAME(S): Legault Township Gold Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1947: The property (TB36007) was staked by C. Lattimer.

1947-1950: Surface work and a diamond drill program consisting of 9 holes (totalling 264.9 m (869 feet)) were done by C. Lattimer (Drilling was conducted in 1949).

1953: The claim was cancelled.

1956: The property (TB82960) was staked by C. Lattimer.

1957-1960: C. Lattimer performed surface work on the claim and accumulated 180 days assessment credit over the four years.

1961: The claim was cancelled.

1981: The property (TB602037 and TB602042) was staked by Bernhard Nelson who transferred all interests to Amoco Canada Petroleum Company Limited.

1982: The claims were cancelled and the property (TB592551) was staked by Donald Glenn Harder.

1983: The claim was transferred to R. J. McGowan.

1984: R. J. McGowan conducted magnetic and electromagnetic surveys.

CURRENT:

The claim is presently held by R. J. McGowan.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NW
U.T.M. Zone 16 Northing 5501500
Easting 465700

GENERAL LOCATION:

The occurrence is located in southwestern Legault Township 0.8 km east of the township boundaries.

ACCESS:

The property is accessible by travelling east from Jellicoe on Trans-Canada Highway #11 for 7.5 km and south on a bush road for 3.7 km. The occurrence is approximately 1.0 km to the west of the road.

REFERENCES:

Mackasey (1972).
Resident Geologist's Files, Ontario Ministry of Natural Resources, Thunder Bay.

MAP REFERENCES:

Map P1191, Legault Township (Mackasey et al., 1976).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2518, Partridge Lake Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Mackasey (1976) has described the geology and structure of the township as follows:

"Legault Township is underlain dominantly by Early Precambrian (Archean) metasediments and metavolcanics that form part of the Beardmore-Geraldton belt. Thin-bedded to laminated greywacke sandstone, siltstone, and argillite occur in the southern part of the map area and make up more than half of entire stratigraphic succession. A polymictic conglomerate unit with minor related clastic metasediments strikes across the northern extremeties of the township. A second conglomerate unit, composed mainly of volcanic material and displaying a relatively open framework, was recognized in the northwestern part of Legault Township.

The metavolcanics are predominantly of mafic composition and include pillowed and amygdaloidal flows. Two narrow mafic metavolcanic units strike roughly east-west across the map area. A distinctive 30 to 60 m (100 to 200 foot) wide porphyritic flow was traced across Legault Township in the southern unit. A third mafic to intermediate metavolcanic flow unit occurs in the northwestern part of the township.

Iron formation composed of magnetite, hematite, chert and jasper is associated with thin-bedded greywacke sandstone, siltstone, and argillite at the greywacke-mafic flow contact trending east-west across the central part of the map area. Light grey weathering magnetite-chert iron formation, with minor associated pyrrhotite and pyrite, forms 1.5 m to 3 m (5 to 10 foot) thick units within the mafic flows in the southern part of the map area.

A 450 m (1,500 foot) long elliptical-shaped granitic body of trondhjemitic composition intrudes mafic flows on the southern boundary of Legault Township, 2.4 kilometres (1½ miles) west of Colter Township. Other felsic to mafic intrusions and dikes occur throughout the map area. Middle to Late Precambrian diabase dikes cut all other rock types. The area lies along the boundary between the Quetico and Wabigoon Belts and comprises an east-trending succession of interbedded metavolcanics and metasediments known as the Beardmore-Geraldton Belt. This boundary follows the southern contact of the southern-most volcanic unit in the Beardmore-Geraldton Belt. In the vicinity of Legault and Colter Townships no evidence of faulting exists and the contact is considered to be stratigraphic.

Major stratigraphic units are steeply dipping and have an easterly strike. A moderate to well developed east-striking schistosity is present in all the Early Precambrian (Archean) strata.

Broad-scale folding exists in the metasediments in central Legault Township. Folding is outlined by variation in strike of bedding within the metasediments but lacks any key stratigraphic units as markers. Amplitude of folding appears in the vicinity of Leitch Gold Mine and in the Little Longlac gold camp at Geraldton.

Several east-striking faults are present in the map area and have been detected by zones of shearing and by offset of north-striking diabase dikes."

7) MINERALOGY:

Gold mineralization is associated with replacement pyrite within banded oxide iron formation. Magnetite, chert, and grunerite are the principal components of the iron formation. Magnetite occurs as coarse parallel bands and discordant fine veinlets cutting the chert, typically recrystallized. Grunerite occurs as coarse radiating, buff to black mineral aggregates, interlayered in mesobands with coarse anhedral pyrite.

8) ECONOMIC FEATURES:

Drilling by C. Lattimer in 1949 indicated one intersection of 8.16 oz gold per ton over 0.49 metres (1.6 feet).

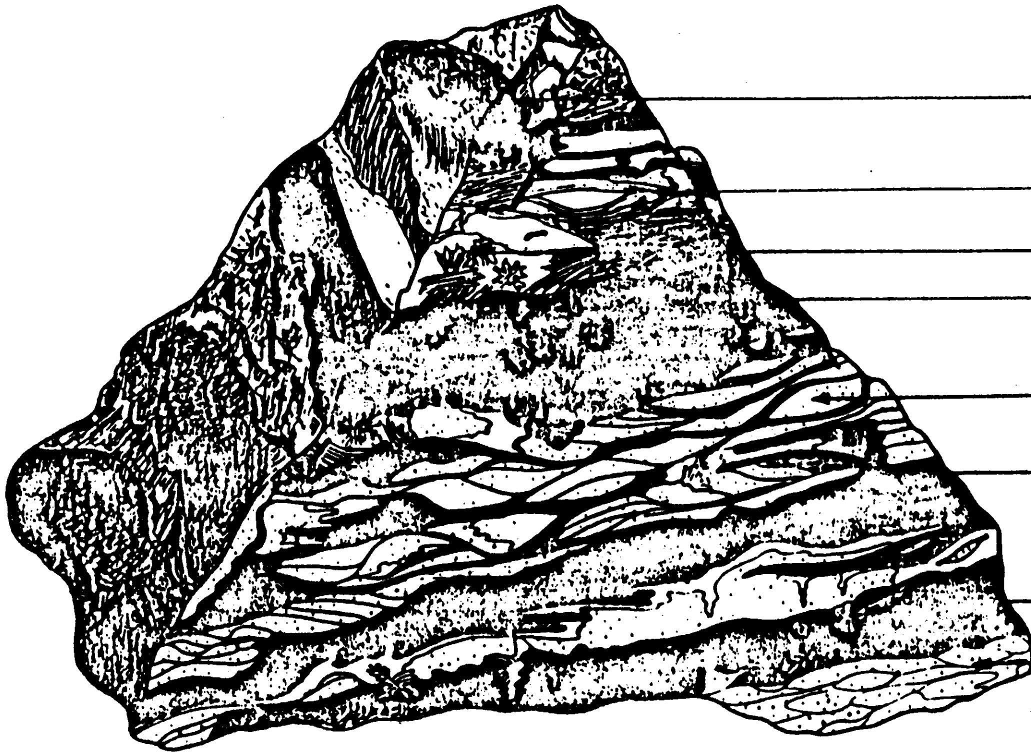
9) CHEMICAL ANALYSES:

1949 - Selected Drill Core Samples (C. Lattimer)

Hole No.	Sample No.	Au (oz/T)/Width		Description
1	1803	0.01	0.3m (1.0')	Sugary quartz carbonate vein parallel to schistosity contains considerable magnetite and 2% pyrrhotite.
3	1816	8.16	0.49m (1.6')	Mainly carbonaceous material -fine-grained, black with a few narrow quartz carbonate stringers. Considerable pyrite and pyrrhotite.

1983 Sample No.	Au (oz/T)	Sample Description
83-MGW-12	<0.01	Iron formation - recrystallized chert, magnetite and fibrous grunerite. Sample contains 2-3% knots and euhedral pyrite.
83-MGW-13	<0.01	Iron formation - "veinlets" and interbeds of recrystallized chert and magnetite with 1% euhedral pyrite.
83-MGW-14	<0.01	Milky white quartz vein (vuggy) in iron formation.
83-MGW-15	<0.01	Iron formation consisting of recrystallized chert with veinlets of magnetite and euhedral pyrite.

LATTIMER OCCURRENCE , LEGAULT TOWNSHIP



SCALE: 0 1 2

1" to 1" (Actual size)

FIGURE 1(

1) PROPERTY NAME: **Ledger Occurrence (199)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Brinklow

3) COMMODITY: MAIN: Ni SECONDARY: Au

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1961: The property was staked by Frank Hoey (TB101532).

1962: Unspecified work was performed on the property.

1964: The claim was cancelled.

1968: The property was staked by Fred Ledger (TB136581).

1969: The claim was cancelled.

1971: The property was staked by Larkin D. Ross (TB325621).

1972: The claim was cancelled.

1980: The property was staked by William W. Brinklow (TB536276).

1981: The claim was cancelled.

1982: The property was staked by Ross Toms (TB636868) who transferred the claim to Clifford H. Haines.

1983: Clifford Haines and S. V. Burr formed Harte Resources Limited, who cut a grid over the property and conducted a self potential survey. The company held a block of twenty claims at this time (TB636861 to TB636875 and TB641461 to TB641465 inclusive). Drilling was done to test S.P. anomalies (4 holes totalling 264.3 m (867 feet)).

1984: Three holes were drilled to test S.P. anomalies, one on TB636868 and two to the southwest on claim TB636862. Total depth drilled was 304.8 m (994 feet).

CURRENT:

The claim is presently held by Harte Resources Limited.

5) <u>LOCATION AND ACCESS</u>:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5506743
Easting 448900

<u>GENERAL LOCATION</u>:

The occurrence is located in central Walters Township, north of Pasha Lake.

<u>ACCESS</u>:

Travel northwest from Nezah (10. 1 km west of Jellicoe) on secondary Highway #801 for 6.4 km, north by gravel road for 1.1 km and approximately 396 m east on foot.

<u>REFERENCES</u>:

Burr (1982)*.
Mackasey (1976).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

<u>MAP REFERENCES</u>:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2517, Nezah Lake Area (Speed, 1982).

6) <u>GENERAL GEOLOGY AND STRUCTURE</u>:

Refer to the Warren Occurrence.

7) <u>MINERALOGY</u>:

The Ledger Occurrence is described by Burr (1982) as:

"a number of pits and trenches over what appears to be a mineralized breccia fault. Stringer and massive sulphide mineralization occurs throughout, consisting mainly of pyrite with lesser amounts of chalcopyrite..."

An old trench some 152 m (500 feet) to the west on the same anomaly is described as containing "heavy to massive sulphides, mainly pyrrhotite." (Burr, 1982). Mackasey (1976) notes "a small exposure of tuffaceous chert with abundant pyrite stringers" near the south boundary of the claim group.

The pyrite stringers follow fractures that parallel the foliation. The chert is terminated to the east by a diabase dike.

"One grab sample...from a trench assayed 0.50 oz gold " (Burr, 1982). A grab sample of "heavy to massive sulphides" assayed "slightly better than 0.01 oz gold " (Burr, 1982). A grab sample of the mineralized chert was found to contain 0.28 percent nickel and traces of gold and silver (Mackasey, 1976).

9) CHEMICAL ANALYSES:

1984 Selected Core Samples (Harte Resources Limited)

Hole No.	Sample No.	Length	Oz/T Au	Sample Description
84-3	537	0.77 m (2.5 ft.)	Nil	Basic volcanic, dark greenish-grey with gabbroic sections. Silicified, 20% quartz, 2-3% pyrite.
84-3	546	1.52 m (5 ft.)	0.005	Basic volcanic, dark greenish-grey with gabbroic sections. 10% quartz stringers.

1) PROPERTY NAME: **Leitch Gold Mine (82)**

DATE(S) VISITED:
1981-1984
June 14, 1985
July 4, 1985

2) ALTERNATE NAME(S): Nipigon Hematite Ore Company
Lake Superior Iron Ore Company

3) COMMODITY: MAIN: Au SECONDARY: Ag, W, Fe

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1901-1909: P.A. Leitch and H. J. Scott staked claims HF1 to HF8 and claims AL412 to AL416 in Eva-Summers Townships and explored iron deposits on the property. During the same period the region was explored and assessed by P. A. Coleman and E. S. Moore from the Ontario Department of Mines.

1910-1923: Exploration for iron was conducted by numerous companies during this period, all controlled by the Leitch estate. They included the Nipigon Hematite Ore Company, the Lake Superior Iron Ore Company (which contracted Smith and Travers Company Limited of Sudbury to conduct a diamond drill program over the property in 1919) and the Bethlehem Steel Corporation. The latter company completed at least five drill holes and reserves of 3.5 million tons grading 33% Fe and 5.0 million tons grading 30% Fe were outlined on parcels AL414 and AL416, respectively.

1934-1935: Russell Cryderman discovered gold on the adjoining property to the south (which later became the Sand River Gold Mine). A picket line run on strike northeast from the Sand River No. 1 vein by R. and J. Cryderman lead to the discovery of the Leitch No. 1 vein on parcel HF1.

The Leitch Gold Mines Limited was incorporated in July and shaft sinking began the same year. Stripping, trenching and channel sampling exposed the No. 1 vein for 68.6 m (225 feet) with widths ranging from 34.3 cm (13.5 inches) to 53.3 cm (21 inches). Surface assays ranged from 1.15 oz Au/ton to 1.83 oz Au/ton. Twelve diamond drill holes were completed from surface, totalling 610 m (2,000 feet), by Karl J. Springer interests.

1936: A 3-compartment vertical shaft was completed to 525 feet (160 m) and five levels established successively at 125 feet (38.1 m), 225 feet (68.6 m), 325 feet (99.1 m), 500 feet (152.4 m) and 525 feet (160 m). Considerable cross-cutting and drifting were done and raises established on the 2nd and 3rd levels. Concurrent with shaft sinking, an area eastward along the ore zone was drilled and a 2nd ore-bearing vein was discovered. By year's end, the No. 1 vein was fully developed on the first three levels.

Construction of a 75 ton/day mill was initiated.

A gold brick containing 65.5 oz of gold was produced from 770 lbs. of selected high grade ore taken from the surface of the No. 1 vein (Laird, 1936).

1937: The 75 ton/day cyanide-amalgamation mill began operation in January and the first gold brick was poured in February. Production came from 3 veins in 17 stopes on all levels. The shaft was deepened to 550 feet and a new ore zone was discovered by surface diamond drilling east of the No. 1 vein. It was encountered on the 225 foot (68.6 m) level and disclosed two new high grade veins (No. 3 and No. 4).

1938: The shaft was extended to a depth of 1,052 feet (320.6 m) and four new levels were established at 650 feet (198.1 m), 775 feet (236.2 m), 900 feet (274.3 m) and 1,025 feet (312.4 m) respectively. Development was carried out on six veins, with the No. 3 and No. 5 veins being subsidiary breaks of the No. 4 vein containing smaller tonnages. The No. 6 vein was a new discovery, similar in strike and characteristics to the No. 2 vein, and developed on the 3, 4 and 5 levels. A total of 2,373 m (7,786 feet) of diamond drilling was completed, with 1,048 m (3,437 feet) drilled from surface and 1,326 m (4,349 feet) underground.

1939: Lateral development continued throughout the mine and was concentrated on the four lower levels (Vein Nos. 1, 2, 3, 4 and 6). As a result four new veins (Nos. 7, 8, 9, 10) were discovered and explored. A total of 3,608 m (11,836 feet) of underground diamond drilling was completed. The mill operated at an average rate of 85.97 tons/day.

1940: The shaft was extended to a depth of 1,685 feet (516.6 m) and new levels established at 1,150 feet (350.5 m), 1,275 feet (388.6 m), 1,400 feet (426.7 m), 1,525 feet (464.8 m) and 1,650 feet (502.9 m). Three new veins were discovered (Nos. 12, 13, and 14), however, no development was initiated. Surface trenching of 1,817 m (5,960 feet) and thirteen underground diamond drill holes totalling 1,563 m (5,128 feet) were completed. A diamond drill hole was put down from the 9th level to determine the depth of a diabase sill (the same sill present at the Northern Empire Mines property to the south). Its upper contact was intersected at 570 m (1,870 feet) below the surface.

Halport Gold Mines was formed to operate a group of claims adjoining the Leitch property on the north and west. A magnetic survey, 2,564 m (8,412 feet) of surface trenching and 3,156 m (10,353 feet) of diamond drilling was completed over the property. A number of surface veins were located, including a high grade shoot 24 m (78 feet) averaging 0.677 oz Au/ton and 1.219 oz Ag/ton.

1941: Development was initiated on the 10th, 11th and 14th levels where approximately 1,400 feet (420 m) of drifting and 600 feet (180 m) of cross-cutting were completed. With the exception of the No. 6 vein, development of known ore was completed to the 10th level, which was the most productive to date.

1942: Development work was reduced by 25% as a result of manpower shortage due to the war. Lateral drifting was confined to the 11th, 12th, 13th and 14 levels. Diamond drilling consisted of 1,445 m (4,742 feet) from underground and 49 m (162 feet) from the surface. An average of 83.3 tons of ore were milled per day.

Scheelite ore was discovered and 31.6 tons were handsorted and stockpiled from the mill feed. A shipment of 6.1 tons of tungsten ore was made to the Department of Mines Ore Testing Laboratories in Ottawa for treatment.

1943: Lateral development was discontinued in May, due to a war time manpower shortage. Work was confined to drifting on the 12th and 13th level, and a raise was completed from the 5th to the 10th level. Most of the known ore-bearing veins had been developed to the 14th level. A total of 3,302 m (10,833 feet) of diamond drilling was completed: 3,178 m (10,425 feet) in 15 holes from underground and 124 m (408 feet) in 3 holes from surface.

Tungsten ore was shipped to the Little Long Lac Gold Mines tungsten concentrating plant for treatment (see Economic Features Section for production figures).

Halport Mines became inactive in the latter part of the year.

1944: Operations were curtailed and no further lateral development or diamond drilling was done. The mill continued to operate at normal rates using stockpile feed.

Leitch Gold Mines Limited acquired the former Halport property for 50,000 Leitch shares.

1945: As a result of a continued manpower shortage, underground development was confined to the No. 2 vein on the 12th and 13th levels. A total of 36 m (117 feet) of drifting, 34 m (110 feet) of cross-cutting and 318 m (1,044 feet) of raising were completed. The known ore on all 14 levels was fully developed. Diamond drilling consisted of 22 holes, totalling 5,032 m (16,510 feet), completed from surface on ground north and west of the mine workings.

1946: Normal operations resumed. The shaft was extended to 1,984 feet (604.7 m) (penetrating 113 feet into the diabase sill) and the 15th level was established at 1,800 feet (548.6 m). A total of 293 m (962 feet) of raising, 13 m (43 feet) of drifting on the No. 2 and No. 4 veins at the 11th level and 65 m (213 feet) of cross-cutting toward the No. 1 vein on the 15th level, were completed. Diamond drilling consisted of 43 holes totalling 8,754 m (28,720 feet): 8,653 m (28,388 feet) in 40 holes from surface and 101 m (332 feet) in 3 holes from underground.

1947: The shaft was extended to 2,033 feet (619.7 m). A total of 434 m (1,424 feet) of raising, 160 m (524 feet) of drifting on the 12th, 13th and 15th levels, and 206 m (675 feet) of cross-cutting, were completed. Diamond drilling consisted of 18 holes from surface totalling 4,397 m (14,425 feet) and one 50 m (164 feet) hole from underground.

1948: The shaft was extended to a depth of 2,878 feet (877.2 m) and four new levels were established at 2,200 feet (670.6 m) (16th), 2,575 feet (784.9 m) (17th), 2,725 feet (830.6 m) (18th) and 2,875 feet (877.2 m) (19th) feet, respectively. The 16th level was cut in the middle of the diabase sill and its lower contact was encountered at 2,476.5 feet (754.9 m). In the 15th level, it was found the No. 1 and No. 3 veins merged. There were 500 m (1,640 feet) of drifting, 161 m (527 feet) of cross-cutting and 434 m (1,425 feet) of raising completed. Diamond drilling consisted of 5 surface holes totalling 212 m (694 feet) and 21 underground totalling 978 m (3,209 feet).

1949: The shaft was deepened to 3,006 feet (916.2 m) and a new level (to be used as a loading pocket) was established at 2,950 feet (899.2 m) (19th). Cross-cutting and drifting was concentrated on the 17th, 18th and 19th levels. By year's end vein Nos. 1, 2 and 4 were reached in the 19th level and proved the downward extension of the ore-bearing vein system below the diabase sill. Diamond drilling consisted of 13 holes from underground (on the 17th and 19th levels) totalling 716 m (2,350 feet).

1950: Lateral development was concentrated on the three levels below the sill, where approximately 610 m (2,000 feet) of drifting, cross-cutting and raising were completed. Diamond drilling consisted of 25 holes totalling 1,417 m (4,649 feet) from underground on the 17th and 19th levels.

A long cross-cut was initiated on the 8th level to explore the Halport Mines ground, where an ore zone was indicated by surface diamond drilling.

1951: Labour shortages again resulted in limited development. Much of the work was concentrated at the 8th level on a western cross-cut to Halport ground, where drilling indicated a 152 m (500 foot) narrow high grade vein system. Limited lateral development on the 3 levels below the sill continued. Diamond drilling consisted of 50 underground holes totalling 1,589 m (5,212 feet) on the 8th, 17th and 18th levels. An extension was added to the mill and crusher-house building to handle increased capacity.

1952: Lateral development consisted of 335 m (1,100 feet) and was primarily limited to the western cross-cut on the 8th level. It was driven from 1,951 m (6,400 feet) from the shaft and a new gold-bearing vein (No. 16) was opened up. Gold values of 0.850 to 2.0 oz/ton were obtained but overall proved to be erratic. A minor amount of drifting was completed on the main veins below the sill. Diamond drilling consisted of 51 holes totalling 3,388 m (11,116 feet) from underground (mainly on the 8th level). The mill was increased to a capacity of 135 tons per day and treated an average of 100.8 tons per day by year's end.

1953: A new vertical 3-compartment winze was sunk 154 m (505 feet) below the 19th level 366 m (1,200 feet) west of the shaft. Three new levels at 3,025 feet (922 m), 3,175 feet (967.7 m) and 3,325 feet (1,013.5 m) were opened below the sill while the winze was sunk to 3,375 feet (1,028.7 m). The No. 2 vein was reached on the 21st or 3,175 foot (967.7 m) level. In the No. 16 vein on the 8th level, 3,598 tons of ore grading 0.56 oz per ton were indicated. Diamond drilling consisted of 20 holes from surface for 657 m (2,155 feet) and 30 underground holes totalling 2,244 m (7,362 feet) on the 8th, 18th and 19th levels.

1954: Leitch Gold Mines Limited purchased the Undersill Gold Mining Company Limited property (formerly the Sand River Mining Company Limited), which enabled the development of the No. 2 and No. 3 veins to their extremities. Much of the lateral development work was carried out on the three new levels (20th, 21st and 22nd). A minor amount of development was also done on the 19th level. Approximately 460 m (1,500 feet) of drifting, 130 m (440 feet) of cross-cutting and 55 m (185 feet) of raises were completed. Diamond drilling consisted of 3 surface holes of 743 m (2,436 feet), which tested a zone in the northwest, and 41 underground holes totalling 2,181 m (7,154 feet).

1955: The winze (No. 2) was extended to 640 feet (195 m) for a total depth of 4,015 feet (1,223.8 m) and four new levels were established at 3,475 feet (1,059.2 m) (23rd), 3,625 feet (1,196.3 m) (24th), 3,775 feet (1,150.6 m) (25th) and 3,925 feet (1,196.3 m) (26th), respectively. A loading pocket was added at 3,993 feet (1,219 m). The No. 4 vein was developed on the 23rd and 24th levels and drifts were extended along the No. 2 vein on levels 18 and 19. On the 19th level, a drift was driven 270 m (886 feet) beyond the Leitch boundary to a major east-dipping fault on the Sand River property where a narrow high grade vein was indicated. Diamond drilling consisted of 57 holes totalling 2,502 m (8,210 feet) from underground.

1956: Lateral development continued on the 24th level and the No. 4 vein was developed on the 25th and 26th levels. Diamond drilling consisted of 22 holes totalling 773 m (2,536 feet) from underground.

1957: Lateral development was primarily confined to 25th and 26th levels, except for a small amount of slashing on the 19th level and drifting of the No. 3 vein on the 23rd level. Development of all ore-bearing veins on the winze levels was essentially completed. Diamond drilling consisted of 7 underground holes totalling 262 m (858 feet).

1958: Development was concentrated on the 26th level, where the drifting out of No. 2 and No. 3 veins was completed. Promising values were obtained from the No. 2 vein beyond the Sand River fault structure. Eleven stope raises were driven for a total of 397 m (1,303 feet).

1959: The No. 2 winze was extended to 1,201 feet (366 m) for a total depth of 4,612 feet (1,405.7 m) and four new levels were established at 4,075 feet (1,242 m) (27th), 4,255 feet (1,296.9 m) (28th), 4,375 feet (1,333.5 m) (29th) and 4,525 feet (1,379.2 m) (30th), respectively. Development consisted of 128 m (421 feet) of drifting, 254 m (833 feet) of cross-cutting and 279 m (915 feet) of raising. Diamond drilling totalled 88 m (288 feet) from 2 underground holes.

1960: Development consisted of 286 m (939 feet) of drifting, 395 m (1,295 feet) of cross-cutting and 207 m (678 feet) of raising. Diamond drilling totalled 1,157 m (3,796 feet) from 14 underground holes.

1961: Development consisted of 540 (1,770 feet) of drifting, 6 m (19 feet) of cross-cutting and 380 m (1,245 feet) of raising. Diamond drilling totalled 1,352 m (4,437 feet) from 11 underground holes.

1962: Development consisted of 284 m (930 feet) of drifting, 117 m (383 feet) of drifting and 290 m (952 feet) of raising. Diamond drilling totalled 2,644 m (8,673 feet) from 22 underground holes.

It was estimated that ore reserves were good for another two years at the 1962 production rate (McKay, 1962*). Sub-marginal material on the 30th level west of the main ore "zone" was thought to be minable and was to be tested from the 28th and 29th levels. Extensive drifting was done on the No. 2 vein in search of additional ore shoots.

1963: Development work consisted of 416 m (1,366 feet) of drifting, 69 m (226 feet) of cross-cutting and 146 m (479 feet) of raising. Diamond drilling totalled 1,069 m (3,506 feet) from nine underground holes and 916 m (3,006 feet) from 4 surface holes. However, this failed to prove up ore reserves below the 30th level.

1964: Development continued with 147 m (485 feet) of drifting and 62 m (203 feet) of cross-cutting completed. Diamond drilling consisted of 15 holes from underground totalling 1,348 m (4,422 feet). Sampling on and drilling below the 30th level indicates the west end of #2 vein has a grade of 0.70 oz/ton gold.

A report by James et al. (1964) indicated that possible reserves below the 30th level did not warrant development since the cost of shaft sinking to this depth, development, mining and milling would be higher than gold values indicated.

1965: Following 30 years of continuous gold production, the mine and mill facility were shut down on May 15. Mill clean-up was completed by June 15. The plant and equipment were disposed of and an arrangement was made that Leitch Gold Mines Limited would receive 25% of net mint returns from any further gold recovered during subsequent clean-up operations.

1966-1968: Clean-up operations were initiated and completed by G. Caverly, recovering 399 oz of gold and 27 oz of silver.

1969: Teck Corporation Limited of the Keevil Mining Group, Highland-Bell Limited and F. E. Hall purchased control of Leitch Gold Mines Limited.

1970: The name was changed from Leitch Gold Mines Limited to Leitch Mines Limited. Highland-Bell held approximately 35% interest and Teck Corporation held 11.4% interest in the Leitch property.

1971: The entire Leitch assets were acquired by Teck Corporation. Interest in the Sand River (Undersill) property was returned to J. R. Cryderman.

1980-1981: Nine claims (TB557176 to TB557184) were staked by Teck Corporation on the eastern boundary of the Leitch Gold Mines property in September, 1980. Seventy thousand tons of dump material was recovered from screening a portion of the Leitch dump. Approximately 50,000 tons was shipped to Lamaque, Quebec and milled at Teck's Lamaque Mill. Teck Exploration Limited conducted work over the Leitch ground. Thirty miles of picket lines (baseline at 080°) were cut, with VLF-EM, magnetometer surveys and overburden drill sampling (393 holes) conducted over the entire grid. During the winter months, 28 surface diamond drill holes totalling 2,926 m (9,601 feet) was completed (Trusler, 1981)*.

1983: Teck Corporation leased the former Pancontinental Mining (Canada) Limited, Pan-Empire Joint Venture custom gold mill in Beardmore for a specified period of 3 years and 7 months for the purpose of processing the old Leitch mine dump. The mill was modified to a total cyanide circuit compatible with Leitch ore (waste dump). The mill will continue to provide a custom gold milling service through the GOMILL program of the Ontario Government.

1984: Teck Corporation (Leitch Division) produced 70,000 tons of screened dump material from the Leitch Gold Mine and has shipped 55,000 tons to the Teck mill (former Pan-Empire Joint Venture), 1 km east of Beardmore. Mill grade was approximately 0.11 oz/ton gold for 24,000 tons of ore milled to September 25. The mill continued to operate until year's end at a rate of 5,300 tons per month with an average grade of 0.08 oz/ton.

1985: The Teck mill (Pan-Empire site) was temporarily shut down on January 31 due to poor metal prices. Approximately 45,400 tons of Leitch dump material was processed at the time of shut down (this includes 200 tons of custom ore milled from the Crooked Green Creek property in Pifher Township).

CURRENT:

1985: The Leitch Gold Mine property is currently held by Teck Corporation and consists of patent claims (a total of 8) HF1, west half of HF3, HF8, and AL412 to AL416.

5) LOCATION AND ACCESS:

N.T.S. 52H9/SE
U.T.M. Zone 16 Northing 5497200
Easting 425150

GENERAL LOCATION:

East central Eva Township, 4 km west-northwest of the Beardmore townsite.

ACCESS:

The property is readily accessible by by travelling 1.5 km north from Beardmore and turning west on secondary Highway 580. The Leitch mine site is situated 7.5 km along this road.

REFERENCES:

Burton (1935, 1936 to 1938)*.
Ferguson (1965, 1971).
Horwood (1948).
James et al. (1964)*.
Laird (1936).
McKay (1948, 1962)*.
Paterson (1935, 1936)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Thomson (1965)*.
Trusler (1981)*.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2102, Tashota-Geraldton Sheet (Pye et al, 1966).
Map P.602, Summers Township (Mackasey, 1969).
Map P.257 (revised), Lake Nipigon Sheet (Stott, 1984).

6) GENERAL GEOLOGY AND STRUCTURE:

The Leitch Gold Mine property lies within the southern portion of the Wabigoon Sub-province in the Beardmore-Geraldton Belt. This belt has been further sub-divided by Mason and White in Patterson et al. (1985) into the Southern Metavolcanic Sub-belt and the Southern Metasedimentary Sub-belt. It is within the latter that the property is situated. Although this sub-belt is primarily dominated by sedimentary rocks, interfingerings of basic to intermediate volcanic rocks are prevalent, in particular along the western portion of the belt. Of the gold produced in the Beardmore-Geraldton Camp, 94% is from the Southern Metasedimentary Sub- belt (Mason and McConnell, 1983).

Rocks within the Southern Metasedimentary Sub-belt overlie those of the Southern Metavolcanic Sub-belt (tops to the north) and are dominated by turbidite sequences consisting of Archean greywacke, conglomerate, argillite, magnetite-hematite chert (±jasper) iron formation, quartz diorite-gabbro intrusions and proterozoic diabase dykes. The metasediments are mainly thick-bedded uniform greywacke with associated narrow slaty bands and thin interbeds or lenses of argillite and pebble conglomerate. Iron formations occur in the sediments and vary from a well-banded jasper-hematite with associated magnetite to hematite-bearing red argillite. The iron formations are generally east-trending, vary in width up to a maximum of 244 m (80 feet) and occur as somewhat continuous regional features across the belt to the Geraldton Camp. The metavolcanics in the area of the mine site are fine-grained and vary in colour from light grey to green. Ash-fall tuffs and flow rocks predominate.

A prominant flat-lying diabase sheet, dipping 10°-15° to the west and about 183 m (600 feet) thick, was intersected in the Leitch No. 1 shaft from 570.3 m (1,871 feet) to 752.9 m (2,470 feet) below the surface. This diabase "sill" is interpreted to be the same unit that intersects the Northern Empire ore zone 7 km to the southeast. All Late Precambrian diabase and porphyritic diabase dikes consistently trend north to northeasterly.

In reference to the structural geology, isoclinal folding and tight drag folding in the Beardmore (Leitch and Sand River Mines) and Geraldton areas, specifically observable in the iron formation, appear necessary controls for ore structure developments. Drag folds and ore-bearing structures throughout the belt plunge westward at 35° to 40° (Mason and McConnell, 1983). Turbidite sequences (and basic to intermediate metavolcanic rocks) of the Southern Metasedimentary Sub-belt appear to be in fault contact with rocks of the Southern Metavolcanic Sub-belt and the northern felsic-dominated Onaman-Tashota Metavolcanic Belt. Minor faulting within the Leitch and Sand River Mines is consistent with the general trend of the belt in this area (northeasterly), but varies in strike from N20°E to N20°W. It is believed to be related to block faulting. A major break known as the Watson Lake Fault was encountered in the No. 2 vein drifts on the 25th and 26th levels, as well as the 19th level, in the Leitch Mine. It is the same fault that forms a prominent feature in the Sand River Mine workings.

7) MINERALOGY:

Gold mineralization occurs in two sets of narrow quartz veins occupying fractures in the greywacke; those parallel to the fold axial plane in shear zones and those nearly perpendicular to the axial plane. These veins are strongly sheared parallel to the shear zone and contain transverse, healed, tension gashes. The depth continuity of the quartz veins normally exceeds the horizontal continuity by a multiple of 15 (Trusler, 1981)*.
The veins range in width from 10 cm (3.9 inches) to 45.7 cm (18.0 inches) on the average and many parts of the veins are contorted with thickened portions in the bends of folds. They consist mainly of light grey to white quartz with common chlorite-sericite banding parallel to the walls representing a "crack-seal" texture.
Gold is often associated with chlorite-sericite occurring in thin fractures within the quartz veins, as well as minor sulphides including arsenopyrite, pyrite, tetrahedrite, sphalerite and ankerite. Some visible gold occurs on surface and in parts of the mine, although much of the ore did not contain visible quantitites. The overall gold content was found to be greatest in the narrowest parts of the veins and where widths up to 1.22 m (4 feet) were encountered the gold content was lower. Secondary quartz tension gash fillings, some containing orange halite cut all previous fracture fillings. Halite is also present as some faults up to 20 cm thick (Thomson, 1965)*. Sheelite is relatively abundant and appears to form at the junction of cross-cutting fractures rather than within individual fractures. The wallrock adjacent to the mineralized quartz veins is reportedly unmineralized. No assays of wallrock appear among the old data (Trusler, 1981)*.

In reference to the alteration, Thomson (1965)* states:

> "In the vicinity of the Leitch gold veins, strong carbonate-sericite alteration exists in the greywacke. This zone was not defined in the field. However, it is large (300 feet square) and is most prominant stratigraphically below the quartz veins."

The following is a brief summary of the production veins on the Leitch Gold Mine property and what is known about them since they were mined. Five veins, labelled the No. 1, No. 2, No. 3, No. 4 and No. 6 have been mined. They are located on the south

flank of an anticline which apparently controlled their strike, dip and plunge (50°W). Veins No. 2 and 6 are the most persistent in the mine, more or less consistent in strike and dip. Vein No. 2 is located in a planar fracture and extends from surface to at least 91.4 m (300 feet) below the 30th level. Vein No. 6 is parallel in strike and dip to the No. 2 vein and lies 243.8 m (800 feet) to the east. It has an average width of 38 cm (15 inches) and extends from the 1st to 6th level ((500 feet) 152.4 m), below which it appears to merge with the No. 3 vein. Veins No. 1, 3 and 4 are highly crenulated and show drag folding to the east of the No. 2 vein. The No. 1 and No. 3 veins merge on the 15th level.
In addition to the main vein system described above, the No. 16 and some associated veins were explored from a long cross-cut on the 8th level west of the No. 1 shaft to the Sand River property.

At the Leitch and Sand River Mines (as well as the Little Long Lac, Magnet Consolidated, Jellicoe and Talmora Mines), gold mineralization is associated with quartz veins and stringers in fracture zones in clastic metasediments.

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

In 1923 the Bethlehem Steel Corporation outlined reserves of iron ore on the Leitch property (AL414 and AL416) of 3.5 million tons grading 33% Fe and 5.0 million tons grading 30% Fe.

In 1980 Teck Corporation personnel estimated 350,000 to 500,000 tons of dump material from the gold mining operation (1937 to 1968) remained at the Leitch site. No underground reserves or grade estimates were found in the literature.

PAST PRODUCTION:

From 1936 to 1968 (mill shut down in 1965), a total of 861,982 ounces of gold were recovered at an average grade of 0.92 oz/ton from the

Production Figures: Leitch Gold Mine Limited

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag	Tons W Ore	Avg. %WO
1936	65.5	4 oz	(from 770 lbs of selected surface high grade)				
1937 (mill start-up)	12,836	451	23,058	.557	.020		
1938	20,159.9	559	30,584	.659	.018		
1939	21,492.871	592	31,206	.689	.019		
1940	22,698	668	31,118	.729	.021		
1941	23,237.756	728	30,493	.762	.024		
1942	25,267.466	750	30,076	.841	.025		
1943	21,883.61	715	27,438	.793	.026	64.3	3.9
1944	21,727	579	16,209.317	.746	.036		
1945	17,745.474	623	20,088.8	.883	.031		
1946	28,691.6	759	24,318.95	.848	.031		
1947	24,215.547	850	30,417	.769	.028		
1948	31,821.7	1050	27,361.138	.861	.038		
1949	27,700.237	1009	31,925.8	.868	.032		
1950	25,457.478	957	31,735.7	.802	.031		
1951	24,964.593	785	29,987.7	.832	.026		
1952	29,459.661	902	36,275.6	.812	.025		
1953	32,159.653	961	38,614.1	.843	.025		
1954	33,607.614	1082	39,205.5	.857	.028		
1955	35,302.066	1291	41,132.9	.858	.031		
1956	35,609.22	1461	37,585.5	.947	.039		
1957	36,852.721	1750	39,739.1	.927	.044		
1958	41,303.051	2106	41,198.8	1.003	.051		
1959	36,421.797	1547.11	36,861.6	.988	.042		
1960	37,848	1585	32,520	1.16	.049		
1961	38,076	1604	34,953	1.089	.046		
1962	47,961.637	1991.79	33,757	1.422	.059		
1963	56,575.378	2249.07	38,094	1.485	.059		
1964	42,126.902	1809.21	33,744	1.248	.054		
1965	8,380	357	6,696	1.25	.053	(Mill Shut Down)	
1966	153	13	Mill Cleanup				
1967	81	4	Mill Cleanup				
1968	165	10	Mill Cleanup				
	861,981.94	31,802.18	1,022.360.51	0.915	0.035	64.3	3.95

Note: A total of 3,598 tons of ore was mined at an average grade of 0.56 oz gold/ton from outside the main vein system (No. 16 and some associated veins) on the 8th level.

About 15% of the ore was mined by shrinkage stoping in the wider sections of the mine, and the balance by resuing methods.

1) PROPERTY NAME: Little Long Lac Gold Mine (83)

DATE(S) VISITED: June, 1982; July, 1983; July 28, 1984

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Ag, W

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1917: Gold was discovered in the glacial drift along the shore near the Main Narrows on Little Long Lake. Tony Oklend is said to have found a boulder near the narrows from which he obtained several thousand dollars worth of gold. Search for the vein from which the fragments of gold-rich quartz had come from was unsuccessful.

1932: A number of claims were staked by various individuals as tabulated below.

Claim Number	Staked by
TB10556 to TB10561 incl.	W.R.G. Johnson
TB10562 to TB10564 incl.	D. Bewcyk
TB10565 to TB10567 incl.	Tony Oklend
TB10568 to TB10570 incl.	H.A. Sarvais
TB10591 to TB10593 incl.	J.P.S. Ballantyne
TB10621	Percy Hopkins on behalf of Mabel Burt
TB10677 to TB10679 incl.	W.J. Thompson
TB10680 to TB10682 incl.	Joe Errington
TB10683 to TB10685 incl.	Jane Errington
TB10686	Clement Simmons
TB10689 to TB10691 incl.	A.A. Barton
TB10692 to TB10694 incl.	S.J. Fitzgerald
TB10719	T.S. Vipond on behalf of Mary Vipond
TB10886 to TB10887	Fred Mooney

W. R. G. Johnson transferred his claims to T. A. Johnson. D. Bewcyk transferred his claims to Tony Oklend who subsequently transferred 50% to T. A. Johnson. Tony Oklend's claims were transferred to T. A. Johnson. H. A. Sarvais transferred his claims to Tony Oklend. Tony Oklend and T. A. Johnson optioned their property to the Sudbury Diamond Drilling Company.

J. P. S. Ballantyne transferred his claims to Percy Hopkins; Clement Simmons, A. A. Barton and S. J. Fitzgerald transferred their respective claims to the Sudbury Diamond Drilling Company. This company proceeded to drill the gold find on claim TB10560 and outlined a commercial ore shoot.

1933: Little Longlac Gold Mines Limited was organized to develop the mine. W. J. Thompson, Fred Mooney, Hugh Dowe and Mabel Burt transferred their respective claims to the Sudbury Diamond Drilling Company, which subsequently transferred all claims to Little Longlac Gold Mines Limited. Joe Errington also transferred his claims to the company.

The company began exploration by sinking a three-compartment shaft 7 by 16 feet (2.1 by 4.9 m) to a depth of 137.16 m (450 feet). Levels were established at 204 feet (62.2 m) and 325 feet (99.1 m). Underground development progressed on both levels. A number of buildings were constructed on surface.

1934: Underground development continued and the shaft was deepened 269 feet (82.0 m) to a total depth of 719 feet (219.2 m) with new levels established at 445 feet (135.6 m), 570 feet (173.7 m), and 694 feet (211.5 m).

An electric powerline reached the mine, and a 150 ton per day mill was constructed. Operations began late in the year. A number of new buildings were constructed at the mine site. To this point, drilling from surface had totalled 1,432.9 m (4,701 feet) and drilling from underground had totalled 829.4 m (2,721 feet).

1935: The claims held by Little Longlac Gold Mines Limited (including those held by Percy Hopkins, who was a director of the company at the time) were patented. Mary Vipond and Mary Gledhill transferred their respective claims to Longacre Longlac Gold Mines Limited. Underground development continued and the mill was enlarged. Diamond drilling consisted of 4,561.6 m (14,966 feet) drilled from surface and 1,678.8 m (5,508 feet) drilled from underground.

1936: Underground development continued, as did construction on surface. The mill capacity was increased to 250 tons per day. The shaft was deepened 324 feet (98.8 m) to a depth of 1,043 feet (317.9 m) and new levels were established at 848 feet (258.5 m) and 998 feet (304.2 m). Diamond drilling consisted of 1,782.8 m (5,849 feet) drilled from surface and 1,200.9 m (3,940 feet) drilled from underground.

1937: Underground development continued. The shaft was deepened 296 feet (90.2 m) to a depth of 1,339 feet (408.1 m) and new levels were established at 1,152 feet (351.1 m) and 1,300 feet (396.2 m). Diamond drilling consisted of 659.3 m (2,163 feet) drilled from surface and 1,915.4 m (6,284 feet) drilled from underground. The mill capacity was increased to 280 tons per day. Additional mill equipment made possible the retreatment of about 6,000 tons of tailings produced during 1935. Construction continued at the mine site. Longacre Longlac Gold Mines transferred claims TB10719 and TB12307 to T. L. Gledhill.

1938: Underground development continued. The shaft was sunk an additional 381 feet (116.1 m) to a depth of 1,712 feet (521.8 m) and new levels were established at 1,452 feet (442.6 m) and 1,604 feet (488.9 m). Diamond drilling consisted of 2,798.4 m (9,181 feet) drilled from surface and 1,788.6 m (5,868 feet) drilled from underground. An unspecified amount of tailings was also retreated. First mention is made of a level at 126 feet (38.40 m).

1939: Underground operations continued. The shaft was sunk an additional 606.5 feet (184.7 m) to a total depth of 2,322 feet (707.7 m).

with new levels established at 1,759 feet (536.1 m), 1,916 feet (584.0 m), 2,063 feet (628.8 m) and 2,214 feet (674.83 metres). Diamond drilling consisted of 2,428.7 m (7,968 feet) from surface (mainly at the western end of the property), and 1,066.2 m (3,498 feet) from underground.

1940: Underground operations continued. Diamond drilling consisted of 3,010.5 m (9,877 feet) drilled from surface and 1,668.9 m (5,475.5 feet) drilled from underground. Preparations were made for the sinking of a winze from the 16th level (2,214 feet (674.8 m)) approximately 512.1 m (1,680 feet) west of the shaft.

1941: Underground operations continued. The winze was sunk a depth of 591 feet (180.1 m) from the sixteenth level, to a total depth of 2,795 feet (851.9 m) below surface. Levels were established at 2,406 feet (733.4 m), 2,559 feet (780.0 m), and 2,711 feet (826.3 m) below surface. Diamond drilling consisted of 17 holes totalling 2,697.2 m (8,849 feet) from surface. Discovery of the presence of scheelite in the ore resulted in handpicking of the tungsten-rich material and investigations into a means of commercial recovery. Claim TB10719 was patented and later acquired by Little Longlac Gold Mines Limited.

1942: Underground operations continued. The winze was deepened to 3,004 feet (915.6 m) with a new level established at 2,864 feet (872.9 m). Diamond drilling consisted of 193.0 m (633 feet) drilled from underground. Experimental work was carried out to determine whether tungsten-bearing scheelite concentrates could be produced commercially. A small mill for the production of tungsten concentrates was constructed.

1943: Underground operations continued, and preparations were made to deepen the winze.

1944: Underground operations continued. The winze was sunk a further 214 feet (65.2 m) to a depth of 3,218 feet (980.9 m) from surface. Two new levels were established at depths of 799 feet (243.5 m) and 946 feet (288.3 m) below the 16th level at (3,013 feet (945.8 m)) and 3,160 feet (963.2 m), respectively. Diamond drilling consisted of 21 holes totalling 1,483.5 m (4,867 feet) drilled from underground.

1945: Underground development continued throughout the year. Diamond drilling consisted of 42 holes totalling 1,430.1 m (4,692 feet) drilled from underground.

1946: Underground operations continued throughout the year. The winze was deepened 4 feet (1.2 m) to a total depth of 3,222 feet (982.1 m) below surface, with the 22nd level established at a depth of 3,160 feet (963.2 m) below surface. Diamond drilling consisted of 18 holes totalling 2,467.7 m (8,096 feet) drilled from surface, and 18 holes totalling 1,203.4 m (3,948 feet) drilled from underground.

1947: Underground operations continued. The vertical, three-compartment shaft was sunk an additional 730 feet (222.5 m) to a total depth of 3,952 feet (1,204.6 m) below surface. New levels were established at 3,313 feet (1,009.8 m), 3,465 feet (1,056.1 m), 3,617 feet (1,102.5 m), 3,769 feet (1,148.8 m), and 3,920 feet (1,194.8 m). Diamond drilling consisted of 22 holes totalling 3,608.2 m (11,838 feet) from surface, and 17 holes totalling 1,596.5 m(5,238 feet) drilled from underground.

<u>Note</u>: Level depths are inconsistent in ODM Annual Reports. Where possible, depths noted on level plans and sections in the Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay, have been given (levels 7-27 inclusive).

1948: Underground operations continued. Diamond drilling consisted of 18 holes totalling 4,011.2 m (13,160 feet) from surface and 37 holes totalling 2,376.2 m (7,796 feet) drilled from underground.

1949: Underground operations continued. Diamond drilling consisted of 11 holes totalling 1,928.5 m (6,327 feet) drilled from surface and 22 holes totalling 3,162.3 m (10,375 feet) drilled from underground.

1950: Underground operations continued and 20 holes totalling 3,757.6 m (12,328 feet) were drilled from underground. Claim TB12307 was patented by T. L. Gledhill and was later acquired by Little Longlac Gold Mines Limited.

1951: Underground operations continued. Diamond drilling consisted of 10 holes totalling 2,240.9 m (7,352 feet) drilled from surface and 62 holes totalling 5,736.3 m (18,820 feet) drilled from underground. Mill tonnage was approximately 300 tons per day.

1952: Underground operations continued and 10 holes totalling 2,375.9 m (7,795 feet) were drilled from underground. At the end of the year, salvage operations were in progress from the winze.

1953: Mining operations continued until the end of the year. Salvaging of the underground equipment and mill clean-up followed. Surplus buildings and equipment were sold during the year.

1954-1956: Limited production resulted from mill clean-up.

1967: Amalgamation of Little Longlac Gold Mines Limited with four other companies resulted in the formation of the Little Longlac Gold Mines Limited. The company drilled 1,524.0 m (5,000 feet) to test the iron formation. Algoma Steel Corporation was granted a 3 year option on the property and conducted further exploration. Algoma Steel paid Little Longlac $75,000 upon signing the option and $50,000 a year on each subsequent anniversary for 2 years. To exercise the option, Algoma was expected to pay $400,000 by the end of 1971.

For further history refer to the Algoma Prospect.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5504389
Easting 502886

GENERAL LOCATION:

The property is located in east central Errington and west central Ashmore Township. The mine is located near the south shore of Barton Bay.

ACCESS:

The past-producer is located immediately west of Highway #584, 0.6 km south of Geraldton.

REFERENCES:

Armstrong (1943)*.
Arnoldi (1950 to 1956, 1968).
Barton (1934)*.
Barton (1940)*.
Bruce (1935, 1936, 1937).
Burr (1952)*.
Ferguson et al (1971).
Field (1954, 1955).
Hoiles (1943)*.
McConnel (1942)*.
Northern Miner (The), (71-12-30, p. 1, 10).
Pye (1951).
Reade (1952, 1953).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Robinson (1935)*.
Rogers and Young (1934)*.
Sinclair et al.(1935-1940).
Tanton (1917).
Thompson (1935)*.
Tower et al.(1941, 1942, 1946a, 1946b, 1946c, 1948a, 1948b, 1949).
Trembley (1940, 1941, 1945, 1946a, 1946b, 1946c, 1948a, 1949).
Williams (1951).
Young (1936-1939).

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye et al.,1964).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet, (Pye et al.,1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Pye (1951):

"...the property is underlain by clastic sediments...including intraformational conglomerate, arkose, greywacke, slate and iron formation, all of which have been severely folded and intruded in turn by diorite, diorite porphyry, lamprophyre, and quartz diabase."

The ore bodies at the Little Longlac Mine occurred in the large Z-shaped minor fold on the north limb of the Barton syncline. The nature of this fold has been studied by Bruce (1935), who has determined the plunge to be 45° to 55° to the west. Superimposed upon the large minor fold are numerous smaller flexures, most of which plunge to the west and therefore, are compatible structures. A few were found to plunge to the east at about 50° and are,therefore, incompatible structures which are believed to have been formed during a period of deformation later than that which resulted in the formation of the westward plunging minor folds (Pye, 1951).

Subsurface structural features have been described by Pye (1951) as follows:

"In the underground workings, two important, and many minor, cross-cutting faults have been encountered. That with the largest displacement...was found to offset the main ore zone 112 feet to the south... Measurements of the intersections of the fault and the workings indicate a strike of N17°W, and a flat dip of 28 degrees to the east...The attitudes of related, tension fractures observed in the loading pocket below the 25th level indicate a thrust type of movement, in which the block of ground overlying the fault to the east has moved up and to the north-west with respect to the block underlying the fault.

Another fault of some significance
was encountered in the workings
on the 5th and 6th levels. It
strikes N30°W, approximately at
right angles to the quartz veins,
and dips to the west at an angle
of 20 degrees. Bruce (1935), has
shown that the relative movement
along the fault was of the
reverse type."

7) <u>MINERALOGY</u>:

According to Pye (1951):

"The ore bodies at the Little
Longlac Mine consist of more
or less parallel quartz veins
and stringers within fracture
zones in massive arkose."

The mineralization has been reported by Armstrong (1943)*, who states:

"Mineralization occurs chiefly in
quartz and consists of small
amounts of carbonate and
scheelite and subordinate
sulphides. The metallic constituents,
which rarely make up more than 2 or 3
percent of the ore, include arsenopyrite,
pyrrhotite, sphalerite, chalcopyrite,
galena, leucopyrite, bornonite, grey
copper, berthierite, and gold."

Pye (1951) has noted that:

"For the most part, the sulphides
are confined to narrow selvages
and books of altered wall rock
along and within the individual
veins, although small amounts are
commonly enclosed by the vein
quartz itself. Limonite, hematite,
magnetite, and ilmenite occur in
small quantities in the ore, but
the writer considers these, with
the possibly exception of hematite,
to be original constituents of the
arkose rather than introductions...

Other minerals noted by Pye (1951), include tetrahedrite and tourmaline.

Pye (1951) also states that:

"The quartz veins...have, along
their walls, narrow salvages,
generally less than half an
inch thick, of highly sheared

and sericitized arkose impregnated with small amounts of finely divided sulphides, chiefly pyrite and arsenopyrite. Except for these salvages and the ribbons and books of similar material within the larger veins, wall rock alteration is not visible, even with a microscope."

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Two parallel vein zones, known as the Main and the 09 Zones, have been opened up and tested. Only the former has yielded any significant quantity of ore (Pye, 1951). At the conclusion of mining operations in 1953, the ore reserves had been exhausted (Canadian Mines Handbook, 1954).

Algoma Steel Corporation has outlined 325 million tonnes with an average iron content of 25.2%. Of this, 17% is owned by Algoma and 83% is on the Little Longlac ground leased by Algoma (The Northern Miner, December 12, 1971, p. 1, 10).

PAST PRODUCTION

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag	WO_3 High Gr.	WO_3 Low Gr.
1934	2,457	198	5,485	0.448	0.036		
1935	31,454	2,710	62,073	0.507	0.044		
1936	42,825	3,361	85,555	0.501	0.039		
1937	46,783	3,960	104,931	0.446	0.038		
1938	43,849	3,487	97,320	0.451	0.036		
1939	46,560	3,727	106,775	0.436	0.035		
1940	45,724	3,840	113,065	0.404	0.034		
1941	42,427	3,669	118,332	0.359	0.031		
1942	39,384	3,241	115,790	0.340	0.028		
1943	26,180	2,372	88,890	0.295	0.027	9,459 lb (61.67%)	193,433 lb (6.85%)
1944	22,782	2,043	67,538	0.339	0.030		
1945	21,153	1,976	72,117	0.293	0.027		
1946	19,702	1,665	67,850	0.290	0.025		
1947	21,263	1,840	78,216	0.272	0.024		
1948	25,368	2,324	95,830	0.265	0.024		
1949	24,764	2,344	102,570	0.241	0.023		
1950	27,889	2,612	115,797	0.241	0.023		
1951	26,889	2,668	101,731	0.264	0.026		
1952	23,526	2,487	99,607	0.236	0.025		
1953	23,037	2,194	83,044	0.277	0.026		
1954	1,361	20	-	Mill clean-up			
1956	72	12	-				
TOTAL	605,449	52,750	1,782,516				

(Young, 1936 to 1939; Trembley, 1940, 1941, 1945, 1946a, 1946b, 1946c, 1947, 1948a, 1948b, 1949; Arnoldi, 1950 to 1956, 1958).

1) PROPERTY NAME: **MacFarlane Longlac Occurrence (87)**

DATE(S) VISITED: September 26, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: The property was first staked by W. MacFarlane (TB13003 to TB13005 inclusive), John Gutcher (TB13006 to TB13008 inclusive) and Frank J. MacFarlane (TB13009 to TB13011 inclusive). MacFarlane Longlac Gold Mines Limited was incorporated. W. MacFarlane and John Gutcher transferred their respective claims to F. J. MacFarlane who was a director of the newly formed company. The 9 claims were subsequently transferred to T. J. Day. Surface exploration was performed and a shaft was sunk to a depth of 30 feet (9.1 m) on claim TB13004.

1936: Further surface work was performed and the claims were transferred to F. J. MacFarlane.

1936-1937: A diamond drilling program was completed and a shaft was sunk to a depth of 145 feet (42.7 m); some 450 m (1,476 feet) to the east of the first shaft and approximately 600 m (1,968 feet) east of the shore of Long Lake. Late in 1937, cross-cutting began on the 135 foot (41.15 m) level to explore the values obtained in the drilling program. Arrangements were made with New York interests for additional financing.

1938: A total of 1,065.3 m (3,495 feet) of diamond drilling was conducted to test the extension of the mineralized vein. The company was reorganized to form MacFarlane Consolidated Mines Limited. The new company had planned underground exploration on the 125 foot (41.2 m) and the new 75 foot (22.9 m) levels pending financing.

1948: The claims were cancelled. The property covering the occurrence was staked by John Pichette (TB38028 to TB38031 inclusive).

1949: Surface exploration was conducted.

1950: Six holes totalling 166.7 m (547 feet) were drilled by John Pichette.

1951: Further exploration was conducted by John Pichette.

1954: The claims were cancelled.

1959: The property covering the occurrence was staked by W. MacFarlane as part of an 18 claim block (TB94266 to TB94283 inclusive). All interests were subsequently transferred to Oroxo Investments Limited. The claims were not tagged within 6 months and were cancelled. The property was restaked by J. Gordon Pollard as part of an 18 claim block (TB96704 to TB96721 inclusive). The property was transferred to Oroxo Investments Limited.

1960: The claims were transferred to General Equity Futures Limited.

+ Note: Nine claims have been plotted on the claim map covering the occurrence such that they are located to the southwest of the actual showing by approximately 0.8 kilometres (0.5 miles).

1962: The claims were cancelled and some were restaked by Benjamin Pressman (TB103236 to TB103247 inclusive).

1964: The claims were cancelled.

1972: The property covering the occurrence was staked by Robert Laird (TB346863 to TB346873 inclusive).

1973: The claims were cancelled.

1979: The property was restaked by Duncan Walkem as part of a 40 claim block (TB456075 to TB456114 inclusive). The claims were transferred to Shell Canada Resources Limited, which conducted an airborne magnetometer survey.

1981: The claims were cancelled.

1982: The property was restaked as part of a 36 claim block by Michael Malouf (TB561814 to TB561827 inclusive; TB610553 to TB610562 inclusive; TB632001 to TB632012 inclusive). These claims covered parts of the McBean Lake area, Abrey, Croll and Coltham Townships.

1984: A grid was cut and magnetometer and electromagnetic surveys were conducted. Power stripping was also performed elsewhere on the claim block.

CURRENT:

The claims are held by Michael Malouf and are part of a 36 claim block noted as "soon to be optioned" to a newly incorporated public company called Ferau Resources Incorporated (Malouf, 1984)*. It should be noted that Archibald (1983)* lists these claims and a second block of 11 claims to the west as being held by Ferau Resources Incorporated in 1983. Michael Malouf is associated with this company through Quaternary Mining and Exploration Company Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5500800
Easting 525000

GENERAL LOCATION:

The property is located in the McBean Lake Area, on the east shore of Long Lake and opposite Birch Bay

ACCESS:

Follow the Trans-Canada Highway #11, 9.5 km east of the turn-off to Geraldton (Highway #584), and turn southeast on the Eldee Lake Road to Long Lake. From this point, the property is accessible by boat, approximately 8.5 km to the northeast on Long Lake to Birch Bay, and east to the shore of the lake.

REFERENCES:

Archibald (1983)*.
Fairbairn (1938).
Malouf (1984)*.
Oliver and Macdonald (1983)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al. (1938/1939, 1940).

MAP REFERENCES:

Map 46B, Long Lake-Pagwachuan Lake Area (Fairbairn and MacDonald, 1938).

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The MacFarlane property is on the east extension of the Geraldton Southern Metasedimentary Sub-belt. The general geology and structure has been described by Oliver and Macdonald (1983)*:

"In the MacFarlane West area...metapelitic sediments (PS), QHS (quartz hornblende schist) and sheared conglomerate (SC) are intruded by crowded feldspar porphyries (FP). The metasedimentary sequence exposed in the trench is principally QHS, comprised of alternating felsic and mafic bands up to 10 cm in thickness. Metamorphic hornblende is prominently developed in the mafic bands. The schist contains fine-grained bedded sulfides (less than 1%), principally pyrite and pyrrhotite with minor arsenopyrite. At the east end of the trench adjacent to the shaft, there is a rusty weathering, 30 cm sulfide-rich horizon (10% sulphides) within the metasediments. The rocks are, in places, extensively carbonatized throughout, while in others carbonate alteration is less pervasive, present along microfractures.

Sheared conglomerate contains clasts with aspect ratios up to 6:1 and a foliation sub-parallel to bedding. According to Fairbairn (1938), this unit was the host rock for coarse visible gold mineralization.

Forty metres north of the trench, garnetiferous metapelites are exposed. Garnets reach up to 5 mm in diameter. Garnets have only been observed in the Long Lake area in close proximity to granitic intrusions.

Typical bedding attitude is sub-vertical, although locally both bedding and foliation are folded about small "Z"-shaped structures

(30 cm amplitude) which appear to plunge to the west, although an exact determination was not obtained. Foliation may be bedding parallel or slightly oblique throughout the exposure. Locally a weak lineation, produced by alignment of hornblende prisms, is oblique to both bedding and foliation, which may indicate proximity to a fold hinge, although a considerable quantity of observational data are required to confirm this.

The porphyry intrusions, where fully exposed are less than one metre thick and appear relatively undeformed and unmetamorphosed (in contrast to the metasedimentary host rocks). Feldspar phenocrysts are up to 1 cm in diameter, in contrast to the finer grain size of the plagioclase feldspars seen in intrusions in the Geraldton camp. The porphyry-sediment contact is irregular in places, with slivers of sediment caught up in the intrusion."

...The sediments exposed on these properties, (Coniagas, MacFarlane, West Side Longlac and Longlac Adair), especially on the east shore of Long Lake, tend to be finer-grained than those seen in the Geraldton camp, i.e. a dominance of metapelites and the fine-grained mafic sediment precursor to the QHS, as opposed to wackes and arkoses. This may reflect upon original sedimentary facies - possibly a more distal depository. Considerably more field work is required to support such a hypothesis, based as it is upon scant observational data.

The grade of metamorphism is markedly higher than that found in the sedimentary package 8 km to the west, where upper greenschist facies prevails. On these properties, the lithologies have undergone amphibolite facies grade metamorphism, possibly resulting form the proximity of a large felsic intrusion."

7) MINERALOGY:

According to Oliver and Macdonald (1983)*:

"Deformed quartz-carbonate veins with abundant sulfides is the most prominent feature of the dump rock from the East MacFarlane shaft. Pyrrhotite is found disseminated, in coarse clots, and as vein selvages, for a total of approximately 1-2%. Arsenopyrite, chalcopyrite and pyrite are found in lesser amounts, e.g. less than 0.5% combined, and are usually confined to vein material."

Oliver and Macdonald (1983) have also noted that:

"Vein mineralization (Qz-carbonate ± tourmaline ± sulfides) is spatially associated with the porphyries, both at the intrusion-sediment contact and within the intrusion, where the veins are highly irregular and tourmaline-rich."

8) ECONOMIC FEATURES:

One core sample assay of $2.50 (0.065 oz/ton gold with gold at $38.05 per oz) was obtained in the 1950 drilling programme conducted by John Pichette. Fairbairn (1938) noted that no visible gold had been reported.

9) CHEMICAL ANALYSES:

1950 - John Pichette

Hole No.	Claim	Sample	Width	$Au	Oz/T Au (@$38.05 per oz)	Sample Description
1	TB38031	0.61 m	(2.0')	2.50	0.065	Quartz vein with some chalcopyrite and pyrrhotite.

1) PROPERTY NAME: MacLeod-Cockshutt Mine (89)

DATE(S) VISITED:
August, 1982
June 13, 1985
August 28-29, 1985

2) ALTERNATE NAME(S): MacLeod Mosher

3) COMMODITY: MAIN: Au SECONDARY: Ag, Pb, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: Claims TB10029 to TB10033 inclusive, TB10197 and TB10198 were staked by Arthur Cockshutt. Claims TB10035 to TB10042 were staked by Fred MacLeod.

1932: The Little Longlac Exploration Syndicate was formed and surface exploration trenching was conducted on the claim group. A one quarter interest was transferred to Ventures Claims Limited. Claims TB10481 to TB10483 inclusive were staked by Mrs. Maude Gascon and Phil Gascon staked claims TB10615 and TB10616, and subsequently transferred both to Mrs. Maude Gascon.

1933: The one-quarter interest held by Ventures Claims Limited was transferred to Arthur Cockshutt. Surface exploration continued. Claims held by Fred MacLeod were transferred to Arthur Cockshutt. Claims TB11016 and TB11017 were staked by Fred MacLeod and transferred to Arthur Cockshutt of the Little Longlac Exploration Syndicate. MacLeod-Cockshutt Gold Mines Limited was incorporated and acquired the 17 claims previously held by the Little Longlac Exploration Syndicate. The five claims held by Mrs. Maude Gascon were optioned to the newly formed company. The 22 claim property was optioned to the Connell Mining and Exploration Company, which carried out an exploration program consisting of trenching, pitting and diamond drilling (2,676.1 m (8,780 feet).

1934: A vertical, three-compartment shaft was sunk to a depth of 172 feet (52.4 m) and the first level was established at 150 feet (45.7 m). Underground exploration failed to produce encouraging results and operations were subsequently suspended.

1935: Diamond drilling and surface exploration were performed but disappointing results again led to the suspension of operations.

1936: Surface exploration and diamond drilling were resumed. A four-compartment vertical shaft was sunk to a depth of 532 feet (162.2 m) with levels established at 200 feet (61.0 m), 350 feet (106.7 m) and 502 feet (153.0 m). A total of 4,255.9 m (13,963 feet) of drilling was done from surface and 627.6 m (2,059 feet) was drilled from underground. Underground development progressed on all levels. A number of buildings were constructed at the site of the new shaft (No. 2 shaft). Note: Depths to specific levels were taken from Longitudinal Sections (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay) and may not agree with those in O.D.M. Annual Reports.

1937: Underground development continued. The No. 2 shaft was extended to a total depth of 880 feet (268.2 m) and new levels were established at 658 feet (200.6 m) and 807 feet (246.0 m). A total of 10,466.2 m (34,338 feet) of diamond drilling was done from underground. Electric power was brought to the property, and an electrical mining plan was installed. Construction began on a 500 ton per day flotation-cyanide-amalgamation mill. A number of new buildings were constructed at the mine site.

1938: Underground operations continued. Three holes totalling 773.9 m (2,539 feet) were drilled from surface and 151 holes totalling 5,207.8 m (17,086 feet) were drilled from underground. Construction of the mill was completed and operations began. An average of 469 tons were milled daily. A number of buildings were erected at the mine site.

1939: Underground operations continued. The No. 2 shaft was extended to a total depth of 1,013 feet (308.8 m) and a new level was established at 958 feet 292.0 m. Diamond drilling consisted of 207 holes totalling 4,849.4 m (15,910 feet) drilled from underground. The mill processed an average of 630 tons per day. Construction began on a roasting plant which was required to increase recovery.

1940: Underground operations continued. The No. 1 shaft was deepened to 572 feet (174.4 m), and new levels were established at 350 feet (106.7 m) and 502 feet (153.0 m). The No. 2 shaft was extended to a depth of 1,219 feet (371.6 m) and a new level was established at 1,108 feet (337.7 m). Diamond drilling (from underground) consisted of 581 holes totalling 11,587.9 m (38,018 feet). The roasting plant was completed. Claims TB10045 and TB11047 were purchased from Mosher Longlac Gold Mines Limited.

1941: Underground operations continued. The No. 1 shaft was extended to a depth of 1,135 feet (346.0 m) and new levels were established at 658 feet (200.6 m), 807 feet (246.0 m) 958 feet (292.0 m) and 1,108 feet (337.7 m). The No. 2 shaft, about 457.2 m (1,500 feet) southeast of the No. 1 shaft, was extended to a depth of 1,440 feet (438.9 m) and new levels were established at 1,271 feet (387.4 m), and 1,421 feet (433.1 m). A loading pocket was cut at a depth of 1,344 feet (409.6 m) and an ore pass was driven from it to the 1,271 foot (387.40 m) level, where a crusher was installed. Ore was passed to this level, crushed and then hoisted. The two shafts were connected on the 502 foot (153.0 m) and the 1,108 foot (337.7 m) levels. The No. 1 shaft was used as an auxilliary shaft. Diamond drilling consisted of 541 holes totalling 10,088.0 m (33,097 feet) drilled from underground. Work began on mill expansion with capacity to be increased to 1,000 tons per day.

1942: Underground operations continued and 407 holes totalling 11,008.8 m (36,118 feet) were drilled from underground. Mill expansion was completed but labour shortages prevented immediate use of the equipment.

1943: Underground operations continued. The No. 1 shaft was extended to a depth of 1,755 feet (534.9 m) and new levels were established at 1,271 feet (387.4 m), 1,421 feet (433.1 m), 1,571 feet (478.8 m), and 1,721 feet (524.6 m). Diamond drilling consisted of 159 holes totalling 5,580.3 m (18,308 feet), drilled from surface. A total of 1,980 tons of tailings impounded before roaster operations began were treated.

1944: Underground operations continued, with a great deal of development work done in search of new ore bodies. Diamond drilling consisted of 4 holes totalling 582.5 m (1,911 feet) and 319 holes totalling 11,007.8 m (36,115 feet). A total of 5,880 tons of impounded tailings were treated.

1945: Underground operations continued. Diamond drilling consisted of 15 holes totalling 1,992.2 m (6,536 feet) drilled from surface and 525 holes totalling 16,361.7 m (53,680 feet) drilled from underground. Milling operations were suspended in April due to wartime conditions. The No. 2 shaft was extended to a depth 1,921 feet (585.5 m).

1946: Underground operations continued. Milling was resumed in February. Diamond drilling consisted of 8 holes totalling 1,793.4 m (5,884 feet) drilled from surface and 362 holes totalling 10,921.0 m (35,830 feet) drilled from underground.

1947: Underground operations continued and 374 holes totalling 8,733.7 m (28,654 feet) were drilled from underground. The No. 1 shaft was extended a depth of 2,053 feet (625.8 m) and a new level was established at 2,022 feet (616.3 m).

1948: Underground operations continued and 351 holes totalling 10,389.1 m (34,085 feet) were drilled from underground. A raise was driven from the 13th level to the 10th level at an angle of 45°.

1949: Underground operations continued. The raise was enlarged for a distance of 430 feet (131.1 m) below the 10th (1,571 foot (478.84 m)) level. Levels 12A and 12 were established at vertical depths of 225 feet (68.6 m) and 296 feet (90.2 m) below the 10th level. This was known as the No. 3 winze.

1950: Underground operations continued and 439 holes totalling 14,366.44 m (47,134 feet) were drilled from underground. Mill tonnage was increased to 970 tons per day and construction of an additional mill which would increase tonnage to 1,400 tons per day was completed. A total of 3,077 tons of tailings were treated.

1951: Underground operations continued and 518 holes totalling 18,069.8 m (59,284 feet) were drilled from underground. In August, all ore was recovered from the F-zone, and due to the lower arsenic content, the roaster plant was shut down. A total of 3,956 tons of tailings were treated.

1952: Underground operations continued. Diamond drilling consisted of 4 holes totalling 261.8 m (859 feet) drilled from surface, and 368 holes totalling 15,778.0 m (51,765 feet) drilled from underground. The company decided to revise the mill system with the addition of a rod mill (Field, 1954).

1953: Underground operations continued. Diamond drilling consisted of 6 holes totalling 1,326.8 m (4,353 feet) drilled from surface, and 231 holes totalling 8,565.5

m (28,102 feet) drilled from underground. The rod mill was completed and permitted finer grinding at an increased tonnage. The milling rate was increased to an average of 1,250 tons per day.

1954: Underground operations continued, and 240 holes totalling 12,800.4 m (41,966 feet) were drilled from underground.

1955: Underground operations continued. Diamond drilling consisted of 2 holes totalling 234.4 m (769 feet) drilled from surface and 243 holes totalling 10,642.4 m (34,916 feet) drilled from underground. Milling rate was increased to 1,704 tons per day.

1956: Underground operations continued and 178 holes totalling 6,288.6 m (20,632 feet) were drilled from underground.

1957: Underground operations continued and 224 holes totalling 5,611.1 m (18,409 feet) were drilled from underground. The No. 1 shaft was deepened 197 feet (60.1 m) to a depth of 2,250 feet (685.8 m) and an underground crusher was installed 2,051 feet (625.1 m) below the collar of the shaft. Mill tonnage was increased to 1,764 tons per day.

1958: Underground operations continued and 224 holes totalling 5,611.1 m (18,409 feet) were drilled from underground. Mill tonnage was increased to 1,814 tons per day. Control of the company was acquired by Little Longlac Gold Mines Limited interests. MacLeod-Cockshutt Gold Mines Limited acquired a controlling interest in Consolidated Mosher Mines Limited (formerly Mosher Longlac Gold Mines Limited), which owned the property immediately to the west, and had done considerable underground exploration and development. Consolidated Mosher also held the past-producing Hard Rock Mine. Underground operations were resumed at Consolidated Mosher under the management of MacLeod-Cockshutt Gold Mines Limited.

1959: Underground operations continued and 36 holes totalling 743.7 m (2,440 feet) were drilled from underground. Mill tonnage was increased to 1,915 tons per day. A drive from the 1,721 foot 524.26 m level was extended westwards to meet Mosher's 1,740 foot (530.4 m) level.

1960: Underground operations continued and 4 holes totalling 223.7 m (734 feet) were drilled from underground. Connections were made between the 12th and 13th levels of MacLeod-Cockshutt and the 1,890foot (576.1 m) and 2,040 foot (621.8 m) levels of Consolidated Mosher respectively.

1961: Underground operations continued and 75 holes totalling 3,360.1 m (11,024 feet) were drilled from underground. Production from Consolidated Mosher began with 1,250 tons of ore per day, trammed to the No. 1 crusher. This ore, combined with MacLeod-Cockshutt ore, made up the 1,900 ton per day mill capacity.
Note: Refer to the Mosher Longlac Mine for development data and history of this property.

1962: Underground operations continued and 36 holes totalling 632.8 m (2,076 feet) were drilled from underground. Ore from Consolidated Mosher was treated at an increasing daily rate as MacLeod-Cockshutt ore zones were depleted.

1963: Underground operations continued. Diamond drilling consisted of 2 holes totalling 132.3 m (434 feet) drilled from surface and 17 holes totalling 385.6 m (1,265 feet) drilled from underground. The mill treated an average of 322 tons per day of MacLeod-Cockshutt ore per day and an average of 1,543 tons per day of Consolidated Mosher ore. Little Longlac Gold Mines took over control of operations on both the MacLeod-Cockshutt and Consolidated Mosher properties.

1964: Underground operations continued and 28 holes totalling 665.5 m (2,167 feet) were drilled from underground. The mill operated at capacity with 2,500 tons per day from the MacLeod-Cockshutt Mine.

1965: Underground operations continued and 11 holes totalling 382.8 m (1,256 feet) were drilled from underground. The mill operated at near capacity with 329 tons per day from the MacLeod-Cockshutt Mine.

1966: Underground operations continued and 2 holes totalling 60.7 m (199 feet) were drilled from underground. The mill treated 297 tons of MacLeod-Cockshutt ore, and 1,466 tons of Consolidated Mosher ore per day.

1967: The MacLeod-Cockshutt Mine and the Consolidated Mosher Mine were operated on a salvage basis as downward extensions of the ore zones were not considered to contain profitable ore. MacLeod-Cockshutt Gold Mines Limited, Consolidated Mosher Mines Limited and Hard Rock Gold Mines Limited were amalgamated to form MacLeod Mosher Gold Mines Limited. Diamond drilling consisted of two holes totalling 392.3 m (1,287 feet), drilled from underground. A total of 170,555 tons of tailings were treated to test the feasibility of gold recovery.

1968: Underground operations continued and 15 holes totalling 484.9 m (1,591 feet) were drilled from underground. In December, Lake Shore Mines Limited took over all assets of MacLeod Mosher on a basis of 1 new share for 4 old, and the company became the MacLeod Mosher Division of Lake Shore Mines Limited. All companies are controlled by Little Longlac Gold Mines Limited interests.

over all assets of MacLeod Mosher on a basis of 1 new share for 4 old, and the company became the MacLeod Mosher Division of Lake Shore Mines Limited. All companies are controlled by Little Longlac Gold Mines Limited interests.

1969: Underground operations continued and 5 holes totalling 165.8 m (544 feet) were drilled from underground.

1970: Underground operations continued until July when operations ceased, terminating a three year selvage period.

CURRENT:

The claims are currently held by Lake Shore Mines, which is controlled by Little Longlac Gold Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5502500
Easting 504401

GENERAL LOCATION:

The mine is located in southwestern Ashmore Township and southeastern Errington Township.

ACCESS:

The property is accessible by Highway #584, south from Geraldton for approximately 5.0 km. The mine is located immediately east of the road.

REFERENCES:

Armstrong (1943).
Arnoldi (1950 to 1956a, 1956b, 1958).
Burton (1936a, 1936b)*.
Bruce (1935, 1936).
Ferguson et al. (1971).
Field (1954 to 1958, 1960).
Hoiles (1943)*.
Horwood and Pye (1951).
Kelly (1959 to 1964).
Macdonald (1982, 1983a, 1983b).
Matten (1971, 1972a, 1972b).
Morrow (1940)*.

Paterson (1936)*.
Reade (1951, 1952).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Riddell (1965, 1966, 1968a, 1968b, 1969, 1970, 1971).
Sinclair et al. (1935, 1936, 1937, 1938a, 1938b, 1939, 1940).
Tower et al (1941, 1942, 1946a, 1946b, 1946c, 1948a, 1948b, 1949).
Trembley (1940, 1941, 1945, 1946a, 1946b, 1946c, 1947, 1948a, 1948b, 1949).
Williams (1951).

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce 1935).
Map P241, Geraldton Area, (Pye et al., 1964).
Map P435, MacLeod Mosher Gold Mines Limited Surface Geology (Ferguson et al., 1967).
Map P436, MacLeod Mosher Gold Mines Limited Subsurface Plans and Longitudinal Sections (Ferguson et al., 1967).
Map P437, MacLeod Mosher Gold Mines Limited Cross Sections, (Ferguson et al., 1967).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 1951-2, Township of Ashmore, Thunder Bay District, Ontario (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet, (Pye et al., 1966).
Map P2520, Geraldton Sheet (Love, 1982).
Map 30002G, Jellicoe Project, Aeromagnetometer (ODM-GSC, 1974).

6) GENERAL GEOLOGY AND STRUCTURE:

The general geology has been described by Horwood and Pye (1951) as follows:

> "The MacLeod-Cockshutt property is underlain by a wide variety of rock formations. The oldest are of volcanic origin and form a narrow zone of tuffs and agglomerates, which, with intrusive hornblende diorite, form a low ridge across the southern part of the claim group. To the north, in which direction grain gradations indicate the tops face, narrow conformable bands of hydro-clastic material appear and, as these increase in both number and thickness relative to the tuffaceous horizons, the zone passes over into an overlying sedimentary series made up of conglomerate, greywacke, iron

formation, and slate. Intrusive into this series is a variety of igneous rocks, which from the oldest to the youngest include hornblende gabbro and diorite, quartz albite porphyry, quartz diorite(?) and both quartz and olivine diabase.

...Of the rocks exposed at the surface and in the underground workings, the clastic sediments are the most prominent. They consist mainly of greywacke with occasional interbeds of slate, but several continuous bands of iron formation, the principal horizon marker, and one of conglomerate have been traced across the property. The greywackes are greenish-grey rocks of fine to medium grain. They generally appear quite massive underground, but surface exposures exhibit a pronounced stratification, with individual beds ranging in thickness from a fraction of an inch to several feet. This stratification is commonly accentuated by laminae of fine-grained slate alternating with massive greywacke and, in many places, by conformable layers made up largely of iron oxides. With any sizeable increase in the number and thickness of the latter, the rock grades into and becomes a typical iron formation.

...Hornblende gabbro and diorite, the oldest of the intrusive rocks, are not found in the underground workings, but narrow sill-like bodies outcrop in the southwest corner of the property and farther north along the south shore of Barton Bay. In general they are quite massive and, like those found elsewhere in the Little Longlac area, are dark-green, medium-to-coarse-grained rocks with well-defined, blocky crystals of hornblende, visible on both fresh and weathered surfaces. In places, however, they have been highly sheared and altered to chlorite schists.

...The most important of the igneous rocks found in the mine area, in that large tonnages of ore have been found along its contacts with the enclosing sediments, is the quartz albite porphyry. It outcrops as low rounded knolls in the vicinity of the No. 2 shaft, and forms a narrow sill-like body that in general conforms to the folded pattern of the intruded rocks, plunging westerly at about 20 degrees. This folded pattern is highly complex in detail. In general, however, the intrusive mass may be considered pipe-like in form, with numerous fin-like offshoots projecting upward and westward from its surface. The porphyry is a greyish rock consisting of phenocrysts of albite and occasionally of quartz, set in a fine-grained matrix of altered feldspar, quartz, carbonate, sericite, and some chlorite. Microcline, magnetite, and apatite are commonly present, but these constituents seldom make up more than 5 percent of the whole. Except for a faint flow cleavage the porphyry is generally quite massive, but in several places, particularly along the borders of the mass, it has been intensely sheared and altered to a pale grey or yellowish-green carbonate-sericite rock that closely resembles, in both hand specimens and thin sections, a quartzite or quartz greywacke.

...Narrow dikes of medium-grained, greenish rocks of dioritic appearance have been found cutting across the folded structures in the underground workings, but they have been so greatly altered that their original nature could not be determined. They are here termed quartz diorites only because thin sections show a striking similarity to those of felsitic dikes of the same designation found elsewhere in the area. The dikes provide important structural controls, for large tonnages of both refractory sulphide ores and free-milling quartz ores have been discovered along their contacts.

Later than the quartz diorites and older igneous and sedimentary formations are a few dikes of both quartz and olivine diabase. They are generally quite narrow, in places being only a few inches wide, and have a general north-south strike and steep easterly dip.

The orebodies at the MacLeod-Cockshutt Mine occur within the western part of a large elliptical bulge...along the south flank of the Ellis syncline. Within this bulge the rock formations have been intensely folded along east-west axes and plunge westerly at 20-25 degrees. Both S-shaped and Z-shaped (reverse) folds occur. They are believed to be the expressions of at least two epochs of deformation, the one responsible for the development of the Ellis syncline, the other responsible for the initial adjustments along the Bankfield-Tombill fault zone. For the most part they are slightly overturned so that their axial planes dip steeply south, but the axial planes of those north of the porphyry intrusive tend to dip vertically or steeply north. A characteristic feature is a pronounced thickening of the sedimentary rocks in the troughs of the synclines and in the crests of the anticlines. This is due in part to intense crenulation in these sections, and in part to a tendency of the rock materials to move from areas of maximum compression along the limbs of the folds to areas of least compression in the crests and troughs.

In addition to the strongly sheared zone (Bankfield-Tombill fault zone) extending across the southern part of the property, there are many minor transverse faults of general north-south strike and steep easterly dip. Of these the most important is represented by a well-defined zone of brecciated rock and gouge that cuts the sulphide ores in the extreme eastern part of the property. This fault dips to the east at an angle of 45 degrees. It has been encountered in several places in the workings at the Hard Rock mine, where detailed mapping has indicated a thrust-type movement in which the hanging wall has moved up and to the west with respect to the footwall. Other faults of minor consequence strike east-west and dip steeply south. The relative displacement along them has not been ascertained. It is quite possible that many of them are pre-ore and were formed concomitantly with the ore fractures."

7) MINERALOGY:

Three distinct orebody types have been recognized at the Hard Rock Mine and Macleod-Cockshutt Mine. (1) "Quartz veins and mineralized zones occur within and along the contacts of the albite porphyry...and within greywacke and lean iron formation." (Horwood and Pye, 1951). These zones consist mainly of quartz veins and stringers along fractures, containing pyrite, pyrrhotite, arsenopyrite, chalcopyrite, carbonate, tourmaline and rare scheelite. The sulphides show a high tendency to concentrate in the wall rocks. Gold occurs both in altered wall rocks and veins, and is closely associated with sulphides. Ore bodies of this type include the F Zone, No. 1 and No. 2 vein systems, the X vein and the 401E drift zone (Horwood and Pye, 1951).

(2) "Irregular, massive lenses of sulphides and quartz occur in a folded series of greywacke and iron formation..." (Horwood and Pye, 1951). These massive, replacement (up to 65% sulphides) lenses cut the Z-folded iron formation and are related to quartz-carbonate veins up to 0.6 m (2 feet) wide. Veins are usually barren of gold mineralization except where they contain sulphides, consisting primarily of pyrite, arsenopyrite and pyrrhotite. Mineralization is preferentially concentrated in the wall rocks outward from the quartz veins and ore is locally banded due to the selective replacement of the

less competent wacke laminae in the iron formation by sulphides. The main ore zone (the North or No. 30) was of this type (Horwood and Pye, 1951).

(3) Numerous thin, gold-bearing quartz stringers occur along shear fractures in zones of faulting, folding and shearing at the contact with wacke and albite porphyry. When stringers merge, elongate replacement or blow-out lenses up to 1 m (3 feet) are formed. Normally, they occur as thin,highly contorted, veinlets which follow both shear and tension fractures and locally have a gash-like character. Carbonate (ankeritic dolomite), sulphides (pyrite, pyrrhotite, arsenopyrite and chalcopyrite) and tourmaline are found to be associated with the quartz. Gold concentrations were relatively lower than in the first two types, and this ore is free milling. Zones A to G and H were of this type. (Horwood and Pye, 1951).

The F Zone was the most spectacular zone accounting for an orebody of some 10,000,000 tons of 0.15 ounce gold per ton (Macdonald, 1983a). The first hole drilled into the zone encountered 0.453 ounce gold per ton "over a width of 22.4 feet" (Horwood and Pye, 1951).

The A Zone has been described in detail by Horwood and Pye (1951) as follows:

> "The A orebody consists of innumerable quartz stringers localized within a wide zone of faulting, fracturing, and shearing at the east extremity and along the south side of the north porphyry tongue. Along the sheared contacts gold-bearing quartz veinlets of limited lateral and vertical extent have been found in the relatively competent porphyry, but the stringers for the most part appear to be confined to beds of greywacke and lean iron formation and occasional narrow dikes and sills of quartz diorite. The exact outline and extent of the orebody have yet to be determined. The development work completed, however, suggests a pitch length of at least 1,200 feet, a vertical height of 130-180 feet, and an average width of about 40 feet. Recovery to date indicates an average grade of about 0.115 ounces of gold per ton.

In the workings examined, many of the quartz stringers strike about N80°W and dip steeply to the south along numerous, closely-spaced shear fractures. They are generally of uniform narrow width, from a fraction of an inch to a maximum of about 4 inches, and are remarkably persistent, some being traceable along the back of a drift or stope for 200 feet or more. In a general way the walls of the stringers match fairly well and commonly exhibit knife-sharp contacts with the introduced quartz. The features are strongly suggestive of fracture filling as the dominant process of vein formation, a conclusion seemingly corroborated by the obvious comb structures occasionally observed in thin sections of the vein material and by the non-ribboned character of the quartz. In a few places, however, the stringers widen, and several of them merge to form elongate lenses up to 3 feet in width and 30 feet or more in length. The lenses are highly irregular, commonly pinch and swell along strike and frequently contain subangular to rounded inclusion of altered wall rock embayed and transected by the quartz. Book structures are common, but these have been highly silicified and in a few places all but completely replaced by quartz so that only ill-defined patches and streaks of dark material remain. It is apparent, therefore, that within the same stope the quartz stringers may exhibit along their strike a complete reversal of character, changing within a few feet from parallel, closely-spaced fracture fillings to replacement lenses or "blowouts" of irregular form. Since the sedimentary formations have been intensely folded and the stringers cut across the folded structures, it is thought that the passage of the stringers, from competent beds favourable to fracture filling to less competent, possibly more permeable strata favourable to shearing and replacement, may be one of the principal controlling factors."

Macdonald (1982), following a detailed study of the "Glory Hole" open stope, MacLeod-Cockshutt and Hard Rock Mines, noted three types of gold mineralization:

"(1) relatively undeformed quartz-carbonate-sulphide veins striking approximately west-northwest, often localized by shear faults.

(2) deformed quartz-carbonate-sulphide veins, striking obliquely (east-northeast) to the major structures.

(3) quartz-carbonate-sulphide replacement ore often iron formation, spatially associated with type '1' veins."

(Type (1) are hosted in altered porphyry or tuff)
(Type (2) are "wiggly" veins) (Horwood and Pye, 1951).

Horwood and Pye (1951) have noted that:

"Some of the quartz stringers are not accompanied by any visible alteration of the wall rocks, but most of them, and in particular those that are gold-bearing, are bordered by buff-coloured salvages of sericitized and carbonatized greywacke. The selvages may extend for as much as eight inches outward from the wall of a stringer not more than a quarter of an inch in thickness, and where several stringers occur along closely spaced, parallel fractures, altered zones several feet in width are common."

To summarize the mineralogy, sulphides, in order of abundance, include pyrite (80%), arsenopyrite (15%), pyrrhotite, sphalerite, chalcopyrite, leucopyrite, galena, gold and cubanite. Non-metallic minerals recognized include ankerite, calcite, scheelite, tourmaline and graphite. Iron oxides occur in many places (Armstrong, 1943)*.

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Six main ore zones were exploited. These occur in the western part of a large elliptical bulge, 2,194.6 m (7,200 feet) in length and 685.8 m (2,250 feet) in width, along the south flank of the Ellis syncline.

Most of the ore was recovered from the "F" zone, which is 6.1 to 18.3 m (20 to 60 feet) wide, 121.9 to 213.4 m (400 to 700 feet) high and continuous along plunge for 2,529.84 m (8,300 feet), about 1,371.6 m (4,500 feet) of which is located on the property of the Consolidated Mosher Mine to the west (Horwood and Pye, 1951).

Proven and probable ore reserves were calculated to be 869,873 tons with an average tenor of 0.107 oz/ton gold (including ore from the Consolidated Mosher Mine) as of December 31, 1969 (Riddell, 1971).

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1938	25,518	1,602	126,291	0.202	0.013
1939	45,170	2,382	208,095	0.217	0.011
1940	54,771	1,616	238,780	0.229	0.007
1941	60,362	1,085	237,076	0.255	0.005
1942	68,017	965	233,036	0.292	0.004
1943	54,632	765	181,761	0.301	0.004
1944	39,900	598	124,964	0.319	0.005
1945	9,551	158	30,000	0.318	0.005
1946	32,870	723	158,434	0.207	0.005
1947	43,327	868	207,260	0.209	0.004
1948	40,318	637	176,221	0.229	0.004
1949	43,134	644	180,793	0.239	0.004
1950	55,006	1,266	261,103	0.211	0.005
1951	69,939	4,353	366,547	0.191	0.012
1952	65,049	6,171	411,777	0.158	0.015
1953	57,618	6,279	453,732	0.127	0.014
1954	61,397	6,624	553,400	0.111	0.012
1955	67,467	6,846	600,810	0.112	0.011
1956	65,614	6,598	614,848	0.107	0.011
1957	66,459	6,810	626,432	0.106	0.011
1958	65,553	6,946	658,400	0.100	0.011
1959	66,616	6,383	693,322	0.096	0.009
1960	68,462	6,574	689,598	0.099	0.010
1961	72,005	6,939	696,064	0.103	0.010
1962	21,560	2,108	236,719	0.091	0.009
1963	13,773	1,399	117,535	0.117	0.012
1964	9,297	1,043	91,626	0.101	0.011
1965	13,473	1,470	119,963	0.112	0.012
1966	9,546	1,012	108,558		
SUB-TOTAL	1,366,404	90,864	9,403,145		

MacLeod Mosher (Statistics for MacLeod Cockshutt and Mosher Longlac)

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1967	57,034	5,455	469,442	0.121	0.012
+1968	52,040	5,025	464,642	0.112	0.011
1969	44,292	4,378	494,852	0.090	0.009
1970	27,208	2,463	229,477		
SUB-TOTAL	180,576	17,321	1,656,413		

(Trembley, 1940, 1941, 1945, 1946a, 1946b, 1946c, 1947, 1948a, 1948b, 1949; Arnoldi, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1958; Kelly, 1959, to 1964; Riddell, 1965b, 1968c, 1968d, 1970b; Matten, 1971, 1972).

+Note: MacLeod Mosher was taken over by Lake Shore Mines Limited, which completed a three year salvage operation.

9) CHEMICAL ANALYSES:

1982

Sample	Oz/T Au	Oz/T Ag	Sample Description
F-64-82	17.50	0.68	Quartz from the dump near No.1 shaft.

1) PROPERTY NAME: **Magnet Consolidated Mine (90)**

DATE(S) VISITED:
June, 1981
July 22, 1981
September, 1981
November, 1981
July 14, 1982
July 7, 1983
July 19, 1983
September 20, 1983
October 24-25, 1983
December 9-10, 1983
June 12, 1984

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
The Magnet Consolidated Mine is located on claims TB10398, TB10421, TB10572 and TB10573. In addition, a block of 39 claims was also held by the company north of Highway #11, (TB10205 to TB10207 inclusive, TB10396 to TB10400 inclusive, TB10402 to TB10405 inclusive, TB10421, TB10571 to TB10573 inclusive, TB11252 to TB11255 inclusive, TB11487 to TB11488 inclusive, and TB11839 to TB11841 inclusive) and south of Highway #11 (TB10485 to TB10486 inclusive, TB12019 to TB12021 inclusive, and TB12110 to TB12118 inclusive). All of the claims have a similar history, though a number of individuals were responsible for the initial staking of the properties. The history of the four claims which cover the mine is given.

PAST:

1931: Ed Joanis staked TB10398 for Mrs. Annie Cockburn. J. Don Cockburn staked claim TB10421.

1932: Mining Operation Permits were obtained for the above claims and 30 days work was filed in both cases. J. W. Johnson staked claims TB10572 and TB10573, and transferred both to John L. Ridley.

1933: Mining Operation Permits were obtained for the four claims.

1934: Limited surface work was performed, the claims were all surveyed, and claims TB10572 and TB10573 were transferred to A. W. Burt (Wells Longlac Gold Mines Limited).

1934-1935: A diamond drilling program totalling 7,510.6 m (24,641 feet) was completed by Wells Longlac Gold Mines Limited. Claims TB10398 and TB10421 were transferred to Daniel Roland Michener (Magnet Lake Gold Mines Limited) who dug a number of trenches.

1936: Wells Longlac Gold Mines Limited and Magnet Lake Gold Mines Limited amalgamated to form Magnet Consolidated Mines (1936) Limited. Claims TB10398 and TB10421 were transferred to A. W. Burt, who was the president of the newly formed company.

1937: A three-compartment vertical shaft was sunk to a depth of 380 feet (115.8 m) with levels established at 203 feet (61.9 m) and 328 feet (100.0 m). By May, 44.2 m (145 feet) of cross-cutting had been done, but operations had to be suspended due to lack of finances. In October, both partners agreed to give a 2 year option on shares to Northern Empire Mines Limited (a subsidiary of Empire Star Mines Company Limited, which is controlled by Newmont Mining Corporation). Application for patent was made by the company for the 39 claims. Patents were subsequently approved.

1938: The shaft was extended to a depth of 700 feet (213.4 m). New levels were established at 480 feet (146.3 m) and 630 feet (192.9 m). Underground development continued on all levels. Ore was milled at the neighboring Tombill facility. A number of buildings were constructed on surface.

1939: The shaft was deepened, and a new level established at 780 feet (237.7 m). Underground development continued on all levels. A total of 13 holes were drilled totalling 507.5 m (1,665 feet). Construction continued on surface with several buildings erected. A 100 ton amalgamation-flotation mill was constructed and began operations. Concentrates were shipped to the Northern Empire mill for cyanidation.

1940: Shaft sinking continued to a depth of 339.9 m (1,115 feet), with two new levels established at 930 . feet (283.5 m) and 1,080 feet (329.2 m). Development work continued on all levels. A cyanide plant was added to the mill and began operations in early July. Production continued and a number of surface buildings were erected including an assay lab. The company name was changed from Magnet Consolidated Mines (1936) Limited to Magnet Consolidated Mines Limited.

1941: Mining and milling continued throughout the year. The shaft was deepened to 540.1 m (1,772 feet) and four new levels were established at 1,230 feet (374.9 m), 1,380 feet (420.6 m), 1,555 feet (474.0 m), and 1,730 feet (527.3 m). Fourteen holes were drilled from underground totalling 338.3 m (1,110 feet). A number of new buildings were constructed.

1942: Mining and milling continued throughout the year with underground development on the lower levels only. Fifty-one holes totalling 1,279.6 m (4,198 feet) were drilled from underground.

1943: Mining and milling continued for most of the year with underground development on the lower levels only. Thirty-nine holes totalling 1,860.2 m (6,103 feet) were drilled from underground. Operations were suspended in October due to limited ore reserves.

1945: The underground workings were dewatered and limited drifting and cross-cutting was done. Two holes totalling 183.5 m (602 feet) were drilled from underground.

1946: An inclined winze was driven from the 9th to the 11th levels (69.5 m (228 feet)) to handle ore mined from the 10th level which is not connected to the main shaft. Underground development work continued and 36 holes were drilled from underground totalling 2,939.8 m (9,645 feet). Milling was resumed in March and continued throughout the year. The company also leased six patented claims (TB10201, TB10203, TB10204, TB10301, and TB10302) from Bankfield Gold Mines.

1947: Mining and milling operations continued throughout the year. A vertical three-compartment winze collared at the 1,730 foot (5,273.3 m) level about 762 m (2,500 feet) west of the shaft, was sunk to a depth of 1,907 feet (581.3 m) with a new level established at 1,884 feet (574.2) below surface. Seven holes were drilled from underground totalling 1,228.0 m (4,029 feet).

1948: Mining and milling continued. The winze collared on the 1,730 foot (527.3 m) level was extended to a depth of 2,054 feet (636.1 m) with the 13th level established at 2,037 feet (620.9 m).

1949: Mining and milling continued. The winze collared on the 1,730 foot (527.3 m) level was extended to a depth of 2,210 feet (673.6 m), with the 14th level established at 2,160 feet (658.4 m). Fourteen holes were drilled from underground totalling 540.7 m (1,774 feet).

1950: Mining and milling continued. Forty-six holes were drilled from underground totalling 2,548.1 m (8,360 feet).

1951: Underground operations continued throughout the year, but the mill was shut down in July. The winze collared on the 1,730 foot (527.3 m) level was extended to a depth of 2,640 feet (804.7 m), with new levels established at 2,312 feet (704.7 m), 2,460 feet (749.8 m) and 2,610 feet (705.5 m). Fourteen holes were drilled from underground totalling 889.4 m (2,918 feet).

1952: Underground work consisted of salvage operations only. Three holes drilled from underground totalled 525.9 m (1,725 feet). Seven holes totalling 1,288.0 m (4,029 feet) were drilled from surface.

1965: Company activities were largely focused on an unsuccessful attempt to find new orebodies. The plant at the Magnet Mine was dismantled and the company was reorganized as Conigo Mines Limited.

1979: The properties owned by Magnet Consolidated (Conigo Mines) were expropriated by the Crown for failure to pay taxes and were later released for staking.

1979-1981: Most of the claims were either restaked or acquired by Roxmark Mines Limited. The claim block was as follows:

TB513730
TB519305 and TB519306
TB524830 to TB524833 inclusive
TB531791 to TB531800 inclusive
TB548499
TB548686 to TB548689 inclusive
TB550065 to TB550067 inclusive
TB556183
TB561803 to TB561807 inclusive
TB565302 to TB565307 inclusive
TB565309 to TB565314 inclusive
TB577811 to TB577814 inclusive
TB577826 to TB577840 inclusive

The claims which cover the actual mine workings are:

Formerly	Currently
TB10398	Parts of TB519306 and TB513730
TB10421	Parts of TB531799, TB531795, TB519306, and all of TB531797 and TB531800
TB10572	Parts of TB531796, TB531798, TB531794 and TB531793
TB10573	Parts of TB531793, TB531794, TB519306, and TB519305

1981: A grid was cut across the property and magnetic-electromagnetic surveys (VLF) were conducted. A geochemical survey was conducted, and three holes were drilled, totalling 992.3 m (3,255.5 feet).

1982: Magnetic and electromagnetic surveys were conducted over those claims not covered in 1981. A feasibility study was done on the property and dewatering of the underground workings commenced. Samples of the tailings and dump were collected and a drill program was initiated later in the year.

1983: Sherritt Gordon Mines Limited bought 500,000 shares of Roxmark Mines Limited at $0.40 per share on execution of a formal agreement. Sherritt was given options to purchase 500,000 shares at $0.60 by June 30, 1984; 500,000 shares at $0.80 by September 30, 1984 and 765,750 shares at $2.00 on or before March 30, 1985. With all options exercised, Sherritt could earn 60% in the property by supplying all funds necessary for commercial production. Sherritt was also given an option to purchase 1,234,500 shares at $2.00 up to December 31, 1985. Dewatering of the underground workings continued. Manual and mechanical work was performed, predominantly on claims TB519306, TB531794 and TB531797. Three holes totalling 548.9 m (1,801 feet) were drilled from surface and six holes totalling 845.1 m (2,772.6 feet) were drilled from underground. A total of 1,221 assays were done.

1984: The company's holdings were increased to a 93 claim block. Dewatering and drilling continued. Operations were later suspended due to lack of funds. Sherritt Gordon Mines let its option to earn 60% lapse. The water level was held at the 11th level (1,730 feet (527.3 m)).

CURRENT:

The properties are presently held by Roxmark Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5504279
Easting 495961

GENERAL LOCATION:

The property is located in southwestern Errington Township.

ACCESS:

The claim block is located 8.0 to 9.7 km west of Geraldton and is easily accessible by Trans-Canada Highway #11 which passes through the south part of the property.

REFERENCES:

Archibald (1980)*.
Arnoldi (1950 to 1954).
Bruce (1935, 1936).
Burton (1937, 1938)*.
Ferguson et al. (1971).
Field (1954).
Malouf (1981, 1982)*.
Nelson (1950)*.
Pye (1951).
Reade (1952, 1953).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al. (1939, 1940).
Smith and Oxland (1951)*.
Tower et al. (1941, 1942, 1946a, 1946b, 1946c, 1948, 1949).
Trembley (1940, 1941, 1945, 1946a, 1946b, 1946c, 1948, 1949).
Williams (1951)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye, et al., 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2519, Lindsley Township Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Pye (1951) describes the property geology as follows:

"Only in one locality on the property does bed rock outcrop at the surface. Surface mapping was, therefore, of little or no value. Correlation of geological structures depended solely upon the information secured from diamond drill holes and underground workings. For the most part, the property is underlain by clastic sediments, including conglomerate, iron formation, greywacke, and slate. These have been intruded in turn by diorite, diorite porphyry, albite porphyry and diabase.

The most useful horizon marker south of the Bankfield-Tombill fault zone is a band of conglomerate, about 30 feet in thickness which has been traced a distance of several miles by both surface mapping and diamond drilling from the boundary between Errington and Lindsley Townships to outcrops south of Mosher Lake... This band of conglomerate is parallelled, about 350 feet to the north, by a second, equally prominent, conglomeratic horizon. The two bands are identical lithologically, and if they are the same horizon, a folded structure is necessary to account for the repetition.

Several bands of iron formation, three of which have been used successfully as marker beds in the determination of the geological structure, cross the property."

Iron formations used as marker horizons are up to 13.7 m (45 feet) in width and consist of thin laminae of magnetite and hematite separated by narrow interbeds of either green slate or greywacke (Pye, 1951).

Pye (1951) also provides the following details relating to the geology:

"The most abundant of the sedimentary rocks are fine-grained, dark to greenish-grey, well-bedded greywackes. In the underground workings, they are everywhere highly sheared or fractured, and any original structures, such as bedding, cross-lamination, or grain gradation, have been obliterated...South of the Magnet vein zone, there are three varieties that differ from the normal greywackes of the sedimentary series and so assist in structural studies. They are known as "sericitic quartzite", "black slate", and "semi-slate". The sericitic quartzite is a light grey to buff-coloured rock, coarser-grained than the typical greywacke and similar in appearance to the arkose found in the Little Longlac Mine. This rock forms a large, but narrow, lens, over 2,500 feet in length and with a thickness that varies from less than 30 feet to over 100 feet. On the surface, it lies 120 to 300 feet south of the No. 1 shaft and has been traced along the strike from the west boundary of the property to claim TB10421 where it is truncated by the Bankfield-Tombill fault zone. Bordering the sericitic quartzite on the north is a black, fine-grained, slaty rock that consists largely of a fine textured mosaic of quartz, plagioclase, chlorite, and sericite...A striking feature of the rock are small knots from 2 to 3 millimetres in diameter, of chlorite with carbonate and a little quartz. The black slate is separated from the typical greywackes to the north by a band of dark green semi-slate. This rock, like the black slate, consists essentially of fine-grained quartz, chlorite, and sericite arranged in parallel foils.

...Intrusive into the sediments in the vicinity of the mine are many dikes and sill-like masses of diorite... The diorite in the underground workings is a dark green, highly sheared and contorted rock often indistinguishable from the greywackes which enclose it... Massive, coarse-grained, hornblende diorite, unlike the sheared and highly altered phases encountered in the underground workings, outcrops on claims TB10399, TB10402, and TB10404 in the northern part of the property. This mass has been intruded in turn by diorite and albite porphyries.

...The youngest rock in the mine area is massive quartz diabase, similar in appearance and composition to that outcropping in other parts of the township.

...The sedimentary beds on the Magnet claims, except where contorted and drag-folded, strike N70°W-80°S. They occupy the south limb of the Ellis syncline, the axis of which lies approximately 3,000 feet north of the main shaft. Superimposed on this flexure are numerous small minor folds of the Z-type. The drag folds in the upper levels of the mine plunge at approximately 45°W. They flatten with depth and on the lower levels plunge at about 30°W. Their axial planes strike N83°E and, like the beds on their limbs, dip steeply south. It is believed that these drag folds are secondary features induced by a thrust from the southeast that, subsequent to the folding, culminated in the initial rupture along the Bankfield-Tombill fault zone.

The Bankfield-Tombill fault zone crosses the Magnet property at a point 1,150 feet south of the main shaft. It strikes N75°W , roughly parallel to the several vein zones, and dips 70°S. As elsewhere, it is a highly silicified and carbonatized zone, varying in width on the Magnet property from 50 to over 100 feet. The existence of this fault prior to the epoch of gold mineralization has been demonstrated...and it is believed that the shearing along the several vein zones occurred in conjunction with early adjustments along it.

In the underground workings, several important, and numerous minor, post-ore faults cut and offset the ore zones. The most significant of these is the Magnet fault which,... is now a highly silicified breccia zone varying in width from a few feet to over 50 feet. It strikes N68°E, dips 30°-35°NW. The apparent displacement,... is about 30 feet measured along the strike of the fault.

...Four other post-ore faults have offset the veins and caused some difficulty in mining. They strike about N25°W and dip 80°-85°SW. In every case the relative movement has been north on the west or hanging wall sides of the faults, offsetting the veins from 40 to 80 feet. Each of these faults is marked by a zone of black, lustrous, anisotropic material, up to several inches in thickness. In many places, the zones are fractured and the fractures filled with milky white quartz and calcite. This mineralization is identical with that which occurs along similar post-ore faults at the Bankfield Mine."

7) <u>MINERALOGY</u>:

Nelson (1950)* describes the mineralogy as follows:

"The orebodies are shoots within quartz veins. There have been five zones opened up, but only two have proved productive. These two zones are en echelon fractures, and may have been localized along pre-existing shear zones."

Pye (1951) states that:

"The orebodies at the Magnet Mine consist chiefly of quartz with small amounts of carbonate and subordinate sulphides. The metallic constituents, which seldom constitute more than 5 percent of the ore are, in order of paragenesis, arsenopyrite, pyrite; pyrrhotite, chalcopyrite, sphalerite; leucopyrite; galena and gold. For the most part, the sulphides are confined to narrow selvages and books of altered wall rock along or within the individual veins, although small amounts of these minerals are frequently found completely enclosed by the vein quartz itself. The mineralization at the Magnet Mine apparently took place in three stages, separated by periods of fracturing and in the last instance by faulting as well."

Four non-metallics have been recognized, these being quartz, tourmaline, and two varieties of carbonate (dolomitic, ankerite and dolomite) (Nelson, 1950)*.

According to Archibald (1980)*:

"The Magnet Zone and North Zone...are structurally associated with iron formation. Shearing is more accentuated where the zones encountered iron formation.

With more shearing and possibly a chemical reaction with the iron formation, there is a markedly higher zone of pyrite and pyrrhotite mineralization of the vein zones when they are in iron formation than when they are in greywacke. On the other hand, gold values tend to decrease after the vein system has cut through the iron formation."

8) <u>ECONOMIC FEATURES</u>:

<u>TONNAGE AND GRADE ESTIMATES</u>:

With two of five zones mined, reserves at the Magnet Consolidated Mine are given as 30,000 tons of 0.29 oz/ton gold above the 14th level, and 75,000 tons of probable ore at 0.25 oz/ton gold between the 14th and 17th levels, for a total of 105,000 tons of 0.28 oz/ton gold. These figures are exclusive of the "New Ore" indicated by drilling 91.4 m (300 feet) to the north on the 17th level (Malouf, 1982)*. Ore at the lower levels is reported to contain 0.25% of tungsten oxide (The Northern Miner, April 30, 1981, p. 32). Archibald indicated reserves of 1,447,000 tons with an average grade of 0.16 oz/ton gold, (The Northern Miner, June 16, 1983, p. A16).

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1938	1,752	217	2,946	0.595	0.074
1939	12,277	1,129	17,493	0.702	0.065
1940	28,671	3,516	41,485	0.691	0.085
1941	25,345	2,814	45,609	0.556	0.062
1942	22,448	2,311	50,613	0.444	0.046
1943	14,878	1,603	43,060	0.346	0.037
1946	9,448	985	26,018	0.363	0.038
1947	8,654	966	22,224	0.389	0.045
1948	8,173	918	21,140	0.387	0.047
1949	6,742	764	22,262	0.303	0.034
1950	8,764	1,002	44,771	0.196	0.022
1951	4,855	615	22,291	0.218	0.028
1952	82	9	-	Mill Clean-up	
TOTAL	152,089	16,879	359,912		

(Trembley, 1940, 1941, 1945, 1946a, 1946b, 1946c, 1948, 1949; Arnoldi, 1950 to 1954).

9) CHEMICAL ANALYSES:

1982	Sample No.	Oz/T Au	Oz/T Ag	Sample Description
-	82-MMM-7	1.16	0.12	Coarse-grained, crystalline quartz from the waste dump. Pyrite cubes in minor chlorite blebs.
-	82-MMM-8	1.74	0.48	Medium-to-coarse-grained quartz with narrow parallel bands of chlorite from the waste dump. 1-2% pyrite.
-	82-MMM-9	0.01	Trace-<0.1	Tailings. South portion of the tailings dump.
-	82-MMM-10	0.01	Trace-<0.1	Tailings. North portion of the tailings dump.
-	82-MMM-11	0.07	Trace-<0.1	Tailings. Central portion of the tailings dump.

1983

Hole No.	Sample No.	Length	Oz/T Au	Oz/T Ag	Sample Description
Roxmark Mines Limited - Selected Core Samples					
R-83-1	13659	0.61 m (2')	1.23	-	Medium-grained greywacke with narrow cross-cutting veinlets. Rare pyrite.
R-83-1	13349	0.36 m (1.2')	2.75	-	Porphyry, grey-green to buff-coloured, sericitic. Coarse euhedral arsenopyrite. ½" quartz vein with specks of visible gold. Minor pyrite and chalcopyrite.
U-2-31	13796	3.05 m (10')	1.85	-	Silicified greywacke-fine-grained, greenish grey and gneissic. Silicification and sericitization limited to quartz veinlet margins. Minor fuchsite in altered veinlet margins.

1984

Hole No.	Sample No.	Oz/T Au	Oz/T Ag	Sample Description
-	84-MWR-1 (Second level shear 35.1 m (115') from slope end)	105 ppb	-	Sheared porphyritic sericite schist and 1.5 cm grey-white vitreous quartz with 1%, 2 mm, disseminated euhedral pyrite in the schist.

1) PROPERTY NAME: **Maki East Occurrence (91)**

DATE(S) VISITED:
November 2, 1983
May 31, 1984
August 2, 1984

2) ALTERNATE NAME(S): Nezah Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1983: Neil and Mark Maki staked a group of claims to the east of the adjoining Pichette Occurrence.

CURRENT:

1984: Quinterra Resources Limited optioned the property which included the following 28 claims:
TB614227 to TB614231
TB645044 to TB645049
TB654051 to TB654055
TB645159 to TB645162
TB645164 to TB645170
TB645356 and TB645373

5) LOCATION AND ACCESS:

42E12/NE
U.T.M. Zone 16 Northing 5500600
Easting 452050

GENERAL LOCATION:

The occurrence is located in northeastern Vincent Township.

ACCESS:

The claims lie 13 km west southwest of Jellicoe and 0.8 km south of the Blackwater River and Canadian National Railway tracks. A bush road parallels the south side of the tracks from Kyro's (west) Road. In low water conditions, a four-wheel drive vehicle can be driven through the river to an area north of the main showings. Access may be realized by boat across Nezah Lake and along trails/claim lines.

REFERENCES:

Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934c, Namewaminakan (Sturgeon) River Area.
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2854, Vincent Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The Maki East Occurrence is hosted in the Southern Metavolcanic Sub-belt of the Wabigoon Sub-province. Basalt and mafic to intermediate tuffs, minor mafic to felsic intrusions, with chemical and minor associated interflow sedimentary rocks are present in the sub-belt. Foliation is generally 070° to east-trending. Rocks dip steeply to the north to vertically. Rocks are metamorphosed to greenschist grade. The Maki East Occurrence is underlain by mafic metavolcanics (basalts and tuffs) hosting chemical metasediments.

7) MINERALOGY:

Gold mineralization is associated with chemical metasediments (ironstones). These ironstones are banded and consist of recrystallized chert, magnetite or hematite (some specular) and iron amphiboles (including grunerite and hornblende). At least four ironstone units striking 260° have been located by stripping. Two of the units are subparallel, approximately 10 m apart, and are separated by sheared to massive, silicified, intermediate volcanic rocks. Mafic tuffaceous rocks, also silicified, form the north contact of the most northerly ironstone.

Gold is associated with replacement pyrite and arsenopyrite in the ironstone. Minor narrow quartz veins occur with erratic sulphides.

Limited work has been undertaken on trenches southwest of the aforementioned area.

1983

Sample No.	Assay Au(oz/T)	Sample Description
83-MME-1	Trace (<0.01)	Rusty grey-white vitreous chert vein in green andesitic flow rock. No sulphides noted.
83-MME-2	Trace (<0.01)	Sugary chert in magnetic banded iron formation. Rusty fibrous amphibole noted. No sulphides noted. Dark grey to black quartz.
83-MME-3	Trace (<0.01)	Rusty grey-white banded sugary chert in green andesitic country rock. Sheared. No sulphides.
83-MME-4	Trace (<0.01)	Highly sheared and silicified argillaceous rock and iron formation. Non-magnetic. Black graphitic? Shears. Highly gossaned. No sulphides.
83-MME-5	Trace (<0.01)	Iron formation - dark grey to black. Highly sheared and gossan silicified argillaceous rock. 2 mm black graphitic "knots" forming circular vugs where weathered. No sulphides.
83-MME-6	Trace (<0.01)	Rusty grey-white sugary banded chert similar to 83-MME-3. No sulphides noted. Hematitic iron formation.
83-MME-7	Trace (<0.01)	Same as above but highly banded charact. more evident. 1.5 cm interband of fibrous amphibole and 5 to 7 mm discon. bands of fine sandy sediment. Rusty. No sulphides.
83-MME-8	Trace (<0.01)	Massive white vitreous quartz-carbonate vein (chert). No sulphides noted.

1984

Sample No.	Analysis As (ppm)	Sb (ppm)	Au (ppb)	Sample Description
84-MNM-5	530	1.1	100	Banded, sugary chert iron formation (dark grey chert) with alternating bands of dark fibrous grunerite. Non-magnetic. No visible sulphides. Minor rust.
84-MNM-6	96	0.6	45	See description 84-MNM-5. Banded chert iron formation and grunerite-rich layers. No visible sulphides.
84-MNM-8 (Claim #614228) (Nezah No.2 Vein South)	39	0.7	445	Banded magnetic iron formation and chert (sugary). Later white vitreous quartz vein. Prominent grunerite. No visible sulphides.
840-MNM-9 (Claim #614228) (Nezah No.2 Vein South)	2.0	0.6	30	Highly sheared andesitic volcanics and sugary quartz (cherty iron formation). Prominent biotite alteration. Later white vitreous quartz. Non-magnetic.

84-MNM-10 (Claim #614228) (Nezah No.2 Vein South)	1.5	0.3	6	Highly sheared andesitic wall rock with prominent Fe-staining and biotitic alteration. No visible sulphides. Appears to have high specific gravity. Non-magnetic.
84-MNM-11 (Claim #614228) (Nezah No.2 Vein South)	2.5	0.4	45	Sheared and banded cherty iron formation with prominent biotite alteration (poss. graphite). Chert is sugary. Gossan and visible sulphides.
84-MNM-12 (Claim #614228) (Nezah No.2 Vein South)	3.0	0.5	35	White to clear vitreous chert intermixed with sheared more sugary chert. Some vuggy highly sheared green andesitic volcanic. Biotite alteration. No visible sulphides.
84-MNM-13 (Claim #614228) (Nezah No.2 Vein South)	2.0	0.6	25	Sheared cherty iron formation (sugary) with prominent biotite alteration. Biotite occupies fine fractures cross-cutting chert. One sample massive fine magnetite and grunerite. One sample patch cpy (<1%).
84-MNM-14 (Claim #614228) (Nezah far East Pit, New Showing)	40	0.7	16	Banded cherty magnetite iron formation (sugary chert) prominent grunerite. Gossan. No visible sulphides.
84-MNM-16 (Maki East-Baseline Find, Vincent Twp.)		<0.01 oz/ton		Banded sugary chert and grey-white to clear vitreous quartz vein. Samples are highly gossaned. Contain fine disseminated pyrite-rich bands (30 to 40%). In contact with highly sheared volcanics. Slightly magnetic.
84-MNM-17A (Nezah No.2, No. 1 Pit)	2.0	<0.1	4	Fine-grained, highly sheared (platy) mafic dark grey-green volcanic wall rock. Minor gossan. Minor disseminated pyrite <1% , cross-cutting quartz-carbonate veinlet.
84-MNM-17B (Nezah No.2, No. 1 Pit)	1.0	0.3	1690	Banded chert-magnetite iron formation sugary chert bands, grunerite-rich bands and 1 cm fine magnetite-rich bands. Gossan but no visible sulphides. Same pit location as sample #1.
84-MNM-18 (Nezah No.2, No. 1 Pit)	2.5	0.2	20	White dull to vitreous quartz-carbonate vein. Volcanic wall rock - crack-seal. Quilts and patches of cpy and py 1 to <1%. Some gossan.

84-MNM-19 (Nezah No.2, No.2 Pit West)	2.0	0.4	16	Banded chert-magnetite iron formation. Same as 84-MNM-17, grunerite-rich bands (retained sample for suite). Characteristic fine cross-cutting <1 mm fractures. Magnetite in sugary chert. Also serpentinized (asbestos-form) volcanic and vitreous quartz. No visible sulphides.
84-MNM-20 (Nezah No.2, No.3 Pit West)	1.0	0.1	4	Vitreous quartz-calcite vein (highly disturbed) and discontinuous. In contact with high altered and sheared chloritic green volcanics with prominent biotite alteration. No visible sulphides.
84-MNM-21 (Nezah No.2, West of Pit No.3)	2.0	<0.1	5	White vitreous quartz vein. Fracture seams contain chlorite-sericite-biotite alteration. No visible sulphides.
84-MNM-22 (Nezah No.2, East Pit)	1.0	0.2	11	Banded chert-magnetite iron formation, grunerite layers. Altered volcanic and later vitreous quartz vein. Visible sulphides. Gossaned. Prominent biotite alteration. Massive euhedral po and py assoc. with quartz vein.
84-MNM-23 (Nezah No.2, East Pit)	<1.0	<0.1	20	Heavy biotite alteration, vitreous quartz vein and massive euhedral po and py mineralization.
84-MNM-24 (Nezah No.2, East Pit)	1.0	0.7	16	Banded chert-magnetite-grunerite iron formation. Biotite alteration in dark band with magnetite fine cross-cutting fractures in sugary chert. Minor cpy and po in dark band (pyrite also). Occurs as fine discontinuous streaks. 1%.
84-MNM-25 (Nezah No.2, East Pit)	<1.0	<0.1	4	Same location as 84-MNM-24. Altered and sheared green volcanic. Prominent biotite alteration, medium-grained. Grey-white vitreous quartz vein. Cpy, py streaks along shears, 2-3% in volcanics. Non-magnetic.
84-MNM-26 (Old Pit-East of Claim #645051-No.3 Post)	3.5	0.9	4	Chert banded iron formation slightly magnetic. Fine cross-cutting fractures. In contact with sheared green volcanics, minor gossan. No visible sulphides.

ONTARIO GEOLOGICAL SURVEY

Open File Report 5630

Gold Occurrences, Prospects, and Deposits of the Beardmore–Geraldton Area Districts of Thunder Bay and Cochrane

Volume 2

1986

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ONTARIO GEOLOGICAL SURVEY

Open File Report 5630

Volume II

Gold Occurrences, Prospects, and Deposits of the Beardmore-Geraldton Area Districts of Thunder Bay and Cochrane

by

John Mason and Gerry White

1986

This project was funded equally by the governments of Canada and Ontario under the Northern Ontario Rural Development Agreement (NORDA)

Mason, John, and White, Gerry

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Ministry of
Northern Development
and Mines
Ontario

1) PROPERTY NAME: **Maki Occurrences (Main Block) (93 to 96)**

DATE(S) VISITED:
May 6, 1981
June 25, 1981
June 26, 1981
August 4, 1982
August 1, 1984

2) ALTERNATE NAME(S): Longworth Occurrence
Westam Occurrence
Dougall Occurrence
Sogemines Occurrence
Hilo Occurrence
Hanson Occurrence

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1928: The Westman Occurrence (TB5845-6) which lies on the south boundary of the present Maki Occurrence was trenched and sampled.

1937: The Hilo Gold Syndicate Group conducted trenching over claims TB21947-9, TB24482-3, and TB24778, adjacent to the Longworth Group claims to east, which was optioned to Ventures Limited. The Hilo and Longworth claims conform to the current Maki Occurrence (Main Block).

1947: Dougall Gold Mines drilled 34 holes totalling 845 m (2,772 feet) mainly near what is now called Sandra's Pit (Maki Occurrence). Dougall held 36 claims: TB25708-11, TB24482, TB24163-4, TB21947-8, TB31916-7, TB25712-3, TB24778, TB26496, TB21673, TB21949, TB24483, TB31688-91, TB31732-4, TB36414-8, TB31852, TB31881, TB31914-5, TB31956-7. Most claims were acquired from Sandenise Gold Mines Limited. The balance was acquired through staking.

1958: The Dougall property consisted of 26 claims: TB89462-74, TB87704-6 and TB87836-45. Linecutting, geology and geophysics were conducted. Sogemines Development Company Limited drilled 4 holes near what is now called the Big Trench and 2 holes near the present Skidder Trench (Maki Occurrence).

1959: Sogemines Development Company Limited drilled 9 holes in the Sandra's Pit area.

1971-1974: Hanson Mines Limited drilled 7 holes on 4 claims in the Sandra's Pit area to test Dougall Gold Mines' results, and conducted mapping.

1977: N. Maki, A. Maki, M. Maki and B. Cousineau staked the property. N. Maki recorded mechanical work on claim TB418431 and diamond drilling on claim TB459787.

1981: The following claims were held by N. Maki and partners: TB519436-9, TB35284-9, TB603295-7, TB513440-1, TB513459, TB459787, TB418431, TB513154-7, TB513497, TB603298-9, TB604197. Pancontinental Mining (Canada) Limited optioned the claims and conducted linecutting, surface sampling and mapping.

1982: Pancontinental dropped the option. N. Maki performed stripping and trenching, credited to the following claims: TB519438-9, TB418431, TB51354-7, TB459787, TB603295-8, TB513440-1, TB513497-9, TB535284, TB614117-20.

1983: N. Maki and partners optioned the following claims to Eldor Resources Limited: TB418431, TB459787, TB513154-7, TB513440-1, TB513497, TB513499, TB519438-9, TB535284-5, TB535287-9, TB603295-9, TB604197, TB604201-5, TB614117-9, TB614120 and TB641537-9. Eldor Resources Limited performed linecutting, geophysics, geology and sampling. N. Maki performed stripping on claims TB645160-63, TB645373, TB614227-31 and TB645051-55.

1984-1985: Quinterra Resources Incorporated optioned the Maki Occurrence and conducted sampling. Quinterra dropped the option.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5599850
Easting 447450

GENERAL LOCATION:

The property is located in the northwestern portion of Vincent Township.

ACCESS:

From Highway 11, travel south on the boundary road between McComber and Vincent Townships to the Canadian National Railway tracks. Permission to cross these tracks by heavy equipment can be obtained from the Canadian National Railway. Norman and Edith Lakes can be crossed by boat in the late summer and fall. A system of logging roads and claim lines access the occurrences.

REFERENCES:

Carter (1983).
Hamilton (1937)*.
Holbrooke (1937)*.
Jones and Martin (1984)*.
Langford (1928).
Mason and McConnell (1983).
O'Flaherty (1958)*.
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Teare (1937)*.

MAP REFERENCES:

Map 37k, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934c, Namewaminikan (Sturgeon) River Area.
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2854, Vincent and McComber Township (Carter, 1985

6) GENERAL GEOLOGY AND STRUCTURE:

The Maki Occurrences (Main Block) are hosted in the Southern Metavolcanic Sub-belt. Basalt and mafic to intermediate tuffs, minor mafic and felsic intrusions along with chemical and minor associated interflow sedimentary rocks are present in the unit. Foliation is 70° to 95°AZ. Rocks are metamorphosed to greenschist grade.

Carter (1983) determined the metavolcanic rock to be mainly iron tholeiites.
Basalt mafic to intermediate tuffs underlie the Maki Occurrences (Main Block).

7) MINERALOGY:

Gold is associated with two environments: 1) replacement and vein-related sulphides in banded oxide ironstone and 2) quartz veins in metavolcanics.

1) Sandra's Pit (TB513441), the Skidder Find (TB513154) and portions of the Discovery Trenches (TB535289) (all local occurrence names can be seen on sketch maps in the Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay) are examples of ironstone-associated gold. Gold is associated with arsenopyrite, pyrrhotite and pyrite in replacement sulphides in discontinuous layers or in quartz veins. The ironstone consists of mesobands of magnetite, recrystallized chert, grunerite and iron carbonate. Several ironstone units occur on the property but one main unit, 1-2 m thick, follows a linear trend through the centre of the property (up to 3 parallel iron formations occur separately within 10 m). The ironstone units strike 080°-095° and dip 63°-80°S (Jones and Martin, 1984)*.
Assays range up to 0.40 ounce gold per ton.

2) Quartz-carbonate veins can be observed at the Big Pit (TB513154), Discovery area, Moosehorn Occurrence (TB519439) and Moosefind. The veins commonl intrude the metavolcanics discordant to foliation and can appear as a stockwork system. The quartz is milky white, massive to saccharoidal and locally contains epidote, tourmaline, chlorite, hematite and fuchsite. Veins range up to 5.0 m wide. Visible gold occurs in the Discovery and Big Pit veins.

8) CHEMICAL ANALYSES:

1981

Sample No.	Au(oz/T)	Ag(oz/T)	Sample Description
81-MNM-1 (Big Pit)	<0.01	<0.10	Medium to very coarse-grained quartz with abundant tourmaline, some epidote and carbonate.
81-MNM-2 (Big Pit)	0.02	<0.10	Sugary to coarse-grained quartz with arsenopyrite (20-25%) and sulphide staining.
81-MNM-3 (Big Pit)	<0.01	<0.10	Silicified metavolcanic.
81-MNM-4 (Big Pit-East Ext.)	0.02	<0.10	Sugary to very coarse-grained quartz with arsenopyrite (20-25%) and sulphide staining.
81-MNM-5 (Big Pit)	<0.01	0.94	Medium to coarse-grained quartz with some carbonate and abundant galena (20-25%).
81-MNM-6 (Big Pit-West Ext.)	0.01	<0.10	Quartz vein and wallrock - chip sample across 86 cm (34 inches).
81-MNM-7 (Big Pit-West Ext.)	<0.01	<0.10	Coarse to very coarse-grained quartz with seams of sheared metavolcanic containing chlorite, pyrite and arsenopyrite (50-60%).
81-MNM-8 (Bob's Pit)	0.01	<0.10	Seams of fine-to-coarse-grained quartz with seams of arsenopyrite (10%) and tourmaline.
81-MNM-9 (Beaverdam-#3 Pit)	0.01	<0.10	Sugary quartz vein (sheared) with narrow seams of chlorite, tourmaline, carbonate alteration sulphide staining.
81-MNM-10 (Main Pit-Beaverdam)	0.01	<0.10	Quartz vein and wallrock - chip sample across 124 cm (51 inches).
81-MNM-11 (Roadside Pit-Beaverdam)	0.01	<0.10	Quartz vein and wallrock - chip sample across 114 cm (45 inches).
81-MNM-12 (Discovery #2 Vein)	0.12	2.12	Sugary quartz vein with carbonate alteration and sulphide staining. Contains scattered galena and chalcopyrite (15%).
81-MNM-13 (Discovery #2 Vein)	0.14	1.14	Sugary to very coarse-grained quartz with abundant sulphide staining and chalcopyrite (15%).

81-MNM-14 (Discovery #1 Vein)	0.04	0.82	Sugary and medium-grained quartz with abundant sulphide staining. Contains chalcopyrite and galena (20-25%).
81-MNM-15 (Discovery #3 Vein)	0.35	1.91	Sugary quartz vein with seams of chlorite-tourmaline throughout. Contains chalcopyrite (5%).
81-MNM-16 (Discovery #4 Vein)	<0.01	<0.10	Sugary quartz vein that has been highly oxidized (limonite).
81-MNM-17 (Sandra's Pit)	<0.01	<0.10	Sugary quartz stringer in magnetite iron formation. Also contains minor arsenopyrite.
81-MNM-18 (Sandra's Pit)	0.40	<0.10	Intermediate to mafic metavolcanic, containing quartz zones, abundant arsenopyrite, and some magnetite.
81-MNM-19 (Sandra's Pit)	<0.10	<0.10	Coarse to very coarse-grained quartz-carbonate material with carbonate alteration and mafic inclusions.

*Samples 81-MNM-17, 81-MNM-18, 81-MNM-19 - same numbers were used twice - 2 separate sets of 3 samples.

Sample No.	Au(oz/T)	Ag(oz/T)	Sample Description
81-MNM-17 (Discovery #2, 0 + 25W 9 + 30S)	0.18	1.04	Sugary (saccharoidal) quartz-carbonate mineralized with sulphides (an, sph, cp) 10-15%.
81-MNM-18 (Discovery #2, 0 + 85E 1 + 20S)	0.08	0.62	Sugary (saccharoidal) quartz-carbonate with some coarse-grained quartz and 25% sulphides, (po, asp, py, cpy).
81-MNM-19 (Discovery #2, 0 + 85E 1 + 20S)	0.38	1.88	Sugary (saccharoidal) to medium-grained quartz-carbonate with galena (20-25%).
81-MNM-20 (Discovery #2, 0 + 25W 0 + 30S)	0.08	1.26	Sugary (saccharoidal) to coarse-grained quartz-carbonate with galena and minor chalcopyrite (25%).
81-MNM-21 (Discovery #2, 0 + 25W 0 + 30S)	0.04	0.14	Sugary (saccharoidal) to coarse-grained quartz-carbonate with 25-30% pyrrhotite.
81-MNM-22 (Discovery #2 Vein)	<0.01	<0.10	Barren, coarse-grained quartz, that is highly sheared and weathered and chloritized wallrock. Chip sample.
81-MNM-23 (Discovery #2 Vein, Ext. 3)	0.01	0.25	Sugary to coarse-grained quartz with some carbonate alteration and chloritic/sericitic host contains 10% galena.
81-MNM-24 (Discovery #2 Vein, Ext. 3)	0.01	<0.10	Sugary to medium-grained quartz showing much sericitization along margins. No visible sulphides.

81-MNM-25 (Lucky #7 Vein)	0.01	<0.10	Silicified (sugary quartz stringers) and chloritized metabasalt host adjacent to vein.
81-MNM-26 (Lucky #7 Vein)	0.03	0.15	Sugary to coarse-grained quartz with chloritized metavolcanic, contains chalcopyrite, galena and pyrrhotite - 20%.
81-MNM-27 (Lucky #7 Vein)	0.03	0.39	Sugary to coarse-grained quartz. Abundant iron and sulphide staining (cpy, galena, py - 25-30%).
81-MNM-28 (Lucky #7 Vein)	0.04	<0.10	Sugary to coarse-grained quartz with abundant iron and sulphide staining, chlorite alteration, (cpy, po - 5%).
81-MNM-29 (Lucky #7 Vein)	0.81	5.89	Sugary to coarse-grained white to rosy quartz with abundant pyrrhotite and galena (40%).
81-MNM-30 (Lucky #7 Vein)	<0.01	0.26	Chloritized metabasalt taken from host rock adjacent the vein.
81-MNM-31 (Aili's Vein)	0.01	0.19	Sugary to coarse-grained white to rosy quartz with some chalcopyrite and galena (10-15%).
81-MNM-32 (Aili's Vein)	0.05	0.11	Metabasalt that has been silicified (small quartz stringers) and chloritized. Sample from host rock adjacent the vein.
<u>1982</u>			
82-MNM-1 (New Discovery TB418431)	0.26	0.10	Narrow quartz vein with abundant chloritization of wallrock.
82-MNM-2 (New Discovery TB418431, #2 Post)	0.06	<0.10	Very coarse-grained glassy quartz vein with abundant chloritization containing 10-15% pyrite, carbonate, and hematite staining throughout.
82-MNM-10 (Moosehorn TB519439)	<0.01	<0.10	Saccharoidal to medium-grained quartz vein with minor calcite alteration. Contains tourmaline and <1% galena.
82-MNM-11 (Moosehorn TB519439)	0.02	0.52	Medium to very coarse-grained quartz (crystalline) with 1-2% combined galena and chalcopyrite.
82-MNM-12 (Moosehorn TB519439)	0.13	3.89	Saccharoidal to coarse-grained quartz with 4-5% galena and minor chalcopyrite.

82-MNM-13 (TB519439)	<0.01	<0.10	Highly weathered, rusty iron formation containing magnetite and iron amphiboles (grunerite?).
82-MNM-14 (TB614109)	0.03	<0.10	Highly weathered, rusty chlorite schist with narrow sugary quartz blebs.
82-MNM-15 (TB614109)	<0.01	<0.10	Graphitic chert material.
82-MNM-16 (Skidder Showing)	0.01	<0.10	Iron formation containing alternating bands of saccharoidal quartz and magnetite chlorite.
82-MNM-17 (Skidder Showing)	0.01	<0.10	Vein containing equal portions of saccharoidal to coarse-grained quartz, tourmaline and arsenopyrite.
82-MNM-18 (Bull Quartz Showing)	0.01	<0.10	Highly weathered, rusty wallrock containing chloritic, potassic and calcitic alteration. Contains 1-2% pyrite.

<u>1984</u>

	Analysis			
Sample No.	As (ppm)	Sb (ppm)	Au (ppb)	Sample Description
84-MWM-1 (Big Pit #1)	19	0.2	15	Banded cherty carbonate-rich iron formation. Sheared. Minor diss. pyrite <1%.
84-MWM-2 (Big Pit #2)	385	0.3	7	Grey-white vitreous quartz vein (fractured texture) and minor sheared green andesitic volc. (altered sericite alteration). No visible sulphides.
84-MWM-3 (Big Pit #2)	3.38%	2.3	500	Banded chert iron formation (non-magnetic) 5%, 1 to 2 mm, sub to euhedral arsenopyrite.
84-MWM-4 (Sandra's Pit)	4.38%	3.3	3200	Banded sugary chert iron formation. Some magnetite bands up to 1 cm. Contains crs. (up to 5 mm) sub to euhedral arsenopyrite restricted to dark magnetite-rich bands. 5% overall.

1) PROPERTY NAME: **Makina Lake North Occurrence** DATE(S) VISITED:

2) ALTERNATE NAME(S): Lofquist

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

Prior to 1928: The occurrence was covered by one claim registered to Mr. Lofquist. Surface work had been carried out to trace a shear zone for 91.4 m (300 ft.) across the claim.

CURRENT:

1928 to present: There is no record of any further work done on the occurrence. The claim map record (which goes back to 1935) shows that no claims have been staked in the area since 1928.

5) LOCATION AND ACCESS:

42E12/NW
U.T.M. Zone 16 Northing 5492450
Easting 436550

GENERAL LOCATION:

The occurrence is located in the extreme southwest corner of McComber Township.

ACCESS:

The occurrence is situated approximately 2 km northwest of the middle of Kinago Lake (formerly Makina Lake), near the south shore of Camproad Lake. Beardmore, the closest town, lies 6.15 km to the northeast.

Access to the occurrence can be gained, using a 4 x 4 and/or all terrain vehicle, by following the Camproad Creek Road (on the east side of Highway #11 about 2 km south of Beardmore) eastward for approximately 7.9 km. Camproad Lake is a short distance south of this point.

REFERENCES:

Carter (1983).
DeCamps (1937)*.
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area.
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2853, Precambrian Geology of McComber Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The Makina Lake North (Lofquist) Occurrence occurs within the Quetico Subprovince, in a sequence of metasediments and derived migmatite, immediately south of the Subprovince boundary with the Wabigoon Belt. The metasediments are composed of wacke, siltstone, slate, mica schist, garnet gneiss, staurolite gneiss, conglomerate, quartzite, phyllite and amphibolite. The area of the occurrence is underlain by wacke, intruded to the north and east by a large Late Precambrian diabase dike.

The subprovince boundary is marked by a regional lineament (fault) termed the Blackwater River Fault. Regional cleavage strikes 070-085° and dips 65-85°N.

7) MINERALOGY:

Mineralization occurs in a shear zone-hosted quartz vein which varies in width from 1.2 m (4.0 feet) to 1.8 m (6.0 feet). The shear zone strikes 073° (Langford, 1928). Mineralization consists of galena and chalcopyrite with associated traces of gold and silver.

Note: Carter (1985) was unable to locate Makina Lake North (Lofquist) Occurrence during mapping of Vincent-McComber Townships.

1) **PROPERTY NAME:** **Maloney Sturgeon Prospect (98)**

DATE(S) VISITED: July 28, 1983

2) **ALTERNATE NAME(S):**

3) **COMMODITY:** **MAIN:** Au **SECONDARY:** Ag

4) **DEVELOPMENT, HISTORY AND OWNERSHIP:**

PAST:

1934: Rene Maloney discovered gold in an andesite outcrop to the east of Peddle Lake. Twenty-two claims were staked by Maloney, and various others, for Karl Springer Exploration Company. The gold showing occurs in the northwest corner of claim TB12914. Maloney Sturgeon Gold Mines Limited was incorporated and the claims were transferred to this company in November. A shallow test pit was blasted on the showing, revealing a quartz lens up to 2 m (7 feet) wide and striking N50°W. Two cross trenches were dug to the northwest, but no further vein material was uncovered in this direction. Several deep pits were dug in a southerly direction about 15 m (50 feet) east of the original pit, following the rusty shear zone the vein occurred in. No important mineralization was uncovered, however.

1935: The discovery pit was opened up further. "Spectacular gold ore" (Laird, 1936) was uncovered. About 40 tons of vein material was removed from a 6 m (20 foot) long ore pocket. A shipment of 364 lbs of cobbed material produced a 21.4 oz gold brick. Karl J. Springer, the director of the Maloney Sturgeon Gold Mines Company, intended to sink a 25 foot (7.5 m) shaft on the high grade shoot if it continued at depth.

1936: The claims were cancelled due to non-renewal of licence.

1937: The claims were re-instated. One ton of ore was reported produced which yielded 72.6 oz of gold and 16 oz of silver for a total value of $2,549.00.

1938: The claims were cancelled in April and immediately restaked by V. B. Lyle. Work was recorded on them in June.

1939-1942: The claims were transferred to Springer Sturgeon Gold Mines Limited in 1939, and then to Rene Maloney in 1940. Work was recorded on them in April. In 1941, the claims were cancelled, and the ground around the gold showing was immediately restaked by Albert Beaupre as claims TB28931, TB28932, TB29186 and TB29187. Work was recorded on them in 1941 and 1942.

1953: The above-mentioned claims were brought to lease by Albert Beaupre. The lease was terminated in 1973.

1973: The area around the gold showing was staked by Arthur Pudifin.

1975-1976: Geophysical (magnetometer) work was recorded in 1975. The claims were cancelled in February, 1976.

1977-1978: Albert Hopkins staked the ground in 1977. The claims were cancelled in December, 1978.

1979-1980: The ground was staked by Ike Burns Exploration in September, 1979, and cancelled in November, 1980.

1983: Glen Harder staked the property.
R. J. McGowan (Manwa Exploration Services Limited) optioned the claims and conducted detailed mapping.
T. Auger staked additional claims and transferred them to R. J. McGowan.

CURRENT:

1985: The claims lapsed and McGowan staked TB862416, covering the original pit.
N. Cox staked TB874440; C. Huston staked TB874409 and R. McAdam staked TB814988.

5) LOCATION AND ACCESS:

42E13/SW
U.T.M. Zone 16 Northing 5512700
Easting 437050

GENERAL LOCATION:

The property is located 20.0 km north-northeast of the Beardmore townsite in the southwest corner of Pifher Township.

ACCESS:

The main showing can be reached by 2-wheel drive vehicle from Highway #11, 26 km east of Beardmore. The second road (River or 72 Road) travelling west from Highway #801 (11 km north), north of the Namewaminikan River crossing, provides access to the property.

REFERENCES:

Laird (1936).
Ferguson et al. (1971).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The property lies in an area underlain by mafic to felsic metavolcanics which are intruded by diabase and granitic rock. Specifically, the Maloney Sturgeon prospect is underlain mainly by pillowed and tuffaceous mafic metavolcanics. Irregularly-shaped intrusions of feldspar porphyry or granite porphyry can be found. The metavolcanics are dark green, highly altered, have well-developed pillow structures, strike generally N80°E and have a near vertical dip (Laird, 1936).

7) MINERALIZATION:

The mineralization consists of gold and sulphides (pyrite with minor galena, chalcopyrite, malachite and sphalerite) in vitreous quartz veins. The veins are well-fractured, with thin layers of dark chlorite or sericitic material filling the fractures, giving the veins a banded or ribboned appearance. The gold is only seen to occur in the free state, not associated with the sulphides (Laird, 1936).

On the Maloney Sturgeon property the initial discovery vein is the only zone of economic importance found to date. This vein, in the northwest corner of the old claim TB12914, is lens-shaped where first found, with widths up to 2 m (7 feet). Subsequent surface work revealed that the vein continues on strike (N50°W) for 15 m (50 feet) to the east of the first pit where it narrows to 51 cm (20 inches) and takes a sharp southward turn (Laird, 1936). Nothing of importance was found in this direction nor in the cross-trenches to the northwest, but 73 oz of gold and 16 oz of silver were obtained in material taken from the original pit in 1937. The rusty shear zone in which this vein occurs was followed for 305 m (1,000 feet). South of the original pit, stockworks of quartz were seen in an outcrop of feldspar porphyry, but little to no mineralization was reported (Laird, 1936).

8) ECONOMIC FEATURES:
PAST PRODUCTION:

1935:	21 oz gold
1937:	73 oz gold

1) PROPERTY NAME: **March Minerals Occurrence** DATE(S) VISITED:

2) ALTERNATE NAME(S): Kinghorne Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1956: The properties were staked by L. Jefferson and Romeo St. Germaine (TB82376 and TB82380 respectively).

1958: The claims were cancelled and restaked by Romeo St. Germaine (TB91721 and TB91722).

1959: The claims were transferred to Sam Taylor, who completed two diamond drill holes totalling 23.8 m (78 feet).

1960: Sam Taylor drilled 8 holes totalling 177.4 m (582 feet). The claims were optioned to March Minerals Limited which completed a three hole diamond drill program totalling 396.2 (1,300 feet).

1962: The claims were cancelled.

CURRENT:

N.T.S. 42E11/NW
U.T.M. Zone 16 Northing 5510150
Easting 477700

GENERAL LOCATION:

The property is located in northwestern Colter Township.

ACCESS:

Travel west from Jellicoe on Trans-Canada Highway #11 for 17 km, north and east on secondary roads for 12.5 km, and then southeast to Partridge Lake (approximately 3.5 km). The occurrence is located 2.5 km east of the road. The Canadian National Railway Main Line also runs 2 km south of the occurrence.

REFERENCES:

Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map P1192, Colter Township (Mackasey et al., 1976).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2518, Partridge Lake Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Lattimer Occurrence (Legault Township).

Drilling performed by Sam Taylor intersected predominantly highly altered, schistose and sheared metavolcanic rocks of andesitic or more felsic compositions. Mineralized quartz feldspar porphyry was noted.

The three holes drilled by March Minerals Limited intersected andesitic metavolcanics and pyroclastics, ending in a conglomerate (agglomeratic) unit (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines,Thunder Bay).

7) MINERALOGY:

Mineralization consists of massive to disseminated pyrite with traces of chalcopyrite (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

8) ECONOMIC FEATURES:

None.

9) CHEMICAL ANALYSES:

1960 - Sam Taylor, Selected Core Samples

Hole No.	Core Length	Au(oz/T)	Description
Sam Taylor 7	2.13m (7')	Nil	Alternating bands of porphyry and carbonated greenstone. Small amounts of massive pyrite.
9	0.70m (2.3')	Trace	Altered rock at the contact of carbonatized feldspar porphyry and quartz diorite or andesite. Scattered sulphides (Resident Geologist's Files, Ontario Ministry of Northern Development, and Mines, Thunder Bay).
March Minerals 1	0.61m (2.0')	Nil	Agglomerate-light grey, fine-grained, small rounded cherty fragments, 1% massive pyrite fragments.
3	0.64m (2.1')	0.01	Conglomerate? Considerable recrystallized feldspar and pebbles of massive pyrite (Resident Geologist's Files, Ontario Ministry of Northern Development, and Mines, Thunder Bay).

1) PROPERTY NAME: **McKenzie-Jarvela Occurrence (99, 62)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Copper Prince Occurrence
Kenmore Occurrence
Nipsona Occurrence
Hewitt Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1925: H. Jarvela staked 6 contiguous claims: TB4843, TB4844, TB4845 and TB9760, TB9761, TB9762.

1927: The claim group was expanded to 13 claims. The Hewitt Mining Company Limited held the McKenzie claim group which consisted of 7 claims adjoining the then 6 claim Jarvela group on the west. The Huronian Belt Company may have conducted work on the McKenzie group. Trenching and pitting were completed.

1935-1936: Nipsona Mines optioned 7 claims from the McKenzie-Jarvela group. Twelve claims were held outright by Nipsona. Trenching, pitting and diamond drilling were reported as completed during 1935-36. A shaft was planned with levels at 150 feet and 300 feet.

1937: Coniagas Mines was reported to have optioned the McKenzie-Jarvela group from Nipsona Mines.

1939: Kenmore Gold Mines reportedly acquired the McKenzie claims.

1950: Most claims lapsed.

1958: Copper Prince optioned 26 claims including the McKenzie-Jarvela (then called Hogan) claims and the Neelin-Braggan Occurrence, which appears to be the east extension of the same structure (see separate file). The claims included the following: TB90373-81, TB90774-81, TB91451, TB91460-67.

1977-1981: A. Hopkins staked the property as part of a larger claim block and conducted power stripping, geochemistry and diamond drilling.

CURRENT:

1981: Pancontinental Mining (Canada) Limited optioned the property. Geophysics, benefication, geology, linecutting and diamond drilling have been recorded on a larger block covering the McKenzie-Jarvela Occurrence.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5496600
Easting 437300

GENERAL LOCATION:

The property is located in McComber Township, 7 km east-northeast of Beardmore.

ACCESS:

Access is via claim lines or air transport.

REFERENCES:

Carter (1983).
Greer (1958)*.
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area.
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P 2853, McComber Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The McKenzie-Jarvela Occurrence is located in the Southern Metavolcanic Belt (see Ralph Lake Occurrence for geology and structure).

Greer (1958)* described the geology of the Copper Prince Property as follows:

"The claims are entirely underlain by andesitic or basaltic lava striking about North 69° East and dipping steeply to the north.

Several narrow bands of iron formation were noted. The largest of these bands was about 60 feet in width. The iron formation probably was deposited between flows.

A few dikes of feldspar porphyry were noted. These appear to follow the foliation of the lava."

7) MINERALOGY:

Langford (1928) described the mineralogy of the McKenzie (Hewitt) and Jarvela Occurrences as two separate properties, although they appear to lie on the same vein:
(Hewitt Mining Company (formerly McKenzie))

"The 7 claims of this company are located south of the railway at mileage 17. The west end of the main showing is to be seen at a point 5 chains north of the No. 2 post of claim TB4850. It consists of two veins, which range in width from 1 to 3 feet and are separated by 4 to 5 feet of greenstone schist. The quartz is a milky or bluish-white colour, rusty along the cracks, and is mineralized with pyrite, chalcopyrite, arsenopyrite, galena, sphalerite, and native gold. Both walls are greenstone schist, and the vein is uncovered for 100 feet east from the above point. Eleven chains east along the same strike, the same vein has apparently been uncovered for another 1,000 feet, where it shows 1½ feet of rusty quartz in schistose greenstone, mineralized with galena, sphalerite and pyrite.

(Jarvela)

These 6 claims are immediately east of the Hewitt claims, and the main showing on them is a probable continuation of the Hewitt vein, for along the same strike a vein is found 6½ chains east of the west line of claim TB4843. Where first exposed it consists of 6 inches of rusty quartz, in schisted greenstone, which widens to 20 inches in 15 feet and carried chalcopyrite, arsenopyrite, galena, and small specks of native copper and gold. This structure has been found to continue eastward for a distance of 40 chains, by means of pits. The greatest width of the quartz in these lenses is 4 feet."

Greer (1958)* described the mineralogy of the Copper Prince Property as follows:

"A zone 6 or 8 hundred feet wide and extending the entire length of the property displays moderate shearing. Approximately in the centre of this zone the shearing is quite intense over a width of 4 or 5 feet and quartz has been injected, usually in the form of lenses up to 4 feet in width and up to 500 feet in length. Most of the lenses are much smaller, however.

Some of the quartz lenses contain a good deal of galena and pyrite. Arsenopyrite and sphalerite are less abundant. Fine visible gold was noted at several points on the "Jarvela" vein. Best gold values were found on claims 90374, 90373, 90375 and 91451.

Approximately 900 feet north of the Jarvela vein on claims 91451 the North vein has been traced by trenches and stripping for almost 800 feet. This vein is especially well mineralized, with galena and arsenopyrite. Widths are only a few inches however and gold values are disappointingly low.

The only other mineralization worth mentioning, occurs in a band of iron formation near the south boundary of the property. The iron formation here is highly oxidized and shows traces of sulphides. Blasting would undoubtedly reveal a heavy sulphide content. Extensive panning of the outcrops showed no trace of gold, however."

Greer (1958)* noted the best channel sample assayed 0.38 ounce per ton gold over 0.1 m in the Jarvela vein but visible gold is disseminated erratically throughout the vein.

June, 1981
July 22, 1981
September, 1981
November, 1981
July 14, 1982
July 7, 1983
July 19, 1983
September 20, 1983
October 24-25, 1983
June 12, 1984
June 13, 1985
August 28-29, 1985

2) ALTERNATE NAME(S): Portage Longlac Mines
Longacre Longlac Mines

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1922: Claims TB10715, TB10716, TB10717, TB10767, TB10768, and TB10769 were staked by J.J. McLellan. The latter three claims were recorded under the name of Ross McLellan.

1933: Claims TB11011 and TB11012 were staked by Ross McLellan. Mining Operation Permits were obtained for all eight claims. A total of 34 assessment days were credited to each claim for unspecified surface work. The claims were acquired by Longacre Longlac Gold Mines Limited under an option agreement with Ross and J. J. McLellan.

1934: The claims were surveyed and surface trenching was performed.

1935: Surface trenching was performed and a number of holes were drilled by Longacre Longlac Gold Mines Limited (major Shareholders of Portage Longlac gold Mines Limited).

1936: The Longacre drilling program was completed with 29 holes drilled totalling 1,657.2 m (5,437 feet). The option on the property was later dropped and returned to the control of Ross and J. J. McLellan. McLellan Longlac Gold Mines Limited was incorporated to undertake further development of the discovery. Further drilling was done and an electromagnetic survey was conducted.

1937: After completion of the drilling program, operations were suspended due to disappointing results.

1938-1939: Work was performed on the property by H. C. Dudley, who drilled 13 holes totalling 2,187.9 m (7,178 feet). Results were not encouraging and work was discontinued.

1941: McLellan Gold Mines Limited was incorporated to finance underground exploration of the main zone. A three-compartment vertical shaft was sunk to a depth of 327 feet (99.7 m) with levels established at 150 feet (45.72 m) and 300 feet (91.4 m). A number of buildings were constructed on surface. A total of 762.0 m m (2,500 feet) of underground drilling and 670.6 m (2,200 feet) of lateral underground development was completed. Surface drilling was also performed.

1942: Operations were suspended due to disappointing results.

1953: The company name was changed from McLellan Gold Mines Limited to Dyno Mines Limited with an exchange of one new share for four old shares. No work was performed on the claims.

1956: The company name was changed to Canadian Dyno Mines Limited with an exchange of one new share for four old shares. Again, there was no work performed on the property.

1968: Canadian Dyno Mines Limited amalgamated with Mogul Mines Limited, Yale Lead and Zinc Mines Limited, and Lorado Uranium Mines Limited to form International Mogul Mines Limited. No work was performed on the property.

1977-1978: The McLellan prospect was not listed as being owned by International Mogul Mines Limited and was presumably sold to J. E. Connors (Canadian Mines Handbook, 1977-78).

1980: The property was optioned to Roxmark Mines Limited (37.5%), Lynx Canada Explorations Limited, (37.5%), and Canadian Reynolds Metals Company Limited (25%). The option agreement from J. E. Connors involved a $100,000 payment over a three year period plus a 10% net profit royalty.

1981: A grid was cut, magnetometer and electromagnetic surveys were conducted, and stripping and trenching were completed. The property was mapped and a diamond drilling program was completed. Seven holes totalling 796.4 m (2,613 feet) were drilled. Total surface stripping was 175,000 square feet. An application was made to the Ontario Mineral Exploration Program for this property as well as the Magnet Consolidated property to the west.

1984: The company received an Ontario Mineral Exploration Program grant of $205,000 and approval for an additional $70,000.

CURRENT:

The claims are currently held by Roxmark Mines Limited (37.5%), Lynx-Canada Explorations Limited (37.5%) and Canadian Reynolds Metals Company (25%).

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5502378
Easting 497418

GENERAL LOCATION:

The property is located in southwestern Errington Township.

ACCESS:

The claim block is located 8.1 km west of Geraldton and is accessible by Trans-Canada Highway #11, which passes through the property.

REFERENCES:

Bolger (1941)*.
Malouf (1981, 1982)*.
Matheson (1939, 1941)*.
Maybank (1942)*.
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Seguin (1983)*.
Teare (1937).
Tower et al. (1946a).

6) <u>GENERAL GEOLOGY AND STRUCTURE</u>:

The property is underlain predominantly by metasediments, principally greywacke and slate with some iron formation and conglomerate. Intrusive rocks exposed on the property include hornblende diorite and plagioclase diorite porphyry, both of which form narrow dikes and sill-like bodies arranged approximately parallel to the strike of the sedimentary strata (Pye, 1951).

Pye (1951) indicates the following:

> "In general, the sedimentary formations strike about N75°W and dip steeply south. Locally, they are tightly folded, along axes that strike slightly south of west and plunge in this direction at from 40 to 50 degrees. These Z-shaped folds are incompatible with the Ellis syncline...along the south limb of which they occur, and are believed to be related to initial adjustments along the Bankfield-Tombill fault zone, which strikes N75°E across the southern part of the property."

Refer to the general geology of the Magnet Consolidated Mine for more detailed information.

7) <u>MINERALOGY</u>:

The principal gold deposit has been described by Matheson (1939)* as follows:

> "...it consists of a shear zone about 150 feet in width in dark slaty greywacke and iron formation. The mineralization is largely pyrite with which the gold values are apparently associated. Native gold has been reported in the drill cores. This gold zone has a length of about 1,300 feet on McLellan and extends eastward into...(the Tombill Main Group) for another 700 feet. Within this broad zone on the McLellan property there are two main zones lying parallel and about 60 to 70 feet apart. They are each about 500 feet in length. The south core has a width of 20 to 25 feet while the north zone appears to be considerably narrower."

A second gold-bearing zone one claim to the west, is described as consisting of narrow quartz veins in greywacke or in narrow highly sheared diorite dikes or sills. The veins are mineralized with a little pyrite and arsenopyrite (Pye, 1951). The shear zone or first gold zone described may be a portion of the Bankfield-Tombill Fault.

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

The principal deposit has been reported to contain 60,000 tons of $5.00 (0.138 oz/ton gold) ore per 100 feet (30.5 m) depth in the south zone, and 25,000 tons of $8.00 (0.221 oz/ton gold) ore per 100 feet (30.5 m) in the north zone (Matheson, 1939)*. (The price of gold in 1939 was $36.20/oz).

9) CHEMICAL ANALYSES:

Hole 101 drilled by J. C. Dudley returned approximately $2.00 (0.028 oz/ton gold) over 8.4 m (27.5 feet) of core at a depth of about 30.5 m (100 feet) in the south zone. An assay value of $8.40 (0.23 oz/ton gold) over 1.1 m (3.5 feet) was intersected at a depth of 56.4 m (185 feet) in the north zone. The best assay value in the south zone was $7.70 (0.21 oz/ton gold) over 0.8 m (2.5 feet) (Matheson, 1939)*.

Drilling of the second gold-bearing zone to the west yielded a number of significant values in 3 holes, as tabulated below:

Hole No.	Oz/T Au	Core Length
111	0.10	0.9 ft. (0.27 m)
111	0.39	1.0 ft. (0.30 m)
113	0.10	0.4 ft. (0.12 m)
113	0.40	0.6 ft. (0.18 m)
113	0.80	0.6 ft. (0.18 m)
114	0.10	0.8 ft. (0.24 m)
114	0.10	0.4 ft. (0.12 m)

(Matheson, 1939)*

Roxmark Mines-Lynx Canada Explorations-Canadian Reynolds Joint Venture drilling yielded values as follows:

Oz/T Au	Core Length	Reference
0.06	65 ft. (19.81 m)	
including 0.11	24 ft. (7.32 m)	The Northern Miner, 81-11-12, p. 3
0.11	25 ft. (7.62 m)	

Assays for the same two holes were reported to run 12.2 m (40 feet) of 0.08 oz/ton gold, including 10.7 m (35 feet) of 0.1 oz/ton gold with one section of 15.2 cm (6 inches) of spectacular visible gold in fine sedimentary rocks, 3.7 m (12 feet) of 0.08 oz/ton gold and 3.1 m (10 feet) of 0.23 oz/ton gold in iron formation. All drilling was 213.4 m (700 feet) or more east of the shaft (Stan Malouf, President, Roxmark Mines Limited, Toronto, personal communication, November, 1981).

1981

Sample No.	Oz/T Au	Oz/T Ag	Sample Description
81-MMM-1	Trace-0.01	4.06	Quartz-carbonate vein with seams of sheared, chloritized, mafic metavolcanics.
81-MMM-2	0.02	Trace-0.1	Narrow seams and stringers of quartz+carbonate in sheared chloritized, mafic metavolcanic.
81-MMM-3 (35 ft. south of 31 + 80W on old power line)	0.01	Trace-0.1	Chip sample of quartz-carbonate (calcite) vein hosted by metagreywacke.
81-MMM-4	0.03	Trace-0.10	Slaty metasediment with numerous scattered pyrite crystals (20-25% pyrite).
81-MMM-5	0.02	Trace-0.10	Metagreywacke-rich in dolomitic carbonate with yellow surface of weathered out carbonate.

1982

J. Seguin	Selected Samples	
82-FRAO-61 (second trench from the west)	180 ppb (.006 oz/ton)	Fault zone samples - chloritic, intensely foliated and heavy quartz stockwork veining.
82-FRAO-72 (eastern-most trench)	4000 ppb (0.14 oz/ton)	Iron formation with pyrite cubes.
82-FRA152-2	980 ppb (.031 oz/ton)	Arsenopyrite-bearing porphyritic intrusion.

1) PROPERTY NAME: **McWilliams-Beardmore Prospect (101)**

DATE(S) VISITED:
October 19, 1983
June 1, 1984
June 11, 1984
August 27, 1985

2) ALTERNATE NAME(S): Gold Ridge Mines Limited

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1925: The original two claims of McWilliams-Beardmore were staked by Louis Rea.

1927: The two claims were transferred to F. Sutherland in March, then in April to J. Montgomery.

1928: An extension was granted for 179 3/4 days work.

1930: 50 days work were performed on the two claims.

1934: Claims TB4946-47 were cancelled. The claims were restaked as TB11818-19 by J. Lariviere for David B. McWilliams. Claim TB18337 was staked by J. W. Evans (for Mrs. E. Weir). Surface exploration totalling 30 days work was done.

1935: Extensive surface exploration was carried out. Camp buildings and an assay office were built. Thirty-one days work was recorded on claim TB18337. Twenty bags of ore weighing approximately 727.2 kg (1,600 lbs), consisting of bulk samples from the series of pits and trenches and a 50 foot shaft, was sent to the Ottawa Mines Branch Metallurgical Laboratory. Another bulk sample was assayed from the main No. 13 vein, over a length of 106 m (350 feet).

1936: McWilliams-Beardmore Mines Limited was incorporated in Toronto on January 18th. A new block of ground, 0.8 km (½ mile) southeast of the main property, was staked by J. W. Evans (TB20532-37), then 30 days work was recorded on them.

A diamond drilling program totalling 4,152.9 m (13,625 feet) was carried out along a 152.4 m (500 foot) length of the showings. No drill logs are available, but at least 20 holes were drilled, with D.D.H. 4, 5, 11, 12, 13, 15, 16 and "C" showing commercial sections of ore. A total of 704 days work was done.

Claim TB18337 was transferred to J. W. Evans and an additional 40 days work was performed. Claim TB21606 was staked by J. W. Evans, then transferred to D. McWilliams.

1937: Claim TB18337 was the only ground worked, with 40 days recorded.

1938: Claim TB18337 was transferred to H. H. Van Wart, then 40 days work was performed. Claims TB11818 and 9 were also transferred to H. H. Van Wart.

Claims TB20532-37 were cancelled, but an order relieving the claim against forfeiture was made and the time was extended. It was then transferred to H. H. Van Wart and 40 days work was recorded. TB21606 was also transferred to H. H. Van Wart.

1939: Claim TB18337 had 53 days work performed on it.
Claims TB20532-37 had an order allowing a delayed report, and later, 46 days work was filed.

1940: All claims were granted an extension.

1941: The claims were surveyed and TB11818 and TB11819 were divided and labelled TB11818A and TB11819A. 400 days work was originally filed, then 200 days was transferred to TB11818A and TB11819A.

1942: Leases were applied for claims TB18337, TB11818 and TB11819.

1943: Claim TB11818A was reinstated, as it had been cancelled in 1941 as no report had been filed for the 200 days work.

1944: Claims TB20532-37 had applications for lease (H. H. Van Wart held part of the tenure).

1947: The leases were approved for TB11818, TB11919, and TB11818A, and Van Wart held part tenure.

1950: Claim TB21606 came open and was restaked as TB39609 by J. D. MacMillan, who then transferred the interest to Lorimar Exploration and Development Limited. A part tenure was put on claims TB20532-37 by McWilliams-Beardmore and on TB18337, TB11818 and 19, TB29018-19 and TB13638.

1951: Forty-five days work was recorded, consisting of power stripping on claim TB39609.

1952: Forty-six days work was recorded on TB39609, and Van Wart's tenure on TB13638 expired.

1954: Claim TB39609 was cancelled. The part tenure that H. H. Van Wart had on claims TB20532-34 expired.

1955: The part tenure that H. H. Van Wart had on TB20535-37 expired.

1956: The part tenure that H. H. Van Wart had on TB21606 expired.

1958: McWilliams-Beardmore put a 10 year tenure on claim TB37782. V. M. Howard put a 9 year tenure on TB11818-TB11819, and TB11818A-TB11819A.

1960: McWilliams-Beardmore put an additional 10 year tenure on TB20532-37, TB13638 and TB29018-9 (i.e. tenure up in 1970).

1973: R. Rosenblatt staked claims TB370039-40 and TB370764-5 which are situated over the original TB21606 (and also TB39609 and Dillabough's TB10451). Later in the year R. Rosenblatt transferred his interest to Gold Ridge Mines Limited, under an option agreement. Claims TB350543-44, TB370031, and TB370034-35 were staked by R. Rosenblatt, and in November they were transferred to Gold Ridge Mines Limited (these were staked over the original TB11818 and TB11818A-9A). Gold Ridge Mines Incorporated held 11 unpatented claims, covering 440 acres, including the ground formerly held by McWilliams-Beardmore, with added ground to the south and west. Although the claims were transferred to Gold Ridge in November, O. F. Carter, P. Eng., wrote a report on the property in August, as a consulting geologist .

Four samples were assayed from a dump (from shallow shaft on TB350544) on a mineralized sheared iron formation and vein zone exposed in a pit and trench. They ranged in value from 0.07 to 0.23 oz/ton gold (from shallow shaft on TB350544).

1974: A magnetometer survey was carried out on the claims during the summer by Ross Kidd, consulting engineer. Many small, separated magnetic highs and lows were outlined and most seemed to line up along two parallel trend lines. The pits and trenches on the known gold-bearing, sheared iron formation zone are located between the two magnetic trend lines (TB350544) as well as the trenches on TB370033, but the strength is lower. The magnetic trend lines have a direction of 072°, the same as the regional strike of the rocks. Geochemical soil samples were taken across the known gold-bearing shear zone to test for arsenic. The test was useful as arsenic values away from the zone averaged 40 ppm, and those over the zone ranged from 340 to 5,900 ppm.

1975: Gold Ridge had a program of diamond drilling in June/July/August for which they recorded 1,988 days of work on claims TB350543, TB350544, and TB370040. Drilling was done by Kenora Diamond Drilling Limited, and logged by O. F. Carter. Eight holes were drilled: S-1 - 76.2 m (250 feet); S-2 - 66.1 m (217 feet); S-3 - 63.4 m (208 feet) all on TB350544; S-4 - 71.9 m (236 feet); S-5 - 83.5 m (274 feet); S-6 - 77.4 m (254 feet); S-7 - 75 m (246 feet) all on TB350543; S-8 - 92.4 m (303 feet) on TB370040, all at 45° dip. The holes all encountered sheared andesite and minor greywacke with vein zones mineralized with pyrrhotite, pyrite and magnetite. Assayed samples yielded average values of 0.3 to 0.4 oz/ton gold, including a short section in hole S-8 with stringers of heavy pyrite material in a shear zone which assayed 0.34 oz/ton gold.

1977: Gold Ridge Mines claims were cancelled. Albert Hopkins staked claims TB510711-12 and TB510708-18 over ground that included former Gold Ridge Mines' claims TB350543 and 4 (McWilliams-Beardmore TB11818 and 9).

1978: Albert Hopkins staked claims TB513709-12 over former claims TB21606, TB4841-42 and TB10339, (Gold Ridge claims were TB370039-40 and TB370764-65).

1979: Albert Hopkins recorded 20 days each for work on TB510711-12 for power stripping.

1981: Claims covering the McWilliams-Beardmore Prospect, TB510711-12, were optioned by A. Hopkins to Pancontinental Mining (Canada) Limited in May.

1983: Albert Hopkins' claim TB510711 was cancelled and restaked by D. Thorsteinson as TB730947.

CURRENT:

1984: The main showing, covered by claim TB730947, is presently held by D. Thorsteinson of Beardmore.

5) LOCATION AND ACCESS:

N.T.S. Map 42E12
U.T.M. Zone 16 Northing 5494800
Easting 432950

GENERAL LOCATION:

The property is located 2.2 km due east of the town of Beardmore in the southeastern portion of Summers Township and adjoins the Northern Empire Mine (Pan-Empire Joint Venture) property to the south.

ACCESS:

The old showings can be reached by four-wheel drive vehicle along an access road, 2.4 km from the Beardmore townsite.

REFERENCES:

Bell (1939)*.
Carter (1973, 1975)*.
Evans (1937)*.
Kidd (1974)*.
McWilliams (1938)*.
Patterson et al. (1983).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map P602, Summers Township (Mackasey, 1970c).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The McWilliams-Beardmore Occurrence lies within the Southern Metavolcanic Sub-belt. The property is underlain by undifferentiated metavolcanics ranging from mafic to intermediate, mainly andesitic, in composition. The metavolcanics roughly form a 2 km wide northeasterly-trending belt at this location, with the regional contact of the metasediments only 0.4 km (0.25 miles) to the south. The metavolcanics are schistose and strike approximately N80°E with steep to vertical dips in the vicinity of the prospect. A sill of diabase which lies at a depth of about 122 m (400 feet) (Carter, 1973*) beneath the pits and trenches on claims TB730947 crops out to the east of the property and is found from 183 m (600 feet) to 335 m (1,100 feet) in the Northern Empire shaft. North-south striking dykes of steeply-dipping porphyritic diabase with widths up to 45.7 m (150 feet) are found at the very west end of the property (Carter, 1973*).

A well-defined belt of low ground, paralleling the regional strike, through three small lakes is present in the southeastern claims. The veining and mineralization are contained within a banded ironstone on claim TB730947 near a shallow shaft which is exposed along a strong 6.0 m (20 feet) wide shear zone on the south edge of this structure (Carter, 1973).
It is suggested that this may be an expression of a 2.4 km (1.5 mile) shear zone.

7) MINERALOGY:

Prospecting since 1935 has uncovered a number of veins but work was eventually concentrated on the No. 13 Vein (TB730947). Numerous pits and trenches, including a 15-foot shallow shaft, expose the showing at this point for nearly 150 m (500 feet) along an 086° strike.
The shaft was sunk in 1935 on a highly mineralized massive white quartz vein within the ironstone for the purpose of bulk sampling in 1935. Power stripping in 1979 by Albert Hopkins along the eastern and western extension of the known showing failed to locate this unit.

The principal showing occurs within a 6.0 m wide, vertically dipping, shear zone and consists of a non-magnetic, banded ironstone containing recrystallized (sugary) chert, iron carbonate, and hematite. Two generations of quartz exist within the ironstone. Mineralization is commonly associated with later irregular cross fractures, and sweats of massive white to vitreous quartz, and not the earlier cherty to rusty, sugary stringers following the shear.

Sulphide minerals present include arsenopyrite, pyrite, chalcopyrite, and pyrrhotite, and are generally related to the hematite bands within the ironstone. They occur as small patches and disseminations in amounts less than 1%. Geochemical results indicate that gold values are associated with arsenopyrite mineralization. This appears to be the case both in grab samples collected from dump material (Carter, 1973*) and outcrop - specifically at the contact between the ironstone and a metre wide quartz vein on the eastern wall of the shaft (Vein No. 13). The arsenopyrite exists as coarse euhedral clusters and stringers.

8) ECONOMIC FEATURES:
PAST PRODUCTION:

There was no underground development. In 1935, J. W. Evans bulk sampled and assayed the main No. 13 Vein over a length of 107 m (350 feet) at 7.6 m (25 foot) intervals. According to his results an average ore grade of $3.50 (@$35/oz) was obtained over a vein width of 3.0-3.7 m (10 to 12 feet).

9) CHEMICAL ANALYSES:

1935 - J. W. Evans

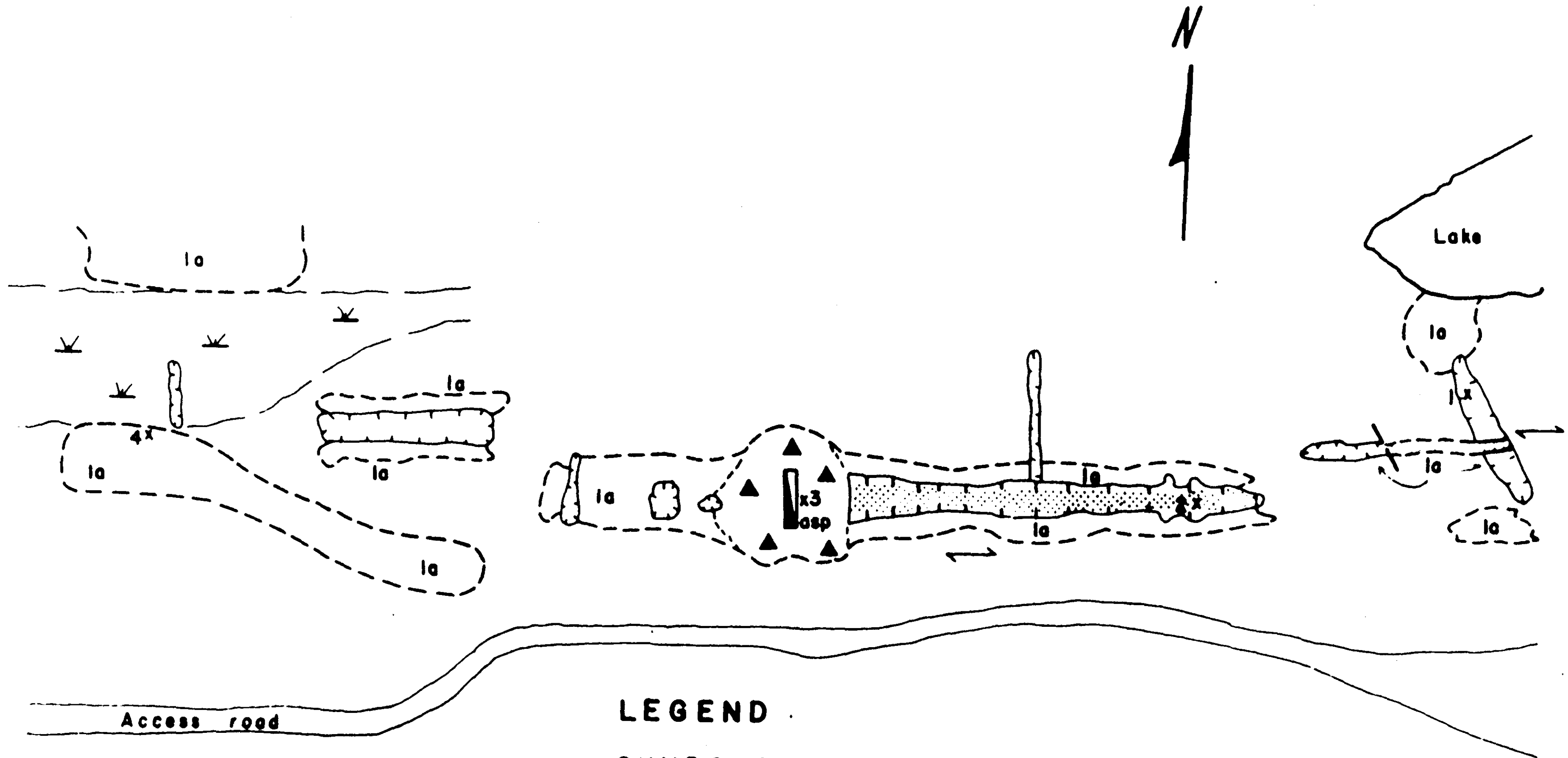
Sampler	Au oz/T	Ag oz/T	SiO_2 %	Apy %	S %	Fe %	Cu %	CO_2 %	CaO %	MgO %
1600 lb bulk sample analysed by Mines Branch in Ottawa	0.12	0.04	50.92	6.05	3.69	16.63	0.01	11.00	2.78	1.70

		Sample Descriptions
1973 - O. F. Carter		Grab Samples from Dump Material - No. 13 Vein
#1	0.23	
#2	0.08	Sulphide Content Ranges
#3	0.07	from 2 to 3%
#4	0.14	

1983	Au(oz/T)	
83-MMV-1	<0.01	- banded cherty iron formation with cross-cutting veins of vitreous quartz, <1% sulphides.
83-MMV-2	0.01	- banded cherty iron formation - alternating dark grey to black 0.5-1.0 cm) bands of hematite-siderite and recrystallized chert <1% asp, py.
83-MMV-3	0.02	- 1 m wide milky white to vitreous quartz vein in banded cherty iron formation - coarse 5 to 7 mm euhedral asp and patches of cpy, py.
83-MMV-4	<0.01	- highly sheared and silicified grey-green mafic metavolcanics - calcite shears

4/6

GEOLOGY OF THE McWILLIAMS BEARDMORE PROSPECT



LEGEND

SYMBOLS

TRENCH OR PIT

OUTCROP BOUNDARY

SHAFT

WASTE DUMP

SWAMP

asp ARSENOPYRITE

x ROCK SAMPLE LOCATIONS

MAP UNITS

la **ANDESITIC METAVOLCANICS**
Tuff and flow rocks, highly sheared adjacent to the banded ironstone.

BANDED IRONSTONE
Non magnetic consisting of iron carbonate, hematite and sugary quartz.
Quartz "sweats" up to a metre wide contain sulphide mineralization.

ASSAY RESULTS

SAMPLE #	OZ/TON
83-MMV-1	Trace
83-MMV-2	0.01
83-MMV-3	0.02
83-MMV-4	Trace

0 15 30 metres
0 50 100 feet

FIGURE 1

1) PROPERTY NAME: **Milestone Prospect (104)** (see Carling Copper Prospect)

DATE(S) VISITED: June 13, 1984

2) ALTERNATE NAME(S):
Elmwood Mines
Lun-Echo Gold Mines Limited
Newroy Option
Wood-Brown Claims
Carling Copper Prospect

3) COMMODITY: MAIN: Au, Zn SECONDARY: Cu, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: The property was staked by Malcolm P. McLeod (TB13639).

1935: M. McLeod performed enough work to receive 30 days assessment credit before transferring the claim to Cecil S. Kennedy. Kennedy accumulated 258 days assessment credit.

1939: The claim was surveyed and Cecil S. Kennedy applied for a lease on the property which was subsequently approved.

1949: The lease was renewed by Cecil S. Kennedy.

1952: Elmwood Mines Ontario charter was financed, in part by Lun-Echo Gold Mines Limited.

1968: The amalgamation of Milestone Mining Limited, Caramat Gold Mines Limited Don Cameron Company Limited, Man Echo Mining Limited, and Springpole Mining Limited resulted in the formation of Milestone Exploration Limited.

1970: The claim was leased by Milestone Exploration Limited.

1972: The claim was optioned to Carling Copper Mining Limited,which completed a diamond drilling program.

1974-1981: Surface work was performed by Carling Copper Mining Limited.

CURRENT:

The claim is presently leased by Milestone Exploration Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5512400
Easting 446050

GENERAL LOCATION:

The claim is located in the southwestern corner of Elmhirst Township.

ACCESS:

Travel north of Nezah (10.1 km west of Jellicoe for 12.9 km miles) on secondary Highway #801 and northwest on a lumber road for about 1.3 km. The occurrence is located approximately 0.6 km south of the road and the Namewaminikan (Sturgeon) River.

REFERENCES:

Bartley and Greer (1953)*.
Mackasey and Wallace (1978).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1978).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

GENERAL GEOLOGY:

Mackasey and Wallace (1978) indicate that claim TB13639 occurs;

> "...in an area of felsic metavolcanics along strike with those on the Jupiter Minerals and Carling Copper Mines Corporation properties."

Tuff-breccia, pyroclastic breccia and feldspar porphyry underlie the Milestone Prospect (Mackasey and Wallace, 1978).

7) MINERALOGY:

Bartley and Greer (1953)* describe the geology of the area as follows:

> "Plans...indicate two surface showings, a narrow quartz vein erratically mineralized with gold, and a parallel occurrence containing lead, zinc, and copper. The quartz vein strikes north 30° East and dips at 70° to 80° to the northwest. It has been emplaced along a zone of moderate shearing. The drill core indicates that the shearing is confined to a rhyolitic rock 10 feet to 25 feet in width which contains considerable sericite and talc. Lavas of intermediate composition are on each side. The rhyolite may represent a dyke.

The other showing appears to be a zone of fracturing and silicification about 175 feet southeast of the quartz vein. Specimens taken from the surface ...show that heavy sphalerite (zinc) and chalcopyrite (copper) mineralization occurs at certain places. The drill intersections show relatively small quantities of these metals and only across narrow widths."

The quartz vein is erratically mineralized and carried gold, silver, and sphalerite. The base metal vein carries lower gold, and higher silver and sphalerite. No copper values were reported (Bartley and Greer, 1953)*.

Felsic metavolcanics contain only disseminated pyrite in drill core samples (Resident Geologist's Files, Ontario Ministry of Northern Development, and Mines, Thunder Bay).

7) ECONOMIC FEATURES:

Bartley and Greer (1953)* indicate that:

"Hole number 1 showed assays of 87.82 oz/ton gold between 106.0 feet and 109.0 feet (32.3 to 33.2 metres) and 8.20 oz/ton gold between 109.0 and 111.2 feet (33.2 to 33.9 metres). Hole number 9 gave 2.00 oz/ton gold between 110.6 feet and 111.3 feet (33.7 to 33.9 metres). Visible gold was noted in these samples. None of the other drill holes returned any commercial assays in gold."

9) CHEMICAL ANALYSES:

1953

Hole	Sample	Sample Length	Oz/T Au	Oz/T Ag	% Zn
Gold Vein					
1	29	2.0 ft.(0.61m)	0.13	0.34	13.4
	30	3.0 ft.(0.91m)	0.11	-	-
	31	3.0 ft.(0.91m)	87.82	-	-
	32	2.2 ft.(0.67m)	8.20	-	-
2	34	1.3 ft.(0.40m)	0.11	-	-
9	63	0.7 ft.(0.21m)	2.00	0.90	-
11	70	3.4 ft.(1.04m)	0.20	-	-
Base Metal Vein					
6	53	0.5 ft.(0.15m)	0.11	1.14	4.02
	54	2.7 ft.(0.82m)	0.10	1.20	5.11
19	84	3.0 ft.(0.91m)	0.10	0.70	4.72

(Bartley and Greer, 1953)*

1) PROPERTY NAME: **Mineral Lake Occurrences Theriault-Culhane Occurrence (106)**

DATE(S) VISITED:
1982
September 15, 1983
September 19, 1984

2) ALTERNATE NAME(S): Eldee Lake Road Occurrences

3) COMMODITY: Au, Mo MAIN: Au SECONDARY: Mo

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1933-1940: A group of nine claims (TB12544 to TB12552) were staked west of Mineral Lake along the Ashmore-Croll Township line adjoining the Roche Longlac claims. A limited amount of stripping and trenching were conducted by Mat-A-Lac Gold Mines Limited in 1936. Only minor galena and pyrite are present in a quartz diorite, with no important gold values. The claims were cancelled in 1940.

1946-1981: Refer to the Wodian-Holm Occurrence for history of the Walterson Group (which includes present day claims TB631511-12, TB631514-15, TB759234 to TB759237, TB815508-9, TB813284 and TB813286).

CURRENT:

1982-1985: The Mineral Lake Occurrences and Theriault-Culhane Occurrence, which includes a portion of the old Walterson Group, involved a total of 16 claims:
TB659318 to TB659323 - J. Forbes (1983)
TB685724 to TB685728 - J. Forbes (1983)
TB784622 to TB784623 - O. Theriault (1984)
TB813349 to TB813351 - O. Theriault (1985)
A limited amount of stripping, trenching and shallow diamond drilling was completed on the property during this period.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5503200
Easting 513600

GENERAL LOCATION:

The occurrences are located in Ashmore and Croll Township.

ACCESS:

Follow the Eldee Lake Road south of Highway #11. The Eldee Lake Road originates 3.5 km east of the Ministry of Natural Resources District Fire Base Access Road.

REFERENCES:

Fairbairn (1938).
Horwood and Pye (1951).
Macdonald (1983b).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map No. 46b, Northern Long Lake - Pagwachuan Lake Area (Fairbairn, 1938).
Map 1951-2, Geology of Ashmore Township (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Macdonald (1983b) described the general geology of the Mineral Lake (Croll Lake Stock) area:

"The Croll Lake Stock is a zoned felsic intrusion that is relatively undeformed, although weakly foliated near contacts within the supracrustals. The core (and bulk) of the intrusion is granitic sensu stricto (note: all lithological identifications require thin section confirmation), surrounded successively by rinds of quartz monzonite, diorite, plagioclase-phyric diorite, and quartz porphyry. The outcrop widths of these peripheral units, particularly those that are porphyritic, are greatest in the "nose" region of the stock near Mineral Lake. Several approximately east-trending, porphyritic dikes extend into the "greenstones". Both quartz and feldspar porphyry dikes have been mapped.

Only metamorphosed mafic igneous rocks are exposed in contact with western margins of the Croll Lake Stock. The bulk of these rocks are pillow lavas and associated massive flows and breccias. Other coarser-grained (up to 2 mm) mafic units may be intrusions or thick flows. Limited outcrop precludes conclusive interpretation of the origin of the coarser-grained mafic unit, although intrusive contacts were not observed.

Within approximately 100 metres of the contact with the Croll Lake Stock, the metavolcanics are hornfelsed (silicified and impregnated with fine-grained pyrite and locally pyrrhotite), particularly well displayed in supracrustal roof pendants within the granitic body.

In many outcrops at the western end of the "nose", curious quartz, quartz-feldspar, or quartz-feldspar-tourmaline ovoids up to 2 centimetres in length may be found within the mafic rocks. At first sight, the ovoids appear to be similar to amygdules. Their marked spatial association with porphyritic dikes, their occurrence throughout pillows (as opposed to being zoned about the pillow centres), and the local occurrence of tourmaline within the ovoids suggests a more complex origin. This feature cross-cuts pillow selvages and is interpreted to be a form of incipient metasomatic alteration of the mafic rock. The ovoids have been mapped in outcrops westward from the granite "nose" to the Roche Longlac Deposit. Secondary amphibole is also locally well developed in both massive and pillowed flows. It also cuts across pillowed margins and is clearly related to a process that post-dates basalt extrusion."

7) MINERALOGY:

Macdonald (1983b) describes the mineralogy as follows:

"Vein type mineralization in the Croll Lake Stock is present throughout the intrusion, although vein density is lowest in the north, intermediate in the south, and highest to the west in the "nose". Veins of quartz-K-feldspar ± chlorite ± tourmaline ± sulphide minerals (pyrite, chalcopyrite, galena) are typically 1 to 5 centimetres wide in the centre of the stock with a vein density of 2 to 4 per metre being common. Locally, veins may reach up to 1 metre in width. Wallrock selvage silicification for up to 10 centimetres on either side of a vein is characteristic.

In the nose of the stock an extensive hydrothermal vein system is present, associated principally with the marginal porphyritic phases of the granite and found also in the adjacent mafic supracrustals. Vein density may reach in excess of 10 veins (average

> width of 1 centimetre) per metre, somewhat reminiscent of porphyry-type deposits in the Cordillera of Central and North America. Vein widths may reach in excess of 2 metres, over exposed strike lengths of 20 metres. Further stripping with heavy machinery is required to determine strike continuity. Quartz and tourmaline are the dominant minerals filling the veins. Locally an iron-bearing carbonate is prominent and sulphide minerals are ubiquitous, although in low concentrations (usually less than 2%, commonly 0.5%). The sulphide assemblage includes pyrite, pyrrhotite, chalcopyrite, and molybdenite. The zone containing molybdenite (with quartz, tourmaline, and locally epidote) is in excess of 1.5 kilometres in diameter and is found both within the porphyritic margin of the stock and up to 1 kilometre to the west of the contact, within the mafic metavolcanics."

In 1982-83, work centred on narrow, erratic quartz-tourmaline-molybdenite veins located immediately southeast of the intersection of Highway #11 and the Eldee Lake Road (approximately 0.4 km south of the highway along the Eldee Lake Road). In 1984, work was concentrated on three occurrences. The first two are located 0.4 km south of Highway #11. The "old showing" is a pit (Walterson Group development) on the west side of the Eldee Lake Road, sunk in a large quartz-tourmaline vein hosting pyrite. The "new showing" is a sulphide zone hosting pyrite and pyrrhotite in a mafic metavolcanic exposure on the east side of the Eldee Lake Road. The "main showing" is located 0.8 km south of the highway on the east side of the Eldee Lake Road south of the Ministry of Natural Resources' scarification equipment storage area. The "main showing" is hosted in a contact area between diabase and mafic metavolcanics. Gold is associated with silicified zones of highly altered feldspar porphyry and/or banded chert.

8) ECONOMIC FEATURES:
None.

9) CHEMICAL ANALYSES:

1983

Sample Number	A. J. Macdonald Locations	Au (oz/T)	Sample Description
83-MCF-1	Stop #1	0.01	Quartz-tourmaline-molybdenite vein
83-MCF-2	Stop #2	0.02	Quartz-tourmaline-molybdenite vein
83-MCF-3	Stop #3	<0.01	Quartz-tourmaline-molybdenite vein
83-MCF-4	360E	<0.01	Quartz-tourmaline-molybdenite vein
83-MCF-5	70-805	<0.01	Silicified quartz porphyry, blue rounded quartz eyes and fine molybdenite smears.

1984

84-MOT-1	SW portion TB631514	<0.01	Highly sheared, sericitized, chloritized green metavolcanic. Wall rock from a 25 foot zone containing quartz with rusty coating. Minor disseminated pyrite (<1%).
84-MOT-2	SW portion TB631514	0.01	Mineralized horizon in zone. Coarse grey-white to vitreous quartz vein in green metavolcanic. Contains stringers and veins of coarse subhedral to euhedral pyrite with rusty stain. Minor copper stain noted. Veins and stringer 15-20% of rock.
84-MOT-3	SW portion TB631514	<0.01	Grey-white to vitreous quartz. Minor rusty stain. Possibly two generations of quartz. Vitreous quartz is coarse and fractured (up to 1%).
84-MOT-4	SW portion TB631514	0.01	Mottled grey and white vitreous quartz and crystalline calcite vein. Quartz shows some evidence of strain and shearing. Minor volcanic host rock. Country rock shows sericitization and chloritization. No mineralization was noted. Minor rust.
84-MOT-5	SW portion 631514	0.01	Fractured to massive grey vitreous to sugary quartz vein. Also a fine-grained to aphanitic buff-coloured quartzite in contact with

			quartz. Sheared sericitized volcanic (minor chloritization). Massive to "spotty" subhedral pyrite occupies shear plains (medium to coarse-grained) in amounts of 10 to 15%.
84-MOT-6	SW portion 631514	<0.01	Grey-brown, massive to sugary, very fine-grained to aphanitic quartzite. Coarser vitreous quartz with pyrite and chalcopyrite occupying minor fractures (1%). Some coarser subhedral pyrite present.
84-MOT-7	SW portion 631514	<0.01	Similar to previous sample (84-MOT-6). Contains prominent parallel veinlets of grey-white vitreous quartz in buff-coloured quartzite (average 1 to 3 millimetres). Minor pyrite-chalcopyrite also occupy parallel fractures (but en echelon) (approximately 1 to <1%).
84-MOT-15	Old Showing	<0.01	Vitreous quartz-tourmaline vein in altered volcanics. Biotite alteration with 1% quilts and patches of pyrite.
84-MOT-16	Old Showing	<0.01	Highly weathered and altered original volcanics on road side trench. Clots and patches of fine tourmaline needles and sulphides (mainly pyrite). Up to 10% sulphides (very fine). High rust and earthy.
84-MOT-17	New Showing	<0.01	Grey silicified volcanics exhibiting minor rust. Quilts and patches of mainly cpy-po and minor pyrite. Contains 10% (magnetic po).
84-MOT-18	New Showing	0.04	Same as 84-MOT-17. 5-7% quilts and patches cpy (mainly) and pyrrhotite.
84-MOT-19	New Showing	<0.01	Same as 84-MOT-17 and 18. 5 to 7% sub-to-anhedral sulphides (py, cpy, po). Highly silicified mafic volcanics.

84-MOT-20	Main Showing (Old Trench)	0.01	White to grey vitreous quartz and quartz-tourmaline vein in sheared green volcanics. 3% cpy, pyrite - quilts and patches.
84-MOT-21	Main Showing (Fault Zone)	<0.01	High sheared and silicified dark grey volcanics with 1 to 2% fine sulphides. Disseminated pyrite and cpy, possibly.
84-MOT-22	Main Showing	0.01	Appears to be highly siliceous felsic metavolcanic (grey colour). Apparent banding shown by parallel quartz (vitreous to clear) veinlets. Contains <1% disseminated pyrite and blue-grey metallic mineral-molybdenite.
84-MOT-23	Main Showing	<0.01	Highly sheared and gossaned grey-green metavolcanic rock with sericitic alteration. No visible sulphides recognized.
84-MOT-24	Main Showing	0.05	Very coarse euhedral pyrite-rich quartz vein (grey vitreous) in contact with highly mineralized pyritic, mafic metavolcanic. Contains 5 to 7% pyrite in quartz.
84-MOT-25	Main Showing	0.08	Highly weathered and gossaned massive coarse euhedral pyrite-rich zone intermixed with vitreous quartz veining.
84-MOT-26	Main Showing	<0.01	Very fine-grained to aphanitic grey to buff-coloured siliceous metavolcanic. Sub-parallel, fine (<1 mm) parallel fracture system (dark black chlorite or tourmaline) and quartz veinlets Bleach white weathered surface containing rare disseminated sulphides (pyrite).

1) PROPERTY NAME: **Neelin-Braggan Occurrence (114)**

DATE(S) VISITED: August 1, 1984

2) ALTERNATE NAME(S): Adelaide Gold Mines (Copper Prince?), (Lun-Echo)

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1925: Clair Neelin staked the original gold occurrence (claim TB4864). The Neelin-Braggan partnership was formed.

1927: Neelin-Braggan conducted surface work over 12 claims on a mineralized formation thought to be a continuation of the Jarvela Occurrence to the west.

1931: Neelin filed for a Mining Operations Permit. Later that year W. Braggan restaked the claims. TB10307 covered a major portion of the occurrence.

1935-1937: Adelaide Gold Mines Limited was incorporated and optioned the property, which included 10 claims. Work was recorded (type not known).

1936: L. Keachie acquired the property and a survey was recorded.

1940: Sylvanite Gold Mines assessed several properties in the area, including the Neelin-Braggan Occurrence, and showed claims TB10306, TB10307 and TB10508 as leased. However, the property was shown open for staking in 1944, except for leased claim TB10306.

1944: J. E. Haack staked the property and work was recorded.

1977-1981: A. Hopkins staked the property as part of a larger claim block and conducted power stripping, geochemistry and diamond drilling on the claims. Hanna Mines entered into a deal with Hopkins.

CURRENT:

1981: Pancontinental Mining (Canada) Limited optioned the property. Geophysics, beneficiation, geology, linecutting and diamond drilling have been recorded. TB506620 is roughly coincidental with claim TB10307.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5496900
Easting 438900

GENERAL LOCATION:

The occurrence is located in west-Central McComber Township, 8 km east-northeast of Beardmore.

ACCESS:

The property is accessible by way of claim lines or by helicopter.

REFERENCES:

Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area (1934)
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P.2853, McComber Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The Neelin-Braggan Occurrence is located in the Southern Metavolcanic Belt (see Ralph Lake Occurrence for geology and structure). The property is underlain by aphanitic mafic flows, tuff, tuff breccia, coarse flows and amygdaloidal metavolcanics. Lenticular metagabbro intrudes the mafic metavolcanics.

Chemical metasediments (iron formation) occur in the metavolcanics.

7) MINERALOGY:

Langford (1928) described the mineralogy:

"The twelve claims in this group lie east of the Jarvela claims, and the main showing seems to be a continuation of the vein which crosses the Hewitt and Jarvela properties. Considerable work has also been done on bands of iron formation which carry arsenopyrite and pyrite. The most promising showing is just beside the No. 2 Post of claim TB4864, where a 10 foot shear zone carrying many 2 inch stringers of quartz has been uncovered. The whole of the 10 foot width is mineralized with pyrrhotite, pyrite and chalcopyrite, and is said to pan gold. This is on

> the strike of the Jarvela vein: about half a claim to the east there is a 4 foot dike of feldspar porphyry; no dikes as wide as this were seen farther west."

Drill holes completed by Hopkins on claims TB506620 and TB506623 intersected locally sheared metavolcanics consisting of flows and tuffs. Sphalerite was noted in one hole.

A narrow, vitreous, milky white quartz vein was examined by the author. The vein is <0.3 metres wide, strikes 067° and is hosted by a pyritic chlorite schist. Quartz veinlets were noted parallel to the main vein, all concordant with foliation.

1) PROPERTY NAME: **New Goldvue Occurrence (116)**

DATE(S) VISITED: July 23, 1985

2) ALTERNATE NAME(S): Deeds Lake Occurrence

3) COMMODITY: MAIN: Au, Cu, Ag SECONDARY: Fe

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1954: Joseph Gagne and John Cyr staked a group of 18 claims (KK9315 to 9332) east of Little Marshall Lake along the northern boundary of Gzowski Township. All interests were transferred to Louis Pancer.

1955: All interests in the 18 claim group were transferred to New Goldvue Mines Limited. Geological (29.7 days/claim), magnetometer and electromagnetic (38.0 days/claim) surveys were conducted over the claims. During the latter part of the year, eight diamond drill holes, totalling 2,503 feet,were completed.

1956: Diamond drilling (completed in 1955) was submitted and accepted for assessment credit (totalling 139.2 days/claim). No further work was reported having been done on the claim group.

1961: Claims KK9317, 9319, 9321,to 9330 and 9332 were cancelled.

1964: Claims KK9315, 9316, 9318, 9320, and 9331 were cancelled.

CURRENT:

1985: The area of the New Goldvue Mines Limited claims is currently open for staking.

5) LOCATION AND ACCESS:

N.T.S. 42L5/NE
U.T.M. Zone 16 Northing 5579350
Easting 462700

GENERAL LOCATION:

The property is located in the Willet Lake Area, approximately 0.16 km east of Little Marshall Lake and 0.8 km north of the western arm of Deeds Lake.

ACCESS:

Access is by float plane to Little Marshall Lake from Geraldton or Nakina.

REFERENCES:

Kindle (1934).
Langford (1958).
Zurowski (1955)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 1958-1, Gripp Lake Area (Langford, 1958).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Zurowski (1955)* in an internal report written for New Goldvue Mines Limited, described the geology and structure of the area:

"The consolidated rocks of the area are all Precambrian in age. These are massive to schistose whitish quartzose sediments with mica, hornblende, chlorite, garnet and staurolite, some iron formation and conglomerate. Interbanded with this sequence are rhyolites, slates and basic lavas.

Intruding this sequence are stocks of granite, syenite and dikes and sills of diabase, diorite, gabbro, aplite and lamprophyre.

Structural features are principally confined to minor folding, shearing and faulting.

The property is underlain by a series of metamorphosed sediments, siliceous to sub-greywacke in composition, and basic lava complex. These lavas show a high degree of metamorphism. The general strike of these rocks is N80E Ast., and dip steeply northward. The sediment-lava contact strikes in a northeasterly direction through the central part of the property.

Intruding this sequence are dikes of syenite, diorite and probably some diabase, felsite and lamprophyre."

7) MINERALOGY:

Zurowski (1955)* also described the mineralogy as follows:

"A heavy gossan zone occurs within claim KK9932 and KK9329 and strikes N50°E Ast. The hematitic and cellcular structure of the gossan is quite indicative of pyrite-pyrrhotite sulphides.

Pyrite mineralization occurs in sheared lavas along the north boundary of claim KK9327. The mineralization was on strike with a strong electromagnetic conductor to the east."

Eight diamond drill holes were drilled beneath the sulphides and all intersected iron formation.

8) CHEMICAL ANALYSES:

1955 - New Goldvue Mines Limited

Sample No.	From	To	Core Length	Au(ppb)	Assay Ag(ppm)	Cu%	Ni
			D.D.H. No. 2				
158	101.1	116.0	15.0	Tr	0.07	0.06	Nil
159	132.2	151.0	18.8	Tr	0.06	0.06	Nil
			D.D.H. No. 3				
160	55.2	68.0	12.8	Tr	0.02	0.05	Nil
161	68.0	72.5	4.5	Nil	0.05	0.05	Nil
162	125.0	132.0	7.0	Nil	0.09	0.08	Nil
			D.D.H. No. 6				
163	230.5	236.0	5.5	Nil	Tr		
164	236.0	239.0	3.0	Nil	Tr		
165	262.0	275.0	13.0	Nil	Tr		
166	295.0	299.0	4.0	Nil	Tr		

Note: No gold assays above trace were obtained from the property.

1) PROPERTY NAME: **Northern Empire Mine**

DATE(S) VISITED:
May 7, 1981
September 17, 1981
November 23, 1981
June 8, 1982
November 25, 1982
February 7, 1984
February 20, 1984
December 13, 1984

2) ALTERNATE NAME(S): Beardmore Gold Mines Limited

3) COMMODITY: MAIN: Au, Ag SECONDARY:

4) DEVELOPMENT HISTORY AND OWNERSHIP:

1925: A gold discovery was made in the Beardmore area by T. G. Powers and P. Silams, who staked TB4803 to TB4805 and TB4834, respectively. The surrounding claims staked were TB4830, TB4831, TB4881, TB4928, TB5003 and TB4826. Claims TB4803 to TB4830, TB4831, TB4834 and half interest in TB4881 were transferred to J. Montgomery.

1926-1927: Beardmore Gold Mines Limited was incorporated and began work on the property. Surface exploration was carried out on claims TB4803 to TB4805. The Power Vein (TB4803) was stripped and trenched, and a 25 foot (7.62 m) shaft was sunk on the vein. An unspecified amount of diamond drilling was also done.
Claim TB5003 was optioned by the company.

1928: The shaft (No. 1) on claim TB4803 was extended to a depth of 45 feet (13.7 m) and an additional shaft (No. 2) was sent to a depth of 100 feet (30.5 m). A station was cut at the 100 foot (30.5 m) level and some drifting was done.

1929: Work ceased on the No. 1 shaft and the No. 2 shaft was extended to a depth of 200 feet (61 m) with a station cut at base level. Lateral work was carried out on both the 100 foot (30.5 m) and 200 foot (61 m) levels.

1930: During the early part of the year 235 feet (71.6 m) of drifting and cross-cutting were done. Surface work was carried on for the remainder of the year.

1931: The company's name was changed to Beardmore Gold Mines Company Limited. A total of 138 feet (42.1 m) of lateral work was done on the 200 foot (61 m) level. Claim TB4826 was cancelled and restaked as TB10374.
The property was optioned to LaRose Rouyn Mines Limited who did some diamond drilling.

1932: The bondholders of Beardmore Gold Mines Company Limited foreclosed their mortgage. The Northern Empire Mines Company Limited was incorporated and took over the property. J. Montgomery applied for a ten year lease for claims TB4803 to TB4805. Work commenced on the property with surface trenching and plant renovations. The 150 foot (45.7 m) level of the No. 2 shaft was opened up and 1,200 feet (365.8 m) of drifting was done.

1933: Claim TB5003 was transferred to Northern Empire Mines which applied for a lease on the claim. The No. 2 shaft was extended to a depth of 502 feet (153 m). Levels were established at 300 feet (91.4 m) and 400 feet (122 m). A 6 foot (1.82 m) by 7 foot (2.13 m) shaft, inclined 18° from the horizontal, was driven from surface to the 75 foot (22.9 m) level to allow use of a conveyor belt from an underground crusher to the mill. Work began on a 125 ton stamp mill.

1934: Claim TB4881 was transferred to F. Searls. J. Montgomery transferred claims TB4803 to TB4805, TB4830, TB4831 and TB4834 to Northern Empire Mines Limited. The No. 2 shaft was extended to a depth of 609 feet (185.6 m). Development work was done on the 150 foot (45.7 m), 300 foot (91.4 m) and 450 foot (137.2 m) levels. The 125 ton mill was completed.

1935: The No. 2 shaft was extended to a depth of 667 feet (203.3 m). Additional equipment added to the mill permitted milled tonnage to increase to 150 tons per day from 125 tons.

1936: The shaft was extended to a depth of 797 feet (242.9 m). Lateral work was carried out on all levels with raising done on the second and lower levels. A total of 802.1 m (2,631.5 feet) of diamond drilling was done on the property.

1937: The shaft was enlarged and deepened to 1,479 feet (450.8 m) with new levels at 750 feet (228.6 m) and 1,400 feet (426.7 m). A 550 foot (167.6 m) thick diabase sill encountered in the previous year bottomed out at 1,350 feet (411.5 m). The main vein continued below it with no displacement or decrease in size. Lateral work continued on all levels below the 150 foot (45.7 m) level.

1938: The shaft was extended to a depth of 2,075 feet (632.5 m) and new levels were established at 1,560 feet (475.5 m), 1,725 feet (525.8 m) and 1,900 feet (579.1 m). A winze was sunk from the 750 foot (228.6 m) level. Ore shoots below the diabase sill were found to be more numerous and of a better grade than those above. Production to 1938 had substantially exhausted the ore remaining above the sill, with the exception of a few thousand tons between the 1,600 foot (182.9 m) level and the top of the sill. Three holes totalling 457.2 m (1,500 feet) were drilled from underground.

1939: The shaft was extended to a depth of 2,140 feet (652.3 m) and a new level was begun at 2,075 feet (632.5 m). The winze on the 750 foot (228.6 m) level was sunk to the 1,400 foot (426.7 m) level. Lateral work continued on the lower levels.

In the latter part of the year, Northern Empire, under contract, extended their 1,752 foot (5,258 m) level into the adjoining Norex Mines Limited ground to prospect for ore at depth. Norex Mines transferred the western parts of claims TB4815, TB4812 and TB5059 to Northern Empire Mines. The Northern Empire Mill treated ore from the Tombill Mines, the Magnet Mine and the Jellicoe Mine. The mill was treating, on average, 198 tons of ore per day. In addition, a new refinery was built and equipped.

1940: The shaft was extended to a depth of 2,460 feet (749.8 m) with a new level established at 2,424 feet (739.1 m). Development work continued on the lower levels. The 1,900 foot (579.1 m) and 2,075 foot (6,325 m) levels proved disappointing and work commenced on the 2,425 foot (739.1 m) level. Exploration continued on the Norex Mines property from the 1,725 foot (528.8 m) level.

1941: Exploration on the Norex property was suspended in May. Twenty-four holes, totalling 521.2 m (1,710 feet), were drilled from underground on the Northern Empire property before mining operations ceased in August due to a reported exhaustion of ore reserves. Claim TB10374 was transferred to Northern Empire Mines from R. Neeland and leased until 1951.

A one year contract was made with Sand River Gold Mines to develop and mine the Sand River deposit to the top of diabase sill.

1942: Northern Empire operated the Sand River property until August when war-time conditions forced closure. The option was extended until 1944. Claims TB4803 to TB4805 were leased for a further ten years.

1943: Claims TB4830, TB4831, TB4834, TB4928, and TB5003 were leased for ten years. The bulk of equipment and structures on the Northern Empire property were sold.

1944: Northern Empire formed Undersill Gold Mining Company Limited to take over the Sand River property.

1945: Claim TB4881 was leased for a further ten years.

1946: Northern Empire transferred all interests of J. E. Regan and R. C. Lauber of Toronto.

1947: The leases on claims TB4815, TB4812 and TB5059 were extended for ten years.

1948: The Sand River Mine was closed and the plant sold.

1952: J. E. Regan and R. C. Lauber extended their leases on claims TB4803 to TB4805 and TB10374.

1953: The leases on claims TB4830, TB4831, TB4834, and TB4828 were extended for ten years.

1954: The Northern Empire Mining Company Limited was liquidated.

1955: The lease on claim TB4881 was renewed.

1957: The leases on claims TB4815, TB4812 and TB5059 were renewed for ten years.

1961: The lease on claim TB10374 was renewed.

1962: The leases on claims TB4803 to TB4805 were renewed.

1963: The leases on claims TB4830, TB4831, TB4834, TB4928, and TB5003 were renewed.

1965: The lease on claim TB4881 was renewed.

1967: The leases on the western parts of claims TB4815, TB4812 and TB5059 were renewed.

1975: J. E. Regan withdrew from the partnership and R. C. Lauber renewed the leases on claims TB4803 to TB4805, TB4830, TB4831, TB4834, TB5003 and TB4881 for another ten years. Claims TB4815, TB4812, TB5059 and TB5003 were transferred to Melinda-Jordan Holdings Limited.

1976: Claims TB4803 to TB4805, TB4830, TB4831, TB4834, TB4928 and TB10374 were transferred to Melinda-Johnson Holdings Limited.

1977: Melinda-Jordan Holdings Limited renewed the lease on claims TB4815, TB4812 and TB5059.

1978: A. Hopkins staked a group of 68 claims around the Northern Empire's 13 leased claims. Hopkins staking included the former Spooner-Norex and McWilliams-Beardmore claims.

1979: Montane Contractors (E. and J. Nelson) optioned the 13 leased claims (TB4803 to TB4805, TB4812, TB4815, TB4830, TB4831, TB4834, TB4881, TB4928, TB5003, TB5059 and TB10374) from Melinda-Jordan Holdings Limited and dewatered the Northern Empire Mine down to the 80 foot level. They started mining a high grade quartz vein on the west side of the shaft (see "Economic Features" section for reserve figures).

Montane Contractors optioned an additional 68 claims (see 1978) surrounding the Northern Empire property from A. Hopkins. Work was recorded for power stripping on claims TB510711 and TB513709 under A. Hopkins' name.

1980: Hanna Mines of Montreal optioned the Northern Empire property (13 leased claims) from Montane Contractors and the claims were transferred to a newly formed company named Beardmore Gold Incorporated.

A feasibility study of the northern Empire Mine dump was conducted by consultant, W. J. Riddell (refer to "Economic Features" section for reserve figures).

W. H. Higgins conducted a geochemical survey over 56 unpatented claims surrounding the Northern Empire property for A. Hopkins, owner.

1981: Pancontinental Mining (Canada) Limited optioned the Northern Empire Mine property from Beardmore Gold Incorporated and formed the Pan-Empire Joint Venture to rehabilitate the property.

Construction began on a 200 ton per day mill.

1982: Pancontinental Mining (Canada) Limited (Operator-Pan-Empire Joint Venture) received a Provincial GOMILL (custom gold milling) award of 1 million dollars over 5 years. This commits Pancontinental to make the mill available for the processing of custom ore from prospectors or mining companies 50% of the time.

The mill was completed early in 1982 and treatment of the mine dump material commenced *(to October 31, 32,800 short tons grading up to 0.10 oz/ton gold were milled).

The first and second levels of the mine were dewatered; detailed mapping and sampling followed.

Stripping and trenching were conducted east of the shaft.

The Pan-Empire Joint Venture Mill operated from February 1982 to December 1982.

1983: The mill was closed until November 1, at which the Teck Corporation, owner of the Leitch Gold Mine, leased the Pancontinental Mining (Canada) Limited custom gold mill in Beardmore for 3 years, 7 months. The mill was modified to a total cyanide circuit compatible with Leitch ore (waste dump). The mill would continue to provide a custom gold milling service through the GOMILL Program of the Ontario Government.

1984: Teck Corporation (Leitch Division) produced 70,000 tons of screened dump material from the Leitch Gold Mine and shipped 55,000 tons to the Teck Mill 1 km east of Beardmore. Mill grade was approximately 0.11 oz/ton gold for 24,000 tons of ore milled to September 25. The mill continued to operate until year's end at a rate of 5,300 tons per month with an average grade of 0.08 oz/ton.

1985: The Teck Mill shut down on January 31 due to the drop in gold price.

CURRENT:

1985: The original 13 leased claims (TB4803 to TB4805, TB4812, TB4815, TB4830, TB4831, TB4834, TB4881, TB4928, TB5003, TB5059 and TB10374) comprising the former Northern Empire Mine property is currently owned by Pancontinental Mining (Canada) Limited of Toronto. In addition, the mill is presently held by the same company. Teck Corporation continues to lease the mill on a monthly basis.

5) LOCATION AND ACCESS:

N.T.S. 42E12/SW
U.T.M. Zone 16 Northing 5495600
Easting 432250

GENERAL LOCATION:

Southeastern Summers Township, 1 km east-northeast of the Beardmore townsite.

ACCESS:

The property is readily accessible from Beardmore by following Highway 11 north for 200 m and turning east on a gravel road, across the CN rail line, to the mine site (1.7 km).

REFERENCES:

Benedict and Titcomb (1947).
Biskupski and Witte (1980).
Carter (1983).
Dempster (1936)*.
Higgins (1980)*.
Hopkins (1978)*.
Laird (1936).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Nice (1981)*.
Riddell (1980)*.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map P602, Summers Township (Mackasey, 1969).
Map 2102, Tashota-Geraldton Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The Northern Empire Mine property lies within the most southerly unit of the Wabigoon Subprovince in the Beardmore-Geraldton Belt. This Belt has been further subdivided into the southern sedimentary Sub-Belt and the Southern Metavolcanic Sub-Belt. It is within the latter, near its northern contact with the sediments, that the property is situated.

Rocks within the Metavolcanic Sub-Belt are of iron-to magnesium-rich Archean tholeiites, forming an east-trending narrow Belt up to 3.0 km wide (the Northern Empire property lies at the widest, most westerly portion of this Belt). They consist of massive, pillowed, amygdaloidal and rarely variolitic flows. The mafic flows, where discernible, are described by Carter (1983) as being 15 to 25 m thick and typically exhibit a crudely fining upward sequence terminating in pillowed tops. Units of medium to fine-grained intermediate to mafic tuffs occur throughout the Belt. Chemical metasedimentary rocks are common and can occur with rare thin clastic beds. These ironstones are east-trending, generally 1 to 2 m wide, and occur as somewhat continuous features from 100 m to 1 km in strike length. Meta-gabbroic stocks and minor quartz-feldspar and feldspar porphyry, felsite and pegmatite dikes intrude the metavolcanic rocks.

A diabase sheet, 170 m thick, crops out in western McComber Township. The sheet dips approximately 10°-15° to the west and intersects the Northern Empire ore zone. These Late Precambrian diabase and porphyritic diabase dikes consistently trend north to northeasterly. In reference to the structural geology of the area, the Southern Metavolcanic Belt appears to be in fault contact with the turbidites on its northern and southern boundaries. The Northern

Fault contact, as interpreted by Benedict and Titcomb (1947), was intersected in diamond drill core by Newmont Mines Limited on the Northern Empire property in the 1930's. The fault is represented by a black graphitic gouge bordered by less than 2 m of intense shearing. The southern contact is marked by a regional lineament depression known as the Blackwater Fault and is seen as stretched pillowed metavolcanic rocks in the field. Cleavage-foliation data combined with younging directions determined from upward fining flows and pillowed metavolcanic rocks suggest the presence of an upward-facing fold (overturned anticline) in the western portion of this Belt.

7) MINERALOGY:

The Main, or Power, Vein intrudes mafic to intermediate metavolcanics several hundred metres to the south of the metasedimentary contact. The vein strikes N72°E and dips 80°S, with an average width of 0.60 m, and is both a single and composite vein in a 1.2 to 1.5 m wide shear zone. The quartz is mineralized with pyrite, arsenopyrite, pyrrhotite and minor chalcopyrite, native gold, galena, carbonate, and tourmaline. In addition to gold, silver was produced as a secondary mineral (see Economic Features section).

The Northern Empire vein does not occupy a simple, continuous, unbroken, quartz-filled fracture. The quartz pinches out; however along strike within a few metres, another en echelon vein is always found, associated by a branching connecting link between them. In the vicinity of the shaft to the west, near the 1,560 foot level, the vein splits and the footwall branch (although narrower than the hanging wall portion) became the main ore-bearing vein down to the 1,725 foot level. Drifting was also performed on the 1,900 foot and lower levels. To the east in the 1,725 foot drift, about 457.2 m (1,500 feet) from the shaft, ore was found in both the footwall and hanging wall veins. However, on the 1,900 foot level, along plunge, the hanging wall produced little ore (Benedict and Titcomb, 1947).

Gold was confined almost entirely to the vein quartz, with the associated schist carrying low values, and the walls negligible values. The ore shoots ranged up to 122 m (400 feet) long and averaged 45.7 m (150 feet) in length. Below the 1,725 foot level there was marked decrease in grade and little or no ore was found below the 2,075 foot level. Less than ore grade vein material was also found immediately above and below the diabase sill, primarily due to alteration and leaching. It is thought that the initial source for the gold was the mafic volcanics (Mackasey et al., 1974) and that the sheared zone was a favourable structural site for gold deposition.

No exposures of metasedimentary rocks are to be seen on the Northern Empire property, however, they were encountered in the 600 foot north cross-cut and in the shaft below the 2,200 foot level.

Small, irregular, dike-like masses of pink rock believed to be acid intrusions occur in the metavolcanics on the 600 foot north cross-cut near the metasedimentary contact and below the diabase sill. The unit is also exposed on surface.

A prominent diabase "sill" occurs as a flat-lying sheet and is known to extend for several kilometres. It cross-cuts the bedding at about 75° and has numerous off-shoots extending down from the main body, striking north. The "sill" crops out some 1,829 m (6,000 feet) east of the mine shaft and also to the west (1.6 km) near Beardmore (the same unit was also found 7.2 km to the northwest at a depth of 488 m (1,600 feet) on the Sand River Gold Mine property). The diabase in the shaft cuts off the vein at a depth of about 198 m (650 feet) and 172.2 m (565 feet) thick. The vein continues beneath the "sill" without any noticeable displacement. An alteration halo surrounds the diabase in the form of blackened to bleached, silicified, metavolcanic country rock up to 15 m (50 feet) wide, with prominent chloritic alteration extending from this point outward for a distance of approximately 61 m (200 feet) (Benedict and Titcomb, 1947).

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

In 1979, Montane Contractors held an option on estimated reserves of 900 tons averaging 3.0 oz per ton gold to the 450 foot level (west side of shaft). A report by A. Hopkins indicated a further 36,000 tons of 0.543 oz per ton gold was present east of the shaft, from the surface to the 450 foot level.

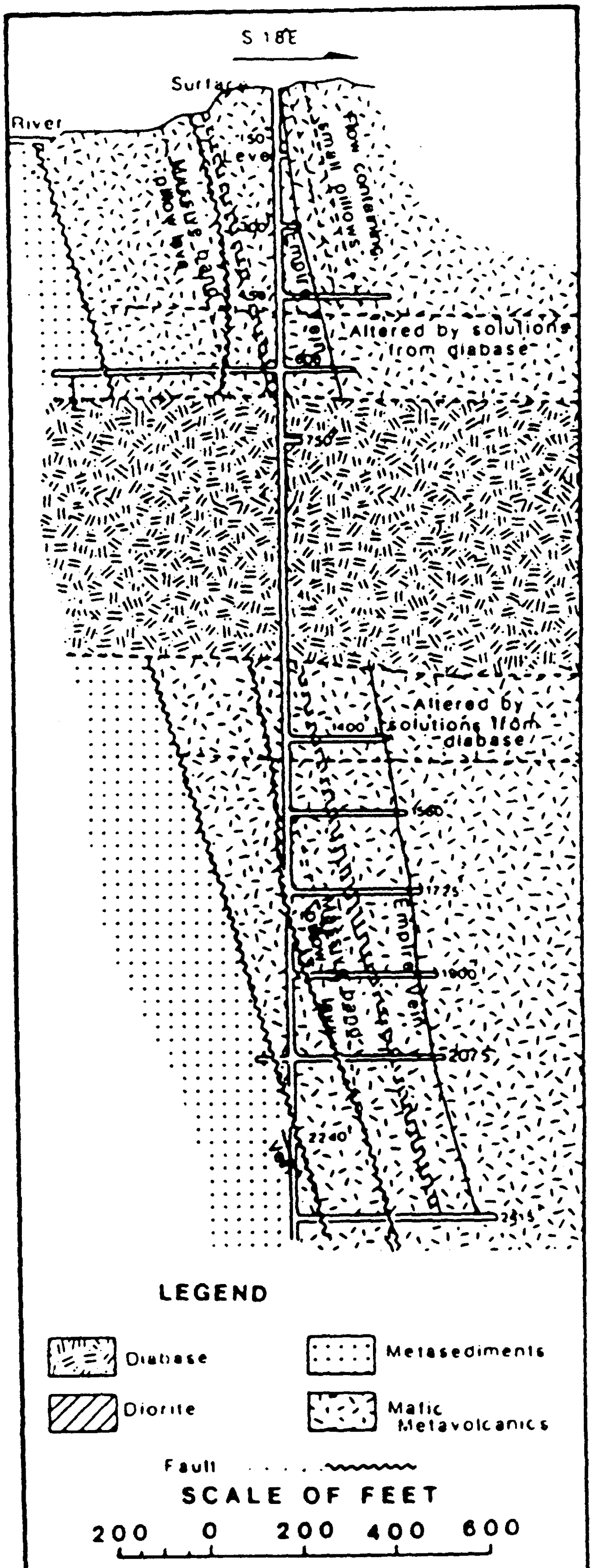
A feasibility study of the Northern Empire Mine dump was conducted by W. J. Riddell, consultant for Beardmore Gold Incorporated (see History section), in 1980. Results indicated the existence of 207,950 tons at an average weighted grade of 0.058 oz per ton gold. A preliminary test of the old tailings pond, using results from three separate augered holes, indicate a weighted grade of 0.038 oz per ton gold. No tonnage estimate was made of the tailings pond.

PAST PRODUCTION:

Northern Empire

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au	Oz/Ton Ag
1934	5,622.57	860	20,507	0.2516	0.04(0.0382)
1935	18,278	2,638	45,736	0.40(0.3996)	0.06(0.0577)
1936	28,574.507	3,756	65,645	0.44(0.4420)	0.06(0.0581)
1937	20,153.220	2,642	65,026	0.31(0.3099)	0.04(0.0406)
1938	22,822.918	2,374	59,332	0.38(0.3847)	0.04
1939	25,502.269	3,686	67,914	0.38(0.3755)	0.05(0.0543)
1940	17,440.538	2,596	61,691	0.28(0.2827)	0.04(0.0421)
1941	10,889.678	1,251	39,015	0.28(0.2791)	0.03(0.0321)
1949	168.467		Clean-up		
1979			50		
1982	0.67(Mine Dump)		44,631 (40,516 tonnes)		
	*149,492	*19,803	*425,866	≈0.3407	≈0.0454

*not including 1979 and 1982 figures.



Vertical cross-section through shaft, Northern Empire mine. (Pan-Empire Joint Venture)

(after Benedict and Titcomb, 1947)

FIGURE 12

1) PROPERTY NAME: **Oklend Occurrence (118) (West of the Narrows)** DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
It should be noted that the occurrence is one of a number which were discovered over the 55 claim block of Oklend Gold Mines and the early history given applies only to TB10699.

PAST:

1932: Claim TB10699 was staked by D. M. Morin.

1933: A total of 116 assessment days were credited to the claim for unspecified work.

1934: Oklend Gold Mines Limited was incorporated to undertake development of the claim. The claim was transferred to Oklend Gold Mines Limited and surveyed. Geological and dip needle surveys were conducted.

1935-1936: A diamond drilling program was completed in which 59 holes totalling 10,956.7 m (35,947 feet) were drilled on the claim block, 14 of which explored two erratic vein zones on claim TB10699.

1937: An application was submitted to patent the claim, but approval was withheld as the claim was too large.

1938: Six holes totalling 1,265.2 m (4,151 feet) were drilled elsewhere on the claim block.

1939: A portion of TB10669 was staked as TB10669A by Watkin Samuel, who transferred the claim to Oklend Gold Mines Limited. Both claims were patented.

1946-1947: A joint exploration program was carried out with Hard Rock Gold Mines Limited, which involved drilling along the common north-south boundary.

1951: A diamond drilling program was carried out by Oklend Gold Mines Limited and Little Longlac Gold Mines Limited along their mutual boundary.

1966: The property was sold to Little Longlac Gold Mines Limited.

CURRENT:

The claim is presently held by Little Longlac Gold Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5503282
Easting 507647

GENERAL LOCATION:

The claim is located in south central Ashmore Township, on the north shore of Kenogamisis Lake, 1.6 km (1 mile) west of the Main Narrows and within MacLeod Provincial Park.

ACCESS:

Proceed east of the Geraldton turnoff along Highway #11 to MacLeod Provincial Park.

REFERENCES:

Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Samuel (1936)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye, et al., Baillie, 1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 1951-2, Township of Ashmore (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2520, Geraldton Area (Love, 1982).
Map 30002G, Jellicoe Project, Aeromagnetometer (ODM-GSC, 1974).

6) GENERAL GEOLOGY AND STRUCTURE:

The area is underlain by Precambrian metavolcanics and metasediments which have been intruded by bodies of hornblende diorite, diorite porphyry, albite porphyry, and quartz diabase (Horwood and Pye, 1951). Refer to the Oklend Occurrence (Main Narrows) for more detail.

Horwood and Pye (1951) have noted that the arkose horizon within which the quartz ores of the Little Longlac Mine occur forms a continuous band up to 304.8 m (1,000 feet) thick, and has been traced to diamond drill intersections south of the Main Narrows.

7) <u>MINERALOGY</u>:

Fourteen holes were drilled on claim TB10699 to test the ground along strike of the arkose horizon easterly from the Little Longlac Mine. Several erratic quartz-carbonate stringer zones in arkose and greywacke were intersected. Mineralization consists of pyrite, arsenopyrite, pyrrhotite, chalcopyrite and galena (Samuel, 1936)*.

8) <u>ECONOMIC FEATURES</u>:

Seven mineralized sections were intersected which returned values from 0.10 to 0.17 oz/ton gold over widths of 0.2 m (0.7 feet) to 1.5 m (5.0 feet). Two 0.2 m (6 inch) sections assayed 0.32 and 0.44 oz/ton gold. None of the veins could be traced in closely spaced holes.

It should be noted that intersections on other parts of the 55 claim block returned gold values up to 0.25 oz/ton over 0.8 m (2.5 feet) and 0.39 oz/ton gold over 0.4 m (1.4 feet) (Samuel, 1936)*.

9) <u>CHEMICAL ANALYSES</u>:

<u>1935-36 - Oklend Gold Mines Limited</u>

Hole No.	Oz/T Au	Width	Sample Description
29	0.12	0.21m (0.7 ft.)	Two 5 cm (2 inch) quartz veinlets in greywacke which are moderately mineralized with pyrite.
29	0.10	0.51m (0.5 ft.)	Quartz veinlets in greywacke. Fairly well mineralized with pyrite and arsenopyrite.
29	0.16	0.46m (1.5 ft.)	As above but well mineralized.
29	0.13	0.55m (1.8 ft.)	Quartz veins in greywacke up to 0.31 metres (1 foot) wide which is well mineralized with pyrite and pyrrhotite.
32	0.17	0.18m (0.6 ft.)	Quartz veinlets with some pyrite and arsenopyrite.
33	0.14	1.37m (4.5 ft.)	Vein material, about 65% quartz and well mineralized with arsenopyrite.
35	0.32	0.15m (0.5 ft.)	Quartz veinlets which are very well mineralized with galena and chalcopyrite.
35	0.14	0.43m (1.4 ft.)	Quartz veins, apparently barren.
37	0.44	0.21m (0.7 ft.)	Two veinlets well mineralized with pyrite.

Numerous samples returned anomalously high gold values less than 0.1 oz/ton gold (Samuel, 1936)*.

1) PROPERTY NAME: **Oklend Occurrence (119) (Main Narrows)** DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
It should be noted that the occurrence is one of a number which were discovered over the 55 claim block of Oklend Gold Mines and the history given applies only to a limited number of claims.

PAST:

1931: Claims TB10018 and TB10021 were staked by S. B. Watson on behalf of T. Rea and Mrs. E. Watson, respectively. The claims were subsequently transferred to A. B. Gordon and W. H. Connell.

1932: The claims were optioned and 30 assessment days were credited to each claim. The option was later dropped. There is no record of who performed the work.

1933: A total of 100 assessment days was credited to each claim.

1934: Oklend Gold Mines Limited was incorporated to undertake development of the claims. The claims were transferred to Oklend Gold Mines Limited and were surveyed. Geological and dip needle surveys were conducted.

1935-1936: A diamond drilling program was completed in which 59 holes totalling 10,956.7 m (35,947 feet) were drilled on the claim block, 14 of which tested the fault structure near the narrows of Little Longlac.

1937: The claims were patented.

1938: Six holes totalling 1,265.2 m (4,151 feet) were drilled elsewhere on the claim block.

1946-1947: A joint exploration program was carried out with Hard Rock Gold Mines Limited, which involved drilling along the common north-south boundary.

1951: A diamond drilling program was carried out by Oklend Gold Mines Limited and Little Longlac Gold Mines Limited along their mutual boundary.

1966: The property was sold to Little Longlac Gold Mines Limited.

CURRENT:

The property is held by Little Longlac Gold Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5503850
Easting 509650

GENERAL LOCATION:

The property is located in south central Ashmore Township, near the narrows of Little Longlac.

ACCESS:

The property is easily accessible by Trans-Canada Highway #11, which passes through the northern claim approximately 5.0 km east of the turn-off to Geraldton (Highway #584).

REFERENCES:

Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Samuel (1936)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P.241, Geraldton Sheet (Pye, et al., 1964).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 1951-2, Township of Ashmore (Horwood and Pye, 1951).
Map P2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

The area is underlain by Early Precambrian metavolcanics and metasediments which have been intruded by bodies of hornblende diorite, diorite porphyry, albite porphyry, and quartz diabase (Horwood and Pye, 1951).

According to Horwood and Pye (1951):

"Basal conglomerate has been found along only the volcanics-sediments contact in the vicinity of the Main Narrows, where, together with interbedded greywacke it forms a lenticular deposit over 300 feet wide and a little more than a mile in length. It is interesting to note that across the strike and towards the south the pebbly beds and lenses in this formation become smaller and more and more infrequent, so that in this direction the conglomerate grades into an overlying series of greywacke with subordinate arkose, iron formation and slate. Elsewhere along the north boundary of the property, the greywackes rest directly upon the flow rocks with apparent disconformity.

The most significant of the sedimentary formations...is the arkose horizon, within which the quartz ores of the Little Longlac Mine occur. It forms a continuous band up to 1,000 feet thick and has been traced... to diamond drill intersections south of the Main Narrows.

...Many narrow bands of iron formation have been found in drill cores, generally where the holes intersect either one or the other of two continuous zones, one approximately midway between the arkose horizon and the volcanics-sediments contact to the north, the other across the southern claims north of the large peninsula south-east of the Hard Rock mine. The north zone strikes about N.70°W. and dips steeply south; the south zone, except where small Z-shaped drag folds are evident, strikes roughly east-west. The two zones of iron-formation bands occur along the north and south flanks of the regional Little Long Lac syncline and appear to converge to the east, but whether or not they represent the same horizon repeated by folding is problematical. The individual bands, since they can be traced under the lakes by geophysical survey methods, afford useful horizon markers in the determination of the geological structures. They suggest that to the east the volcanic and sedimentary formations have been offset along two major transverse faults. One of the faults strikes about N.18°E. through or a short distance east of the Main Narrows; the other, N30°-40°E. along the east shore of Kenogamisis Lake.

Intrusive into the volcanic and sedimentary formations are many narrow, sill-like bodies of hornblende diorite, diorite porphyry, and albite porphyry. Hornblende diorite outcrops near the Main Narrows. It is massive to schistose, dark green, and medium-grained, with large, well-developed crystals of hornblende. Diorite and albite porphyries are not exposed at the surface but have been intersected in many diamond-drill holes. Generally, they form dikes or sills that are too small to be shown on the generalized geological map of the township. Well-jointed, but otherwise massive, quartz diabase outcrops on the peninsula extending southward across claim T.B.10688, and is believed to represent the same dike that is exposed on the opposite shore of the lake on the adjoining Hard Rock property."

7) MINERALOGY:

Diamond drill holes in the area of the Main Narrows of Little Longlac tested the indicated fault structure, mineralized float and mineralized narrow quartz veins. Mineralization includes pyrite, pyrrhotite, galena, sphalerite and gold. The only gangue mineral noted is quartz.

8) ECONOMIC FEATURES:

Diamond drilling by Oklend Gold Mines Limited intersected a number of significant gold values in narrow quartz veins. Assays ranged from 0.1 oz/ton gold over 0.5 m (1.5 feet) to 0.71 oz/ton gold over 8.40 m (1.3 feet). None of the veins could be traced in closely spaced holes.

It should be noted that intersections on other parts of the 55 claim block returned gold values up to 0.25 oz/ton gold over 0.8 m (2.5 feet) and 0.39 oz/ton gold over 0.4 m (1.4 feet) (Samuel, 1936)*.

9) CHEMICAL ANALYSES:

1935-36 - Oklend Gold Mines Limited

Hole No.	Oz/T Au	Width	Sample Description
1	0.10	0.46m (1.5 ft.)	Siliceous material, mainly quartz, lightly mineralized by fine pyrite.
1	0.17	0.43m (1.4 ft.)	Siliceous breccia, heavily mineralized by pyrite, pyrrhotite, and chalcopyrite.
3	0.14	0.27m (0.9 ft.)	Conglomerate, heavily mineralized by pyrite. 5.1 cm (2 in.) quartz veinlet well mineralized with pyrite and a small amount of pyrrhotite, galena and sphalerite.
4	0.20	0.18m (2.6 ft.)	Sheared zone with two quartz stringers, well mineralized.
6	0.71	0.40m (1.3 ft.)	Quartz veinlet with possible galena and quartzose material, heavily mineralized by pyrite.

Numerous samples returned anomalously high gold values less than 0.1 oz/ton gold (Samuel, 1936)*.

1) PROPERTY NAME: Oliver Severn Occurrence (120)

DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY: Cu, Pb, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1924: The property covering the occurrence was staked by C. W. Taylor (TB13659) and subsequently transferred to Oliver Severn Gold Mines Limited. At this time, Oliver Severn held a block of six claims.

1935: A number of trenches were dug and some diamond drilling was done by Oliver Severn Gold Mines Limited.

1940: The claim was transferred (along with the other five claims in the block) to W. E. Segsworth, who applied for a 10 year lease in the same year. The lease was approved and subsequently transferred to Oliver Severn Gold Mines Limited.

1950: The lease was renewed for an additional 10 year period.

1960: The lease was renewed for an additional 10 year perod.

1972: The lease was renewed for 10 years, from October 1, 1970.

1976: Oliver Severn's Ontario Charter was cancelled.

1977: The lease was declared forfeit.

CURRENT:

The property is no longer leased but is not available for staking.

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5512300
Easting 450450

GENERAL LOCATION:

The claim is located in south central Elmhirst Township, approximately 1.6 km southeast of East Coyle Lake.

ACCESS:

Travel north on secondary Highway #801 from Nezah, 10.1 km west of Jellicoe, for 12.9 km, then northeast on a lumber road for about 8 km. The claim group is located approximately 1.6 km southwest of the road.

REFERENCES:

Bruce (1936).
Mackasey and Wallace (1978).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1977).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Bruce (1936) describes the geology of the area as follows:

> "All the consolidated rock on the claims is granite except a small lenticular remnant of older rocks in which the veins occur. Appparently the roof of the batholith was not far above the present surface. Dark-coloured and gneissic areas in the granite at several other places in the vicinity are probably the lower parts of other roof pendants now almost completely assimilated.
>
> The main lava inclusion of the Oliver-Severn claims is now chlorite schist. It is 225 feet in length and 35 feet in width at the widest part. The strike is N65°E. In the schist there are large and irregular quartz veins roughly parallel to the schistosity. Individual quartz veins in the wide part of the lens have width up to 5 feet and at the point where the schist inclusion has a total width of 30 feet , approximately one-half of it is quartz. At the southwest end where the schist tapers out, a quartz vein continues into the granite beyond the end of the schist but narrows sharply and fingers out."

Refer to the Wilkinson Lake property for the structural geology of Elmhirst Township.

7) <u>MINERALOGY</u>:

The mineralogy of the Oliver-Severn occurrence is described by Bruce (1936):

"The quartz is a white, vitreous variety. Metallic minerals form 5 to 10 per cent of the vein material. Pyrite and chalcopyrite are in approximately equal proportions, and in places quite large masses of mixed sulphides occur in the quartz...

The chlorite schist in which the quartz veins occur contains only small quantities of sulphides. Thomson (1935) reports the examination of two specimens, one of which consisted mainly of sulphides, the other mainly of gangue. In the former, pyrite and galena were the predominant metallic minerals, with subordinate quantities of sphalerite, chalcopyrite, hematite, and gold; the latter specimen showed chalcopyrite as the common metallic mineral, with pyrite and hematite in minor amounts."

8) <u>ECONOMIC FEATURES</u>:

Bruce (1936) states that:

"Sampling of trenches indicated an average gold content of 0.17 oz per ton over a width of 4 feet 8 inches for a length of 200 feet."

9) <u>CHEMICAL ANALYSES</u>:

None.

1) PROPERTY NAME: **Paulpic Prospect (123)** DATE(S) VISITED: July 5, 1984

2) ALTERNATE NAME(S): Tom Johnson Nipigon Mines Limited
Canamax Resources Incorporated
Cline Prospect
Tashota Deposit

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1916: The Cline Prospect, the original discovery occurrence on claim KK61, was found following Wells' 1916 find in the Tashota gold camp.

1917: Tash-Orn Mines Limited optioned claim KK61 and sank an inclined shaft to a depth of 48 feet (14.6 m) on the deposit. A diamond drill hole 50.3 m (165 feet) in length at an angle of 45 degrees was also completed.

1925: The shaft was extended to a depth of 60 feet (18.3 m).

1936-1937: Tom Johnson Nipigon Mines Limited hired Erie Canadian Mines Limited to conduct work on the optioned ground. Surface trenching was carried out between June and October of 1936. Diamond drilling was started in October, 1936 and continued until February, 1937. During that period, 50 diamond drill holes were collared totalling 2,058 m (6,753 feet) on claims KK61 and KK328.

CURRENT:

1977: Amax of Canada Limited acquired the Paulpic Gold Mines Limited property.

1980-1981: Amax of Canada Limited and Hollinger Argus drilled 26 holes on the property between August 1980 and August 1981. Drilling totalled 2,929.4 m (9,611 feet).

1982: Canamax Resources Incorporated, the Canadian exploration arm of Amax Incorporated, was formed in December to acquire the assets of Amax Minerals, Canamax officially became a public company in July of 1983 and is wholly owned by Amax of Canada. A total of 4,120 acres is held in a joint venture with Bruneau Mining Corporation covering the original Paulpic property. Fifty-six diamond drill holes were completed by year's end.

1983: Diamond drilling confirmed the downward extension of the mineralized zone but only minor gold values were encountered. The Canadian Mines Handbook (1984-1985) reported that a $450,000.00 diamond drill program was planned primarily to test a new zone.

1985: Canamax Resources Incorporated drilled 1,200 m on the Paulpic property (D. Waddington, geologist, Canamax Resources Incorporated, Toronto, personal communication, 1985).

5) LOCATION AND ACCESS:

N.T.S. 42L4/NE
U.T.M. Zone 16 Northing 5564900
Easting 452750

GENERAL LOCATION:

The property is located 600 m northeast of the former Tashota (Canadian National Railway) Station.

ACCESS:

The property can be reached by helicopter or rail from Nakina,west on the Canadian National Railway to Tashota Station as indicated in the Adair Occurrence and Wascanna Prospect descriptions. The Paulpic Prospect is approximately 700 m northeast of Tashota and is accessible by drill roads.

REFERENCES:

Amukun (1977).
Gledhill (1925).
Hopkins (1916).
Knutson (1981)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Waddington (1979)*.

MAP REFERENCES:

Map 26a, Kowkash Gold Area (Hopkins, 1916).
Map 34g, Tashota-Onaman River Area (Gledhill, 1925).
Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1965).
Map 2354, Tashota Area (Amukun, 1977).

6) GENERAL GEOLOGY AND STRUCTURE:

Surface trenching and diamond drilling of the Paulpic property in 1936-37 indicated that the country rocks consist of mafic metavolcanics and derived schists in association with a gold-bearing siliceous iron formation in the form of en echelon lenses. These rocks are cut by diorite and lamprophyre dykes or porphyries and quartz veins (Amukun, 1977).

Waddington (1979) described the property geology and structure:

"Some structure complexity may affect their distribution but at least one sequence of intermediate to mafic flows and tuffs, intermediate to felsic tuffs and derived sediments was observed. The sedimentary phases are often pyritic and rusty, carrying anomalous base metal or gold values. Long, highly magnetic iron formation units provide some geophysical marker horizons and several areas of old trenching have exposed sulphide iron formation carrying base and precious metal values. The rocks have been cut by older gabbro dykes and pods (now amphibolite), a small granitic body and younger diabase dykes.

Mafic volcanics occur as chloritic to amphibolitic, massive to poorly pillowed flows, interbedded on a large scale with tuffaceous units. The tuffs vary from soft, green, chloritic, poorly bedded rocks to well bedded (1/8" to 1/4") with variable carbonate content (10% to 30%). The thin bedded calcareous variant may have exhalative sedimentary affinities. Some areas, notably directly south of Tashota Lake, contain brown weathering, iron carbonate to quartz carbonate lenses and beds. Due to their conformability with observed bedding these are also considered to be chemical sediment interbeds.

Intermediate volcanics (Da,Dt) occur in a restricted area at the extreme northeast corner of the group. They are massive or faintly bedded flows, tuffs and lapilli tuffs. Their appearance is distinctive because of a liberal dusting (up to 10%) of small (1/16" or less) chloritoid grains throughout the rock. It is very reminiscent of the so-called "Dacite Intrusive" in the Mattabi-Darkwater area of the Sturgeon Lake camp.

Felsic volcanics (Rh, Rt and Ra) occur locally, often as thin (3 to 20 foot) units within more mafic rocks. They are siliceous, fine-grained to slightly granular, light coloured and often slightly pyritiferous and rusty. Faint, thin bedding is sometimes visible as are lapilli to agglomerate size fragments. When no such features were observed the rocks were classified as flows. The grade of metamorphism has imparted a slightly granular texture to these higher silica rocks.

A variety of sedimentary rock types was present, variously classified in the field as argillite (arg) siltstone (slst), greywacke (gwke) and quartzite (qtzte) depending on grain size and apparent silica content. The argillites and siltstones were often difficult to distinguish from the intermediate to mafic tuffs due to similar origins and the pervasive upper greenschist to lower amphibolite facies metamorphism.

Several intrusive rock types were mapped. The most common was the late diabase dykes of which several sets seem to exist. Some dykes show coarse plagioclase phenocrysts while others are massive. In spite of detailed mapping some confusion still exists in interpreting the geometry of the complex intersection of at least two of them along the west boundary of Gzowski Township, about a half mile north of the tracks. Also mapped were several outcrops of "gabbro". It is possible that these represent remnants of older (Archean?) diabase dykes in a poor state of preservation.

Along the tracks, about 1,900 feet west of the Gzowski Creek Bridge, are many outcrops of white to buff, medium to coarse-grained leuco-quartz monzonite or granite. The contacts have been interpreted with the aid of detailed magnetic work but it appears to be a small isolated body, about ½ mile across. It displays good granitic texture and has little or no mafic minerals. A large block (roof pendant?) of intermediate to mafic volcanic rock was found in the main outcrop area.

Also found there, as well as near the north contact, were several outcrops of a coarse-grained quartz sericite schist, possibly an altered quartz porphyry phase of the intrusive.

A final map category used was amphibolite (Am, Am_q). These rocks varied from dark green to black hornblendite, often incipiently chloritized and were fine, medium and even coarse-grained in different outcrops. They probably represent metamorphic equivalents of mafic intrusive and extrusive rocks. In some areas they seem to be coarser, more altered parts of flows of conformable sills, whereas elsewhere they are clearly discordant, occurring either as patchy masses or as remnants of discrete dykes. Locally tiny quartz eyes were noted in the coarser-grained (intrusive) amphibolites.

Structures on a large scale in the claim group can only be interpreted tentatively at this time due to large areas lacking outcrop, metamorphism with the possible development of secondary schistosity and probably structural complexities on all scales.

Several faults have been interpreted, largely on the basis of disruptions of diabase dykes (indicating late tectonic activity), topographic features and interpretation of the detailed aeromagnetic maps. The main movement on each appears to have been strike-slip although the abrupt change in strike of the iron formation around 12E and 58N on baseline #2 would require a large rotational fault component to accomplish. This would have occurred before emplacement of the smaller diabase dykes (as they show only a strike-slip offset) and before emplacement of the large NNE-trending diabase dyke (which does not appear to show any displacement).

No convincing major folding was found, but areas of tight crenulations and minor folds as well as prominent mineral and stretching lineations with ENE trends and moderate to steep plunges were found locally throughout the claim group. This, combined with sometimes confusing magnetic trends and poor correlation between outcrop area, implies the possibility of large scale folding.

Other factors contributing to the confusion are the possibility of rapid lateral facies changes in the volcanic sedimentary environment, and deformation related to the late intrusion of the small granitic body with a possible related metamorphic overprint."

7) MINERALOGY:

The mineralization consists of gold-bearing siliceous iron formations. The several "ore" zones outlined by surface trenching and drilling were designated the Fraser Vein, New Vein, Trench No. 1 Veins and "Iron Formation west of the Fraser Vein"(claims TB504538, TB504158, TB500358, and TB503972) (Amukun, 1977).
Amukun (1977) described the mineralization of several surface occurrences prior to the discovery of the Tashota Gold Deposit by Canamax:

Note: The "Fraser Vein" is a portion of the Tashota deposit discovered in 1980-81.

"The Fraser Vein" was traced for 99.0 m (325 feet) with a strike of N45°W and dip of 65°NE. The 99.0 m (325 feet) strike length and 2.0 m (6 feet 7 inch) width with a gold content of $5.70 per ton (1936 price) (Assessment Files Research Office, Ontario Division of Mines, Toronto) 18,145 tons of "ore" valued at $103,426.00 for every 30 m (100 feet) in depth was calculated for the Fraser vein, which also carried pyrrhotite, pyrite, and chalcopyrite in trace amounts. The tonnage of the calculated "ore" of the Fraser vein was supplemented by that of the "Ore Zone West of the Fraser vein", approximately 15 m (50 feet) west (Assessment Files Research Office, Ontario Division of Mines, Toronto).

The "New Vein" was traced for a length of 20 m (70 feet) with an average width of 1.11 m (3 feet 8 inches) and a grade of $17.25 per ton (1936 price). However, in a section of the vein 15 m (50 feet), in length and 1.2 m (4 feet) in width and 30 m (100 feet) in depth, the gold value runs to $10.00 per ton (1936 price). Three metres (10 feet) east of the New Vein, a "rich" shoot 1.2 m (4 feet) wide intersected to approximately 12 m (40 foot) vertical depth, returned $22.75 per ton (1936 price).

The "Trench No. 1 Veins" exposed by the trench are made up of two short "ore shoots" separated by a diorite/gabbro dike. One of the "shoots" is exposed for a length of 10.7 m (35 feet) with an average width of 2.4 m (8 feet) and with a gold content of $9.70 (1936 price). Five diamond drill holes intersected this zone to a vertical depth of 12 to 15 m (40 to 50 feet) with maximum gold content of $5.95 per ton (1936 price) with minor pyrite, pyrrhotite and chalcopyrite. The other "ore shoot" in Trench No. 1 was exposed for a length of 18 m (60 feet) and a width of 0.9 m (3 feet) averaging $24.00 per ton gold (1936 price) also with minor pyrite, pyrrhotite, and chalcopyrite. Two diamond drill holes intersected this zone to a maximum vertical depth of 9 m (30 feet), and a maximum width of 2 m (8 feet) with gold values up to $8.56 per ton (1936 prices).

> The "Iron Formation west of Fraser Vein" (A. P. Hopkins, personal files) was tested by a considerable amount of diamond drilling which outlined an auriferous band of Iron Formation 90 m (300 feet) west of the Fraser Vein containing quartz, and magnetite in addition to gold, pyrite, pyrrhotite, and some chalcopyrite. Diamond drilling outlined a zone, 90 m (300 feet) in length, with an average width of 1.4 m (4 feet 8 inches), and a gold content of $3.94 per ton (1936 price)."

Diamond drill hole (Canamax-Hollinger) Tash 1-3-80 intersected 3.7 m of a banded chert-magnetite iron formation. This was the discovery hole of the new Tashota deposit (former Fraser vein). Chlorite and green carbonate zones occur in a recrystallized chert. Quartz veins and lenses also occur. Sulphide content ranges up to 10% pyrrhotite, 1% pyrite and 1% chalcopyrite in the intersection. Gold values assayed 0.5 m of 0.09 oz gold per ton and 0.5 m of 3.62 oz gold per ton in a 1.0 m intersection.

The iron formation is hosted in an andesite flow rock, described by Canamax-Hollinger as intermediate in composition, green, and micaeous and chloritic.

Further drilling between 1981 and 1985 (data unavailable) has outlined a lens-shaped gold deposit within the iron formation, termed the Tashota Deposit, (A. D. MacTavish, Resource Geologist, Ministry of Northern Development and Mines, Thunder Bay, personal communication, 1986).

A "stringer zone" occurs approximately 5-20 m beneath the Tashota deposit. The zone consists of an amphibole-feldspar schist hosting quartz and carbonate (green) veining. Very fine-grained pyrite, pyrrhotite and chalcopyrite occur in the stringers (A. D. MacTavish, Resource Geologist, Ministry of Northern Development and Mines, Thunder Bay, personal communication, 1986). Within hole Tash 1-3-80, between 66.3 and 109 feet, 1.5 m of 0.105 oz gold per ton and 0.6 m of 0.54 oz gold per ton were encountered.

8) <u>ECONOMIC FEATURES</u>:
<u>TONNAGE AND GRADE ESTIMATES</u>:
The deposit reported to contain 200,000 tonnes averaging 0.231 oz gold per ton (Canadian Mines Handbook, 1984-85).

1) PROPERTY NAME: **Peddle Lake - Sweany Junction Occurrence**

DATE(S) VISITED: September 25, 1985 October 2, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au, Ag SECONDARY: Cu

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1944: Claim TB35562 was staked by Ireéne St. Aubin, who recorded 80 days work.

1949: The claim was cancelled and restaked by Don McLeod as TB39261.

1952: The claim was cancelled.

1954-1956: Claim TB60238 was staked by S. Smith in April. It was transferred to Paul Green in March 1955, and an extension was granted until March 1956. The claim was cancelled in September 1956.

1957-1958: The claim was staked by Fred Snow as TB87969, and lapsed in September 1958.

1959: Claim TB93722 was staked in March 1959 by V. Sedgewick.

1960-1971: The claim was cancelled, and restaked by John Petrick (TB97772). Between 1960 and June 1971, a total of 203 days of work was credited to the claim, mainly diamond drilling, surface stripping and trenching. A lease was not applied for and the claim was cancelled in June 1971.

1972-1976: John Petrick restaked the ground as claim TB351419. From 1972 to May 1975, 62 days of work was performed, including diamond drilling, and manual and mechanical stripping. In addition, Lynx Canada Explorations conducted an Induced Polarization Geophysical survey on the eastern half of the property, and on 6 claims immediately to the east. They outlined two parallel northwest-trending anomalies, the southern of which occurs partially on TB35149 (conforms with present Peddle Lake Occurrence). Claim TB351419 lapsed in October 1976, some time after the death of Mr. Petrick.

1983-1984: The property was staked by D. Thorsteinson in August, and was recorded as claim TB745866. It was cancelled in September 1984.

CURRENT:

1985: John Koski staked claim TB863167 in August. It was transferred to D. Thorsteinson, N. Cox, and P. Lassila. 100 days of work was credited for power stripping carried out to year's end Channel sampling and stripping continued into 1986. The claim was optioned to D. Sweany (Sweany Gold Corporation).

5) LOCATION AND ACCESS:

N.T.S. 42E12/NW
U.T.M. Zone 16 Northing 5511800
Easting 435650

GENERAL LOCATION:

The Peddle Lake Occurrence is located in the southwestern corner of Pifher Township.

ACCESS:

Travel north from Highway 11 along secondary Highway 801 (Paint Lake Road) to the Namewaminikan River (Sturgeon River) crossing. From this point continue north for 1 km and turn left onto a good gravel road (second road west, north of the river; (72 or River Road). The road winds westerly for 10.5 km and turns south (main road) at the "Hilda Holm" (Musca Lake) intersection.

The occurrence is located at the intersection.

REFERENCES:

Laird (1936).

MAP REFERENCES:

Map 45A, Sturgeon River Gold Area (Bruce and Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet, (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The geological setting in the vicinity of the property is dominated by intermediate to felsic metavolcanics; a portion of the Onaman-Tashota Metavolcanic Belt. Many of the gold occurrences are stock-related and/or hosted in metavolcanic rocks in the area. Intrusions are typically granite-granodiorite stocks (e.g. Kaby Lake, Elmhirst Lake, Coyle Lake Stocks). Late Precambrian diabase dikes and sills intrude all rock types. Locally the claim group is underlain by feldspar and quartz-feldspar porphyry, medium to coarse felsic volcanic breccia and diorite.

The Paint Lake Fault lies approximately 4 km to the south.

Regional foliation of the metavolcanics is easterly.

7) MINERALIZATION:

The South Zone, located at the H. Holm (Musca Lake) Road intersection with the River or 72 Road, is associated with a 2.4 m (8.0 foot) wide shear zone hosted in an altered feldspar (quartz) porphyry (felsic metavolcanic) and feldspar porphyry breccia. A minor chlorite component occurs in some portions of the porphyry.

The porphyry contains subhedral phenocrysts of feldspar typically crowded. Stretched lapilli sized feldspar porphyry fragmental occur and therefore the fragmented can be classified as an autobreccia. The south zone strikes 112° and dips 78°N. One to 30% chalcopyrite is present, as well as minor amounts of pyrite, pyrrhotite, bornite and native copper.

The North Zone is poorly exposed and is mainly float material. Mineralization has been detected "up ice" in a silicified feldspar (quartz) porphyry hosting sulphide mineralization similar to the South Zone.

8) CHEMICAL ANALYSES:

1985

Sample No.	Gold (oz/T)	Silver (oz/T)	Copper (ppm)	Sample Description
TCX-2 (South Zone)	3.04		4700ppm	Grey int. to felsic volcanic rocks with $CaCo_3$ and malachite stain - 1-2% fine patches cpy
TCX-1 (North Zone)	11.58		2.24%	Grey felsic metavolcanic with 7-10% quilts and patches cpy, fluorite and calcite in vugs in one sample
South Zone (85-MPL-99101-99110) - chip sample across 2.7 m (9.0 feet)				
85-MPL-99101 0+00W to 0+01N	<.01	0.20	1010	Feldspar porphyry wallrock south flank of zone
85-MPL-99102 0+01N to 0+02N	2.64	5.34	3.88%	Feldspar porphyry-well mineralized - 5-10% cpy
85-MPL-99103 0+02N to 0+03N	0.02	0.10	8400	Altered feldspar porphyry (weakly silicified - 2-10% cpy)
85-MPL-99104 0+03N to 0+04N	0.38	<0.10	6340	Feldspar porphyry (moderately silicified - 2-10% cpy)
85-MPL-99105 0+04N to 0+05N	0.08	0.30	1.30%	Altered feldspar porphyry (weakly silicified - 3-4% cpy)
85-MPL-99106 0+05N to 0+06N	0.02	<0.10	2920	Feldspar porphyry (moderately
85-MPL-99107 0+06N to 0+07N	0.01	0.19	2460	Altered feldspar porphyry <1% sulphides
85-MPL-99108 0+07N to 0+08N	0.01	<0.10	1310	Rusty silicified sheared sericite, quartz mineralization - py, cpy
85-MPL-99109 0+007½N to 0+00N (2 ft. east)	0.01	0.65	9000	(same as 99108)
85-MPL-99110 0+08N to 0+09N	0.02	0.12	730	(Chlorite) feldspar porphyry <1% sulphides
85-MPL-99111 0+18S to 0+19S	<0.01	<0.10	1520	(Chlorite) sheared feldspar porphyry
85-MPL-99112 0+19.5S	0.18	<0.10	1.02%	Chlorite shear, quartz-carbonate well mineralized py, miner cpy
85-MPL-99113	0.26	<0.10	4360	Chlorite shear, quartz (7.5-10.0 cm wide) py, cpy

Sample No.	Gold (oz/T)	Copper (ppm)	Sample Description
85-MTC-3 (South Zone)	<0.01	665	Silicified quartz-feldspar porphyry with silicified quartz-
85-MTC-4 (South Zone)	0.18	5.40%	feldspar with quilts, patches and disseminations of cpy & po
85-MTC-5 (South Zone)	0.44	3.84%	(5%) silicified metavolcanic (grey) with patches of massive cpy - up to 15% malachite stain intermediate to felsic volcanic tuff with quilts and patches of cpy (7-10%)
85-MTC-6 (South Zone)	0.10	2.34%	Feldspar porphyry 10-15% diss. cpy
85-MTC-7 (South Zone)	0.03	2.52%	(same as 85-MTC-6) 5-7% diss. cpy
85-MTC-8 (N. part South Zone)	0.01	5860	Sheared feldspar porphyry 15% cpy diss. and massive in places
85-MTC-9 (Centre South Zone)	0.01	1550	(same as 85-MTC-6) 1-2% diss. cpy
85-MTC-10 (South Zone)	0.12	2.58%	Grey feldspar with quilts and patches of 5% cpy and bornite
85-MTC-11 (North Zone)	<0.01	1440	Grey feldspar porphyry 1-2% diss. cpy
85-MTC-12 (North Zone)	<0.01	1530	(same as 85-MTC-11)

1) PROPERTY NAME: **Pichette, G. Prospect (124)**

DATE(S) VISITED:
October 4, 1981
August, 1982
June 1, 1983
August 23, 1983

2) ALTERNATE NAME(S): Morrison-Smith Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1936: B. Morrison, on behalf of Ventures Limited, staked 16 claims, which consist of the following: TB21928, TB21921, TB22065-71, TB22073, TB22077, TB22078, TB22081, TB22313 and TB22314. The main exploration work occurred on claim TB22073. Trenching was conducted.

1938: Morrison-Smith held the claims. W. S. Hamilton (1938) noted gold in quartz veins. Ventures Limited dropped the option.

1973: John Ternowesky recorded trenching on claim TB350523 (portion of the group including TB350523-6).

1980: F. A. Swanson, G. Pichette and L. Pichette staked 16 claims in Vincent Township; TB519316, TB519428, TB534700, TB535205, TB535206, TB614162-8, TB614401, TB614402, TB603283.

1981-1982: All claims were transferred to G. Pichette, and some power stripping was completed.

1982: Amax of Canada Limited optioned the ground. Diamond drilling was conducted.

1983: Amax transferred all interest to 121991 Canada Limited which later transferred all interest to Canamax Resources Incorporated. Linecutting, magnetometer, electromagnetic and geological surveys were recorded. Diamond drilling was also undertaken.

The claims were transferred back to G. Pichette.

1984: Quinterra Resources Incorporated (Highland-Crow Resources Limited) optioned the property. Diamond drilling began in December, 1984.

CURRENT:

1985: The claims reverted to G. Pichette.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5500550
Easting 449950

GENERAL LOCATION:
The property is located in north central Vincent Township

ACCESS:
The claims occur 14.5 km west-southwest of Jellicoe and 0.8 km south of the Blackwater River and Canadian National Railway track. A bush road parallels the south side of the track from Kyro's (west) Road. In low water condition, a four-wheel drive vehicle can be driven through the river to the main showing. In high water a boat is needed to cross.

REFERENCES:
Carter (1983).
Langford (1928).
Mason and McConnell (1983).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Waddington (1983)*.

MAP REFERENCES:
Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area.
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P.2854, Vincent Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:
The Pichette Occurrence is located in the Southern Metavolcanic Belt, which is described by Mason and McConnell (1983) as:

"an intermediate to mafic metavolcanic sequence, forming an east-trending lenticular belt up to 3 kilometres wide. It consists of massive, pillowed and amygdaloidal flows (chlorite schist), mafic tuffs, felsic to mafic intrusions, and/or coarse flow rocks. Pillow structures suggest younging direction to the north, (Peach, 1951)."

Waddington (1983)* described the local geology of the Pichette Occurrence:

"The most common lithology is a mafic volcanic unit with coarser layers or lenses of more massive, gabbroic to diorite material, probably in part, coarse flow material. Locally, pillows can be found only slightly flattened, and tops are indicated to the north although for the most part the volcanics occur as massive schistose flows."

Banded ironstone occurs within the volcanic rocks south of the showing, with the exception of one narrow lenses north and east of this main shear zone.

Canamax noted the presence of minor (felsic) sericitic sedimentary rocks and one narrow diabase dike striking 060°.

Peach (1951) first described the unnamed Pichette Occurrence as a "zone of intense shearing" in basalt located south of the metasedimentary-metavolcanic fault contact. Bedding and schistosity range from 070° to 090°.

7) <u>MINERALOGY</u>:

The Pichette shear zone may be up to 90 m wide and strikes 080-90° (dip 65-66° S (Mason and McConnell, 1983). Gold is associated with carbonate (calcite), pyrrhotite, pyrite and minor chalcopyrite. Highly contorted, saccharoidal, quartz veins occur mainly discordant to shearing, within the zone.

Panning initially determined the presence of fine gold.

Narrow auriferous ironstones have been noted by the property vendor, but little work has been undertaken on these possible showings. Canamax described a disconformable vein in ironstone hosting arsenopyrite, tourmaline and gold (0.1 - 0.5 ppm).

Diamond drilling by Canamax suggested the Pichette Shear Zone was not persistent at depth and possibly leached of gold values.

9) CHEMICAL ANALYSES:

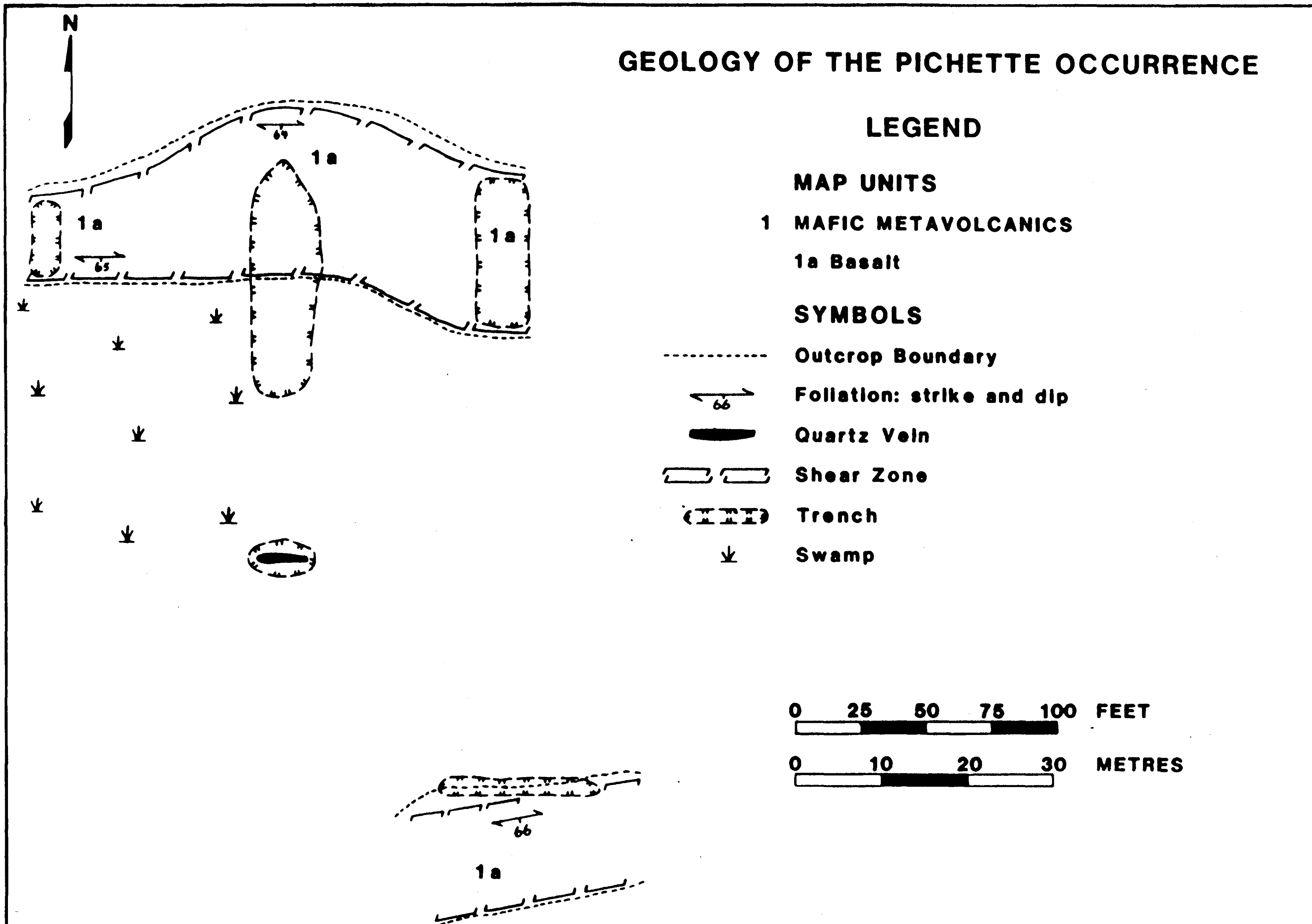
1981

81-MGP-1	Trench 1 (NE end)	0.18	Saccharoidal quartz vein with narrow parallel seams of chlorite and some sericite; 5-10% cpy.
81-MGP-2	Trench 1 (NE end)	0.12	Chip sample across 20.4 cm; quartz vein with narrow parallel bands of chlorite; sericite and carbonate present.
81-MGP-3	Trench 1 (NE end)	0.16	Chip sample across 71.1 cm; saccharoidal quartz vein with narrow parallel bands of chlorite, sericite and minor carbonate.
81-MGP-4	SW of 81-MGR-3	0.56	Rusty saccharoidal to medium-grained quartz-carbonate vein, sericite-chlorite wallrock.
81-MGP-5	Adjacent 81-MGP-4	<0.01	Rusty sheared chloritized mafic metavolcanic.
81-MGP-6	Trench 1	0.01	Rusty, glassy coarse-grained quartz with sericitized and chloritized volcanic rock.
81-MGP-7	Trench 1	0.19	Highly weathered, rusty, sheared chloritized mafic metavolcanic with narrow stringers of saccharoidal quartz.
81-MGP-8	Trench 1	<0.01	Barren coarse-grained quartz.

1982

Sample No.	Location	Gold(oz/T)	Sample Description
82-MGP-1	Trench 1	0.04	Chip samples across 10.7 m of rusty chlorite schist.
82-MGP-2	Trench 1	0.22	Sugary quartz and carbonate vein with narrow chlorite bands and rusty Fe carbonate (tight fold).
82-MGP-3	Trench 2	<0.01	Chip sample across 12.2 m chlorite schist from shear zone.
82-MGP-4	Veins of Trench 2	0.02	Sugary quartz and carbonate vein with chloritic bands and wallrock containing rusty weathered iron carbonate.
82-MGP-5	Veins of Trench 2	<0.01	Coarse to very coarse-grained (crystalline) quartz vein with chlorite bands.
82-MGP-6	Wallrock of veins of Trench 2	0.02	Chloritic wallrock containing abundant (rusty) Fe carbonate from wallrock.
82-MGP-7	Trench 3	<0.01	Chip sample across 18.3 m from shear exposed in Trench 3.
82-MGP-8	Trench 4	0.05	Chlorite schist.
82-MGP-9	Trench 4	<0.01	Coarse-grained milky quartz vein with abundant carbonate and chlorite-sericite wallrocks.

81-MGP-9	Trench 1	0.03	Highly sheared and weathered chloritized mafic metavolcanic.
81-MGP-10	Trench 1	<0.01	Sheared chloritized mafic metavolcanic containing a stringer of coarse-grained quartz and calcite.
81-MGP-11	Trench 1 (18.2 m WSW of 81-MGP-9)	<0.01	Sheared, chloritized mafic metavolcanic with minor silicification.
81-MGP-12	Old drill core	0.05	Saccharoidal quartz vein with seam of sheared chloritized mafic metavolcanics.
81-MGP-13	SW of Trench 1	0.01	Saccharoidal quartz vein displaying 10-15% pyrite and associated staining.
81-MGP-14	SW of Trench 1	<0.01	(Same as 81-MGP-13).
81-MGP-15	New Trenching	0.02	Fine to coarse-grained milky quartz vein showing narrow parallel chlorite bands and minor host; 5% po.
81-MGP-16	New Trenching	0.01	(Same as 81-MGP-15).



N
GEOLOGY OF THE PICHETTE OCCURRENCE
LEGEND
MAP UNITS
1 MAFIC METAVOLCANICS
1a Basalt
SYMBOLS
Outcrop Boundary
Foliation: strike and dip
66
Quartz Vein
Shear Zone
Trench
Swamp
0 25 50 75 100 FEET
0 10 20 30 METRES
1a
1a
1a
1a
65
64
66

FIGURE 13

1) PROPERTY NAME: **Portage Longlac Prospect (126)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Longacre Longlac

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1931: Tony Oklend staked claims TB10131 and TB10132.

1932: Surface work was performed on the above claims

1933: Nick Kochman staked claims TB10965 to TB10967, and surface work was performed on all claims.

1934: Further surface exploration was done on the above claims by the respective claim holders. TB12276 was staked for H. M. Gledhill by D. Thomson. Claims TB12277 to TB12279 inclusive were staked by H. M. Gledhill. Claim TB12280 was staked by D. Thomson. Claims TB12283 to TB12285 were staked by Tom Christiansen, and fractions of TB12283A and TB12284A were staked by A. F. Matheson. Claim TB13284 was staked by Nick Kochman. Claims TB13964 and TB14375 to TB14377 were staked by M. L. Martyr. J. J. McLellan staked claim TB14378, and Ross McLella staked claims TB14379 to TB14380. Claims TB14928 and TB14929 were staked by J. Ridley. Claim TB17876 was staked by J. S. Stevenson.

1935: All claims except those staked by Ridley and Stevenson were transferred to Longacre Gold Mines Limited. All claims except those staked by Ridley were surveyed.

1936: J. Ridley staked claims TB20659 to TB20661. J. S. Stevenson transferred claim TB17876 to Longacre Longlac Gold Mines Limited. Longacre Longlac transferred all its claims except those originally staked by Tony Oklend to Portage Longlac Mines Limited. The rest of the claims were presumably acquired by Portage Longlac under option. Portage Longlac began a drilling program after mapping the properties.

1937: Claims TB20659 to TB20661 were transferred to W. A. Hooton, who optioned the claims to Portage Longlac Gold Mines Limited. A drilling program was completed by Portage Longlac Mines Limited. The two year total was 34 holes for an aggregate 6,277.4 m (20,595 feet). Claims TB10131 and TB10132 were patented.

1938: J. Ridley's claims were surveyed (TB14928 and TB14929). Claims TB20659 to TB20661 were transferred to Portage Longlac Mines Limited.

1939: Claims TB10965 to TB10967, TB14928 and TB14929 were patented. All other claims were transferred to T. L. Gledhill.

1940: All unpatented claims except TB20659 to TB20661 were patented.

1949: The unpatented claims were transferred to Portage Longlac Mines Limited and surveyed.

1950: The unpatented claims were patented. In all, a block of 30 claims was held by Portage Longlac Mines Limited.

CURRENT:

T. L. Gledhill owns the patented ground.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5506600
Easting 497450

GENERAL LOCATION:

The property is located in Errington Township, approximately 4.8 km west of Geraldton.

ACCESS:

The property is accessible by Trans-Canada Highway #11, 7.5 km west of the turn-off to Geraldton (Highway #584). The claim block is about 2.5 km north of the road. Alternatively, the property may be reached by canoe from Magnet Lake or Kenogamisis Lake, via Magnet Creek.

REFERENCES:

Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 44d, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye, et al., 1964).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2519, Lindsley Township Area (Love, 1982).

6) <u>GENERAL GEOLOGY AND STRUCTURE:</u>

Pye (1951) describes the property:

"Except for a few outcrops of andesite and diorite in the upper middle portion of the property, all the claims are covered to a depth of 100 feet by muskeg accumulations or deposits of sand and gravel. In consequence, except where defined by diamond-drilling, the geological contacts shown on the map of the area are merely speculative projections from drill intersections and outcrops on adjacent properties, and no great accuracy is claimed for them. The upper-middle portion of the property is underlain by Keewatin lavas, principally altered andesites or basalts, which separate the northern belt of Timiskaming sediments from the southern belt. The nature of the rocks composing the north sedimentary belt is not known--diamond-drilling on the mining properties to the east suggest that they may be largely conglomeratic--but, south of the volcanic horizon, where most of the development work has been concentrated, the rocks consist of arkose, greywacke, and iron formation. Intrusive into both the volcanic and sedimentary formations are dikes and sill-like masses of hornblende, diorite, plagioclase diorite porphyry, and albite porphyry.

The sedimentary strata strike across the property in a general west-northwest direction, and dip steeply to the south. The apparent repetition of the arkose horizon suggests minor folding along east-west axes, and although the exact nature of the folds is difficult to ascertain from diamond-drill cores, it seems likely that they should be compatible with the many minor west-plunging folds in the area. Geophysical and structural data suggest that the axis of the Barton syncline (see pages 37-39) strikes N.80°W., across the southern part of the property."

7) MINERALOGY:

According to Pye (1951):

"The nature of the gold deposits has been described by A. F. Matheson ("Report on Portage Longlac Mines, Limited," Company Prospectus, 1937) as follows:

'A broad shear zone striking slightly north of west has been located in the sediments near the middle of the property, north of Magnet creek. The strike of the shear has been drilled from the east boundary to within 600 feet of the west boundary of the property, a distance of approximately 5,900 feet. Twenty-five holes were drilled spaced 100 to 600 feet apart. Gold values were obtained for a length of 3,600 feet over an area up to 500 feet in width. The values are commonly associated with pyrite, chalcopyrite, arsenopyrite, pyrrhotite and sphalerite mineralization, in sheared and brecciated greywacke and arkose. Quartz stringers are present but quartz is not prominent. The gold values vary from .03 ounces or \$1.05 across 1 foot, to \$10.18 across 6.7 feet and \$11.37 across 5 feet. Sections assaying up to \$39.90 and \$33.25 across 1 foot were also encountered. Near the southeast corner of claim 12,276 one of the veins lying within the major shear was cut by drill holes 25, 30, 31 and possibly 21, with the following results:

Drill hole	Grade	Length of core
		feet
25..............	\$10.18	6.7
30..............	11.37	5.0
31..............	4.20	5.0
21..............	1.75	2.5

These holes are spaced at 100-foot intervals, the distance from hole No. 25 to No. 21 being 300 feet. Gold values are \$35.00 per ounce.'"

1) PROPERTY NAME: **Potter Occurrence (127)** DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1934: The property was staked by Robert Wells for Amie Zabuik (TB12679) and by George McDaid (TB14188). Surface work was performed on Mrs. Zabuik's claim, while TB14188 was transferred to Robert Wells.

1935: TB12679 was transferred to Robert Wells. Surface work was performed on both claims.

1936: The claims were surveyed.

1937: Further surface work was performed on the claims.

1939: TB12679 was cancelled and reinstated.

1940: TB14188 was cancelled and reinstated.

1942: Both claims were cancelled.

1950: The property was staked by W. H. Cranston (TB40654 and TB40652, formerly TB12679 and TB14188 respectively).

1951: The claims were cancelled and restaked by R. W. Potter (TB42831 and TB42379, formerly TB40654 and TB40652 respectively).

1954: The claims were cancelled and restaked by G. Bain (TB50402 and TB50400, formerly TB42831 and TB42379 respectively).

1955: G. Bain earned 77.5 days assessment credit before transferring the claims to R. W. Potter. A three hole drill program totalling 364.7 m (1,196 feet) was completed by R. W. Potter.

1957: The claims were cancelled.

1966: The northeast claim (formerly TB50400) was restaked by Donald Hurd as part of a 9 claim block (TB130381).

1967: The claim was cancelled and restaked by Bernhard Nelson (TB222388 and TB222055, formerly TB50402 and TB130381 respectively).

1971: The claims were cancelled and restaked by Bernhard Nelson (TB303263 and TB303264, and TB303269, formerly TB222388 and TB222055.

1972: The claims were cancelled.

1973: The southwest claim was restaked by Amede Lafontaine (TB335132, formerly TB303263 and TB303264).

1974: The claim was cancelled and restaked by Roger Duchene (TB394238).

1975: The claim was cancelled.

1979: The property was staked by Edward Romiuk (TB547621 and TB547622).

1980: The claims were transferred to Dome Exploration Limited which conducted airborne magnetometer and electromagnetic surveys.

1982: A 9 hole diamond drill program was completed on the claim block but none of the holes were located on the property.

1984: The claims were cancelled. Both claims covering the occurrence were staked by F. Checkley (TB786142 and TB786144, formerly TB547621, TB547622 and TB303269.

CURRENT:

The claims are presently held by F. Checkley.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NW
U.T.M. Zone 16 Northing 5507850
Easting 468900

GENERAL LOCATION:

The occurrence is located in north central Legault Township between Vezina Lake and Partridge Lake.

ACCESS:

The property can be reached by travelling east from Jellicoe on Trans-Canada Highway #11 for 13 km and north on a secondary road for 3.2 km. The occurrence is located approximately 470 m northeast of the road.

REFERENCES:

Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:
Map P1191, Legault Township (Mackasey et al., 1976).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:
Refer to the Lattimer Occurrence.

7) MINERALOGY:
Mineralization noted in 1955 drill logs consists of light to heavy pyrite and chalcopyrite in a zone of sheared greenstone with numerous quartz stringers.

8) CHEMICAL ANALYSES:
None.

1) PROPERTY NAME: **Quebec-Sturgeon River Mine (129)**

DATE(S) VISITED:
May 6, 1981
August, 1981
August 19, 1983
May 9, 1984
June 5, 1984
June 12, 1984
August 7, 1984
August 28, 1984
November 7, 1984
July 3, 1985
July 19, 1985
October 22, 1985

2) ALTERNATE NAME(S): Sturgeon River Gold Mine
Sturgeon River Mines Limited
Coniagas Mines Limited

3) COMMODITY: Au, Ag MAIN: SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1934: Claims TB13641 to TB13647 were staked by Wood Brown Prospecting and optioned to Coniagas Mines Limited which carried out stripping on the property. Sturgeon River Gold Mines Limited was incorporated in August for the purpose of the acquiring the property. Trenching, sampling and diamond drilling were carried out to determine the dimensions of auriferous quartz vein #3.

1935: The diamond drilling program was completed by February and the published gold value was 5 oz per ton over 33 cm (13 inches) on the #3 (or main) vein (Muir, 1935)*.
A 3-compartment shaft was sunk to a depth of 523 feet (159.41 m) and four levels were established at 125 foot (38.10 m) intervals. Cross-cuts on these levels reached the main vein by September and a new vein, the #10 vein, was intersected on the 375 foot (114.3 m) and 500 foot (152.4 m) levels east of the #3 vein. Trenching and stripping exposed 304.8 m (1,000 feet) of the #3 vein on the surface, of which 170.7 m (560 feet) contained high grade ore. Results from the underground development justified the construction of a 30 ton amalgamation mill. All work was conducted by Coniagas Mines Limited.

1936: A two unit stamp mill was completed in the spring and milling began in June. Due to the inefficiency of the method (high gold loss in the tailings) and the high cost of wood generated steampower, the mill was shut down in August until a 50-60 ton cyanide mill could be constructed and electricity installed. The shaft was extended to a depth of 774 feet (235.9 m) and the 650 foot (190.5 m) and 750 foot (228.6 m) levels were established. Stoping began on the 250 foot (76.2 m) and 375 foot (114.3 m) levels. Operation of the property was taken over by Sturgeon River Gold Mines.

1937: Mining operations resumed in February with the new mill starting production April. The first brick was poured on April 23rd. By September the new mill was treating 70 tons per day. This was increased to 80-90 tons per day later in the year. Drifting was done on the two new levels and an underground diamond drilling program was initiated to investigate nearby parallel veins.

1938: A geological survey was conducted over the property by Futterer and Reid, Mining Consultants. The results showed favourable areas to the south of the present workings. Drifting to the south on the 750 foot (228.60 m) level encountered a new ore section 137.16 m (450 feet) south of the #3 vein. The #3 vein continued to be developed on all levels and by October a continuous ore length of 274.3 m (900 feet) had been stoped on the 750 foot (228.6 m) level. The limits of the vein were still not established on the two lowest levels. As a result of diamond drilling on the 750 foot (228.6 m) level, shaft sinking resumed in November.

1939: The shaft was deepened to 1,274 feet (388.3 m). New levels were established at 1,000 feet (304.8 m), 1,125 feet (342.9 m) and 1,250 feet (381.0 m). The #3 vein appeared to have flattened to an almost horizontal dip at this depth so cross-cuts were driven to the east and west to investigate. In April the hoist room and powerhouse were destroyed by fire.

1940: The shaft was extended to a depth of 1,779 feet (542.2 m). Three new levels were established at 1,415 feet (431.3 m), 1,580 feet (481.6 m) and 1,750 feet (533.4 m). Until late in the year, all the ore produced to date had been from the #3 vein. On the 1,580 foot (481.6 m) level, the #10 vein was drifted on for 411 feet (125.3 m). Three ore sections of the vein on this level had an average width of 21.1 cm (8.3 inches), a total length of 87.2 m (286 feet) and an estimated grade of 0.30 oz/ton over 76.2 cm (30 inches) (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay). Development had not begun on the lowest level, but both the #3 and #10 veins were partially developed on the 1,415 foot (431.29 m) and 1,580 foot (481.58 m) levels.

1941: Work was conducted mainly below the 1,200 foot (365.8 m) level with no work done above the 500 foot (152.4 m) level. The #10 vein was explored on several levels and a new vein, the M vein, was discovered and developed on the three lowest levels. In October a new waste sorting system was installed. The daily tonnage milled was 70 tons. Late in the year preparations were initiated to sink the shaft to a depth of 2,250 feet (685.80 m) to establish three new levels.

1942: The shaft reached a depth of 2,108 feet (642.5 m) and new levels were established at 1,915 feet (583.7 m) and 2,080 feet (634.0 m). The #3 and M veins were opened up on the bottom-most levels and a new vein, the 11, was opened up on the 2,080 foot (634.0 m) level. Drifting on the 1,750 foot (533.4 m) level exposed another vein, the #12, but no ore was extracted. The M vein, which is parallel to the #3 vein but south of the shaft, was opened up for 99.1 m (325 feet) on the 1,250 foot (381.0 m) level and diamond drilling on the 1,580 foot (481.6 m) level extended it for 45.7 m (150 feet) to the north. A group of 18 claims adjoining the main group to the west was purchased from Macjoe Sturgeon Gold Mines Limited. The mine was shut down in October due to labour shortages as a result of the war. All operations, including the mill clean-up, ceased by October 31st. Buildings and equipment were kept in good repair with the intention of re-opening the mine when conditions improved.

1944-1945: A group of 58 claims was staked in Irwin Township, west of the main property, of which one-third interest belonged to Sturgeon River Gold Mines Limited and two-thirds interest to Coniagas Mines Limited. A magnetometer survey was conducted over the new property and diamond drilling was done in 1945.

1947: Further exploration work was carried out on the western property with no encouraging results and the claims were allowed to lapse.

1950: Ten claims were purchased from Mic Mac Exploration Limited, bringing the total number of claims in the Sturgeon River property to 35.

1955-1956: The company changed its name to Sturgeon River Mines Limited. The mill was dismantled late in the year and the equipment was sold in 1956.

1964: The company name was changed to Quebec-Sturgeon River Mines Limited.

1967: The property was sold to Coniagas Mines Limited to cancel a debt owed to them.

1972-1973: Jupiter Minerals Incorporated was formed to hold the original Sturgeon River gold property. Quebec-Sturgeon held 95% interest in the new company and Coniagas held the other 5%. Trenching, electromagnetic and magnetometer surveys, and geochemical work were carried out on the property to assess the base metals potential and to re-evaluate the gold potential. It was stated that re-opening the mine would only be feasible if the price of gold rose above $100.00/oz. A planned diamond drilling and gold re-evaluation program was deferred as the parent company decided to concentrate its efforts on a more viable property.

1975: Jupiter Minerals Incorporated changed its name to Phoenix Gold Mines Limited.

1981: In March, Phoenix Gold Mines Limited removed a 16,000 pound bulk sample for analysis from the #3 vein (production vein), which crops out just south of the shaft on claim TB13642.

1984: The Quebec-Sturgeon River Mines property consists of 35 leased claims (TB13392-TB13400, TB13403, TB13641-TB13647, TB13931-TB13933, TB16726-TB16734, and TB25967-TB25972.

A major exploration program, involving linecutting, detailed geophysical surveys (magnetometer, VLF and IP), geological mapping, basal till sampling, stripping and trenching, was initiated. Concurrently, testing of the dump material was conducted by Aggen Incorporated. The later part of the season was spent diamond drilling the #3 vein along strike to the south. Based on the results, a phase two program would involve a rehabilitation of the old underground working for future production.

Development Data:

Year	Drifting (Ft.)	Cross-cutting (Ft.)	Raising (Ft.)	Shaft Sinking (Ft.)	Diamond Drilling Under-ground	Diamond Drilling Surface
1935	2,900.0	852.3	231.6	523.0	-	3,200.0
1936	1,850.0	118.0	577.0	251.0	-	-
1937	695.0	-	358.0	-	2,938.0	752.0
1938	1,531.0	271.0	1,211.0	192.0	4,357.0	537.0
1939	4,025.0	650.0	895.0	333.0	1,133.0	-
1940	3,032.0	422.0	526.0	505.0	481.0	-
1941	5,399.0	217.0	916.0	-	-	-
1942	489.5	625.5	623.5	328.0	3,169.0	-
Total	19,921.5	3,155.8	5,338.1	2,132.0	12,078.0	4,489.

CURRENT:

1985: Stripping, trenching, sampling, mapping, and till geochemical surveys were conducted by Phoenix Gold Mines Limited east of Highway #801 and north and west of the shaft.

5) LOCATION AND ACCESS:

N.T.S. Map 42E12/NW
U.T.M. Zone 16 Northing 5510800
Easting 443250

GENERAL LOCATION:

The property is situated at the common corner of Irwin, Walters, Pifher and Elmhirst Townships on the south side of the Sturgeon River (Namewaminika River). The shaft lies 20.9 km (13 miles) northeast of the town of Beardmore.

ACCESS:

Access to the claim group is via Highway #801, which leads north from Highway #11, 9.6 km (6 miles) west of Jellicoe. Approximately 13 km along this road (Highway #801), the mine site is reached by turning west for 4.5 km on a Ministry of Natural Resources garbage disposal road.

REFERENCES:

Bruce (1936).
Ferguson et al. (1971).
Laird (1936).
Mackasey (1975).
Muir (1935)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Seeber (1973)*.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Sheet (Pye et al., 1966).
Map P1527, Ontario Mineral Potential, Longlac Sheet (Springer, 1978).
Map P257, Lake Nipigon Sheet (Pye and Harris, 1964).
Map 25a, Sturgeon River Gold Area (Laird, 1936).
Map P481, Irwin Township (Mackasey, 1968).

6) GENERAL GEOLOGY AND STRUCTURE:

A detailed description of the geology over the Quebec-Sturgeon River property is given by Mackasey (1975):

> "The area is underlain by intermediate to felsic metavolcanics that have been intruded by granodiorite, mafic dikes, quartz veins, and diabase dikes. The metavolcanics are medium grey to dark green and vary from massive to foliated. Fine-grained "quartz-eye" porphyry is present in the vicinity of the mine and may be the result of silicification related to the intrusion of the granodiorite stock to the east. Tuffaceous volcanic rocks are minor tuff-breccia outcrop along the north half of the western boundary of the property. Tourmalinized metavolcanics similar to those described by Laird (1936, p. 72-73) were found in claim TB16730.
>
> Granodiorite and quartz diorite stocks lie to the north and east of the mine. Irregular tongues and porphyritic, hybrid zones of these bodies can be found in the vicinity of the mine site. Massive equigranular granodiorite was found underground and the rock type is present over a large part of the waste dump. A chemical analysis of the granodiorite collected by Bruce (1936) from the underground

workings is shown in Table 2. Bruce (1936, p. 28) describes a large lamprophyre dike cutting granodiorite northeast of the shaft. This dike is equigranular and contains pyroxene, magnetite, quartz, and an untwinned feldspar."

The structure is described by Seeber (1973)*:

"The main tectonic feature noted is the dominant northeast-southwest shear pattern that seems to be particularly well developed in the northeast corner of the property. One strong fault zone has been plotted NNE-SSW through claims TB13398, TB13399, TB13395 and probably into TB13394 as far as Highway #801, it is suspected to continue west of the road."

Bruce (1936), in a detailed account of the mine geology, reports the following:

"A few small faults have been found in the underground workings. One of the 625 foot level dips 45°N. Others have dips of 45 degrees or less. All are post-ore, but none offsets the vein more than a few inches. A considerable amount of water enters along these faults in the upper levels."

7) <u>MINERALOGY</u>:

Mackasey (1975) gives a detailed description of the mineralogy:

"The gold-bearing quartz veins cut all rocks in the mine area with the single exception of a flat dike on the 1,125 foot (343 m) level (believed by the writer to probably be diabase). According to Bruce (1936, p. 38) there are two or three sets of quartz veins. One set strikes northeast and a second set (containing the No. 3 Vein) slightly east of north. The No. 3 Vein itself strikes N13°E and dips 70 degrees west. As the No. 3 Vein changes to an easterly dip underground Bruce (1936, p. 39) concludes that there may be a third set of fractures."

The following account of the mine geology is taken from Bruce (1936):

> "The course of No. 3 vein is remarkably straight and is unaffected by the kind of rock in which it lies; it cuts across contacts without any deviation whatever. The width varies considerably. At the widest part there is 3 feet of quartz. At other places the vein narrows to 2 or 3 inches. In the 700 feet it has been traced on the surface the average width is 9 inches. South of the shaft, No. 3 vein passes through a tongue of granodiorite, and the vein is narrower in that part than it is in the lavas. To the north of the shaft, the vein lies in places along the contact between granodiorite and lava; apparently the latter is included between salients of the intrusive. Underground the rocks are distinguishable by a blocky, polygonal jointing in the granodiorite, as contrasted with a more or less marked schistosity in the lavas. No doubt these structures are responsible for the different character of the vein where it crosses from one rock into the other...
>
> In addition to the gold-bearing quartz veins, there are lenses of barren quartz, most of which are only an inch or so in width and a few feet in length. Commonly these are parallel to the vein. Small veinlets of calcite intersected by the quartz veins from reticulating patterns in the wall rocks. The veins have a roughly banded structure due to the presence of zones, parallel to the walls, containing considerable chlorite and sericite. These are probably remnants of sheared wall rocks almost completely replaced. Quartz is the most abundant mineral in the vein. It is of two generations. The older is milky to faint pinkish in colour and appears fractured. The younger is in tiny, water-clear veinlets traversing the older quartz...

Metallic minerals form a very small part of the vein filling. In order of abundance these are pyrite, chalcopyrite, sphalerite, gold, and gold telluride.

Gold is relatively abundant in some parts of No. 3 vein. Most of it is in very fine particles and is very pale in colour. Hence, it is not always easily recognizable in hand specimens, especially where it is along highly sericitic slip planes. Very high assays have been obtained from some sections of the vein. The average gold content over a width of 9 inches for the total length exposed is said to be more than an ounce per ton. There is comparatively little in the wall rocks, even where they are somewhat altered. It will be necessary to mine as narrow widths as possible in order to avoid undue dilution.

...No. 1 vein belongs to the first fracture system mentioned above. It strikes nearly northeast-southwest and dips 70° to 75°NW. Its intersection with No. 3 vein is concealed by drift, but it should be about 60 feet north of the shaft. On the 250 foot level at a point 300 feet north of the shaft, a shear zone containing quartz stringers cuts through No. 3 vein. On the 500 foot level a vein similar in appearance to No. 1 vein cuts through No. 3 vein. At that point the younger vein has a dip to the southeast, however, and the line of intersection of the two rakes downward to the south at an angle of approximately 5 degrees. On the 375 foot level what seems to be No. 1 vein intersects No. 3 at a point 433 feet north of the shaft.

...No. 1 vein is wider than No. 3. At the test pit 130 feet southwest of the shaft it has a width of 3 feet. The quartz is similar to that in No. 3 vein. There is some pyrite, but the contact of gold is low; no sections of ore grade have been indicated by trenching and diamond drilling."

Work during the 1984-85 field seasons has located some 15 new veins, in addition to the 67 veins previously documented on the property. East of Highway #801, veins A-2, A-4, A-6, A-9, 85-A-2, 85-A-2B, 85-A-5 and 85-A-6 are the most significant gold targets located to date. (Note: prefix A denotes Aguara property, the east portion of the Phoenix Gold Mines property). All veins are hosted in feldspar-phyric rhyolite to dacite and, to a limited extent, granodiorite or quartz diorite. Veins are lenticular quartz and quartz-carbonate veins, associated with ductile shearing, or, more commonly simple single fractures. Local shearing, represented by sericite schist, is displayed at vein contacts. Veins range up to 0.9 m in width and two distinct vein sets have been noted; set one striking 045°-065° (approximate) and set two striking more northerly (i.e. #3 production vein strikes N13°E) as noted by Bruce (1975). Silicification is the main form of alteration in the felsic metavolcanic rocks.

Two veins discovered in 1985, 85-A-2 and 85-A-5, host good visible gold and a new extension of A-9 also contains visible gold.

The character of the veins is variable. Vein A-2 is 915 m long, strikes 045° and is composed of white quartz hosting clots and disseminations of chalcopyrite, pyrite and native gold. Generally less than 2% total sulphides are present. Contrasting with A-2 is vein A-4, which is a cherty brecciated zone of interbanded sphalerite, magnetite, ilmenite, chalcopyrite, quartz and carbonate containing up to 15% total sulphides. Veins A-4 and A-6 strike northerly. A-6 is 60 m long and primarily a vitreous quartz vein hosting pyrite, chalcopyrite and sphalerite. Assays up to 1.235 ounces gold per ton on chip samples across the vein were returned by Phoenix Gold Mines (L. Koskitalo, Project Geologist, Phoenix Gold Mines Limited, Toronto, personal communication, 1985).

Veins 85-A-2 and A-9 are crack-seal type veins similar to the #3 production vein, hosting coarse visible gold associated with sericite, chlorite or carbonate seams. Crack-seal texture implies portions of the former wall rock were broken away as the quartz vein was generated.

Vein 85-M-1, is a new gold occurrence located approximately 480 m north of the shaft area on the former Macjoe property, now a portion of the Phoenix Gold Mine property. The vein is a quartz vein hosted in altered granodiorite and strikes approximately 15°. Assay results indicate an average grade of 0.825 ounces gold per ton over an average width of 47.2 cm (1.6 feet) for a length of 150 m (492 feet) (O. A. Seeber, President, Phoenix Gold Mines Limited, Toronto, personal communication, 1985).

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

At the time of closure in October, 1942, the estimated reserves were stated at 102,285 tons averaging 0.324 oz gold per ton over an average width of 0.79 m (2.6 feet), (1979 Annual Report, Quebec-Sturgeon River Mines Limited), but this did not include reserves below the 1,600 foot (487.6 m) level. Further research of old company records by Phoenix Gold Mines Limited in 1981 upgraded these reserves to 130,000 tons grading 0.306 oz gold per ton. They also stated at this time that much of the gold is contained within narrow quartz veins having an average width of less than one foot (OMEP Application,Phoenix Gold Mines Limited, Sturgeon River Project, OMEP No. OM81-4-C-19, October 28, 1981).

PAST PRODUCTION:

From the time production commenced in April, 1936 to cessation of operations in October of 1942, the mine produced approximately 73,438 oz gold with an average recovered grade of 0.51 oz/ton from 145,123 tons of ore treated. Total silver production reached 15,922 oz. A breakdown of the development and production records for the Quebec-Sturgeon River Mine follows (Ferguson et al., 1971):

Production Data:

Year	Tons Mined	Tons Milled	Au/T(Oz)	Au(Oz)	Ag(Oz)	Total Value($
1936	Not Available	1,290	0.46	591	118	20,711.00
1937	25,681	17,978	0.49	8,839	1,917	310,102.00
1938	45,700	28,157	0.51	14,432	3,219	509,011.00
1939	42,540	26,282	0.46	12,049	2,804	441,309.00
1940	45,259	27,790	0.48	13,305	2,883	513,306.00
1941	42,174	25,869	0.46	11,887	2,490	458,589.00
1942	32,122	17,757	0.69	12,335	2,491	475,877.00
Total	233,476	145,123	0.51	73,438	15,922	2,728,905.00

9) <u>CHEMICAL ANALYSES</u>:

Mackasey (1975)

Sample No.	Sample Type	Location	Au (Oz/T)	Ag (Oz/T)	Cu (%)	Zn (%)
	Chip (26 inches)	No. 3 Vein	2.94	0.86		
Quebec-Sturgeon River Mine Limited 1972	Grab	Claim TB13398	0.10	0.91	1.02	3.38
	Chip (6.5 Ft.)	Claim TB13399	0.05	0.89	0.60	6.70
	Chip (6.0 Ft.)	Claim TB13399	0.01	1.66	0.28	0.55
	Chip (10.0 Ft.) TB13399	Claim TB13399	0.005	0.08	0.02	2.45
	Chip (4.5 Ft.)	Claim TB13399	0.125	0.43	0.19	3.89
	Grab	Claim TB13399	0.03	6.57	Trace	12.37
	Grab	Claim TB13399	0.04	0.05	0.02	17.57
	Grab	Claim TB13400	0.06	0.25	0.11	6.49
	Chip (1.5 Ft.)	Claim TB13395	0.02	0.61	-	-
	Grab	Claim TB13395	0.01	0.05	0.02	6.71
	Grab	Claim TB13403	0.005	0.69	0.65	8.04
	Chip (3.0 Ft.)	Claim TB13394	0.01	2.31	1.56	7.73
Phoenix Gold Mines Limited 1981	Bulk (15,998 lbs)					
	Coarse (5,693 lbs)	No. 3 Vein	2.71			
	Reject (8,137 lbs)		0.02			
	Fines (2,168 lbs)		2.06			
<u>1983</u>						
	Grab(quartz) (81-MQS-D)	Mine Dump	0.02	Trace (<0.10)		
	Chip (17 inches) (81-MQS-4)	No. 3 Vein	2.18	Trace		
	Grab (81-MQS-5)	No. 3 Vein	0.68	0.34		
	Grab(quartz) (83-MQS-1)	No. 3 Vein	Trace (<0.01)			
	Grab (83-MQS-2)	No. 3 Vein	0.92			
	Grab (83-MQS-3)	No. 3 Vein	6.36			
	Grab (83-MQS-4)	No. 3 Vein	0.01			
	Grab (83-MQS-5)	No. 3 Vein	1.85			

GEOLOGY OF THE QUEBEC-STURGEON RIVER MINE
NO. 3 VEIN

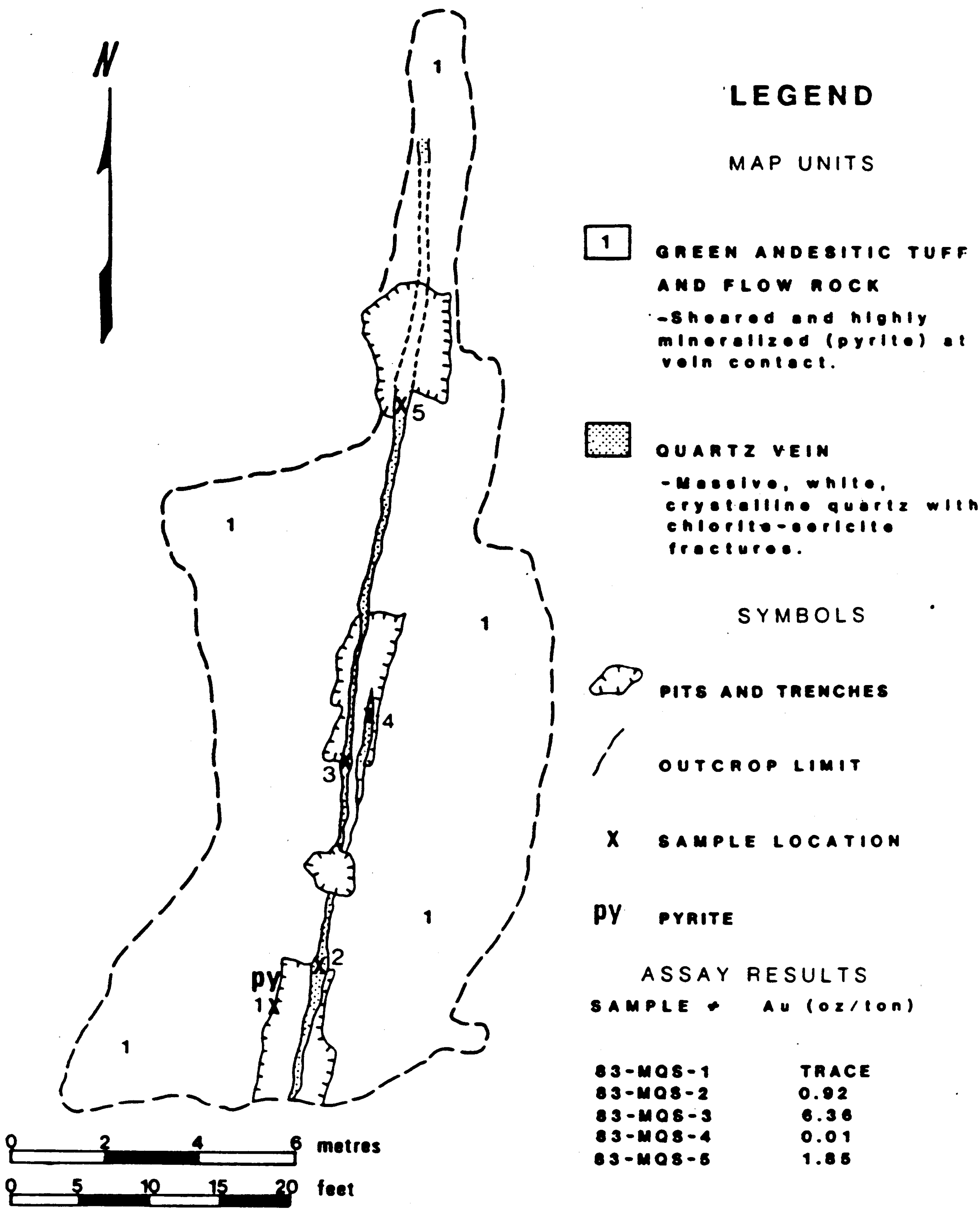


FIGURE 14

1) PROPERTY NAME: **Ralph Lake Occurrences (130-133)**

DATE(S) VISITED: October 3, 1983; July 10, 1984

2) ALTERNATE NAME(S): Blacksmith Zone
Dominion Zone
Delbridge Zone

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1928: Messrs. Jessiman, Fox Morrison and Delbridge held three gold properties which are presently included within the Ralph Lake property. Trenching was conducted.

1936: Gwyn Beardmore Mines Limited prospected and trenched the Dominion Zone.

1937: Morrison stripped and trenched the Delbridge Zone and also held the Blacksmith Zone. Morrison held claims TB5368, TB5370, TB5372, TB302146 and TB30407-9.

1938: Longbeard Gold Mines Syndicate Limited performed trenching and diamond drilling on the Blacksmith Zone.

Maple Creek Rouyn Mining Syndicate Limited conducted a dip needle survey and trenching on the Delbridge Zone.

1946-1947: Nulac Mines Limited conducted 764 m (2,500 feet) of diamond drilling on the Blacksmith Zone. Nulac held claims TB24267, TB24268, TB24270-22 and TB30407, TB30408.

1970: INCO conducted diamond drilling east of Ralph Lake.

1979: Albert Hopkins performed linecutting and a magnetometer survey. Hopkins held claims TB543508-23 inclusive.

CURRENT:

1982: J. Ternowesky and P. Skalesky (Tenacity Mines/Ralph Lake Resources) staked the property.

1983: Ralph Lake Resources (J. Hinzer, geological consultant) completed mapping and sampling.

Claims held by Tenacity Mining Corporation Limited include the following: TB655154-158, TB656700-704, TB657076-80, TB659058-62, TB674474, TB677408-25 and TB677427.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5498000
Easting 4417500

GENERAL LOCATION:

The occurrences are located in central McComber Township between the north and south parts of the Blackwater River, approximately 9 km ENE of Beardmore.

ACCESS:

Follow the bush road south from Highway #11 to the former Jackpine Station location, crossing the Blackwater River at the old bridge, and follow trails and claim lines to the 3 occurrences.

REFERENCES:

Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area (Jameson, 1934).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P.2854, Precambrian Geology of Vincent Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

A sequence of east-trending mafic volcanic rocks (South Metavolcanic Sub-belt) approximately 3 km wide is bounded on the north and south by a sequence of turbidites. The metavolcanics are primarily basalt to andesite, minor tuff and minor ultramafic flows. Carter (1983) describes the flows as being 15 to 25 m thick, and dark green to greenish black. The flows in the southern belt can exhibit a weakly foliated, medium-grained base, a finer-grained middle portion and a fine-grained to aphanitic upper part,which is commonly pillowed, amygdaloidal and/or variolitic.

East-trending ironstone units (chemical metasediments) occur in mafic flow rocks or tuff within the volcanic rocks. Ironstones are generally up to 2 m thick and consist of alternating bands of magnetite, hematite, recrystallized chert, and grunerite. Bands range from 4 to 10 mm thick (Carter, 1983).

"The mafic metavolcanics are intruded by lensoid, northeasterly-trending medium-to-coarse-grained metabbroic plugs up to 800 m long and 100 m wide" (Carter, 1983). Narrow quartz-feldspar porphyry dikes intrude the metavolcanics. Diabase dikes and cherts (particularly in the western portion of McComber Township) are Keweenawan in age. The structure of Vincent-McComber Township has been described by Carter (1983):

> "The supracrustal rocks in the map area have a regional northeasterly trend. The rocks of the northern sedimentary belt are overturned to the south dipping 70° to 80° southeasterly, and facing northwesterly. They overlie the mafic metavolcanics. Near the central part of the eastern boundary of the area, on the northern shore of Clist Lake, similar metasediments flanking the mafic metavolcanics on the south are overturned to the northwest, face southeast, and dip at 70°. Within the central mafic metavolcanic belt, facing criteria are not common in the northern part of this belt, the foliation dips steeply southeasterly and in the southern part steeply northwesterly from 70° to 85°. In the northern part of this belt, pillow shapes and upward-fining of grain size in the flows, together with amygdaloidal and variolitic textures, indicate that the flows face north. Ironstone units interlayered with the mafic metavolcanics dip southeasterly in the northern part of this belt and southwesterly in the southern part of the belt parallel to the foliation. On the basis of these observations, the supracrustal rocks are interpreted

by the author to be folded about a northeasterly-trending anticlinal axis forming a fan-shaped downward-converting anticline (Billings 1972, p. 52-53). West of Clist Lake and south of the Blackwater River, the sediments dip steeply, 75° to 80° to the northwest and are the right way up. This is conformable with the attitude of the mafic metavolcanics to the north of the Blackwater River in this area. This elimination of the southern limb of the anticline is caused by a strike fault trending parallel to the Blackwater River with an interpreted downthrow to the south. Along the southern shore of Clist Lake outside the map area, intermediate tuffaceous metavolcanics overlie the metasediments which are the right way up, and resemble the tuffs in the northwestern corner of the map area. On the basis of all these observations, the supracrustal sequence is interpreted by the author to comprise a lower predominantly mafic metavolcanic unit, overlain by a clastic, predominantly metawacke unit, which is in turn overlain by an intermediate tuffaceous metavolcanic unit, all folded about a northeasterly-trending anticlinal axis. The structure can also be interpreted as an overturned anticline."

7) MINERALOGY:

Chemical metasediments (ironstone and/or chert) are intruded by vitreous conformable quartz veins. The chemical metasediments strike 090° to 070° and dipping steeply. Three main zones comprise the Ralph Lake occurrence: the Delbridge, Blacksmith, and Dominion occurrences.

The Delbridge occurrence, located northeast of Ralph Lake, is in a massive to recrystallized chert ± magnetite ironstone, hosted in sheared metavolcanics. The unit can be traced 120 m and averages 2 m wide. The chert is well fractured and laminated, hosting sulphides, magnetite, chlorite and tourmaline. Gold is associated with subhedral to euhedral coarse arsenopyrite and minor pyrite. A vitreous quartz vein(s) intrudes the chert conformable to bedding.

The Blacksmith occurrence at Ralph Lake is hosted within a unit of recrystallized chert-magnetite ironstone that can be traced 100 m and is up to 3 m wide. A quartz vein(s) 0.35 m wide intrudes the ironstone. Gold is associated with arsenopyrite.

The Dominion occurrence, located south of the Delbridge and Blacksmith occurrences, is hosted in mafic metavolcanics. It can be traced approximately 150 m and is up to 1 m wide. Ironstone is typically made up of recrystallized chert; minor magnetite and carbonate occur within a shear zone. The shear contains arsenopyrite, and has been intruded by a vitreous quartz vein with minor pyrite.

9) CHEMICAL ANALYSES:

1983

Sample No.	Au(Oz/T)	Location	Sample Description
83-MRL-1	<0.01	Goldwater Shear	Boudinaged quartz-carbonate vein (calcite crystal development) in highly sheared chloritic-sericitic metavolcanics. No sulphides.
83-MRL-2	0.01	Blacksmith Zone	Highly sheared, highly weathered (rusty) sugary-white quartz veins. Fine chloritic fractures.
83-MRL-3	0.17	Blacksmith Zone	Massive grey-white vitreous quartz vein, rusty 1% euhedral pyrite-sheared chloritic fractures.
83-MRL-4	<0.01	Blacksmith Trench #1	Rusty to buff weathering sugary quartz vein in shear with later veins grey-vitreous quartz cross-cutting seams of coarse euhedral asp.
83-MRL-5	0.01	Blacksmith Trench #2	Buff to rusty weathering, quartz-carbonate vein (sugary) containing later white vitreous quartz vein, sheared, fine fracturing, 25% coarse asp, <1% py.

83-MRL-6	0.40	Kondrat Vein	Rusty weathering, sugary white quartz vein in highly sheared metavolcanics, later vitreous quartz vein, coarse patches and seams of asp, py in vein (1-2.5%).
83-MRL-7	0.01	Delbridge Trench #10	Sugary buff to white quartz veining with parallel seams up to 1 cm po-py in metavolcanics-disseminated euhedral asp and py 1%. and py 1%.
83-MRL-8	0.01	Delbridge SW Corner TB646525	Sheared silicified grey-green metavolcanics and sugary quartz with minor later vitreous quartz vein 1% euhedral py.
83-MRL-9	0.10	Delbridge 210 ft. East	Rusty weathering, sugary white quartz vein with coarse (1 to 2 cm) seam of euhedral asp - later vitreous quartz (1 cm) + p seam cutting foliation.
83-MRL-10	0.03	Delbridge South Zone 120 S-650E	Grey vitreous quartz vein and sugary white quartz in rusty flow rock - seams an patches of euhedral as(1%)
83-MRL-11	<0.01	Dominion	Grey-white vitreous quartz vein with thin chlorite-sericite film shears. Sma patches py (<1%).
83-MRL-12	<0.01	Dominion 70.1 m (230 ft.) North	Massive white vitreous quartz with thin chlorite-sericite film on fracture surface - minor sulphides in one small sample.

<u>1984</u>

<u>Delbridge Occurrence</u>

Sample No. (Grab)	Location Line 21+50N	As (ppm)	Sb (ppm)	Au (ppb)	Sample Description (Grab)
84-MDB-1	37m east of L20+00W	71	0.5	285	Banded, sugary, chert ironstone with cross-cutting veinlets of pyrite and pyrrhotite. The sample also contains later quartz-carbonate veining. The sulphide content is 1%.
84-MDB-2	70 m east of L20+00W	6.0%	2.8	4100	Chert-banded ironstone with cross-cutting vitreous quartz veins. The chert contains 10%

					fine disseminated pyrite and coarse euhedral arsenopyrite.
84-MDB-3	81m east of L20+00W	260	1.8	24	Sugary and vitreous quartz vein. The sample contains 1% to 3% coarse euhedral arsenopyrite.
84-MDB-4	90 m east of L20+00W	48	0.7	45	Highly sheared andesitic volcanic host rock with carbonate veins. The sample contains no visible sulphides.
84-MDB-5	102 m east of L20+00W	16.3%	17.0	35.1 (ppm)	Banded-chert ironstone and vitreous quartz. The sample contains 15% to 20% patches and disseminations of coarse euhedral arseno-pyrite and fine pyrite.
84-MDB-6	116 m east of L20+00W	1800	1.3	230	Banded, dark grey massive chert. The sample contains no visible sulphides.
84-MDB-7	152 m east of L20+00W	50	0.9	65	Bleach-white banded sugary chert ironstone with no visible sulphides.
84-MDB-8	152 m east of L20+00W	64	1.3	45	Highly gossaned, banded-chert, magnetite ironstone containing 1% disseminated pyrite. (From the sample location 84-MDB-7)
84-MDB-9	DS-1 Eastern Extension	28	0.6	30	Banded-chert ironstone with no visible sulphides.
84-MDB-10	DS-2 Eastern Extension	4.5%	2.4	2000	Banded-chert magnetite ironstone and minor sheared andesitic volcanics. The ironstone contains 10% to 15% coarse euhedral arsenopyrite and fine disseminated pyrite. (From the same location as 84-MDB-9).
84-MDB-11	DS-2 Eastern Extension	290	0.5	170	Banded-chert ironstone with fine bands and cross-cutting fractures of magnetite. The sample contains rare (<1%) disseminated sulphides.

84-MDB-12	DS-3 Eastern Extension	134	0.8	75	Banded-chert irons with minor fine magnetite bands. sample contains no visible sulphides.
84-MDB-13	DS-3 Eastern Extension	86	0.8	220	Banded-chert, magn ironstone with 5% disseminated euhed arsenopyrite.

BLACKSMITH IRON FORMATION

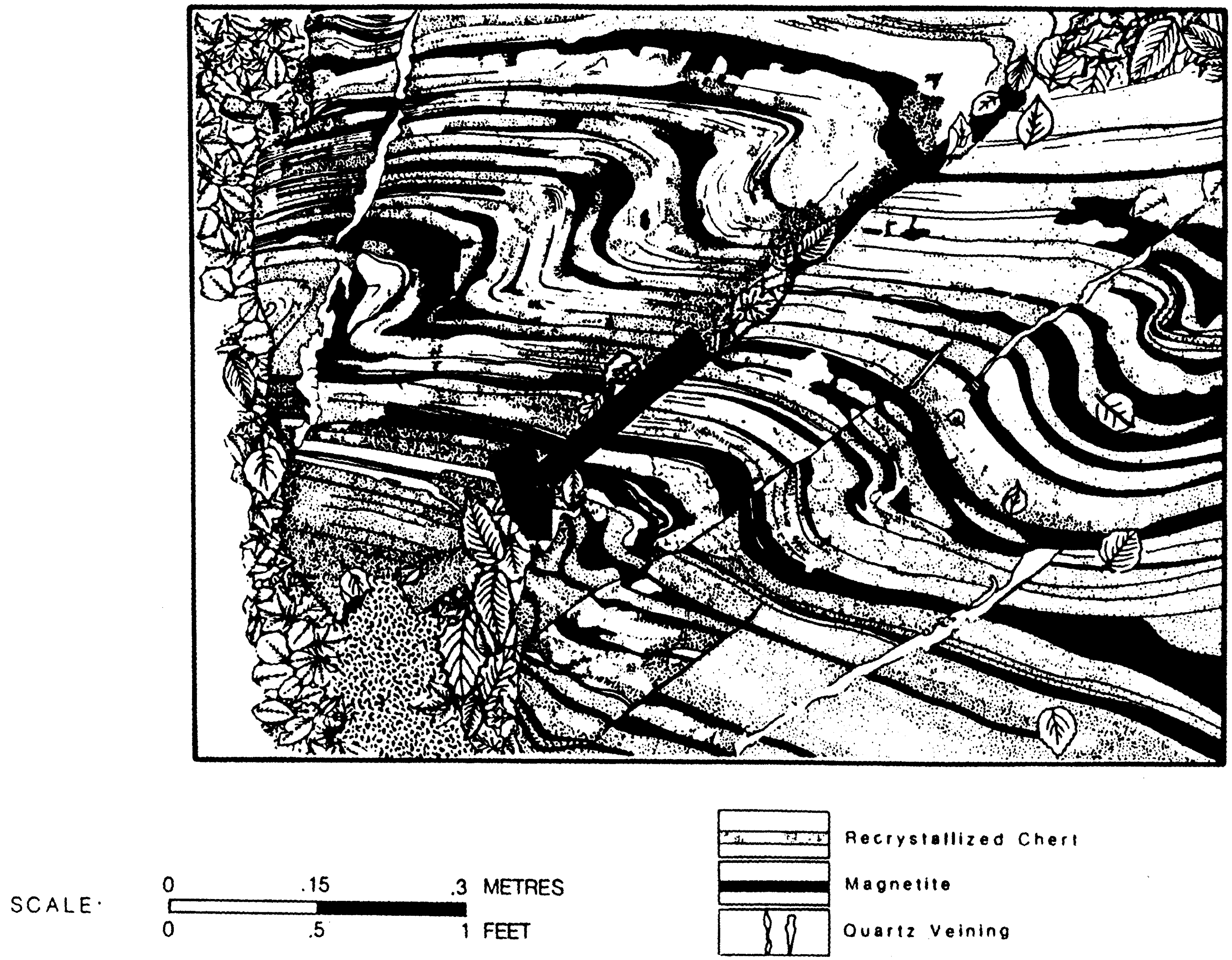


FIGURE 15

1) PROPERTY NAME: **Rickaby Occurrence (134)**

DATE(S) VISITED:
May 28, 1985
July 4, 1985
July 9, 1985
October 23, 1985

2) ALTERNATE NAME(S): Miron's Elmhirst Stock Showing
Elmhirst-Miron Occurrence

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT HISTORY AND OWNERSHIP:
PAST:

1945: The properties covering the occurrence were staked by A. W. Burt (TB32549-northwest claim) and Don MacLeod (TB32441-southeast claim).

1947: The claims were cancelled.

1949: The two properties were staked by A. C. Stevens, who accumulated 120 days assessment credit (TB39028 and TB39024).

1954: The claims were cancelled.

1956: The southeast property was staked by H. Lange (TB77376).

1957: H. Lange's claim was cancelled.

1972: A series of nine claims, located 500 to 800 m east and southeast of the Elmhirst-Miron Occurrence, were held (staked-1971) by four groups of people - A. J. Douglas (TB303240), Mrs. D. Douglas (TB334677), O. Goulet (TB324911 to TB324913) and J. A. Wilson (TB334900 to TB334903).

1973: Both properties were staked by Stanley Ballantyne (TB383141 and TB383138), who transferred all interests to New Metalore Company Limited.

1974: The claims were cancelled.

1975: The properties were staked by David Galley (TB433739 and TB433740).

1976: All interests were transferred to Rickaby Mines Limited, which power stripped five zones on the two claims. Conwest Exploration Limited optioned both claims and later dropped the option.

1977: The claims were cancelled.

1978: The northwest property was staked by J. Koivisto (TB513204) and the southeast property was staked by Amede Lafontaine (TB455120). J. Koivisto subsequently transferred all interests to Metalore Resources.

1979: Metalore Resources' claim block included the Wilkinson Lake property to the southeast, on which a diamond drilling program was conducted. Assessment work was filed for a number of claims, based on this drilling, including TB513204.

1980: TB513204 was optioned to Dome Exploration Limited which conducted magnetic and electromagnetic geophysical surveys. Further drilling was done to the southeast. TB455120 was cancelled and restaked by Amede Lafontaine (TB535294).

1981: Lafontaine's claim was transferred to Amax Minerals Limited. The claim was cancelled later in the year.

1982: Dome Exploration Limited dropped thier option of claim TB513204. The southeast property was staked by John Koski (TB632060).

1983: J. Koski's claim was cancelled and the property was restaked by Myron Nelson (TB759257).

1984: M. Nelson's claim was cancelled.

<u>CURRENT</u>:

1985: A six claim group (TB813373 to TB813378) was staked in February, by F. A. Checkley for Bill Miron, 0.5 km northwest of Wilkinson Lake in Elmhirst Township. To date, stripping and trenching have exposed two gold-bearing shear zones within the granodiorite on claim TB813378.

In October, a 42 ton bulk sample of mineralized quartz vein material was removed from Western Zone #1 and shipped to the Northern Concentrators Mill in Thunder Bay for testing.

5) LOCATION AND ACCESS:
N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5519050
Easting 452400

GENERAL LOCATION:
Northeast corner of Elmhirst Township, 1 km northwest of Wilkinson Lake.

ACCESS:
Travel 7 km east of Jellicoe along Highway 11 to what is known as the Camp 40 Road (good gravel road). Continue north for 14.5 km along this road to a point just east of Atigogama Lake. Here the road heads west for some distance and returns to its northerly course at Wilkinson Lake. A gravel road leading to the Elmhirst-Miron Occurrence lies approximately 32.6 km from the Camp 40 - Highway 11 junction. The occurrence is situated 1.8 km northwest from the Camp 40 Road.

REFERENCES:
Bruce and Laird (1936).
Mackasey and Wallace (1978).

6) GENERAL GEOLOGY AND STRUCTURE:
The general geology and structure of the surrounding area is described in detail by Mackasey and Wallace (1978) as follows:

> "The map-area is underlain by metavolcanics and igneous intrusive rocks of Precambrian age, but a large part is covered by Pleistocene sand and Recent swamp deposits. The oldest rocks are Early Precambrian (Archean) metavolcanics ranging from mafic to felsic in composition. More than half the map-area is underlain by intermediate to felsic metavolcanics. Most of these are pyroclastic rocks, such as tuff-breccia, crystal tuff, but massive, amygdaloidal, flow-banded and spherulitic flows are also common. These felsic to intermediate rocks are in conformable contact with a mafic sequence of massive, amygdaloidal and pillow lavas and related breccias, which occurs in the southern and eastern parts of Rickaby Township. The metavolcanics are intruded by Early Precambrian subcircular stocks

of granodiorite, a sill-like body of gabbro, and numerous minor intrusions ranging from granitic to lamprophyric and pyroxenitic in composition. All of these rocks have been metamorphosed to the greenschist facies and are intruded by north-trending Late Precambrian Keweenawan diabase dikes which cut all of the older rocks.

The map-area lies within the Wabigoon Belt of the Superior Structural Province. The metavolcanics in the map-area form the southern limb of a broad west-trending regional fold, and are locally only moderately deformed, with primary volcanic features well preserved. Faults do not form prominant topographic features, but several faults have been inferred at major lithologic contacts."

7) <u>MINERALOGY</u>:

The 6 claim property straddles the boundary or contact zone between the Elmhirst Lake Stock and the surrounding intermediate to predominantly felsic metavolcanic rocks. The actual occurrence lies wholly within the granodiorite (see Map 2373, Elmhirst and Rickaby Townships) and consists of two parallel shear zones exposed by stripping. Both zones strike roughly north-south (333°), dip steeply to the east, and are separated by 30 m (100 feet) of unexposed ground. Much of the work to date (stripping and blasting) has been concentrated on the eastern zone (Zone #1) along a 67 m (220 foot) strike length. Mineralized material is presently being stockpiled for shipment to Northern Concentrators Mill in Thunder Bay as a bulk sample test (October, 1985).

Zone #1 consists of rusty-stained, dull grey-white quartz vein material up to 0.3 m (1 foot) wide that pinches and swells along strike. Mineralization within the zone consists of up to 10% fine pyrite occurring as thin discontinuous seams, disseminated coarser (1 to 3 mm) euhedral pyrite and rare patches of chalcopyrite. In addition, pyrite is associated with inclusions of granodiorite (producing a crack-seal texture). Prominent pink potassic alteration was also noted in the zone. A mineralized, partially altered zone containing 1 to 2% disseminated subhedral pyrite extends for 0.6 m (2 feet) on either side of the zone into the granodiorite country rock. Therefore, total mineralization is up to 1.5 m wide.

Intense shearing is isolated to the granodiorite-quartz vein contact and extends along the length of the zone.

8) CHEMICAL ANALYSES:
1985

GEOCHEMICAL RESULTS

Sample No.	Au (Oz/T)	Ag (Oz/T)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Sample Description
85-MBM-1 (Western Zone #1)	0.16	5.44	785	224	615	Rusty quartz vein
85-MBM-2 (Western Zone #1)	0.02	<0.10	40	<10	57	Altered medium-grained granodiorite containing
85-MBM-4 (Road Vein)	0.07	0.34	-	-	-	Rusty, sugary crack-seal vein in contact with granodiorite containing up to 3% pyrite.
85-MBM-7 (Western Zone #1)	0.01	<0.10	-	-	-	Grey-white quartz vein and medium-grained granodiorite containing 2% disseminated pyrite.
85-MBM-8 (Zone #1 - 50 feet south of north end)	0.05	2.29	-	-	-	Crack-seal sugary quartz vein with 10 to 15% pyrite.
85-MBM-9 (Zone #1 - 65 feet south of north end)	0.01	0.93	-	-	-	Same as 85-MBM-7 with seams of pyrite up to 10%.
85-MBM-10 (Zone #1 - north end)	0.19	5.65	-	-	-	Highly gossaned massive fine pyrite in contact with quartz vein.
85-MBM-11 (Eastern Zone #2)	0.11	0.27	-	-	-	Same as 85-MBM-9 but pyrite less.

1985 (Bourlamaque Assay Laboratories Limited, Val D'Or, Quebec from D. Pudifin).

Sample No.	Au (Oz/Ton)	Ag (Oz/Ton)
3851	0.26	5.99
3852	0.19	6.36
3853	0.39	3.90
3854	0.43	3.16
3855	0.19	10.06
3856	0.07	2.13
3857	0.13	3.25

1985 (Bell-White Analytical Laboratories Limited, Haileybury, Ontario from F. Tagliamonte-Newmont Exploration of Canada Limited).

Sample No.	Au (Oz/Ton)	Ag (Oz/Ton)
WM85W	0.018	0.32
WM85E	0.260	2.02

1) PROPERTY NAME: **Roche Long Lac Prospect (135)**

DATE(S) VISITED: August 3, 1983

2) ALTERNATIVE NAME(S): Wilson Option
Cash Group
Kalson Group

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1934: P. J. Roche staked 16 claims east of Eldee Lake, adjoining the Oklend Gold Mines Limited property to the west. Subsequent prospecting resulted in the discovery of two favourable structures, the Daley and the Blacksmith veins, and the Roche Long Lac Gold Mines Limited company was formed to finance further development. A sampling program was initiated and a one-compartment 115-foot (35.1 m) prospect shaft was sunk on the Daley vein. Operations were suspended before any lateral work could be done.

1936: Six diamond drill holes totalling 1,200 m (3,938 feet) were completed to test the westward extension of the Daley vein under Eldee Lake (TB40147, TB39408 and TB39411). Several zones of quartz stringers were intersected but assays proved to be low.

1937: A limited amount of surface work was completed by Roche Long Lac Gold Mines Limited before operations were suspended.

1940: Claims TB12255, TB12261, TB12262, TB12264 and TB12265 were patented.

1945: The property held by Roche Long Lac Gold Mines Limited consisting of the Main or Roche Group, located along the east shore of Eldee Lake (TB40147-TB40151) and the West or Cash Group (water claims TB39407 to TB39411), was transferred to Draco Mines Ltd. in April. The company was incorporated by Conwest Exploration Company Limited to undertake a large exploration program over the extreme southeast corner of the township.

1946: Draco Mines initiated a geophysical survey and completed eleven diamond drill holes totalling 2,120 m (6,955 feet). Results were inconclusive and no further work was done.

1948: Draco Mines Limited became inactive and the Roche Group consisting of the five former patented claims (TB40147-TB40151), was restaked by Roche Long Lac Gold Mines Limited. The Cash Group reverted back to the Crown and remained open.

1949: The Cash Group was staked by W. A. Carter, M. W. Airth, J. A. Simpson, and D. Henry.

1950: The claims comprising the Cash Group were again allowed to lapse and immediately restaked by Roche Long Lac Mines Limited.

1955: The Roche and Cash Groups, consisting of ten claims, were allowed to lapse.

1956-1968: Ownership changed hands seven times and little or no work was done on the property.

1969: Donald A. Wilson staked a group of 14 claims (TB139350-TB139353, TB229616-TB229618, TB230337-TB230339, TB238726-TB238728, TB239955), which included the former Roche claims on the northeastern shore of Eldee Lake.

1970: The 14 claim group was optioned to Hollinger Mines Limited at which time geophysical surveys (magnetic and electromagnetic) and two drill holes totalling 340.5 m (1,117 feet) were completed over the property. Both holes were located approximately 1.5 km northwest of the veins on which the shaft was sunk in 1934.

1971: Hollinger Mines Limited added eleven claims (TB325351-TB325359 inclusive and TB392798-TB392799) to the original group on the eastern and southern boundary. Magnetic and electromagnetic surveys were performed over these eleven claims.

1972: Two patented claims (TB10164 and TB10971) known as the Kalson Group, located on the western boundary of the original 14 claim group, were optioned by Hollinger Mines Limited. A geological survey and six additional diamond drill holes totalling 756.8 m (2,483 feet) were completed to check anomalous copper values obtained in the 1970 drilling and to test a zone of ground conductivity.

1973: Hollinger Mines Limited drilled a 240.8 m (890 foot) hole on the east shore of Eldee Lake (former claim TB40147).

1975: Hollinger Mines Limited terminated operations and the claims were allowed to lapse.

1979: A. Wilson staked 13 claims over the original Roche Group. J. Scott of the Ministry of Natural Resources visited the discovery claim (presently TB632229) on which the shaft is located and collected samples along both shear zones (Daley and Blacksmith veins) in the vicinity of the shaft. Multi-element analyses were done for each sample.

1983: A minor amount of stripping and sampling was done along both shear zones up to this point. A memorandum of agreement was made among Sandy Wilson, Foster Draper and James Hatcher in July to consolidate all claims surrounding the Roche property. The entire group, consisting of 40 claims (TB590692-TB590694, TB613601, TB613690-TB613692, TB631791-TB631800, TB632229-TB632233, TB632241-TB632243, TB63227-TB632281, and TB659247-TB659256), was optioned to Cambridge Development Corporation during the same month.

1984: Cambridge Development Corporation's name changed to Bridgewest Development Corporation and a 3-hole, 300 m (1,000 foot) diamond drill program was conducted along the shear zones. Two holes were drilled from the south; a 91.4 m (300 foot) hole into the "Daley vein" near the old shaft and a 121.9 m (400 foot) hole south of the Blacksmith vein to intersect both shear zones. To the north (TB632229), a third hole (91.4 m (300 feet)) was drilled to test the extension the Daley Vein west under Eldee Lake (TB632281 Nick Carter and Louise Eccles, consulting geologists, Bridgewest Development Corporation Vancouver, personal communication. Bridgewest Development Corporation transferred 50% interest to Unistar Technologies Corporation under the agreement that Unistar would spent $50,000.00 on the property.

CURRENT:

The Roche property, consisting of 40 claims, is presently held by Unistar Technologies Corporation of Vancouver.

5) LOCATION AND ACCESS:

N.T.S. Map 42E10
U.T.M. Zone 16 Northing 5503250
Easting 511300

GENERAL LOCATION:

The property is located 9.0 km southeast of Geraldton townsite in the southeast corner of Ashmore Township. The claim group lies along the east and northwest shore of Eldee Lake south of Highway 11.

ACCESS:

The main showing on TB632229 can be reached by boat from Highway 11, south along Triplet Creek to the northeast shore of Eldee Lake. The landing site is marked by old mine buildings from where an overgrown trail can be followed a short distance to the shaft. Access is also gained overland 914 m due south of a point just east of Triplet Creek on Highway 11.

REFERENCES:

Bruce (1935).
Fairbairn (1938).
Pye and Horwood (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area (Bruce, 1935).
Map 46B, Northern Long Lake - Pagwachuan Area (Fairbairn, 1938).
Map 1951-2, Township of Ashmore (Pye, 1951).
Map 2102, Tashota-Geraldton Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The claim group is underlain by mafic volcanic rocks intruded by dykes of massive, coarse-grained hornblende diorite to gabbro and albite porphyry. These in turn are in contact to the southwest with metasediments striking N50°-80°W and dipping steeply southwest.

Rocks in the study area are highly fractured and sheared and it is along two of these major shear zones that mineralization occurs.

7) MINERALOGY:

Minor economic mineralization occurs along two silicified shear zones which cut across diorite, metavolcanics and albite porphyry in an easterly direction. Known as the Blacksmith and Daley veins, these were exposed by stripping and trenching. They generally consist of parallel quartz veins and stringers, exhibiting well-developed book and ribbon (crack-seal) structures up to 1 m wide (Daley vein) in sharp contact with the surrounding wall rock. The Daley vein, on which the shaft is located, is the most persistent and can be traced for a distance of 457 m (1,500 feet). The narrower (20 cm) Blacksmith vein, 33.5 m (110 feet) to the south, is exposed for only 76.1 m (250 feet);however, the grade is slightly higher (Pye and Horwood, 1951). Both are open along strike.

Mineralization is contained within white,massive, sugary-textured quartz and consists of pyrite, arsenopyrite, sphalerite, chalcopyrite, galena, and visible gold. Pyrite and arsenopyrite occur as well-formed,fractured crystals in both the vein material and the wall rock. Minor amounts of ankerite are also associated with the quartz. "Gold occurs as irregular fracture fillings in both the quartz and iron sulphides, and as tiny replacement blebs in pyrite and arsenopyrite" (Pye and Horwood, 1951). Gold values are low despite the presence of coarse free gold.

1979

Sample No.	Au (oz/T)	Ag (oz/T)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Sample Description
F-92-79(Daley)	<0.01	<0.10	15	26	10	Quartz vein.
F-93-79(Daley)	.01	<0.10	92	11	30	Quartz vein.
F-94-79(Daley)	<0.01	<0.10	46	15	56	Albite porphyry.
F-95-79(Daley)	<0.01	<0.10	6	22	65	Albite porphyry.
F-96-79(Daley)	.02	.16	240	12	36	Quartz vein.
F-97-79(Daley)	<0.01	<0.10	78	12	66	Gabbro.
F-98-79(Daley)	.02	<0.10	200	32	17	Quartz vein.
F-99-79(Daley)	.01	<0.10	580	20	74	Quartz vein.
F-100-79(Daley)	.12	.74	170	43	170	Quartz vein.
F-101-79(Blacksmith)	.12	.36	65	1030	90	Quartz vein.
F-102-79(Daley)	.10	.46	560	59	108	Quartz vein.
F-106-79(Blacksmith)	.02	<0.10	-	-	-	Quartz vein.
F-107-79(Daley)	.01	.13	182	-	-	Quartz-biotite schist.
F-108-79(Daley)	.06	.52	420	-	-	Quartz vein-albite porphyry contact.

1983

Sample No.	Assay Results Au (oz/T)	Sample Description
83-MGW-1 (Daley Vein)	<0.01	Mine dump - gossaned quartz shears in fine to medium-grained gabbro. Quartz contains 1 to <1% pyrite.
83-MGW-2 (Daley Vein)	<0.01	Quartz-ankerite in albite porphyry containing quilts and patches of pyrite-chalcopyrite.
83-MGW-3 (Daley Vein)	1.96	50 m west of mine dump along Daley shear. Grey quartz in albite porphyry in contact with mafic volcanics. Contains 5% pyrite along shear plane.
83-MGW-4 (Daley Vein)	0.01	100 m west of mine dump along Daley shear. Quartz in albite porphyry containing 2% disseminated pyrite-chalcopyrite.

Note: Refer to the accompanying map for the exact location of all samples.

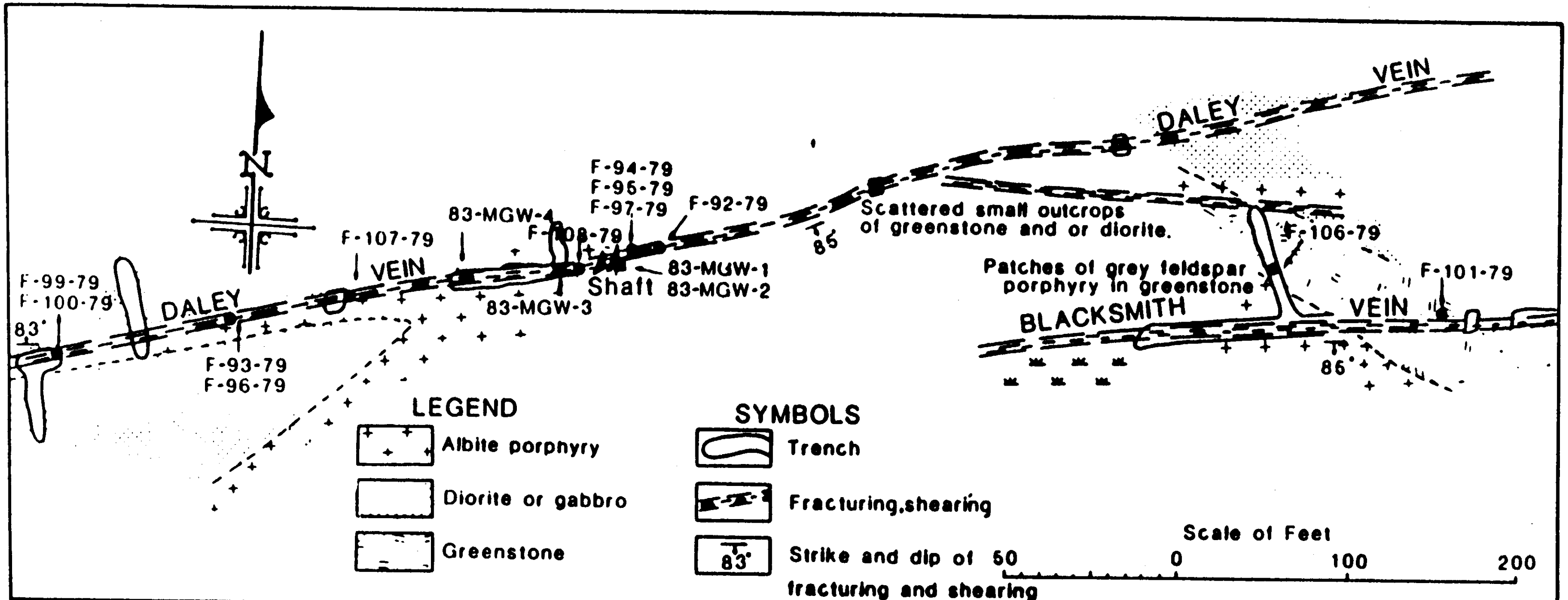


FIGURE 16· Plan Illustrating The Structural Relationships Of The Dalley and Blacksmith Veins,Claim T.B.40149, Roche Longlac Property. (Geology Modified After Plans By Company Engineers.)

ROCHE LONGLAC

1979 Sampling by John F. Scott.1983 Sampling by G.White.

	Sample No.	Au (oz./ton)	Ag (oz/ton)	Cu (ppm)	Pb (ppm)	Zn (ppm)
1979:	F-92-79	Trace	Trace	15	26	10
	F-93-79	.01	Trace	92	11	30
	F-94-79	Trace	Trace	46	15	56
	F-95-79	Trace	Trace	6	22	65
	F-96-79	.02	.16	240	12	36
	F-97-79	Trace	Trace	78	12	66
	F-98-79	.02	Trace	20C	32	17
	F-99-79	.01	Trace	580	20	74
	F-100-79	.12	.74	170	43	170
	F-101-79	.12	.36	65	1030	90
	F-102-79	.10	.46	560	59	108
	F-106-79	.02	Trace	-	-	-
	F-107-79	.01	.13	182	-	-
	F-108-79	.06	.52	420	-	-

	Sample No.	Au (oz/ton)
1983:	83-MGW-1	Trace
	83-MGW-2	Trace
	83-MGW-3	1.96
	83-MGW-4	.01

1) PROPERTY NAME: **Sand River Gold Mine (136)**

DATE(S) VISITED:
1981-84
July 2, 1985
July 19, 1985
August 8, 1985
August 13, 1985

2) ALTERNATE NAME(S): Undersill Gold Mining Company
Cryderman (Sand River) Property

3) COMMODITY: MAIN: Au SECONDARY: Ag, W

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: J. R. Cryderman discovered gold (Discovery Vein or No. 1 Vein) near the northwest corner of claim TB12941. L. Jowsey, E. Culbert, J. McVittie and G. Cryderman staked the initial group of 25 claims (TB12941 to TB12948, TB13040, TB13041, TB13060, TB13061, TB13710 to TB13712, TB13757 to TB13764, TB14416 and TB18545). A number of the claims were transferred to J. R. Cryderman (Ontario Cryderman Gold Mines Limited).

1935: The Sand River Gold Mining Company Limited was incorporated and all the claims were transferred to J. Day (vice-president). Surface exploration and diamond drilling were carried out. Sixteen diamond drill holes totalling 771.5 m (2,531 feet) were drilled on the No. 1 vein, and 746.8 m (2,450 feet) was drilled on the Creek Vein (TB13759).

1936: Stripping and trenching were carried out on the No. 1 vein. A 3-compartment shaft on claim TB12944 was sunk to a depth of 419 feet (127.7 m) with levels at 150 feet (45.7 m), 275 feet (83.8 m) and 400 feet (122 m). A total of 100 feet (30.5 m) of cross-cutting and 2,200 feet (670.6 m) drifting was also done. A road was built connecting the Sand River property and adjacent Leitch property to the town of Beardmore.

1937: The 3-compartment shaft was extended to a depth of 684 feet (208.5 m) and two more levels, at 525 feet (160 m) and 650 feet (198 m), were established. Underground diamond drilling totalled 825.4 m (2,708 feet). A 75-ton cyanide mill was constructed and production commenced in December.

1938: Underground operations continued with long drifts on the 4th and 5th levels and raises and stope drifts on all other levels. The shaft was extended to a depth of 902 feet (274.93 m), and a new level was established at 900 feet (274.3 m). Ore was taken from all but the lowest level. Six diamond drill holes for a total of 537.6 m (1,764 feet) were drilled from the surface and nine holes totalling 157.6 m (517 feet) were drilled underground.

1939: The shaft was extended to a depth of 1,180 feet (359.6 m) and a new level was established at 1,150 feet (959.5 m). Lateral development continued on all but the 2nd level. Eleven holes, totalling 554.7 m (1,150 feet), were drilled on the Creek Vein.

1940: Lateral development continued on the lower levels, and two sub-levels were opened by raises at 775 feet (236.2 m) and 1,025 feet (312.4 m); the 6th and 8th sub-level, respectively. New ore was opened up to the east, not far from the Leitch border at the 7th and 9th levels. Five underground holes were drilled totalling 297.2 m (1,975 feet).

1941: The shaft was extended to a depth of 1,374 feet (418.8 m) with a level established at 1,300 feet (396.2 m). Lateral development continued on the three lower levels. Three underground holes were drilled for a total length of 305 m (1,000 feet). An agreement allowed Northern Empire to mine the ore down to the level of the diabase sill, and a further option to sink the shaft through the sill and mine below the diabase. In September the property was optioned to Northern Empire Mines Limited which took over mine development and operation.

1942: Northern Empire Mines Limited continued the shaft deepening to a depth of 1,486 feet (453 m) and a new level was cut at 1,450 feet (442 m). Drifting and cross-cutting continued on the lower two levels, and a vertical winze was collared at the 1,150 foot (350.5 m) level and sunk to a depth of 56 feet (17.1 m). Operations ceased in August because of war-time conditions.

1944: The Undersill Gold Mining Company Limited was formed by Northern Empire Mines Limited to take over the property. Late in the year the original property and all equipment were transferred to the new company.

1945: The property was reopened and the 3-compartment shaft dewatered.

1946: The shaft was extended to a depth of 2,170 feet (661.4 m) and a new level was established at 1,835 feet (559.3 m). The shaft reached the diabase sill at 1,574 feet (479.8 m).

1947: The shaft was extended to a depth of 2,656 feet (809.5 m). The diabase sill bottomed at 2,194 feet (668.7 m). Three levels were established below the sill at 2,300 feet (701 m), 2,460 feet (749.8 m), and 2,610 feet (795.5 m). A total of 1,498 feet (456.6 m) of drifting and 787 feet (239.9 m) of cross-cutting was done.

1948: Eight diamond drill holes totalling 490.7 m (1,610 feet) were drilled from underground. Lateral development on the lower levels continued and drifting on the 2,610 foot (795.5 m) level came within 7.6 m (25 feet) of the Leitch property boundary. Operations ceased in March.

1954: The Undersill Gold Mining Company Limited was liquidated and Leitch Gold Mines took over the property. It was purchased to protect the extension at depth of their No. 2 and 3 Veins into the Sand River property.

1955: On the 19th level in the Leitch Mine, the No. 1902 W drift was extended 866 feet (270 m) beyond the Leitch boundary to a major east-dipping fault, a feature of the Sand River structure. A narrow high-grade ore shoot was indicated.

1956-1964: Refer to Leitch Gold Mine history.

1965: Leitch Gold Mine was closed.

1969: Teck Corporation Limited purchased control of Leitch Gold Mines Limited whose assets included the Sand River Mine property.

1970: The company's name was changed to Leitch Mines Limited.

1971: Leitch Mines Limited's total assets were acquired by Teck Corporation Limited, and interest in the Sand River Mines property was returned to J. R. Cryderman, including 3 claims (TB27442, TB27443 and TB29502) that were not part of the original group.

1979: Camel Resources (Elcamber Resources Limited) conducted geophysical (mag.) and geological surveys over part of the Sand River property (TB13040, TB13041, TB13757 to TB13764) as well as stripping. The work was concentrated on the Creek Vein.

1980: Work continued on the Creek Vein (Zone) including further mapping, trenching and assaying. Trenching and assaying were also done in the vicinity of the shaft area dump. Drilling was recommended for the Creek Zone and the No. 16 vein system, which extends onto the Sand River property from the Leitch property on claims TB12944 and TB13710.

<u>CURRENT</u>:

1985: The Sand River Mine property was acquired by Podany Mining Corporation (a wholly owned subsidiary of Atlantic Mining Corporation) from Cryderman Gold Incorporated in July, consisting of 28 claims: TB12941 to 12948, TB13040, 13041, 13060, 13061, TB13710 to 13712, TB13757 to 13764, TB14416, TB18545, TB27442, 27443 and TB29502.

To date 731.5 m (2,400 feet) of diamond drilling has been done on the No. 16 vein. A small mill or concentrator, called the Dunbar Pulverizer (Vortex machine), is currently milling quartz material from the waste dump.

5) <u>LOCATION AND ACCESS</u>:

N.T.S. 52H9/SE
U.T.M. Zone 16 Northing 5496900
Easting 424400

<u>GENERAL LOCATION</u>:

The Sand River Mine property is located in east central Eva Township, south of the Leitch Mine, approximately 10 km northwest of the town of Beardmore.

<u>ACCESS</u>:

Travel north from the Beardmore townsite on Highway 11 for approximately 1 km to secondary Highway 580. Continue east for 7.5 km to a point just past the Leitch Mine road and turn left on a gravel road. The old Sand River Mine site lies 1 km along the road at the end of the same.

REFERENCES:

Burton (1935, 1936, 1937)*.
Dempster (1936)*.
Gledhill (1980)*.
Laird (1936).
Langford (1928).
Mackasey (1969).
Muir (1935)*.
Ontario Department of Mines Annual Reports list, 1950, 1952, 1955).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sutcliffe (1982).
Tough (1979)*.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map P.601, Eva Township (Mackasey, 1969).
Map P.257 (revised) Lake Nipigon Sheet, (Stott, 1984).
Map 2102, Tashota-Geraldton Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Leitch Gold Mine report for detailed overview of the geology and structure in the surrounding area.

7) MINERALOGY:

The Sand River Gold Mine property adjoins the Leitch ground to the west. It is,therefore, reasonable to expect that the vein character and nature of the gold mineralization are similar in many ways to the Leitch vein system. Three veins on the Sand River property were described in the literature: The No. 1 vein (known as the Main or Discovery Vein), the "Creek Vein", and an unmineralized,sub-parallel quartz vein 6 m (20 feet) east of the main vein. However, only the No. 1 vein, which is the western extension of the No. 2 vein on the Leitch property, was mined and extensively developed below the surface. All three exist as narrow quartz veins occupying fractures in bedded greywacke. Gold mineralization is associated with chlorite-sericite "slips", ankerite, pyrite, arsenopyrite and tetrahedrite in well fractured milky-white quartz. A detailed description of these three veins is given by Laird (1936):

"Vein No. 1 occurs in a narrow shear zone in well-bedded greywacke with thin slaty interbeds. The vein follows the shear zone, which strikes N60°-70°E. Like other veins in the area it shows a strong tendency to pinch and swell, both along the strike and on the dip. The quartz is milky in colour and well fractured parallel to the strike. Narrow veinlets of a later generation of lighter-coloured quartz up to half an inch in width intersect the main vein at right angles. Some of the stronger of these veinlets cut across the main vein and penetrate the schistose wall rocks on either side for several feet. This late generation of quartz carries no mineralization. Generally speaking, the quartz is rather sparsely mineralized with pyrite, flakes of malachite and azurite, and tetrahedrite; specks of visible gold are common, especially in test pits near the west end of the exposure. Carbonate, greenish sericite, and chlorite are rather common constituents of the vein matter and occur mainly in the longitudinal fractures and in tiny slip planes.

The greywacke beds strike N85°W and dip 80°N. The vein is rather sinuous and broken in several places by eastward-dipping thrust faults, which results in minor horizontal displacements. Its sinuosity at first suggests folding, but on further examination it seems clear that this has not been a dominant process, since the enclosing bedded greywacke has not been subjected to a similar derangement. It would appear rather that the vein matter occupies an original sinuous fracture cutting across the bedded sediments, as it is quite independent of any structural folding in them. Although the average width is only about 13 inches, it is remarkably persistent along the strike, having been exposed in cross-trenches and test pits for a length of 2,100 feet, and exposed continuously for 550 feet.

> The "Creek vein" is not well exposed on surface. One section 25 feet in length outcrops in the creek bed, and 200 feet west of this point another section 20 feet in length is exposed. It strikes N74°E and has an apparent dip of 50°N; it has an average width on surface of 24 inches. It occurs mostly in a broad dike of quartz diorite, dipping 50°-60°N, but toward the east it passes into greywacke; the dike ranges from 60 to 130 feet in width. The vein matter consists of a highly altered, greenish, silicified material cut by numerous quartz stringers, which constitute about 25 per cent of the whole. In places arsenopyrite is abundant, and a little pyrite occurs. No visible gold was observed, but a character sample carrying arsenopyrite yielded 0.14 ounces gold per ton. The quartz is milky in colour and much fractured and carries some carbonate in the form of ankerite. Just below a waterfall about 20 feet east of the main vein is another subparallel quartz vein striking N74°E. The quartz is well fractured, but no important mineralization was observed. Early in May, 1935, over 2,450 feet of diamond-drilling was done on the main vein, a total vein length of 400 feet being indicated. According to official plans the average of channel assays taken on surface indicates a gold content of 0.218 ounces per ton over a width of 18 inches."

The No. 1 vein, on which the Sand River shaft was sunk in 1936, is located near the northwest corner of claim TB12941. Surface exploration later uncovered the "Creek vein", which lies toward the west side of the claim group in the northeast part of TB13759. Other work in 1946 was confined to testing the extension, by use of drilling, of the Leitch No. 16 vein along the northern boundary of the Sand River claim group.

All of the Sand River production came from above the Leitch-Sand River diabase sill. Lateral development was continued below the sill at 668.7 m (2,194 feet) but did not advance far enough west to be under the ore on the assumed rake (Tough, 1979)*. It is interesting to note that the Sand River vein, although an extension of the Leitch No. 2 vein, had less continuity and was of lower grade. A possible reason for this phenomenon is discussed by Tough in a 1979 report as follows:

> "...the bedding strikes a little south of east and the schistosity strikes north of east in the vicinity of the Leitch veins. This divergence of the bedding formation and shearing at the Leitch, is missing on the Sand River section and may be responsible for the lack of continuity and grade."

However, this phenomenon is repeated on the west end of the Sand River property in the area of the "Creek vein" and may have important implications for future exploration. It is entirely possible that the deposition of ore is directly related to the presence or absence of this bedding-shear divergence (Tough, 1979).

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Estimated reserves from the No. 1 vein on the Sand River property are stated at 25,000 tons grading 0.4 oz gold/ton above the 3rd level (MEAP report). Average channel assays taken at surface on the "Creek vein" (late 1930's) indicate a gold content of 0.218 oz gold/ton over a width of width of 45.7 cm (18 inches).

In 1942 a 22.7 kg (50 lb.) sample containing scheelite (from the No. 1 vein) was shipped to the Bureau of Mines in Ottawa. It assayed 0.23% WO_3 and 0.23 oz gold/ton.

PAST PRODUCTION:

From the 157,870 tons milled from the No. 1 vein at the Sand River Gold Mine, 50,065 ounces of gold was recovered at an average grade of 0.31 oz/ton (this does not include 1937 production which commenced during the last month of the year). Production details are given below:

Sand River

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1937	340.346	26	2,537	0.1342	0.0102
1938	12,897.747	917	35,670	0.3616	0.0257
1939	12,038.582	846	36,518	0.3297	0.0232
1940	10,460.358	814	34,726	0.3012	0.0234
1941	9,945.794	706	31,824	0.3125	0.0222
1942	4,382.288	319	16,595	0.2641	0.0192
	50,065.115	3,628	157,870	≈ 0.2839	≈ 0.0207

1) PROPERTY NAME: **Shields Occurrence (Hutchinson Lake) (137)**

DATE(S) VISITED:
August, 1982
September, 1983
June 19, 1984

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1983: Six claims (TB766504 to TB766509) were staked by Jay Shields, prospector from Geraldton, on June 17.

CURRENT:

1984: Jay Shields held 6 claims (June, 1984) and a Work Permit was issued (June 20 to Octobe 15, 1984) for bulldozer stripping and diamond drilling.

5) LOCATION AND ACCESS:

N.T.S. 42E15
U.T.M. Zone 16 Northing 5512950
Easting 500600

GENERAL LOCATION:

The property is located in Fulford Township, 6 km northwest of Geraldton between Dionne Lake (South) and Sedi Lake (North).

ACCESS:

Travel Highway #584 (Nakina Highway) north from Geraldton for 6 km to Burrows River Road. Continue northwest along the Burrows Road for 800 m, turn west for 1,200 m along bush road to a point on the northeast corner of the claim group.

REFERENCES:

Ferguson et al.(1971).
MacDonald (1941).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 50f, Hutchinson Lake Area (MacDonald, 1943).
Map 2102, Tashota-Geraldton Sheet (Pye et al.,1966).
Map 2593, Precambrian Geology of Fulford and McQuesten Townships (Beakhouse and Chevalier, 1983).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Pye et al.(1966) and Beakhouse and Chevalier (1983), the property lies within the northern mafic volcanic-sedimentary belt of the Geraldton camp. The area primarily consists of basic to intermediate metavolcanic flows (both massive and pillowed) and, within the claim block, units of feldspar porphyry dyke material. Beakhouse and Chevalier (1983) also noted prominent epidote alteration of the mafic metavolcanics. The rocks in the area generally strike east-west and dip steeply (80°-85°) to the south. Along the northern boundary of the claim block a major structural break known as the Burrows River Fault exists(Beakhouse and Chevalier 1983).

7) MINERALOGY:

The claim group adjoins the Hutchinson Lake Gold Mine property (Gulch Mine Limited, Maylac) to the north-east. From 1946 to 1947, 792 ounces of gold and 46 ounces of silver were recovered at an average grade of 0.52 oz/ton Au (Ferguson, 1971). This past-producer is described as shear zones with auriferous veinlets cutting and mafic metavolcanics and a diabase dike (Ferguson, 1971).

To date, two mineralized (minor disseminated pyrite up to 1%) shear zones containing discontinuous quartz veins and stringers have been uncovered on the property. Both systems trend east north-east at 077° and are separated by 300 m of intermediate metavolcanic tuffs and a series of east-trending, coarse-grained quartz-feldspar porphyry dykes. The northern-most zone is exposed for 5 m and consists of sheared, silicified, quartz-feldspar porphyry wall rock and rusty milky white quartz. The en echelon vein widens from 10 cm to 40 cm on the western edge. Rare (<1%) disseminated pyrite was noted. The south or "main" zone is exposed for approximately 10 m and consists of a sugary chloritic volcanic tuff. A quartz vein averaging 40 to 50 cm wide occurs in silicified chloritic volcanic tuff. The quartz contains chlorite-sericite seams and fractures and 1% disseminated subhedral to euhedral pyrite.

8) CHEMICAL ANALYSES:

1984

Sample No.	Au(Oz/T)	Sample Description
84-MJS-9 (Showing #1)	<0.01 (Trace)	Grey-white vitreous quartz-calcite vein from 10 to 40 cm wide in gossaned shear zone. Host rock consists of felsic volcanics. No visible sulphides.
84-MJS-10 (Showing #1)	<0.01	Same location as 84-MJS-9 but sample of felsic volcanic wall rock. Minor disseminated euhedral pyrite (<1%).
84-MJS-11 (Showing #2)	<0.01	Grey-white sugary to vitreous quartz in contact with green andesitic tuff, prominent sericite in shears. 1% disseminated pyrite.

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1983: Four claims were staked by Jay Shields (TB685714, TB685715, TB685716, TB747197), a prospector from Geraldton, on February 20, 1983. A minor amount of trenching and stripping was completed.

1984: Claims TB685714 to TB685716 were cancelled.

CURRENT:

1985: Claim TB747197 was cancelled (April) and the original 4 claim property is currently open for staking.

5) LOCATION AND ACCESS:

N.T.S. 42L6/SW
U.T.M. Zone 16 Northing 5586500
Easting 491000

GENERAL LOCATION:

The property is located approximately 100 km (61 miles) north-northeast of Geraldton at Osulake Peninsula on the west shore of O'Sullivan Lake.

ACCESS:

Travel the Nakina Highway (Highway #584) north from Geraldton for 56 km. Turn northwest on the Kimberley-Clark main haul road (Highway #643) for 42 km to Consolidated Louanna Mine turn-off. Park at the entrance to O'Sullivan Resort.

REFERENCES:

Moorhouse (1955).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 1955-2, O'Sullivan Lake Area (Moorhouse, 1955).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

In general, the area south of the Kawashkagama River, which flows into O'Sullivan Lake, consists of altered, undifferentiated, basic to intermediate volcanic flows, tuffs and pillowed lavas (Moorhouse, 1955). This unit underlies the southern portion of the property and also hosts the Consolidated Louanna gold deposit, situated 1 kilometre to the east on Osulake Peninsula. The region north of the river is occupied by sheared metadiabase, diorite, gabbro and further to the north, granite and quartz diorite intrusions.

Locally, a high degree of shearing is evident in diorite outcrops along a swampy creek which traverses the property northeast-southwest and would seem to indicate the presence of a minor fault.

7) MINERALOGY:

Two mineralized showings associated with quartz veining have been uncovered on the property. Showing No. 1 on claim TB747197 to the southeast is an 8 to 10 m exposed shear zone (strikes 056° and dips steeply to the NW) containing en echelon, dull grey, quartz veining. Two generations of veining are evident, one cross-cutting the shear, and the main vein, which widens from 10 cm to nearly 0.5 m in the southwest, where it disappears under a swamp. Shearing is well displayed at this point, where the tuffaceous volcanic wall rock and quartz exhibit an almost banded appearance.

Mineralization is generally sparse, with the exception of a highly gossaned sulphide "zone" in the SW wall of the trench which contains from 10 to 15% pyrite. Minor zinc mineralization was also reported. Gold is also associated with outwash sand and gravel.

9) CHEMICAL ANALYSES:

A total of 8 samples were collected by the author for gold assay from two separate showings. Samples 84-MJS-1 to 84-MJS-6 from the south showing (No. 1) and 84-MJS-7 to 84-MJS-8 were taken from the north showing across the creek. All samples showed only trace amounts (<0.01 oz/ton) of gold.

Previous reported assays by the owner from a 0.5 m section of quartz vein (Showing No. 1) range from .06 to .09 oz/ton gold.

1) PROPERTY NAME: **Solomon's Pillars Prospect (141)**

DATE(S) VISITED:
August 12, 1981
July, 1982
July 10, 1985

2) ALTERNATE NAME(S): Dumond Mining and Exploration Limited
Oremond Gold Mines Limited

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: Claim TB11800 was staked by Frank Miller for Dumond Mining & Exploration Limited. Prospecting and surface development work was carried out.

1935: The claim was optioned to J. H. C. Waite who conducted a surface exploration program and drilled one hole to a depth of 30.7 m (100 feet).

1936: The option was allowed to lapse. Dumond Mining and Exploration Limited entered into an agreement with Oro Plata Mining Company to form Oremond Gold Mines Limited. A three-compartment shaft was sunk to a depth of 300 feet (92 m) with levels established at 150 feet (45 m), and 275 feet (84.3 m).

1936-1937: Underground development and diamond drilling was done by Oremond Gold Mines Limited.

1940: The property was drilled by MacLeod-Cockshutt Gold Mining Limited.

1949: The property was surveyed and an application was made for lease.

1950: The lease was approved.

1958: The lease was revoked by the Ontario Magistrate.

1958-1963: The property was staked four times, in each case, with no work performed (by L. B. Merrell in 1958, (TB91410), John W. Pitt in 1960 (TB98559), Daniel Creamer in 1961 (TB101617) and John W. Pitt in 1962 (TB104712)).

1963: The property was staked by Tom Young (TB109240) who transferred the claim to Mario Martinuzzi.

1964: The claim was transferred to William D. Pappas, who entered into an agreement with Dr. M. Stolove and Dr. F. Van Orman. Stripping, trenching, test pitting and diamond drilling was performed.

1966: Geological, magnetometer and vertical loop electromagnetic surveys were conducted by J. M. Johnson for M. Stolove, F. Van Orman, and W. Pappas. Assays around the shaft area were also reported.

1968: The claim was transferred to Solomon's Pillars Mines Limited, who dewatered the shaft, sampled the ore zone, conducted a geological survey and drilled six holes totalling 247.2 m (806.2 feet).

1969: The claim was cancelled and restaked by David Walsten (TB222656) who transferred all interests to the Canadian Nickel Company Limited.

1969-1975: A diamond drilling program was conducted by the Canadian Nickel Company Limited, in which a total of twenty-six holes were drilled on their claim block. Twelve of these holes were drilled on claim TB222656. VLF, magnetometer and geological surveys were also performed.

1976: Claim TB222656 was surveyed and application for lease was made.

1977: The lease was approved, (Part of Parcel 2508 with TB222655, TB377993 and TB222661).

1982: The property was optioned to Lynx Canada Explorations. Diamond drilling was proposed for the field season.

CURRENT:

The property is leased by the Canadian Nickel Company Limited (INCO).

Canadian-Nickel Company Limited and Pronto Exploration drilled a portion of the Solomon's Pillars Prospect in early 1986.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5503909
Easting 454846

GENERAL LOCATION:

The property is located in southwestern Leduc Township and southeastern Walters Township, northeast of Nissiamkikam Lake.

ACCESS:

The property can be reached by travelling 6 km west of Jellicoe on Highway 11, then northwest on a winter road for about 1.7 km to the east side of Nissiamkikam Lake. The shaft is 400 m north and is reached by bush trail. The property is also accessible by fixed wing aircraft with floats to the northwest shore of Nissiamkikam Lake.

REFERENCES:

Bruce (1936).
Burton (1936)*.
Debicki (1975)*.
Ferguson et al (1971).
Johnson (1966)*.
Lichty (1976).
Mackasey (1976).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al (1938).
Sutherland (1966)*.
Sutherland (1968)*.

MAP REFERENCES:

Map P1527, Ontario Mineral Potential-Longlac Sheet, (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet, (Pye et al, 1966).
Map 2356, Walters and Leduc Townships, (Mackasey, 1976).
Map P2517, Nezah Lake Area, (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Debicki (1975)*, states:

"The general geology of the claim block is comprised primarily of an east-west striking band of steeply dipping Timiskaming sediments (greywacke, siltstone, argillite, silty quartzite) with an interbedded narrow horizon of conformable iron formation...

The greywackes are fine to medium-grained and dark to light grey. Bedding is indistinct to well-developed with beds varying in thickness from lamination size to less than one foot. Composition is variable with accounts for the banded appearance of much of the sequence.

...The iron formation is composed of a fine-grained, laminated to thinly bedded, intercalated sequence of dark red-brown to blood red hematite and jasper, dark steel grey magnetite and specular hematite, in varying proportions. Minor chert in varying amounts was present throughout the iron formation.

...Assays of the iron formation indicate the iron content is generally less than 30%.

...To the north of the sediments occurs a narrow band of mafic volcanics. The sediments and volcanics have been intruded by a body of diorite which occurs in the northeast corner of the claim block. Several north-south-trending diabase dikes cut the area."

According to Mackasey (1976):

"The area forms part of the Wabigoon Belt of the Superior Province and the Early Precambrian rocks have been tightly folded along east-west axes. Well preserved primary sedimentary and volcanic features are used to determine the super position of strata. Several prominent post-diabase faults are recognized."

Debicki (1975)*, states:

"Trend of the metasediments and iron formation is roughly east-west, dipping steeply north to south. Tops in the sequence are to the south, indicated by graded bedding in the metasediments.

Other minor structures include small fractures, small scale ptygmatic folding, cleavage and jointing. Numerous small fractures, with minor displacements occur throughout the metasediments and iron formation, mainly cross-cutting the bedding. Folding on a small scale has imprinted a wavy nature onto the bedding of the formations. Folding is post-injection of the quartz-carbonate veining."

A shear zone up to 9.2 m (30 feet) wide occurs along the south side of the iron formation and offshoots were found to penetrate well into it (Sutherland, 1968)*.

Three cleavages were noted in the wackes:
1) 55°AZ - refracted cleavage
2)130°AZ - tension (ash vein) cleavage
3) 20°AZ - crenulation cleavage

7) MINERALOGY:

Gold mineralization is related to veining and replacement sulphides associated with oxide iron formation.

According to Debicki (1975)*:
"Mineralization is primarily pyrite and arsenopyrite with several specks of chalcopyrite and minor pyrrhotite all of which occur adjacent to or within the iron formation. The pyrite and arsenopyrite are euhedral and are present in zones up to a maximum thickness of 4 feet (1.3 m) (in the vicinity of the shaft). Where extensive zones of sulphides occur, arsenopyrite is greater in proportion than pyrite by about two to one. The gold occurs in the arsenopyrite and is very fine-grained. The highest gold assays obtained were from zones (pods and lenses) where arsenopyrite is most abundant."

Tetrahedrite has also been noted--

Further, Debicki (1975)* states:
"Numerous small white to pinkish-white quartz veins with minor carbonate occur throughout the metasediments and iron formation. They are parallel to and cross-cut bedding and are generally less than one inch in width, the majority being thin stringers. Larger veins up to four feet in width occur in the vicinity of the shaft. Many of the veins appear to be partially to totally recrystallized due to metamorphism. Two stages of veining may be present..."

The main iron formation unit is up 24.5 m (80 feet) wide on the west boundary of the 4 claims. Replacement pyrite in a portion of the iron formation is noted 400 m west of the shaft and 37.5 m south of the present baseline. Therefore, the strike length of auriferous sulphides extends a minimum of 450 m. The west survey boundary of the four claims lies 507 m west of the shaft.

8) ECONOMIC FEATURES:
TONNAGE AND GRADE ESTIMATES:

Canadian Nickel Company's drill program in 1974-1975 "implied a small ore zone of 100,000 tons of 0.25 oz/ton gold starting at the 100 foot (30.48 m) vertical level" (Debicki, 1975)*.

The shear zone has been observed to carry gold over a length of 1,850 feet (563.88 m). Two diamond drill hole results were 0.34 oz/ton gold over 5 feet (1.52 m) and 0.16 oz/ton gold over 2 feet (0.6 m). The best assay reported was 1.42 oz/ton gold (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

The waste dump measures 47.5 m in length x 7.3 m in width x 3.0 to 3.6 m in height. Approximate tonnage of the dump material is 2,000 tons, as determined by the author.

9) CHEMICAL ANALYSES:

1981 Sample No.	Lynx-Canada	Au(Oz/T)	Ag(Oz/T)	Sample Description
81-MSP-1	Line 5+00E 40+100N	0.76	0.10	Oxide ironstone medium-grained quartz and near massive sulphide seams of pyrite (50%-60%) in metasiltstone.
81-MSP-2	Line 5+00E 40+100N	0.92	0.14	Oxide ironstone medium-grained quartz and near massive pyri[illegible] seams.
81-MSP-3	Line 5+00E 40+100N	0.48	0.10	Oxide ironstone near massive pyrite (70%-80%) seams separated by quartz stringers.
81-MSP-4	Baseline 2+60W	0.26	0.10	Oxide ironstone medium-to-coarse-grained smokey quartz surrounded by near massive pyrite (40%).

1985 Sample No.	Au(Oz/T)	Ag(Oz/T)	Sample Description
85-MSP-1	0.52	<0.10	- 50 m east of shaft (just north of dump) - rusty grey-white vitreous quartz sheared wacke and replacement sulphides (sub-to-euhedral pyrite) up to 10%
85-MSP-2	0.45	<0.10	- 180 m west of shaft - gossan quartz and wacke - up to 40% replacement sulphides (recrystallized, anhedral)
85-MSP-3	0.21	<0.10	- 400 m west of shaft - 37.5 m south - replacement pyrite, chert (jasper) (fine) up to 10% sulphides.

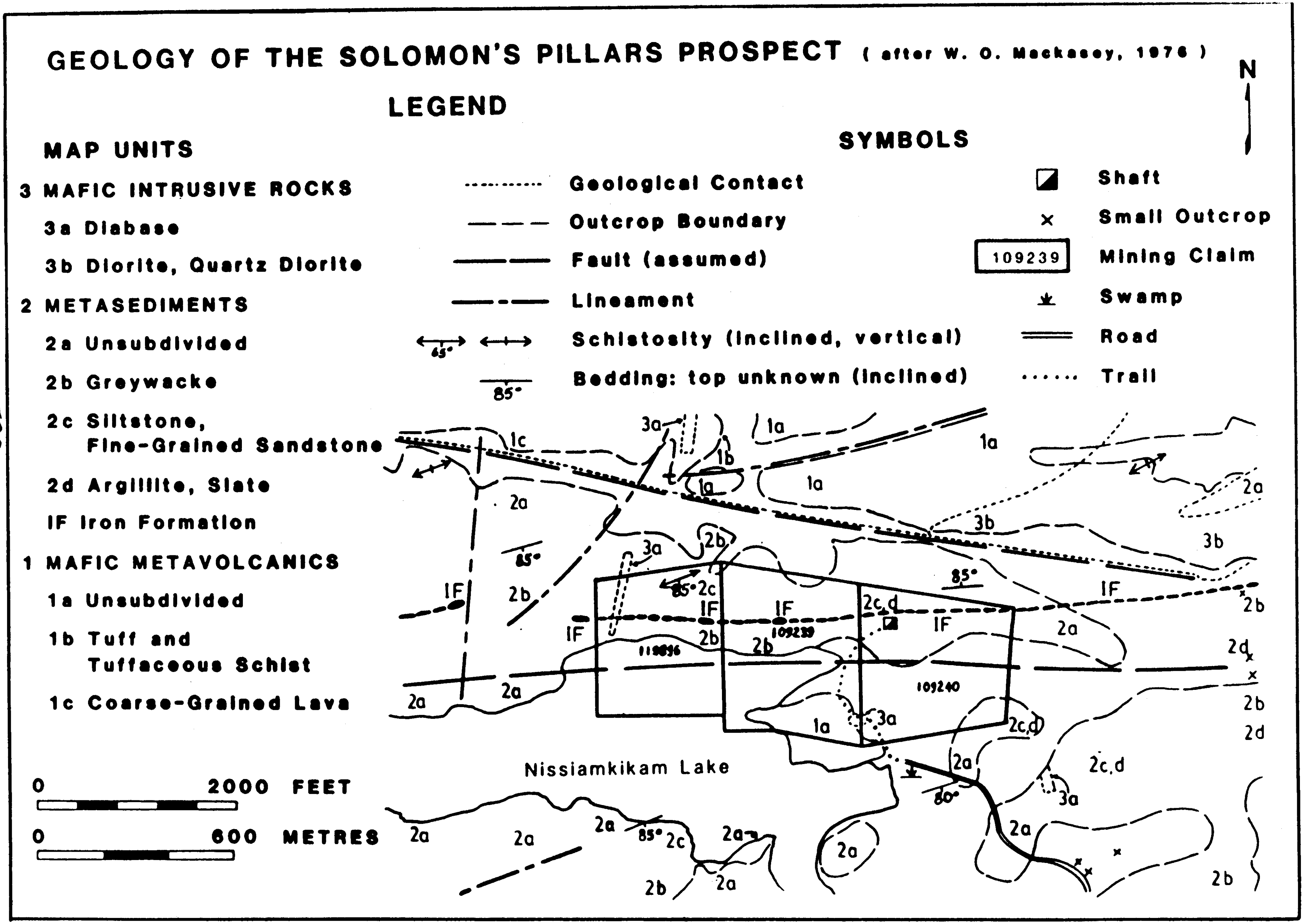

GEOLOGY OF THE SOLOMON'S PILLARS PROSPECT (after W. O. Mackasey, 1976)
N
LEGEND
MAP UNITS
3 MAFIC INTRUSIVE ROCKS
3a Diabase
3b Diorite, Quartz Diorite
2 METASEDIMENTS
2a Unsubdivided
2b Greywacke
2c Siltstone, Fine-Grained Sandstone
2d Argillite, Slate
IF Iron Formation
1 MAFIC METAVOLCANICS
1a Unsubdivided
1b Tuff and Tuffaceous Schist
1c Coarse-Grained Lava
0 2000 FEET
0 600 METRES
SYMBOLS
Geological Contact
Outcrop Boundary
Fault (assumed)
Lineament
65°
Schistosity (inclined, vertical)
85°
Bedding: top unknown (inclined)
Shaft
Small Outcrop
109239
Mining Claim
Swamp
Road
Trail
Nissiamkikam Lake
109239
109240
1a
1b
1c
2a
2b
2c
2c,d
2d
3a
3b
IF
85°
80°

FIGURE 17

1) PROPERTY NAME: **Spooner Prospect (142)**

DATE(S) VISITED: September 28, 1983; May 23, 1984

2) ALTERNATE NAME(S): Norex Mines Property
Spooner Gold Mine

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1925: F. Spooner staked a group of nine claims (TB4812 to TB4817 and TB5059 to TB5061), approximately 3 km east-northeast of the Beardmore townsite.

1927-1934: Considerable stripping and trenching were conducted over three vein systems - the Power vein, the Contact vein and the "A" vein. The Power vein, which is located near the southeast corner of claim TB4815,is a continuation of the main production vein at the Northern Empire Mine to the west. Much of the surface work was concentrated along this system and the vein was stripped from the Empire property line east for 760 m (2,500 feet) on the Spooner property. North of the Power vein, a second vein,known as the Contact vein,was stripped and opened by pits for a distance of approximately 660 m (2,178 feet). A third vein ("A" vein), located 280 m to the south of the Power vein, was also cleared for about 720 m (2,376 feet).

1934: The Spooner brothers (Arthur and Andrew) staked an additional five claims (TB12625 to TB12628 and TB13801) which brought the total to fourteen claims. The claims were surveyed and a lease permit was granted for the original 9 claims.

1935: Spooner Gold Mines Limited was incorporated in Toronto with H. T. Leslie as President and Fred Spooner as Director. A 3-compartment shaft was sunk on the "Power" vein near the centre of property to a depth of 40 feet (12.2 m). It was abandoned at this point when no vein material was encountered.

1936: A second 2-compartment shaft was sunk on the "Power" vein to a depth 303 feet (924 m) at an incline of 80° south (claim TB4815). A 10-foot (3.0 m) cross-cut was driven into the vein from the 150-foot (45.7 m) level and 114.3 m (375 feet) of drifting was completed both east and west of the cross-cut. The Northern Miner reported in October, 1936, that an 18.3 m (60-foot) oreshoot was exposed on the first level and the shaft was to be deepened to 600 feet (182.9 m).

1937: Although no further shaft sinking was done, drifting was continued and an additional 198 m (650 feet) was completed by year's end. Diamond drilling was initiated on the Power vein both from the surface, south and east of the workings (1,669 m (5,477 feet)) and from underground 157 m (516 feet)). Claim TB10764 to the northeast was added to the property to bring the total number of claims to fifteen.

1938: No underground development work was done. Seven diamond drill holes, totalling 573 m (1,879 feet), were drilled from the surface.

1939: Norex Mines Limited was incorporated in Toronto and took over the property and the assets of Spooner Gold Mine Limited. An agreement was reached with the Northern Empire Mine to extend their drift on the main 1,725-foot (525.8 m) haulage level into the Spooner property. Partial interest in claims TB4815, TB4812 and TB5059 was transferred to the Northern Empire Mines.

1940-1941: Northern Empire ran a drift on its 1,725-foot (525.8 m) level into the Norex ground for 152 m (500 feet), with a total of 246 m (806 feet) of drifts and 335 m (1,100 feet) of cross-cuts completed.

Encouraging values across narrow widths were encountered but no oreshoots were found and operations ceased by mid-year.

1947: Norex renewed their 10 year lease on the original 9 claims - TB4812 to TB4817 and TB5059 to TB5061.

1948: Claims TB12625-TB12626, TB12628, TB13801 and TB10764 came open.

1957: The claims were transferred to H. T. Leslie and the lease renewed for additional 10 years.

1977-1978: H. T. Leslie's lease ended on claims TB4812 to TB4817 and TB5059 to TB5061.

Albert P. Hopkins staked a group of 12 claims, TB506598 to TB506600, TB510708 to TB510710, and TB510713 to TB510718, covering much of the original Norex ground.

Claim TB4815, where most of the work was concentrated in the past, was retained as a lease by Pancontinental Mining.

1979-1980: A. Hopkins recorded work in the form of power stripping, geochemical sampling and diamond drilling over the claim block.

1981: A. Hopkins transferred all interests to Pancontinental Mining (Canada) Limited.

1981-1983: Pancontinental Mining Limited did linecutting and conducted EM, magnetometer and VLF geophysical surveys over the property.

CURRENT:

The area covering the old Spooner-Norex prospect is currently held by Pancontinental Mining (Canada) Limited and consists of lease claim TB4815, recorded claims TB506598 to TB506600, TB510708 to TB510710 and TB510713 to TB510718.

5) LOCATION AND ACCESS:

N.T.S. 42E12/SW
U.T.M. Zone 16 Northing 5496050
Easting 433700

GENERAL LOCATION:

The property (site of the original workings) is situated 3.2 km east-northeast of the town of Beardmore, near the southeastern boundary of Summers Township. The Canadian National Railway line bounds the claim group on the north, and the Pancontinental property immediately adjoins the Spooner-Norex ground to the west.

ACCESS:

The main showing on TB4815 is reached by following Highway #11 to point just north of the Beardmore townsite and travelling east along a gravel road for 1.6 km to the Pancontinental Gomill site (now under lease to Teck Corporation). By following the railway tracks eastwards on foot for 1.3 km, the shaft area is easily accessible to the south.

REFERENCES:

Ferguson et al. (1971).
Leslie (1935, 1936, 1939)*.
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37k, Beardmore-Nezah Gold Area (Langford, 1928).
Map P257, Lake Nipigon Sheet (Stott, 1984).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The Spooner-Norex property lies entirely within the most southerly unit of the Wabigoon Sub-province near its boundary with the Quetico Sub-province. This intermediate to mafic metavolcanic sequence (southerly unit), which forms an east-trending lenticular belt up to 3 km wide, consists of massive, pillowed and amygdaloidal flows (chlorite schists), mafic tuffs, felsic to mafic intrusions, and/or coarse flow rocks. Paralleling the metavolcanics, both to the north and south, are Archean metasediments, consisting predominantly of greywacke, with siltstone and argillite.

Pillow structures suggest younging directions to the north (Peach, 1951); the south metasedimentary unit is a contact to the north.

7) MINERALOGY:

Three main vein structures are known to exist in the area: the "Contact", "A" and "Power" veins. The Contact vein strikes at 070°-080°, is generally conformable to the surrounding highly schistose bedrock, and averages up to 1.5 m in width. It has been traced for over 450 m along strike. Rusty, sugary to granular textured quartz is cross-cut by numerous more vitreous quartz stringers. Mineralization is characterized by well defined stringers of pyrite and chalcopyrite parallel to the siliceous banding in the vein, with lesser amounts of arsenopyrite, chalcopyrite, and tourmaline.

Detailed descriptions of these three vein systems are given in Leslie (1935)*:

"The "Power" vein is conformable to the enclosing metavolcanic host rocks and strikes N69°55'E with an average dip of 80°S. This is an extension of the main production vein on the adjoining Northern Empire Mine, which strikes across claims TB4815 and TB4816 of the Spooner property. Over the greater part of its length the vein is highly weathered and decomposed, with the surrounding host rocks exhibiting a highly schistose nature. In places the overall width of this zone reaches 30 feet. The vein is not as lenticular as on the Northern Empire ground but has greater continuity and width on the Spooner property. The main quartz vein ranges from 12 to 14 inches and in places exhibit numerous parallel quartz masses or stringers. However, the schistose quartz zones are as much as 18 feet wide."

H. T. Leslie (1936)* believed the "Power" vein to be a remnant of a siliceous phase of a banded iron formation. It contains granular quartz with well-defined streaks of pyrite which exhibit the same dip as the metavolcanic wall rock (80°). A few metres below the granular quartz, mineralized, more glassy vein quartz was found. In places the narrow bands of pyrite are folded around the quartz and along the vein. In most instances, the siliceous banded material has been completely eroded , leaving the vein quartz exposed at the surface.

Mineralization within the zone is primarily pyrite and pyrrhotite with lesser amounts of chalcopyrite and arsenopyrite. In places along the vein, pyrite and pyrrhotite are massive, especially near the wall rock contact. Occasionally minor galena and rare coarse visible gold were encountered in some pits.

Intruding the Power vein is a diabase sill, first encountered in the Northern Empire shaft at a depth of 198.1 m (650 feet) and again in the Spooner shaft at 76.2 m (250 feet). From diamond drilling in the Spooner shaft, it was found to be 118.6 m (389 feet) thick and, as is the case on the Northern Empire property, the vein was intersected beneath the sill. The diabase crops out in the three eastern claims (TB4817, TB4814 and TB5061 on the Spooner property. Development below this diabase at the Northern Empire Mine proved the ore to be richer and of greater width and length (Leslie, 1939)*. The diabase itself is also mineralized by fine streaks of pyrrhotite and, at the Northern Empire, this material constituted part of the ore underground, carrying good gold values (Leslie, 1936)*. However, gold content in both these units on the Spooner property proved to be somewhat erratic.

The "Contact" vein lies 29.3 m (96 feet) north of the Power vein, is roughly parallel to it, and is nearer the metavolcanic-metasedimentary contact. From the western property boundary eastward, the quartz vein ranges from 1.52 m (5 feet) to 0.61 m (2 feet) wi(Similar to the Power vein, its surface is covered by heavy gossan and the highly sheared wall rocks are weathered to a soft black mass (Leslie, 1936)*. It is generally well mineralized with arsenopyrite and lesser amounts of pyrite-chalcopyrite.

A third zone, known as the "A" vein, is located 281.6 m (924 feet) south of the Power vein and has the same strike and dip. The quartz in the vein varies in width from parallel stringers of 0.15 m (6 inches) or more to solid masses of 0.61 m (2 feet). The quartz and mineralized schist associated with it make up a width of 1.07 m (3.5 feet) to 1.52 m (5 feet). It is badly weathered and in places heavily stained by red iron oxides to a depth of 0.20 m (1 foot) on the edges of the vein (Leslie, 1935)*. No sampling was done over the "A" vein, which was found to be very similar to the "Contact" vein in character.

Four other vein or vein systems are known to exist on the property.

8) <u>ECONOMIC FEATURES</u>:

H. T. Leslie, in a 1935 report, describes assay results for samples collected along the two main vein systems as follows:

> "Power vein...other than many showings of visible gold, very erratic values up to five and six dollars per ton on the old $20.00 gold basis.
>
> Contact vein...A few channel samples were taken of the decomposed surface which gave low values with the exception of one sample, taken at 836', which gave $4.40 (Gold @ $20/oz) over one foot of quartz."

A vein exposed underground (presumably the "Power") is reported to contain 0.42 oz of gold per ton across a width of 0.51 m (20 inches) (Ferguson et al, 1971).

PAST PRODUCTION:

Although underground development was conducted both on the property (from 150-foot level or a 303-foot shaft) and from the 1,725 foot (525.8 m) level of the Northern Empire shaft, no production was ever recorded from the Spooner-Norex property.

9) CHEMICAL ANALYSES:

1983 - Contact Vein

Sample No. (Grab)	Au(Oz/T)	Sample Description
83-MSN-1 (Old Trench)	0.01	Sugary buff quartz vein, rusty and highly weathered, host rock is green, highly sheared andesitic rock <1% fine disseminated pyrite.
83-MSN-2 (Old Trench)	0.18	Sugary to vitreous quartz-carbonate vein (grey-white) sheared, green andesitic to basaltic volcanic, chlorite-sericite alteration. Rusty, no visible sulphide.
83-MSN-3 (wall rock)	<0.01	Quartz-carbonate stringers in highly sheared andesitic wall rock. Chloritization along shears. No sulphides noted.
85-MSN-1	0.07	Banded quartz-carbonate veining. Rusty dark bands up to 5 mm. Contain pyrite, also discontinuous veinlets and patches of pyrite, 3-5%.
85-MSN-2	<0.01	Sugary white quartz and sheared mafic metavolcanics. Prominent sericite alteration, some rust and rare disseminated pyrite.

1) PROPERTY NAME: **Strathcona Mines Occurrence (144)** DATE(S) VISITED:

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934:	T. C. McCullough staked the property covering the occurrence (TB15198 and TB15199, east and west claims, respectively).
1935:	The claims were transferred to Dumond Exploration Limited as part of a large claim block extending into Leduc Township. Surface prospecting and trenching were done.
1936:	The claims were transferred to D. J. Day.
1937-1950:	A number of extensions were granted before the claims were finally cancelled.
1950:	The east and west properties were staked by P. MacMillan (TB39825) and A. Vanderbrink (TB40028) respectively.
1952-1953:	The claims were cancelled.
1960:	The properties were staked by William Pauloski (TB100187 and TB100188, east and west claims respectively) who transferred the claims to Strathcona Mines Limited.
1961:	The claims were cancelled.
1962:	The east and west properties were staked by James Myslicki (TB104529) and Edmund Garvey (TB105088) respectively.
1963:	The east claim was cancelled and restaked by Tom Young (TB109247) who transferred all interests to Mario Martinuzzi.
1964:	The west claim was cancelled and the east claim was transferred to William D. Pappas.
1965:	The west property was staked by Tom Young (TB114152).
1966-1974:	The west property was cancelled and restaked four times by various prospectors. The east

claim was covered by geological, magnetic and electromagnetic surveys as part of the Stolove-Van Orman-Pappas claim block in 1966, and in 1968 was transferred to Solomon's Pillars Mines Limited. The claim was cancelled in 1969, restaked by David Walsten (TB222653) and transferred to the Canadian Nickel Company Limited which drilled three holes on the claim. The claim was cancelled the following year, and restaked by Leonard Fransen in 1973 (TB377995).

1974: The west property was staked by Norman Capenace (parts of TB424007 and TB424009), and both claims were transferred to the Canadian Nickel Company Limited.

1976: Both claims were cancelled.

1980: The properties were staked by David Thorsteinson (TB534448 and TB534451- east and west claims, respectively).

1984: A grid was cut, and magnetic and electromagnetic surveys were conducted.

CURRENT:

The claims are presently held by David Thorsteinson.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5508750
Easting 453450

GENERAL LOCATION:

The claims are located in southeastern Walters Township on the north shore of Nissiamkikan Lake.

ACCESS:

The properties can be reached by travelling northwest on secondary Highway #801 from Nezah (10.1 km west of Jellicoe) for 1.3 km, then northeast on a bush road for approximately 1.37 km. The properties are located about 1.29 km to the east.

REFERENCES:

Irbe (1960)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2517, Nezah Lake Area, (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Irbe (1960)* described the occurrence:

"In the south half of Walters Township the rock consists mainly of Timiskaming greywacke, some conglomerate, and minor bands of arkose. Some beds are very rich in hematite and magnetite. The iron is thought to be sedimentary in origin. Although the composition changes in the greywacke are mainly gradational, some bands are so rich in iron that they are classed as separate units - Iron Formation. One such band runs east-west through the southern end of Walters Township.

The greywackes overlie an older series of basic lavas, now ellipsoidal-weathering greenstones and derived schists. These are part of the Keewatin series. One narrow but prominent ridge of these basic rocks outcrops east-west across the south half of Walters Township.

Minor Post-Timiskaming diabase dikes, striking almost north-south occur in the southeast corner of the township. These probably occupy shear zones and faults.

...The east-west strike and almost vertical dips of the greywacke appear to be fairly consistent throughout. The sediments appear to abut against the massive greenstone belt both along the south and the north contact. Shearing and soft deep-weathering altered greywacke was observed in a few places on the northern contact. The southern contact lies in a swamp. The contact is probably a fault on both sides of the greenstone ridge.

Another main shear zone runs east-west about half a mile to the south. This is a bedding plane shear. Some beds with a higher silica content have resisted the shear stresses better than others. These have recrystallized and silicified to a considerable degree, with development of chloritic slip planes. In the softer beds, movement along bedding planes has been more intense. The rock is fractured and ground up in the bedding plane shears. Small flattened and elongated pebbles are found in the soft, deep weathering shears.

...Secondary shears across strike also occur. These run northwest and northeast, at 45°-60° to the main east-west shears. The diabase dikes probably occupy these shears in the area. Some gentle buckling of the sediments northward is indicated by the Iron Formation."

7) <u>MINERALIZATION</u>:

Irbe (1960)* described the mineralogy as follows:

"Mineralization...was found in the main east-west shear area in two old trenches about 700 feet north of Nissiamkikan Lake...Here a shear zone 6 feet in width and as yet undetermined length has been opened in two trenches across strike 10 feet apart.

...The sediments dip 85° to the north. A quartz vein 2 to 4 inches wide runs along the northern hanging wall of the shear zone. It is coarsely crystalline and shows ladder type fractures across its width. The fractures are heavily stained by hematite. Small specks of carbonate can be seen in the quartz.

...Bordering the quartz vein, the sediments in the shear have been replaced 30%-50% by pyrite, arsenopyrite and minor chalcopyrite. The replacement zone varies in width from 2 to 4 inches.

...The shear proper is about six feet wide. The rock is very soft and rich in iron. Remnant bedding of slaty greywacke can be seen. Weathering is very deep and it is impossible to reach fresher rock by trenching.

...The foot wall of the shear also has some quartz vein mineralization and small lenses of sulphide, replacement beside it. But on the foot wall the mineralization appears to be much less and inconsistent."

8) ECONOMIC FEATURES:

The quartz vein material has assayed 0.02 oz/ton gold. The replacement zone has yielded values from 0.26 oz/ton to 0.85 oz/ton gold. The average grade over the exposed length of 6.1 m (20 feet) is estimated as 0.45 oz/ton gold (Irbe, 1960)*. Further, Irbe (1960)* states that:

"Rusty weathered material assays 0.03 oz/ton gold over a width of 6 feet. However, surface enrichment by concentration probably gives higher than the actual content of gold in the shear. The shear has likely been permeated by minute traces of sulphides along bedding laminae, as has been observed in other places in fresher rock. The sulphides carry traces of gold as coating and fracture fillings."

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: **Swereda Occurrence (146)**

DATE(S) VISITED:
February 23, 1983
June 29, 1983
September 19, 1984

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: SECONDARY: Au

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1982: Two claims (TB632189 and TB632190) were staked by Mel Swereda, on June 5, 1982. George Moore staked two adjacent claims (TB632182 and TB632183) to the east on May 20, 1982. The four claims were worked as one property by both men. There is no previous history of exploration for the property. The only recorded work in the area was conducted by "Little Longlac Gold" from 1947 to 1948 along the north and east boundaries of the claim block. Geological and geophysical surveys (ground magnetometer) were conducted, and five holes were drilled.

1983-84: Trenching was done over two mineralized shear zones which comprise the occurrence and extensive surface stripping was completed. Several shallow 18 m (60 feet) drill holes (AQ size) were also put down in the vicinity of the mineralized zones.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5509350
Easting 506100

GENERAL LOCATION:

The claim group lies approximately 2 km east-northeast of Geraldton and 1 km south of Ashmore Lake.

ACCESS:

A bulldozer road is developed into the property from the old cemetery road northeast of Geraldton.

REFERENCES:

Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map No. 1951-2, Township of Ashmore, District of Thunder Bay (Horwood and Pye, 1951).

6) <u>GENERAL GEOLOGY AND STRUCTURE</u>:

The property is located within mafic to intermediate metavolcanic rocks proximal to a contact with clastic metasedimentary units to the south. The claim block is part of a highly sheared zone which is cut by numerous east-trending diorite-gabbro intrusive "lenses" (Pye, 1951).

Two parallel graphitic shear zones, 120 m and striking north 120°E and dipping 80°SE, are exposed on the claims. The zones range up to 50 cm in width and are discontinuous, with a prominent fissile nature. The enclosing volcanic rocks are highly strained in the immediate vicinity of the shears, containing numerous cross-cutting, irregular quartz-carbonate veins and stringers. Drag-folding is exhibited by some stringers.

7) <u>MINERALOGY</u>:

Shear Zone #1, to the north, consists of a central graphite-rich band containing quilts, patches and colliform-like pyrite, and two narrow parallel cherty iron formation horizons. The No. 2 zone is highly mineralized and contains up to 25% sulphides, which are massive in places. It consists mainly of dull grey quartz and pyrite with lesser amounts of chalcopyrite, pyrrhotite and minor (4%), disseminated sphalerite. Siderite-ankerite and graphite occur as selvages along quartz-carbonate vein boundaries.

Pyrite was also noted in the surrounding volcanic rocks, existing as blebs, euhedral crystals and fine disseminations. Prominent limonite-staining is present where sulphides occur. Volcanic rocks in the vicinity of these altered zones are dominantly carbonate-rich.

8) <u>CHEMICAL ANALYSES</u>:

A total of twenty grab samples from both shear zones was collected during three separate property visits by the author. All samples returned only trace amounts of gold (i.e. <0.01 oz/ton).

1) PROPERTY NAME: **Talmora Longlac Mine (147)**

DATE(S) VISITED: July, 1982

2) ALTERNATE NAME(S): Longlac Lagoon
Elmos
Tombill

3) COMMODITY: MAIN: Au

SECONDARY: Ag, Cu, Sb, W

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1912: Claims TB1638 and TB1639 were staked by John A. McKechnie. Thirty assessment days were credited to the claims.

1913-1915: A total of 210 assessment days was credited to the claims.

1918: An application for patent which was approvedwas made by J. A. McKechnie (for the two claims) which was approved.

1932: Claims TB10609 to TB10611, inclusive, were staked by Norman Ellis who applied for a Mining Operation Permit. Claim TB10654 was staked by R. Ansen Cartwright.

1933: Limited work was done on the claims.

1934: The claims were surveyed. Claim TB12013 was staked by J. P. Flynn, Jr. and two fractions were staked by E. P. A. Phillips (TB11837 and TB11838). These three claims were transferred to T. J. Day of Longlac Lagoon Gold Mines Limited. A surface exploration program began, as did diamond drilling, under the management of Oro Plata Mining Company (Longlac Lagoon was a subsidiary company of Oro Plata).

1935: Claims TB10609 to TB10611 inclusive, and TB10654, had 666 days and 1,190 days work, respectively, filed for assessment before they were transferred to T. A. Johnson (later of Elmos Gold Mines). At that time Longlac Lagoon held a block of 52 claims (24 owned and 28 on option). In addition to trenching and other surface work, 21,500 feet (6,553.2 m) of diamond drilling was done by Oro Plata Mining Company.

1936: Elmos Gold Mines Limited, a subsidiary of Newmont Mining Corporation, was incorporated to take over Longlac Lagoon Mines. Debts of Longlac Lagoon were settled by the Oro Plata Mining Company. Claims held by T. J. Day were transferred to T. A. Johnson of Elmos Gold Mines.

1937: All unpatented claims noted above were patented by T. A. Johnson for Elmos Gold Mines Limited.

1938: The mine began operations under the control of the Newmont Mining Corporation through its subsidiary, the Northern Empire Mines Company Limited. A three-compartment vertical shaft was sunk to a depth of 544 feet (165.8 m) with levels established at 195 feet (59.44 m), 315 feet (96.01 m) and 515 feet (156.97 m). Underground development began, 121.92 m (400 feet) of diamond drilling was done from surface, and 313.94 m (1,030 feet) of drilling was done from underground. A number of buildings were constructed on site.

1939: Underground development continued for most of the year. Four holes totalling 432.51 m (1,419 feet) were drilled from underground. Ore was hoisted but none was milled. Operations were suspended in October due to lack of funds.

1940: Tombill Gold Mines Limited acquired the assets of Elmos Gold Mines Limited. No work was performed on the property.

1941: Trenching 91.44 m (300 feet) and stripping 152.40 m (500 feet) were done by Tombill Gold Mines Limited.

1942: A 50-ton per day mill was installed. Underground development was continued and two holes totalling 71.32 m (234 feet) were drilled from underground. Concentrates were sent to the Magnet Consolidated Mill for cyanidation. Operations were suspended due to wartime conditions.

1944: The property was transferred to Talmora Longlac Gold Mines Limited which also acquired four claims previously held by Mosher Longlac Gold Mines Limited (TB10050, TB10053 to TB1005 inclusive). The company held 13 patented claims at this time.

1947: The shaft was dewatered and underground development resumed. Diamond drilling consisted of 4 holes totalling 42.37 m (139 feet) drilled from surface and 63 holes totalling 2,206.14 m (7,238 feet) drilled from underground. The Elmos Mill was reconditioned and operated until the end of the year.

1948: Underground development and mining operations continued until the end of April, but failure to discover new ore resulted in the suspension of operations. Diamond drilling consisted of 28 holes totalling 1,078.38 m (35.38 feet) drilled from underground.

1949: Four claims were returned to Mosher Longlac Gold Mines Limited. All assets of Talmora Longlac Gold Mines were acquired by Tombill Gold Mines Limited.

1959: Tombill Gold Mines Limited changed its name to Tombill Mines Limited.

1974: Tombill Mines conducted VLF, magnetometer, geological and geochemical (soil) surveys over the property, financed in part by a Mineral Exploration Assistance Program Grant.

1979: Airborne magnetometer and electromagnetic surveys were conducted by Tombill Mines Limited (subsidiary of Anglo American Corporation of Canada and shareholder of Hudson Bay Exploration and Development Company Limited).

1982: Fifteen holes totalling 894.28 m (2,934 feet) were drilled on this group and the Ellis group to the east. Most of the holes were drilled on claim TB1638.

<u>CURRENT</u>:

The claims are held by Tombill Gold Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5503721
Easting 500938

GENERAL LOCATION:

The property is located in eastern Errington Township, immediately north and northwest of Mosher Lake.

ACCESS:

The property is accessible by water (Kenogamisis Lake) from the town of Geraldton.

REFERENCES:

Armstrong (1943)*.
Bruce (1935, 1936b).
Douglas (1974, 1982)*.
Ferguson et al.(1971).
Hargraft (1949)*.
Horwood (1948).
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al.(1940).
Tower et al.(1941, 1942, 1946a, 1946b).
Trembley (1946).
Webber (1949)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P241, Geraldton Sheet (Pye et al.,1964).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 1951-7, Township of Errington, District of Thunder Bay, Ontario (Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Pye (1951):

"Diamond drilling and geological mapping have shown that the Talmora property is underlain by a west-plunging mass of diorite, intrusive into Timiskaming sediments. The sediments, mainly greywacke with several prominent bands of iron formation, flank this body on its north, west, and south sides. Intrusive rocks, other than diorite, are quartz albite porphyry and quartz diabase.

...The greywackes are greyish, thick-bedded, and fine-to-medium-grained; some are decidedly massive, other distinctly slaty in character.

...The oldest of the intrusive rocks is diorite, which occurs as a large, saddle-like mass in the apex of the Talmora anticline. The mass plunges westward with the sediments, but at a somewhat flatter angle, so that unlike a true saddle structure it is not everywhere conformable with the bedding of the greywacke that encloses it. For the most part, the diorite is a dark green medium-grained variety. In many places, however, it grades to a coarse-grained gabbroic type with well-defined, blocky crystals of hornblende.

...A large sill-like mass of quartz-albite porphyry has been outlined by diamond drilling on claims TB10050, 10053, 10610, 10611, 10612 and TB10654. As a general rule, the porphyry is from a pale to dark grey, massive, fine-grained rock with phenocrysts of quartz, and either white or pink feldspar. In a few places, however, it is highly sheared, and the sheared phases, not unlike quartzite in appearance, are from light grey to greenish rocks with a characteristic waxy or resinous lustre."

Further, Webber (1949)* stated:
"Vertically dipping diabase dikes, trending north-south, transect all other consolidated rocks in the area. A small amount of feldspar porphyry has been noted on the 315 foot (96.01 m) level in contact with greywacke and diorite. Sheared conglomerate is interbedded with greywacke in one place on the 315 foot (96.01 m) level."

7) <u>MINERALOGY</u>:

Pye (1951) stated:

"Irregular fractures and shear zones, containing quartz veins and stringers of limited lateral and vertical extent, occur in both the greywacke and the diorite. The veins pinch and swell in short distances, and although widths of two feet or more are common, they average less than a foot in thickness. The shearing in the diorite is more prominent than that in the greywacke, and the mineralized zones commonly consist of one leader vein, up to three feet in width, parallelled on either side by narrower stringers. The veins in the greywacke follow both shear and bedding planes, with the result that they are generally highly irregular and commonly contorted.

Webber (1949)* described the gold-bearing veins and lenses at the Talmora Mine as made up of two generations of quartz:

"(1) an early, fractured, white to grey, coarse-grained variety, which makes up the bulk of the ore; and (2) a later, fine-grained variety which occurs in transverse fractures in the earlier quartz".

Further, Pye (1951) stated:

"Both the greywacke and the diorite are bleached and altered close to the zones of mineralization. Intense sericitization of the greywacke colours the rock pale greenish for a few inches from the quartz veins. The most prevalent type of alteration in the diorite appears to be carbonization, and in many places, the diorite is separated from the quartz of the veins by narrow salvages made up almost entirely of ankeritic dolomite. It is noteworthy that the sulphide and gold mineralization are more or less confined to the narrow, intensely altered zones along the walls of the veins."

Minerals identified or reported at the Talmora Longlac Mine are gold, silver, pyrite, arsenopyrite, chalcopyrite, stibnite, berthierite, antimony, scheelite, quartz, and dolomite (Webber, 1949)*.

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

Quartz veins and lenses are described by Pye (1951) as forming "an irregular zone, which in a general way appears to follow, as a saddle-like structure, the diorite-greywacke contact. The narrow widths and low grade of the veins and stringers in this zone do not permit profitable recovery."

At the time operations were suspended, it was estimated that about 12,000 tons of ore, having an average grade of 0.37 ounces of gold per ton, remained in the mine (Pye, 1951).

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1942	1,017	36	3,947	0.258	0.009
1947-48	398	30	5,623	0.071	0.005
	1,415	66	9,570		

9) CHEMICAL ANALYSES:

1982 - Tombill Mines Limited

Hole No.	Sample No.	Oz/T Au	Oz/T Ag	Core Length	Sample Description
82-4	12618	0.119	-	1.0' (0.31m)	Medium-grained, medium to light grey wacke with white streaks. 1-3% quartz veining plus many stringers, minor small bands of fine pyrite.
82-4	12630	1.67	-	0.25' (0.08 m)	Heavy iron formation, massive grey magnetite and purple jasper. Minor pyrite stringers and quartz veining with 60% pyrite. Minor hematite along fractures.
82-11	12847	0.062	-	4.5' (1.37 m)	Epidotized and silicified chlorite wacke. 40-50% quartz-carbonate stringers parallel to foliation and banding.

<u>1982</u> -					
-	82-MTM-1 (waste dump)	Trace-<0.01	Trace-<0.1	-	Medium to coarse-grained, barren-looking quartz vein.
-	82-MTM-2 (waste dump)	0.28	0.1	-	Medium to coarse-grained quartz vein with carbonate (ankerite) bands and narrower chlorite bands.

1) PROPERTY NAME: **Tashota-Nipigon Mine (148)**

DATE(S) VISITED: August 14, 1985; October 23, 1985

2) ALTERNATE NAME(S): Tashota-Goldfields Mine

3) COMMODITY: MAIN: Au SECONDARY: Cu, Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1923: J. McKechnie discovered visible gold near the south boundary of claim KK524 in sheared metavolcanics. Claims KK552-526 were staked.

1924: The Nipissing Mining Company optioned the property.

1927: Tashota Gold Mines Limited was formed under H. H. Vaughan. Surface stripping and test pitting were completed.

1938: A mining plant was hauled to the site via winter road from Tashota. A 218 foot (68 m) two-compartment shaft was sunk with levels at 100 feet (30 m) and 200 feet (60 m).

1929-1930: Claims KK537 and KK562 were added. A total of 880 m surface diamond drilling was undertaken and 1,610 m of underground diamond drilling and 165 m of drifting and cross-cutting were completed.

1932: Tashota Goldfields Limited was incorporated (reorganized from Tashota Gold Mines Limited).

1934: Shaft sinking was resumed to 367 feet (112 m) under the direction of Minefinders Limited. A third level was established at 325 feet (99 m). Three patented claims were added to the property.

1935: A 50 ton per day (later expanded to 75 tons per day) mill was installed and gold, silver and copper production commenced.

1936: A tenth claim was added. Tashota Goldfields Limited held the following patented claims: KK552, KK524, KK523, KK525, KK526, KK536, KK537, KK562, KK563, and KK565.

1937: A 3-compartment inclined shaft (70°) was sunk west of the original shaft. A 2-compartment winze was developed from the 325 foot (99 m) level to 626 feet (191 m) with a level at 145 m (475 feet (145 m).

During September 1937, operations ceased (Canadian Mines Handbook, 1939).

1939: Tashota-Nipigon Mines Limited acquired the property.

1967: International Mine Services Limited (Consultants) dewatered the mine for Tashota-Nipigon Mines Limited and completed 1,220 m (4,002 feet) of diamond drilling, underground mapping, sampling, tailings sampling, and surface geological mapping (1 inch to 40 feet).

1976: Tashota-Nipigon Mines Limited conducted a magnetometer and horizontal loop electromagnetic survey over the northern half of the property.

1981: Trenching, linecutting, a geological survey, a magnetometer survey and a Radem V.L.F. survey were undertaken.

1983: Tashota-Nipigon Mines Limited held 10 patented claims (see 1936) and unpatented claims TB655131 to TB655133 and TB657121 to TB657127.

1984: Hawksbill Resources Incorporated optioned the Tashota-Nipigon Mine property (George Cross Newsletter, No. 220, November 15, 1984) but no work performed.

PRESENT:

1985: Muscocho Explorations Limited conducted a diamond drill program of approximately 4,500 m (15,000 feet) and minor stripping. Muscocho optioned the A. Hopkins property to the west. The Tashota-Nipigon A-zone plunges to the west near the west boundary.

5) LOCATION AND ACCESS:

N.T.S. 42L4/SW

U.T.M. Zone 16 Northing 5543800
Easting 458000

GENERAL LOCATION:

The mine is located northwest of Onaman Lake and south of Oboshkegan Township, between Onaman Lake and Onaman River.

ACCESS:

The Tashota-Nipigon Mine is accessible via the Camp 40 Road north to the Con Lake Road. Proceed northeast from the Con Lake intersection on the Mine Road for approximately 12 km (8 miles) to the mine site.

REFERENCES:

Fenwick et al. (1980).
Flaherty (1936)*.
Gledhill (1925).
Kindle (1931).
Moorhouse (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Thurston (1980).
Tindale (1967)*.

MAP REFERENCES:

Map 34g, Tashota-Onaman River Area (Gledhill, 1925).
Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2411, Northern Onaman Lake Area (Thurston, 1980).

6) GENERAL GEOLOGY AND STRUCTURE:

Thurston (1980) described the geology and structure as follows:

"The property is underlain by pillowed, porphyritic and massive mafic metavolcanics (grain size 1-3 mm) which are gradational into rocks termed "diorite" by Tindale (1967, p. 5). The dioritic rocks are coarser-grained (up to 5 mm) massive rocks with frequent intercalations of chlorite schist. On the basis of their relationship to the granitic rocks to the south near the "west showing" the author believes that they probably represent a coarse-grained synorogenic intrusion. To the north the metavolcanics are overlain by Algoma type oxide and sulphide facies iron formation. The iron formation extends the full length of the property, at least 600 m, and is a maximum of 25 m thick, where not thickened by deformation. To the north of the iron formation is an irregular, semi-concordant body of gabbro about 90 m thick, extending at least 600 m east-west. This rock type was thought to be intrusive into the volcanic pile by Tindale (1967, p. 5) on the basis of xenoliths of iron formation found within it. Numerous porphyry dikes cut all the above units. Their extent is uncertain as they cannot be traced from outcrop to outcrop.

Most of the rock types are sheared, and fault breccia and chlorite schist are common on the property. The porphyry dikes include quartz, quartz-feldspar and feldspar porphyry. According to Kindle (1931, p. 91) the dikes are highly sheared toward their margins. Flaherty (1936, p. 730) showed an intrusive porphyry body associated with a synclinal fold which is exposed in the 60 m level but does not outcrop at surface. In addition an intrusive diorite/gabbro occurs south of the mine workings.

The iron formation, chloritic horizons in the mafic metavolcanics, and the dioritic unit south of the shaft form excellent marker horizons to trace structural features. The markers serve to delineate minor secondary folds consisting of a syncline plunging 55-60 degrees northwest, the trough of which is occupied by the gabbro southeast of the shaft, succeeded to the northeast by a northwest-plunging anticline indicated by strikes and and dips on surface and according to Flaherty (1936 , p. 729) by an anticlinal nose defined by a chloritic horizon in the mafic metavolcanics. He ascribed the formation of the secondary folds to "a shearing stress or couple acting at small angle to the general or regional strike, or at least the effective component of this couple acted in this direction." Movement was north side west and included a vertical component, resulting in north side upward movement.

Two sets of "shear joints" were described by Flaherty (1936, p. 731). As that level of detail was not possible on this survey, his description is summarized herewith. The major set[1], (termed B by Flaherty) with an orientation of about N20°E and dipping 65-80 degrees west and S70°W dipping 65-75 degrees north is a set of complementary shears symmetrically placed about the axis of the minor folding, and is due to the compressional forces which produced the fold. This set[2] of shear planes strikes parallel to the axial plane and dips less steeply than the axial plane, the two sets being approximately perpendicular. The secondary set (A of Flaherty) has an orientation of N20°W dipping 80-90 degrees east and S70°W dipping 65-76 degrees south. This second set was brought about by a shear couple acting parallel to the axis of the fold, producing so-called tension joints. Movements on the main, east-west shear zones parallels the assumed direction of the shear couple which produced the mineralized zones.

The mineralized zones consist of quartz- and sulphide-filled shear zones, generally bearing a close spatial relationship to the intrusive diorite and porphyry bodies. The zones plunge parallel to the plunge of the secondary folds at 55-60 degrees to the northwest."

Muscocho Explorations Limited describes a "footwall zone" of pillowed (variolitic) massive basalts, in places containing 2% chalcopyrite and pyrrhotite. Alteration minerals are commonly epidote and biotite particularly noticeable in pillow salvages and fractures (H. Matthews, geologist, Muscocho Explorations Limited, Toronto, personal communication, 1985).

Muscocho have defined the (cherty) iron formation previously described by Thurston to be the "hanging wall". Primary oxide and sulphide iron formation averaging 9-14 m (30-45 feet) thick is present in diamond drilling (H. Matthews, Geologist, Muscocho Explorations Limited, Toronto, personal communication, 1985). Chert-chlorite beds, chlorite-garnet-magnetite beds and siltstone or magnetite-chert occur. Pyrite occurs within a matrix of coarser pyrrhotite. Chalcopyrite is also present. Oxide and sulphide facies iron formation alternate in places. The iron formation has been tightly folded and displays a 55°-65°NW plunge. Matthews has identified 4 separate iron formation units within the larger "iron formation".

7) MINERALIZATION:

Thurston summarized the mineralization as follows:

"A ZONE

Moorhouse (1938, p. 23) stated that most of the production of the mine came from the A Zone. It is located on surface about 6 m west of the shaft and was described by Moorhouse as follows:

'The chief production of mine has come from "A" ore body, which is about 200 feet long. At the surface, widths were about 3 feet. At the 625 foot level, the average width is 57 inches. At 720 feet and 925 feet, widths, determined by drilling are 6.6 feet and 13.1 feet, respectively. Values above the thrust fault average 0.4 ounces in gold per ton; below it they averaged 0.16 ounces per ton. The deep drill hole to 925 feet, however, gave an average value of 0.33 ounces per ton over a true width of 13.1 feet. The ore zone dips 70°N and in the upper levels rakes at 68°W. It has not been practically mined out above the 625 foot level. The above figures were supplied to the writer by Mr. Rykeyser, (mineralogist).'

Minor amounts of A Zone ore types were found by Tindale (1967, p. 7) in the back and pillars on the 30 m (100 foot) level. It was found on the 60 m (200 foot) and 99 m (325 foot) levels in small amounts. On the 145 m (475 foot) level and below, Tindale (1967, p. 28) described the zones as follows:

'The A Zone is weakly present on the 475 level. Some mining has been carried out at the west end of the level and a raise from the 625 breaks through in the area, perhaps indicating the mineable limit of the zone in this direction. The zone is visible in the winze station but is narrow and very weak in sulphide mineralization. The zone consists of highly silicified greenstone with abundant quartz veining parallel to the foliation giving a banded or ribbony appearance with sparse disseminated pyrrhotite and chalcopyrite. A small dike-like body of silicified porphyry forms the hanging wall of the zone.

On the 625 foot level the A Zone is present as a pinching and swelling sheet of typical "A" type with associated silicified type, enveloped with biotite wall rock alteration. The zone weakens to the east sulphide content drops in proportion (to the weakening intensity of shearing) extending beyond the last chute and the zone ends in characteristic inter-fingering shear pattern in altered greenstone.

Diamond drilling by Tashota Goldfields in 1938 and by Tashota Nipigon in 1967 picked up values in the "A" Zone below the 625 level. These, however, were of a low tenor in the 0.10 oz per ton range. Attempts to pick up the easterly extension of the zone to the east were unsuccessful, partly due to a poor drilling angle.

In longitudinal section the "A" Zone has an hourglass-like outline, the narrow part characterized by "A" type mineralization and veins are banded silicic-quartz types with low sulphides.'

B ZONE

This zone is located 43 m south of the A Zone and has no surface expression. It was developed on the 60 km (200 foot) level over a lateral distance of 41 m. Mineralization included material similar to the A Zone; quartz veins with sulphide mineralization and massive pyrrhotite veins. The zone continues down to the 191 m (625 foot) level where it was exposed over a length of 30 m (Tindale, 1967, p. 9).

C ZONE

The C Zone's surface outcrop lies 60 m south of the main shaft, and is entirely hidden by tailings. Tindale indicated "low" assays but no further details.

D ZONE

The D Zone is projected to surface in the vicinity of the inclined raise. It was thought by Moorhouse to represent the faulted extension of the A Zone. Tindale (1967) indicated that lenses of A type mineralization occur on the main west drift on the 60 m (200 foot) level over an unspecified length.

Moorhouse (1938, p. 23) indicated the zone to be 35 m long, with an average width of 1.8 m. The zone has been mined out to surface. At the 191 m (626 foot) level it is exposed over a length of 45 m over an unspecified width.

E ZONE

Tindale (1967, p. 9), described this zone as follows:

> 'In the No. 1 East Drift, on the 200 level, irregular branching pods of mineralization occur in greenstones near a contact with relatively unaltered porphyry. The localizing structure is probably a fold nose. Most of the mineralization is the "A" type with quite high sulphide content and associated breccia lenses containing disseminated sulphides.
>
> Fair values over narrow width were encountered in this zone on the 200 level. This does not appear to have any depth extension.'

G ZONE

This zone occurs at the west end of the 60 m (200 foot) level where a series of lenses of quartz and quartz with pyrrhotite occur over a total length of 45 m.

WEST ZONE

The West Zone consists of sheared mafic metavolcanics. The zone is represented by a strongly foliated chlorite-biotite zone hosting a quartz vein. The zone has been trenched for approximately 46 m (150 feet). The width of the vein is <0.5 m (1.7 feet).

W. D. Hicks, Geoscience Laboratories, Ontario Geological Survey, described A type mineralization sampled by Thurston (1980), from the dump:

> 'Quartz veinlets which contain the gold and sulphides are in parallel alignment.

The quantity of sulphides present depends upon the quantity of quartz. Where the quartz seams are wide, corresponding large amounts of pyrrhotite and chalcopyrite are found. Where quartz occurs as small lenticular seams, pyrrhotite, without chalcopyrite is found as small disseminated grains.

All the gold observed in hand specimen and in polished section is found in quartz. The grain size is fine, ranging from 0.01 to 0.1 mm. Although a few minute grains of gold are found entirely surrounded by quartz, most of the gold is in physical contact with pyrrhotite. It is of interest to note that the gold is at the outer edge of pyrrhotite grains and that the contacts are along straight lines, which in places show a hexagonal outline.

The position of the gold in relation to its surroundings suggest that it is a late stage mineral occupying minute fissures in the quartz and interstices between quartz and pyrrhotite.

Small grains of bismuth were noted in polished section (confirmed by x-ray diffraction methods). They occur in quartz and within the sulphides. Bismuth is thought to be part of an earlier stage of mineralization.' "

The total sulphide content in the zone is typically 2% and up. Biotite is closely associated with gold mineralization (H. Matthews, geologist, Muscocho Explorations Limited, Toronto, personal communication, 1985). Muscocho completed several drill holes below the 625 foot (190 m) level and intersected A Zone mineralization. Diamond drilling was also completed on the D and G Zones. The D Zone may be a faulted extension of the A Zone. The zones are interpreted to be lenses that approach each other down plunge to the west (H. Matthews, geologist, Muscocho Explorations Limited, Toronto, personal communication, 1985).

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

A total of 4,000 tons of 0.2 ounce per ton gold is listed as remaining underground by Tashota-Nipigon Mines (Tindale, 1967)*. Lynx Canada Exploration Limited performed a feasibility study on milling mine tailings. Results suggested that 50,000 tons of tailings grading 0.06-0.08 ounce gold per ton are present (M. Watson, President, Lynx-Canada Exploration, Toronto, personal communication, 1981). One drill intersection beneath the A Zone indicated 13.1 feet of 0.33 ounce gold per ton below 625 foot (191 m) level, (at approximately 925 feet (282 m)) (Thurston, 1980).

The Northern Miner (October 14, 1985) reported the following result from the G Zone:

> "The two deepest holes on the zone to date were drilled 50 feet apart and both intersected the gold bearing structure at a vertical depth of 285 feet. They returned assays of 0.37 ounce gold per ton over 5 feet and 0.26 ounce gold per ton over 4.5 feet, respectively."

Thurston (1980) recommended exploration on the east extension of the A Zone as it is open, and the west extension of the G and H Zones.

PAST PRODUCTION:

The "A" Zone was stoped to the 625 foot level. The"D" & "G" Zones were stoped to the 200 foot (60 m) level. Some drifting was developed on the 625 foot (191 m) level.

Year	Tons Milled	Gold (Oz)	Gr. Gold (Oz/T)	Silver (Oz)	Gr. Silver (Oz/T)	Copper (lb)
1935	12,877	2,157.5	0.17	1,071	0.08	-
1936	23,590	6,310.9	0.29	6,710	0.28	155,687
1937	14,454	3,437.3	0.24	5,997	0.41	182,514
1938	329	450	0.73	749	2.28	22,105
Total	51,250	12,355.7	0.24	14,527	0.28	360,306

9) CHEMICAL ANALYSES:

Thurston (1980)

Sample	Au(Oz/T)	Ag(Oz/T)	Cu(%)	Pb(%)	Zn(%)	Bi(%)
1	0.11	Tr	0.18			
2	3.42	2.98	0.81			0.08
3	0.38	0.46	0.32			
4	0.50	2.50	2.61			
5	0.36	Tr	Tr			
6	0.01	Tr	Tr			
7	0.01	Tr	0.26			

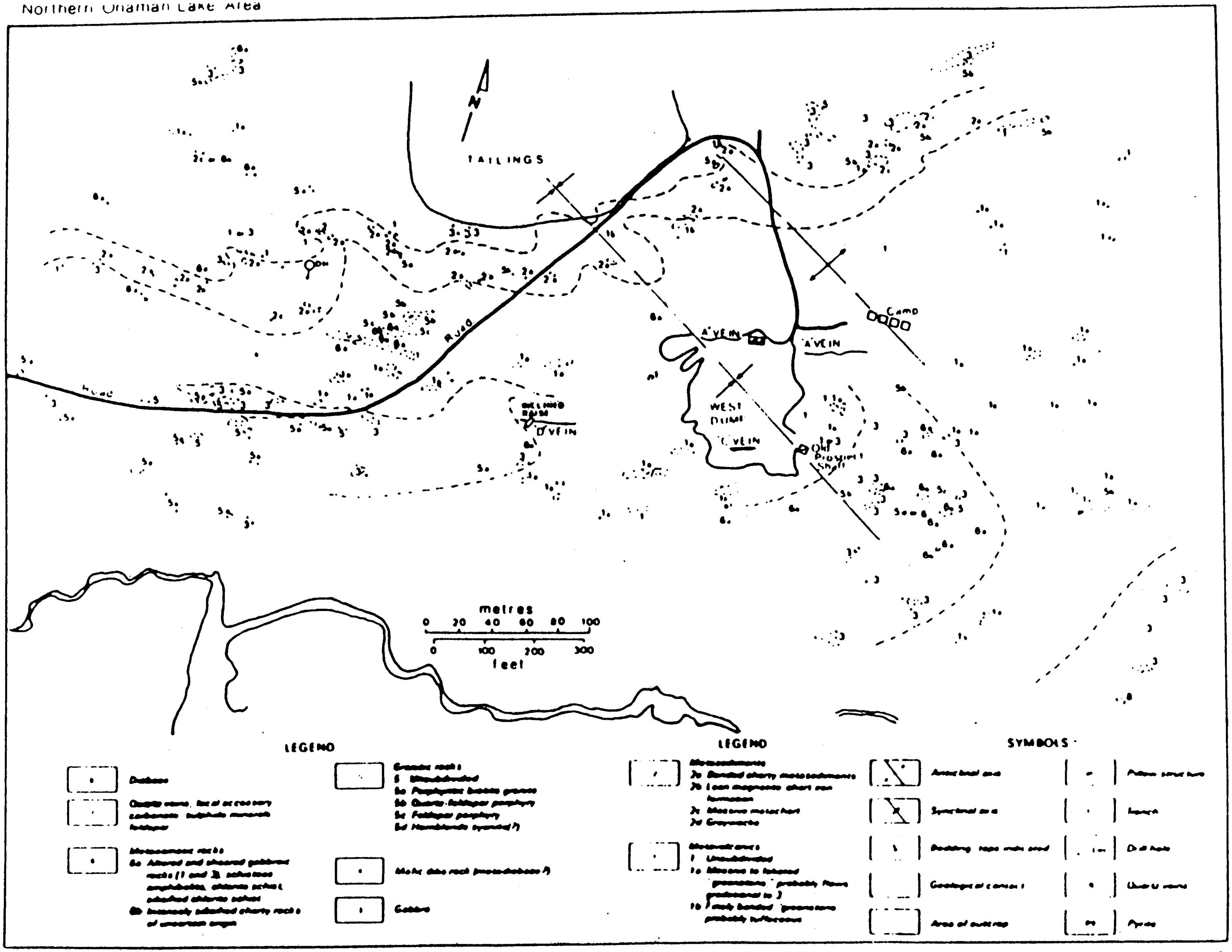
Samples

1, 2, 3, 4, Quartz and quartz-carbonate vein material.

5, Brecciated feldspar porphyry with quartz-filled fractures up to 5 mm wide.

6, Diorite.

7, Mafic metavolcanics.



Generalized surface geology, Tashota-Nipigon Mines Limited. From company plans ca. 1967-1968.

(after Thurston, 1980)

FIGURE 18

1) PROPERTY NAME: **Theresa Gold Mine (149)**

DATE(S) VISITED:
July 14, 1982
September 26, 1985

2) ALTERNATE NAME(S): N. A. Timmins Property
Caouette Claims
Afton Prospect

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1934: The initial discovery of gold on the property is believed to have been made by Moses Fisher. Shortly afterward a number of claims were staked by various individuals, including William Bill (TB15774 to TB14476 inclusive), Joseph Touello (TB15777 to TB15779 inclusive), and Mrs. W. Muckeby, (TB16851 to TB16853 inclusive). These claims were transferred to Mr. and Mrs. A. Caouette. Mrs. Caouette also staked claims TB17783, TB17784 and TB19743. Surface exploration was conducted on some of these claims,while the majority were transferred to C. S. Hamilton (Afton Mines Limited). In addition, claims TB17160 to TB17162 inclusive were staked by S. A. Taylor; claims TB17237 to TB17239 inclusive were staked by C. Taylor; claims TB17449 to TB17451 inclusive were staked by J. H. Mackay; claims TB18179 to TB18183 inclusive were staked by J. S. Johnstone on behalf of Miss R. G. Johnstone and Mrs. J. Mackay; claims TB18228 and TB18229 were staked by M. J. Gaffney; claims TB18612 to TB18614 inclusive were staked by J. Henley; claim TB18434 was staked by D. Bull and claims TB16373 to TB16375 inclusive were staked by John Boissonneau.

1935: The claims held by C. A. Hamilton had considerable work performed on them (350 days), as did the group held by A. Caouette. Work done by Afton Gold Mines resulted in limited production of gold and silver.

1936: All of the claims held by C. A. Hamilton were transferred back to the original vendors. The N. A. Timmins Corporation subsequently optioned a group of 36 claims on the west side of the Making Ground River. The group included a number of the claims previously listed.

Surface exploration was conducted and two bulk samples (carload size) were prepared. A total of 1,249.68 m (4,100 feet) of diamond drilling was completed and work began on a two-compartment inclined shaft. A number of buildings were constructed at the mine site.

1937: Underground development continued until May. At this time, the shaft had been sunk to a depth of 135 feet (41.2 m) and a level had been established at 125 feet (38.1 m). The option was subsequently dropped and a second option taken on a block of claims immediately east of the Making Ground River, again including a number of the claims previously listed. A two-compartment vertical shaft was sunk to a depth of 217 feet (66.1 m) and levels were established at 125 feet (38.1 m) and 200 feet (60.96 m). The shaft was located on on claim TB16851. At the end of the year, the option was dropped and the mining plant was moved off the property. Diamond drilling from surface totalled 2,398.17 m (7,868 feet).

1938: Theresa Gold Mines Limited was incorporated and 15 claims were transferred to the newly formed company (TB15774 to TB15779 inclusive, TB16373 to TB16375 inclusive, TB16851 to TB16853 inclusive, TB17783, TB17784 and TB19743) from A. Caouette. A number of new buildings were erected, and a mill was installed. Ore was treated from the dump and from the first level. A new mining plant was also installed and preparations were made to sink a new shaft on the east shore of the Making Ground River, some 0.8 km west of the number 2 shaft.

1939: A two-compartment vertical shaft on claim TB15775 was sunk to a depth of 100 feet (30.5 m), where the first level was established. A small amount of cross-cutting was done on this level. No development work was done on the old workings and the mill was not used. Operations were suspended late in the year.

1941: The 15 claims were surveyed and patented.

1946: A number of new buildings were erected at the site of the number 3 shaft.

1947: Underground operations resumed. The number 3 shaft was enlarged to 3-compartments and deepened to a depth of 510 feet (155.5 m). New levels were established at 227 feet (69.2 m), 335 feet (102.1 m) and 482 feet (145.2 m). Two holes totalling 60.96 (200 feet) were drilled from underground.

1948: Twenty holes totalling 2,955.95 m (9,698 feet) were drilled from underground.

1949: Underground development resumed. Ninety-five holes totalling 7,924.8 (26,000 feet) were drilled from underground and construction began on a 100 ton per day mill.

1950: Underground development was restricted to the 482 foot (147.5 m) level. Diamond drilling consisted of 10 holes totalling 757.7m(2,486 feet) drilled from surface, and 103 holes totalling 8,309.5 m (27,262 feet) drilled from underground. Mill construction was completed and operations began with an average mill rate of 71 tons per day.

1951: Underground operations continued. The No. 3 shaft was extended to a total depth of 986 feet (300.5 m) and new levels were established at 664 feet (202.4 m), 814 feet (248.1 m),and 955 feet (291.1 m). Diamond drilling consisted of 10 holes totalling 1314.0 m (4,311 feet) drilled from surface and 35 holes totalling 2,501.5 m (8,207 feet) drilled from underground. The average mill rate was 108 tons per day.

1952: Underground operations continued. Fifty-five holes totalling 3,872.2 m (12,704 feet) were drilled from underground. The average mill rate was 102 tons per day.

1953: Underground operations continued and five holes totalling 520.6 m (1,708 feet) were drilled from underground. The mill was in operation for 62.5 days.

1954: Operations were officialy suspended in February. The patents on the claims were later revoked.

1960: Claims TB98166, TB98177 to TB98181 inclusive, TB98186 to TB98190 inclusive, and TB99857 to TB99859 inclusive were staked by John W. O'Brien, E. Parozanin and Daniel McKinnon.

1961: Twelve claims were optioned to Caravelle Mines Limited. The company performed limited work on the property and later dropped the option. The claims were then transferred to George D. Richmond of Newrich Explorations Limited.

1962: Recommendations were made to dewater the underground workings and to conduct further underground exploration. Newrich Explorations Limited completed a limited diamond drilling program.

1964: A diamond drilling programme totalling 1,039.4 m (3,410 feet) in 17 holes was completed by Newrich Explorations Limited. The option was later dropped.

1966: The 12 claims were cancelled.

1970: The eastern end of the previous claim block was covered, in part, by 5 claims staked by Nick Koshman (TB252617 to TB252621 inclusive).

1971: The claims were cancelled.

1972: The original property was restaked as part of a 40 claim block by David E. Christianson (TB335295 to TB335324 inclusive). L. G. Phelan and Robert Laird each acquired a 50% interest in the claims. The block was subsequently optioned to Proto Explorations and Holdings Limited, and the claims were transferred to Robert Brown (president of the company). A grid was cut over the property and geological and magnetometer surveys were conducted. Surface sampling and trenching were also done.

1973: Eighteen holes totalling 1,742.2 m (5,716 feet) were drilled and the option was later dropped due to discouraging results. The claims were transferred back to L. G. Phelan and R. Liard.

1976: Claims TB335307 to TB335314 inclusive, and claims TB335316 to TB335319 inclusive were cancelled.

1978: Claims TB335320 to TB335322 inclusive and TB335330 to TB335334 were cancelled.

1982: L. G. Phelan transferred his 50% interest to Robert Laird. Cotton Valley Resources acquired, by way of option, the right to earn 100% interest in the property. The work proposed included dewatering the No. 3 shaft, underground sampling, mapping and a surface exploration program.

1983-1984: Cotton Valley Resources continued to hold an option on the property with the right to earn a 100% interest.

1985: The company name was changed to Conscot Resources Limited.

Note: The claim records indicate that a portion of the block was optioned to Mid North Exploration Services in 1983, and that these claims were leased for 21 years in 1984 (TB335295 to TB335306, inclusive, TB335315, TB335323 to TB335329 inclusive).

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5504832
Easting 534474

GENERAL LOCATION:

The property is located in the McBean Lake Area, on the east side of the Making Ground River, approximately 9.6 km south of Longlac.

ACCESS:

Access to the claim block is via an all-weather gravel road south from the town of Longlac for approximately 9.6 km. The mine is on the west side of the road.

REFERENCES:

Arnoldi (1952 to 1956).
Fairbairn (1938).
Ferguson et al. (1971).
Field (1954, 1955).
Greer (1951)*.
Phelan (1960)*.
Phelan and Liard (1972)*.
Reade (1952, 1953).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

Sinclair et al. (1938 to 1940).
Tower et al. (1941, 1949).
Trembley (1940).
Williams (1951).
Young (1937).

MAP REFERENCES:

Map 46B, Long Lake-Pagwachuan Lake Area (Fairbairn, 1938).
Map P241, Geraldton Area (Pye et al.,1964).
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map P2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Fairbairn (1938), the area consists predominantly of altered mafic volcanic rocks, agglomerates and metasediments. These units have been intruded by massive quartz diorite-granodiorite bodies. These units are all cut by northeast-trending diabase dikes.

The Theresa Gold property covers a large area of the quartz diorite-granodiorite intrusion, the remainder of the intrusion is mostly in Indian Reserve #77. The workings are almost entirely restricted to the area of the contact between the intrusion, the volcanics, and the metasediments.

7) MINERALOGY :

Fairbairn (1938) describes the mineralization:

"The most important showing is on claims TB16373 and TB17784 of the Caouette group, about a quarter of a mile west of the Making Ground river. A steep-dipping shear zone, averaging 5 feet in width over a length of 300 feet, strikes N40°E along the contact of a sheared agglomerate and massive hornblende-quartz diorite. The agglomerate is on the northwest, the diorite on the southeast. The shear zone contains a quartz vein averaging about one foot in width and shows coarse visible gold in many places. Pyrite and tourmaline are associated minerals. The zone has been traced at least 650 feet and apparently dies out to the southwest. The results of surface sampling and of preliminary drilling are reported to warrant more extensive operations. (Shaft 1 Area).

The two best showings on the Indian group are No. 2 vein on claim TB16851 and No. 3 vein on claim TB15777. The former consists of a network of small quartz stringers spread over a zone 10 feet wide on the contact of hornblende-quartz and a fine, highly altered, greyish dike rock. The contact strikes N85°E and dips 55°N. A thin section of the dike rock shows a fine felted mass consisting mostly of calcite, quartz, feldspar, sercite, and accessory biotite, chlorite, and epidote. The feldspar is indeterminable, and much of the quartz may be secondary. The veinlets occur mostly in this altered rock and contain coarse visible gold, with minor amounts of chalcopyrite, pyrrhotite, bornite, and pyrite. A novelty is the occurrence with the gold of small amounts of the gold-silver telluride, petzite. Tellurides have not been reported elsewhere in this area. The vein zone forks at the southwest end and is continuous for a maximum distance of 100 feet.

No. 3 vein is highly deformed and discontinuous. The showing on the east end consists of an altered hybrid rock, probably greenstone, which contains a drag-folded quartz vein about 3 feet wide. This vein has been traced for 65 feet and contains irregular gold values. On the west end values are scattered over a width of 10 feet and a length of 200 feet. The shear zone contains, in addition to the vein, contorted hybrid greenstone and sheared dioritic material."

Phelan and Liard (1972)* noted that a "lenticular bed of talc-sericite schist near the southwest corner of the property contains a small sphalerite occurrence which has been trenched and sampled".

8) ECONOMIC FEATURES:
PAST PRODUCTION:

Company	Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
Afton	1935	13	2	34	0.382	0.059
Theresa	1938	15	-	190	0.079	-
	1950	871	36	7,212	0.121	0.005
	1951	981	39	2,013	0.487	0.019
	1952	1,935	79	13,181	0.147	0.006
	1953	898	41	3,490	0.257	0.018
	1955	14	1	Clean-up		
		4,727	198	26,120		

9) CHEMICAL ANALYSES:

Sample No.	Oz/T Au	Oz/T Ag	ppm Cu	Sample Description
1980				
F-64-80	0.05	Trace	-	Oxidized, crushed material.
F-65-80	0.18	0.11	-	Milled rock, crushed material.
F-68-80	0.05	Trace	-	Tailings (south end, 6" deep).
F-69-80	0.09	Trace	-	Tailings (north end, 6" deep).
F-70-80	Trace	Trace	-	South end of dump-quartz.
F-71-80	0.03	Trace	-	North end of dump-quartz.
1981				
F-163-81	0.11	Trace	146	Crushed fines, near crusher.
F-164-81	0.09	Trace	420	Crushed fines, near ball mill.
1983				
NCR-52-83	0.05	<0.10	-	Quartz vein material from the dump.
NCR-53-83	0.30	0.16	-	Mill material.

1) PROPERTY NAME: **Tombill Mine (151)** DATE(S) VISITED: September, 1981

2) ALTERNATE NAME(S): Tom Johnson Claims

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: The property was staked by T. S. Vipond (TB10382 to TB10387 inclusive). Three of the claims were held by T. S. Vipond (TB10382 to TB10384 inclusive) and three were held by Mrs. M. Vipond (TB10385 to TB10387 inclusive).

1932: The claims were cancelled and restaked by E. E. Frederickson. Three claims were held by Mrs. Sadie B. Marlin (TB10643 to TB10645 inclusive) and three were held by E. E. Frederickson (TB10646 to TB10648 inclusive).

1933: The claims were transferred to T. A. Johnson. Thirty days work were credited to each claim and the property was surveyed.

1934: A total of 307 assessment days was credited to each claim, and application was made to patent the six claims. The patents were later approved.

1935: Tom Johnson, Percy Hopkins and Newmont Mines Limited formed Tombill Gold Mines Limited. The six claims were under control of Newmont Mining Corporation Limited.

1936: Tom Johnson and associates controlled 51% of the company's capital, with Newmont Mining Corporation holding the remainder and managing the property. Development work included considerable diamond drilling, shaft sinking to 400 feet (121.9 m) with levels established at 200 feet (60.9 m) and 375 feet (114.3 m) and limited lateral underground work. The first ore hoisted was milled by Bankfield Consolidated Mines Limited.

1937: Lateral work continued, and a 100 ton concentrating mill was constructed.

1938: The shaft was deepened to 600 feet (182.9 m) and a third level was established. Lateral work was conducted on all three levels. The mill began operations, with the concentrate sent to the Northern Empire mill at Beardmore. In the fall, the rated capacity was increased to 120 tons per day by the addition of a cyanide unit.

1939-1941: Underground mining and development work continued, as did milling operations. In 1940, an agreement allowing Bankfield Consolidated Mines Limited to explore and develop a block below the 500 foot (152.4 m) level was arranged.

1942: Underground development continued. A total of 311.5 m (1,022 feet) was drilled from underground. The ore reserves were exhausted and the mill was shut down. Underground development from 1938 to mine closure included 1,146.7 m (3,762 feet) of drifting, 1,353.9 m (4,442 feet) of cross-cutting, and 343.8 m (1,128 feet) of raising.

1955: Mill clean-up resulted in production of 23 ounces of gold and 1 ounce of silver.

1959: Tombill Gold Mines Limited changed its name to Tombill Mines Limited.

1974: Magnetometer and electromagnetic surveys were conducted over the property, after a grid had been cut.

1982: Tombill gold Mines continued drilling their properties to the east, but no mention is made of work done on this group.

<u>CURRENT</u>:

The claims are held by Tombill Mines Limited.

5) <u>LOCATION AND ACCESS</u>:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5504616
Easting 493726

<u>GENERAL LOCATION</u>:

The property is located on the eastern boundary of Lindsley Township, immediately north of Trans-Canada Highway #11.

<u>ACCESS</u>:

The past-producer is located 11.3 km west of the turn-off to Geraldton (Highway #584) along Trans-Canada Highway #11, and is within 250 m of the highway.

<u>REFERENCES</u>:

Arnoldi (1955).
Bruce (1935).
Douglas (1974)*.
Ferguson et al.(1971).

Hargraft (1949)*.
Matheson and Douglas (1948).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Sinclair et al.(1940).
Tower et al.(1946).
Trembley (1940, 1941, 1945, 1946a, 1946b).

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 2120, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2519, Lindsley Township Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Bankfield Mine.

7) MINERALOGY:

Bruce (1935) has described the mineralized zones as:

> "...mainly sheared and fractured greywacke and porphyry impregnated with silica and small amounts of metallic minerals. To a lesser extent there are definite quartz veins in the ore zone."

Metallic minerals are predominantly pyrite, arsenopyrite, pyrrhotite and native gold, (Matheson and Douglas, 1948). Refer also to the Bankfield Mine description.

8) ECONOMIC FEATURES:

PAST PRODUCTION:

Year	Oz Au	Oz Ag	Tons Milled	Oz/T Au	Oz/T Ag
1938	11,001	1,344	26,486	0.415	0.051
1939	16,503	2,026	38,704	0.426	0.052
1940	16,756	2,086	45,228	0.370	0.046
1941	13,315	1,701	46,956	0.284	0.036
1942	11,141	1,437	33,248	0.335	0.043
1955	23	1	-	Clean-up	

9) CHEMICAL ANALYSES:

1982

Sample No.	Au(Oz/T)	Ag(Oz/T)	Sample Description
82-MTB-1	0.24	Trace <0.1	Blue tailings from channel sampled pile.
82-MTB-2	0.23	Trace <0.1	Tailings

1) PROPERTY NAME: **Tombill Prospect (152)** DATE(S) VISITED:

@) ALTERNATE NAMES(S): Main Group West

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
Showings are located on claims TB10849 and TB10854, so the history of both is given, though it should be noted that they are part of a much larger claim block held by Tombill Mines Limited.

PAST:

1932: Claim TB10849 was staked by Eric Frederickson for Harry McInroy, and claim TB10854 was staked by Tom Christianson for Gertrude C. West.

1933: Both claims were transferred to T. A. Johnson who applied for a Mining Operation Permit and filed thirty days assessment work on each claim.

1934-present: Refer to Tombill Prospect (Main Group Central).

CURRENT:

The claims are held by Tombill Mines Limited.

5) LOCATION AND ACCESS:
N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5503300
Easting 498450

GENERAL LOCATION:
The claims are located in south central Errington Township immediately east of Longacre Lake.

ACCESS:

The claims are easily accessible by Trans-Canada Highway #11, which passes through the north claim approximately 6.5 km west of the turn-off to Geraldton (Highway #584).

REFERENCES:

Douglas (1974, 1982)*.
Hargraft (1949)*.
Pye (1951).).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Tower (1940).

MAP REFERENCES:
Refer to the Talmora Longlac Mine description.

7) MINERALOGY:

Pye (1951) has noted that:

"...surface trenching and diamond drilling have disclosed the presence of several quartz veins and stringers scattered along a zone of shearing in conglomerate. This zone dips steeply to the south and strikes east-west."

Mineralization includes pyrite and arsenopyrite (Pye, 1951).

8) ECONOMIC FEATURES:

The gold content is low; the best intersection noted averaged 0.26 oz/ton gold over 0.3 m (1 foot) (Pye, 1951).

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: **Tombill Prospect (153)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Main Group Central

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
Showings are located on claims TB10112 and TB10115 so the history of both is given though it should be noted that they are part of a much larger claim block held by Tombill Mines Limited.

PAST:

1931: Claim TB10112 was staked by Alex Gillies and claim TB10115 was staked by Pat Barry. Both applied for Mining Operation Permits.

1932-1933: Mining Operation Permits were obtained for both claims and surface work was performed.

1934: The claims were acquired by Longlac Lagoon Mines Limited, which held a number of claims in the area (owned and optioned). The two claims were surveyed.

1935: Surface exploration and 6,553.2 m (21,500 feet) of diamond drilling were done on the claim block by the Oro Plata Mining Company, which managed Longlac Lagoon Mines Limited.

1936: Elmos Gold Mines Limited was incorporated to take over Longlac Lagoon Gold Mines Limited, and performed surface work on the claims (Elmos was a subsidiary of Newmont Mining Corporation).

1937: Both claims were patented by T. A. Johnson.

1940: Tombill Gold mines acquired the assets of Elmos Gold Mines Limited. No work was performed on the property.

1940's: Diamond drilling and geophysics were performed on the claim block by Tombill Gold Mines Limited.

1959: Tombill Gold Mines Limited changed its name to Tombill Mines Limited.

1974: Tombill Mines Limited conducted VLF, magnetometer, geological and geochemical (soil) surveys on the claim block, financed in part by an Ontario Mineral Exploration Assistant Grant.

1979: Airborne magnetometer and electromagnetic surveys were conducted by Tombill Mines Limited (a subsidiary of Anglo-American Corporation of Canada and shareholder of Hudson Bay Exploration and Development Company Limited).

1980: Diamond drilling was conducted elsewhere on the claim block.

CURRENT:

The claims are head by Tombill Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E11/NE
U.T.M. Zone 16 Northing 5503050
Easting 499550

GENERAL LOCATION:

The property is located in south central Errington Township.

ACCESS:

The claims are easily accessible by Trans-Canada Highway #11 which passes through the two claims approximately 4.5 km west of the turn-off to Geraldton (Highway #584).

REFERENCES:

Douglas (1974, 1982)*.
Hargraft (1949)*.
Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Tower et al (1942).

MAP REFERENCES:

Refer to the Talmora Longlac Mine.

6) GENERAL GEOLOGY AND STRUCTURE:

The Main Tombill Group is underlain principally by Early Precambrian clastic metasediments but also by metavolcanic and metaintrusive rocks. Conglomerate, greywacke, argillite, and chlorite schist strike N75°-90°E. Narrow iron formation is interbedded with the schist and the argillite.

Intrusive into the clastic and pyroclastic sediments are hornblende diorite, albite porphyry and quartz diabase (Pye, 1951).

The structure has been described by Pye (1951):

> "Aside from the Ellis syncline, the most important structural feature on the property is the Bankfield-Tombill fault...The fault is represented by a zone up to 110 feet in thickness of silicified and carbonatized rock material. It strikes N75°W...and dips to the south at 60 to 70 degrees. The first movements along the fault were pre-ore. The structure, however, appears to have been the locus of adjustments...offsetting two north-south diabase dikes a distance of 2,200 feet."

7) MINERALOGY:

The most important mineralization is located in a sheared, brecciated zone along the north contact of a narrow sill-like body of albite porphyry which has intruded greywacke (Pye, 1951). Diorite occurs to the north of the porphyry. The sheared, brecciated porphyry is impregnated with small amounts of pyrite and arsenopyrite and is cut by numerous, narrow and discontinuous quartz stringers.

The wall rock adjacent to stringers of quartz has been sericitized and locally carbonatized (Pye, 1951).

8) ECONOMIC FEATURES:

Surface trenching showed the porphyry to have a length of 152.4 m (500 feet) and a width of 6.1 to 24.3 m (20 to 80 feet). Diamond drilling extended the length an additional 304.8 m (1,000 feet) to the west. Scattered values were obtained in the porphyry proper while more interesting values were obtained along the north contact as noted above.

The best intersection noted was 0.26 oz/ton gold over 0.76 m (2.6 feet). This hole was located near the boundary between the two claims (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: **Tombill Prospect (154)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Main Group East

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1932: Claims TB10734 and TB10736 were staked by J. F. Quist and claims TB10737 was staked by Tom Christianson.

1933: All three claims were transferred to T. A. Johnson who obtained Mining Operation Permits. Surface work was performed.

1934-present: Refer to the Tombill Occurrence (Main Group Central).

CURRENT:

The claims are held by Tombill Mines Limited.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5502950
Easting 500850

GENERAL LOCATION:

The property is located in southeastern Errington Township.

ACCESS:

The claims are easily accessible by Trans-Canada Highway #11 which passes immediately south of the claims 3.5 km west of the turn-off to Geraldton (Highway #584).

REFERENCES:

Douglas (1974, 1982).
Hargraft (1949)*.
Pye (1951)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Tower et al.(1940).

MAP REFERENCES:

Refer to the Talmora Longlac Mine.

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Tombill (Main Group Central) Occurrence.

7) MINERALOGY:

On the southern part of claim TB10737, a zone of altered and mineralized rock, similar to that described for the Tombill (Main Group Central) Occurrence, occurs along the contact between sheared porphyry and iron formation. The iron formation on all claims was also explored and work disclosed the local occurrence of quartz stringers and sulphide mineralization (pyrite and arsenopyrite) (Pye, 1951).

8) ECONOMIC FEATURES:

Drill intersections showed only a sporadic occurrence of gold; the best results were found in discontinuous quartz stringers in the porphyry (Pye, 1951).

9) CHEMICAL ANALYSES:

None.

1) PROPERTY NAME: **Twin Falls Occurrence**

DATE(S) VISITED:
August 7, 1985
October 24, 1985

2) ALTERNATE NAME(S): Atlantic Mining Option

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1934: Cyril Knight Prospecting Company Limited staked a six claim group (TB14861 to TB14866) near the mouth of the Crooked Green Creek in the extreme north central portion of Irwin Township (now included in the 41 claim group). Stripping and trenching centered around a gold-bearing quartz vein located on claim TB14861 (now TB746742 and TB746743, described in the geology section). The claims were later cancelled. There is no further record of work having been completed within the 41 claim group.

A second gold showing was also discovered in the area by A. Milroy and R. S. Taylor, located 1.3 km northwest of the Cyril Knight Occurrence. A group of nine claims was staked (TB13042 to TB13050) centering around a small lake in southern Pifher Township. Some surface exploration was completed in 1935 with interesting results (see section on Property Geology and Mineralogy) but no further work was reported. The claims became known as the Milroy-Taylor Group and the actual occurrence is located on present day claim TB7467491.

CURRENT:

1983: P. Skalesky and J. Ternowesky staked a group of 41 claims (TB746739 to TB746779) centered on the Pifher-Irwin Township boundary, adjoining the Brenbar Mines property to the east and the 4 claim Reiter patents to the west.

1985: The 41 claim group was optioned to Atlantic Mining Corporation of Minneapolis, Minnesota. Stripping and channel sampling have been completed to date. All of the present activities are centered around what has become known as the "Twin Falls Occurrence" in the extreme southwest portion of the claim group (claim TB746758).

5) LOCATION AND ACCESS:

N.T.S. 42E13/NW
U.T.M. Zone 16 Northing 5510950
Easting 436550

GENERAL LOCATION:

The property is located in northwestern Irwin Township, about 1 km northeast of Twin Falls, Sturgeon River (Namewaminikan River).

ACCESS:

Travel north from Highway 11 along secondary Highway 801 (Paint Lake Road) to the Namewaminikan River (Sturgeon River) crossing. From this point continue north for 1 km and turn left onto the river or 72 road (second road west, north of the river). The road winds westerly for 10.5 km and turns south (main road) at the "Hilda Holm" intersection. Continue south for about 1.7 km to a second intersection and take the left fork, heading east. Travel for less than 1 km and turn north on a new road into the showing, which lies along the eastern shore of "Little Max" Lake (unnamed on map).

REFERENCES:

Laird (1937).
Mackasey (1975).
Mason and McConnell (1983).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 2294, Dorothea, Sandra, and Irwin Townships (Mackasey, 1975).
Map 45A, Sturgeon River Gold Area (Bruce and Laird, 1936).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al. 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The geological setting in the vicinity of the property is dominated by Archean,intermediate to felsic,metavolcanic rocks,a portion of the Onaman-Tashota belt. Many of the gold occurrences in this region (in particular to the north and west) are stock-related and located at the margins of intrusive igneous bodies (Mason and McConnell, 1983). This includes both granite-granodiorite bodies and younger diabase dykes and sills. Locally the claim group is underlain by feldspar and quartz-feldspar porphyry, and medium to coarse felsic volcanic breccia (agglomerate).

A regional break, known as the Paint Lake Fault, lies approximately 4 km to the south and marks the northern boundary of the main Beardmore-Geraldton belt. It should also be mentioned that a secondary break, known as the Musca Lake Fault (Mackasey, 1975), traverses the southern boundary of the claim group and may have contributed to the intense shearing seen at the Twin Falls Occurrence. The foliation and general trend of the rocks underlying the claim group is southeast ranging from 090° to 115°, with a steep southerly dip.

7) MINERALOGY:

To date a significant showing, known as the Twin Falls Occurrence, has been uncovered in the extreme southwestern portion of the 41 claim group. Power stripping has revealed a 60 m (200 foot) wide zone, adjacent to the swamp along the eastern shore of the lake, consisting of a highly sheared and sericitized quartz-eye feldspar porphyry or felsic tuff. The zone strikes east-west at 102° and dips steeply to the south. Pyrite mineralization is pervasive throughout, occurring as fine subhedral to euhedral grains compris ing from 1% to 3% of the rock. It also occurs as more massive, discontinuous bands up to 5 mm in width and, in a few locations, as massive "veins" as much as 3 cm wide. From the limited amount of sampling completed to date it is in these zones of more massive pyrite mineralization that the highest gold assays occur. However, more detailed, systematic sampling is needed to determine the extent and location of gold mineralization within the shear zone.

At approximate 30 m (100 foot) intervals along strike to the east backhoe cross-trenching has exposed the pyritic shear zone to line 225 m (750 feet). A large amount of gossan, quartz-filled shears, and silicification/carbonatization alteration werenoted in the area. There is very coarse intermediate pyroclastic rocks (with stretched fragment up to 0.5m in size), with prominent carbonate alteration, along the southwest shore of "Little Max Lake".

A brief description of the only two documented occurrences within the 41 claim group - the Cyril Knight Occurrence and Milroy-Taylor Group (mentioned previously in the property history) - is given below. These are located to the east and northeast respectively from the Twin Falls showing. It should be noted that both are quartz vein-related, as opposed to the zonal nature of the Twin Falls Occurrence.

Laird (1936) describes the Milroy-Taylor group as follows:

"The partnership of A. Milroy and R. S. Taylor holds a group of 9 unsurveyed claims (TB13042 to TB13050) north of Twin Falls on the Sturgeon River and adjoining the Hopkins group of surveyed claims on the east. The claims are underlain mainly by Keewatin volcanics sediments, arkosic tuff and agglomerate, and a few small intrusive masses of feldspar porphyry.

The main showing, discovered in August, 1934, is located on the west shore of the lake near the east boundary of claim TB13045. It consists of a quartz vein, 9 inches in width, exposed in a prospect pit on the side of a steep ridge near the water's edge. It strikes N60°W and dips steeply south. It pinches out within a few feet but reappears in the same "break" a little farther up the hill. In one place specks of visible gold were observed.

In July, 1935, a small crew was engaged in surface exploration at the main showing as well as elsewhere on the property. This work resulted in the finding of several interesting mineralized "breaks" with quartz stringers, from which gold pannings were obtained. Although no important discoveries were made, the results indicated that the group should be intensively prospected.

For a time this property was under option to Tellaurum Gold Mines Limited."

The Cyril Knight Prospecting Company also conducted work over their 6 claim group in 1935. A detailed description is given by Laird (1936):

"...is underlain by schistose tuffs and agglomerates resembling arkose, but Keewatin in age. The schisting of these rocks is east-west, and their attitude more or less vertical. A massive outcrop of rhyolite or quartz porphyry occurs near the northeast corner of claim TB14866, and a porphyritic diabase dike, about 150 feet in width, strikes north across claim TB14861 only a few feet west of the main showing. Several small quartz veins have been uncovered near the middle of claim TB14861, but the only one containing gold is No. 1 vein. This vein has been stripped for 70 feet. It strikes east, dips 70°S, and has an average width of 5 inches. The quartz is well fractured and milky-white and carries a little pyrite in addition to the gold. Channel sampling disclosed no commercial gold values; the best sample is said to have yielded 0.64 ounce gold over a channel width of 9 inches. The showing is reached by a trail leading from the middle of the ox-bow stream just west of the mouth of Crooked Green Creek."

9) CHEMICAL ANALYSES:

1985

Sample No.	Au(Oz/T)	Sample Description
85-MFT-1 (East Trench)	0.03	Highly sheared and gossaned quartz-eye feldspar porphyry containing discontinuous bands and disseminations of pyrite from 1% to 3%.
85-MTF-2 (East Trench)	0.02	Same as 85-MTF-1 but appears to be slightly more siliceous with a greater amount of pyrite - 5% - in bands up to 5 mm, highly sheared.
85-MTF-3 (Main West Zone, South Side)	0.01	Same as 85-MTF-1 with discontinuous bands and patches of pyrite up to 3%. Highly sheared.
85-MTF-4 (Main West Zone, same location as 85-MTF-3)	0.74	Massive pyrite "vein".
85-MTF-5 (Main West Zone, 7.5 m north of 85-MTF-3)	0.03	Same rock type as 85-MTF-1 but appears more massive and less sheared. Gossaned with prominent sericite alteration and pyrite up to 3%.
85-MTF-6 (Main West Zone, 15 m north of 85-MTF-3)	0.01	Grey-green sheared and sericitized quartz eye feldspar porphyry with cross-cutting quartz veins (5 mm), patches and bands of 5% pyrite.
85-MTF-7 (Main West Zone, 19.5 m north of 85-MTF-3)	0.01	Similar to 85-MTF-5 but slightly more massive with disseminated euhedral pyrite up to 1%.

85-MTF-8 (280 East Trench - Old Grid)	0.32	5 cm thick seam of massive anhedral pyrite.
85-MTF-9 (280 East Trench - Old Grid)	0.01	Sheared quartz-feldspar porphyry with 3% pyrite.
85-MTF-10 (390 East Trench - North End)	Trace (<0.01)	Same as 85-MTF-9 but more schistose with 2% pyrite.
85-MTF-11 (390 East Trench - 50 feet from North End)	0.02	Sheared quartz-feldspar porphyry with 7% pyrite.
85-MTF-12 (450 East - South Trench)	0.01	Highly sheared quartz-feldspar porphyry schist with 1% disseminated pyrite.
85-MTF-13 (450 East - North Trench)	Trace (<0.01)	Less sheared than 85-MTF-12 but silicified with 2% disseminated pyrite.
85-MTF-14 (550 East Trench)	Trace (<0.01)	Highly silicified but but finer-grained equivalent of 85-MTF-13.

Note: Samples 85-MTF-8 - 85-MTF-14 off Ternowesky grid.

1) PROPERTY NAME: **Tyson Prospect (155)**

DATE(S) VISITED: August 19, 1981; August 10, 1983

2) ALTERNATE NAME(S): Amorada, Nortoba

3) COMMODITY: MAIN: Au SECONDARY: Mo

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1930-1934: Springer-Sturgeon Gold Mines Limited held the West or Sellars Group. Brennan and Kenty Bros. Prospecting Company Limited held the East or Brennan-Kenty Group. Mid-Canada Exploration Company Limited optioned the Brennan-Kenty claims, which were later optioned by Kenbro Sturgeon Gold Mines Limited.

1935: Amorada Gold Mines Limited held 20 unsurveyed claims and 4 surveyed claims. Trenching and sampling were undertaken on gold-and gold-molybdenite-bearing quartz veins.

1936: The Consolidated Mining and Smelting Company of Canada Limited sampled the No. 3 or Molybdenite Vein. A total of 530 m (1,737 feet) of diamond drilling was done, tracing the No. 3 Vein to a depth of 115 m (380 feet). A molybdenite bearing quartz vein 23 m (75 feet) south of the No. 3 Vein was also drilled.

1957: G. Elliot and N. V. Montgomery staked 52 claims covering the Au-Mo showings, including the 4 former leased claims that expired that year. Northwind Explorations Limited was formed to work the claims.

1958-1959: Nortoba Nickel Explorations Limited optioned the claims and the company was renamed Nortoba Mines Limited. Geophysical surveys, trenching, stripping and diamond drilling were performed. A gold-sulphide zone "50-70 feet"(15-21 m)" wide was located and traced for 120 m (400 feet) along strike. The zone is located 0.8 km southwest of the No. 1 Vein (north of the No. 3 Vein). A 75-100 ton/day mill was purchased and plans for a decline proposed.

1960: There was a shortage of funds and Nortoba Mines disposed of their assets.

1962: Mead Mining Corporation Limited completed 7 drill holes totalling 920 m (3,018 feet) on the property.

1963: A. E. Tyson and W. T. Woods acquired the property.

1964: Tyson and Woods bulk sampled the property (No.1and 1A Veins).

1965: Candore Explorations Limited optioned the property.

1965: Candore Explorations Limited initiated a program of geological mapping, trenching, stripping and diamond drilling (17 drill holes totalling 1,200 m (3,927 feet) to investigate the molybdenite deposit.

1983: Stroud Resources Limited optioned the property and conducted stripping, trenching, sampling and a mapping program.

CURRENT:

The claims are held by A. E. Tyson and Mrs. V. W. Tyson.

5) LOCATION AND ACCESS:

N.T.S. 52H9/NE
U.T.M. Zone 16 Northing 5504950
Easting 425250

GENERAL LOCATION:

The property is located in southeastern Dorothea Township.

ACCESS:

The property is accessible by bush roads via the 72 Road north of Highway #580.

REFERENCES:

Laird (1936).
Lamble (1958)*.
Mackasey (1975).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 45a, Sturgeon River Gold Area (Laird, 1936).
Map 2294, Dorothea, Sandra and Irwin Townships (Mackasey, 1975).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The general geology consists of an east-trending sequence of metavolcanic rocks. The claim group is underlain by massive, pillowed, amygdaloidal and porphyritic mafic flow rocks and intermediate to felsic tuffs, tuff-breccia and flows. A fine to medimum-grained quartz diorite lens intrudes the volcanic rocks (Mackasey, 1975).

The metavolcanics are fine-grained, dark green to greyish-green and contain chlorite, sausserite, epidote, quartz, amphibole, pyroxene, calcite and magnetite. Metamorphic grade is greenschist facies.

A major east-trending lineament occurs just north of the Tyson Mines property. Metavolcanics are strongly to weakly foliated 75° to 95°.

7) MINERALOGY:

Five main fissure-type quartz(±carbonate) veins occur and intrude all rock types on the property. The number 1, 1A, 2, and 7 veins are auriferous; number 3 vein is gold-and molybdenum-bearing.

According to Mackasey (1975):

"Descriptions of the individual veins are taken from Laird (1936, p. 88-89):

'No. 1 vein has been traced along the north side of a high east-west ridge for about 1,200 feet, showing widths ranging from 7 to 31 inches. It strikes N.80°W. and dips vertically to steeply south. The vein appears to follow a fault along which a somewhat rusty shear zone has developed. The country rock is coarse- to fine-grained andesite. The vein pinches and swells and in places seems to be more or less scattered into a number of parallel stringers. Visible gold was observed here and there, but the results of channel assaying are said to indicate only erratic gold values. About 300 feet from the west end the vein is faulted south. At this point a parallel vein lying a few feet to the south has likewise been intersected by the same fault. This vein, known as No. 1A, has been exposed for 60 feet west of the fault, has an average width of 15 inches, and is reported to have yielded channel assays ranging from 0.05 to 1.60 ounces gold per ton. A grab sample taken by the writer from

Approximately 145 tons was mined from the 1 and 1A Veins, the bulk taken from the 1A Vein by means of an open cut. Polished specimen studies of the 1A Vein indicated the gold to be associated with pyrite as shown in Photo 26.

The Mines Branch, Department of Energy, Mines and Resources, Ottawa, analyzed a 5-pound selected composite sample collected from the 1A Vein which gave assays of 11.99 oz. Au/ton and 3.52 oz. Ag/ton (Department of Energy, Mines and Resources files, Ottawa). A grab sample of fractured quartz with minor pyrite collected from the open cut by the field party was tested by the Mineral Research Branch, Ontario Division of Mines, and found to contain 1.62 oz. Au/ton and 0.38 oz. Ag/ton.

Laird (1936, p. 89) describes two other veins:

> 'No. 2 vein has been traced about 1,600 feet. It is 475 feet south of No. 1 vein and parallel to it. In low ground toward the west end it consists of a rusty shear zone up to 40 inches in width and carrying numerous quartz stringers. Farther east the shear zone persists, but the quartz becomes more or less concentrated into a single vein with a maximum width of 13 inches. Visible gold occurs in several places along the vein, but no ore sections have been delimited. A grab sample of well-pyritized quartz from a pit near the west end yielded 2.32 ounces gold per ton.
>
> No. 7 vein is located about 250 feet south of the No.2 and just south of the winter road. It consists of an irregular network of quartz stringers in a strongly carbonatized shear zone, which strikes east and has a maximum width of 12 feet. The schist contains a little pyrite and

negligible quantities of gold. The immediate country rock is altered andesite, but a parallel dike of quartz diorite occurs a few feet to the north'.

The main molybdenite occurrence is in the No. 3 Vein as shown on Map 2294 (back pocket). Many of the trenches and test pits were still clear of debris when visited by the field party in 1967.

The molybdenite occurs as large irregular patches in the quartz. In describing the No. 3 Vein, Lamble (1957, p. 6) states that "the maximum concentration of vein material appears to be about three feet (1 m), but in places the vein splits into a number of parallel veins extending over widths up to six feet (2 m). The molybdenite occurs as thin films in the fractured quartz, and as massive concentrations up to about 15% of vein material".

Lamble (1958, p. 8) further states, "About 100 pounds of mineralized quartz was blasted out of the westerly of those latter two pits (in the No. 3 Vein) and from the material I selected a piece of quartz containing about between 10% and 15% mineral for assay purposes. The assay result was 7.40% molybdenum. The material from this pit is rather spectacular and obviously of too high a mineral content to be assayed in an over-all assessment of this vein's economic importance. Pieces of quartz weighing 15 pounds to 20 pounds carry solid molybdenite mineral up to 10 inches (25 cm) and more in length and 6 inches to 8 inches (15-20 cm) in width".

This vein has a strike of approximately N80E with a near vertical dip. Lamble (1959) has traced the vein some 1,500 feet (460 m) and found it to have an average width of 18 inches (46 cm). An en echelon structure appears to be present but Lamble (1957, p. 6), who examined the deposit when trenching was being done, states that "The vein is broken into many short sections by a series of cross faults, but the horizontal displacements are in most cases only a few feet with the greatest of these about twenty-five feet (7.5 m)".

Laird (1936, p. 90) states that "...the quartz carries a little pyrite and molybdenite, but the gold content is negligible...."

The vein was tested by diamond drilling to a depth of 385 feet (117 m) (Department of Energy, Mines and Resources files, Ottawa). It should be pointed out that molybdenite mineralization is not restricted solely to quartz veins as is revealed by Lamble's (1959) description of drill hole E-101. Lamble stated that this drill hole "...intersected 1.3 feet (0.4 m) of fine grained altered diorite containing approximately 2% molybdenite by visual inspection"."

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

No. 3 Vein contains 7,500 tons of 1.5% MoS_2 to 12 m (40 feet) in depth (Lamble, 1958)*.

PAST PRODUCTION:

The property has yielded 147.5 tons of gold ore grading over 1 oz/ton.

9) CHEMICAL ANALYSES:

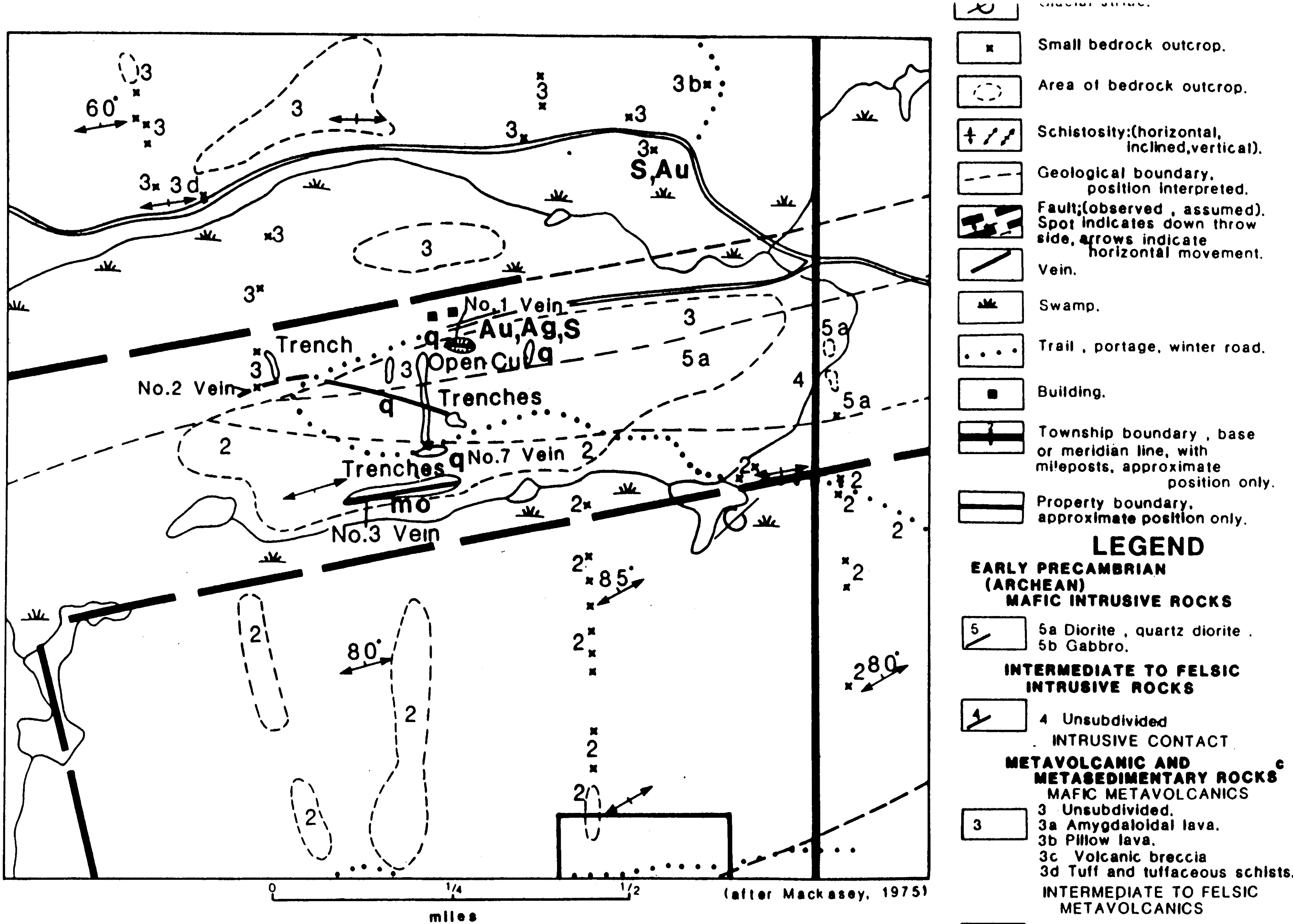
1981

Sample No.	Au(Oz/T)	Ag(Oz/T)	Sample Description
81-MED-1	0.03	<0.10 (Near Open Cut)	Porphyritic medium to very coarse-grained qtz vein, mafic metavolcanics in qtz features.
81-MED-2	0.13	<0.10 (East Extension East 1A)	Sugary, fine-grained, qtz stringers medium to coarse-grained.
81-MED-3	0.10	<0.10 (West Extension Open Cut Vein 1A)	Quartz vein in sheared metavolcanics. 2-3% py.
81-MED-4	0.02	<0.10 (West Extension Open Stope Vein 1A)	Medium to coarse-grained qtz stringers in meta-volcanics.
81-MED-5	<0.01	<0.10 (West Extension Open Stope South Wall)	Sheared metavolcanics (chlorite, epidote).
81-MED-6	<0.01	<0.10 (Vein #2 Baseline)	Medium to coarse-grained qtz vein containing minor carbonate and sheared intermediate to mafic meta-volcanics.

81-MED-7	0.12	<0.10 (Vein #2 Baseline)	Medium to coarse-grained white qtz vein with narrow chloritized fractures.
81-MED-8	0.10	<0.10 (Vein #3)	Coarse to very coarse-grained milky white qtz with molybdenite (<5% molybdenite).
81-MED-9	0.20	2.48 (Vein #3)	Coarse to very coarse-grained milky white qtz with molybdenite (10% molybdenite).

<u>1983</u>

<u>Sample No.</u>	<u>Au(Oz/T)</u>	<u>Sample Description</u>
83-MGW-23	<0.01 (Vein #2, Baseline)	Pearly white quartz vein containing chlorite fractures in intermediate volcanics.
83-MGW-24	0.20 (Vein #2, Baseline)	Brecciated quartz vein in mafic volcanics, 1-2% py (patchy & disseminated).
83-MGW-25	0.01 (Vein #2, Baseline)	Sheared fine-grained quartz diorite wall rock with 1-2% disseminated & euhedral py.
83-MGW-26	<0.01 (Vein #7)	Fine-grained granodiorite wall rock containing quartz carbonate stringers - minor py.
83-MGW-27	<0.01 (Vein #7)	Quartz-carbonate veining associated with dark chloritic bands and fine felsic intrusives 10% euhedral & disseminated py.
83-MGW-28	<0.01 (Vein #7, Core Shack)	BQ core qtz-carb. stringers, minor folding in fine-grained granodiorite.
83-MGW-29	0.03 (Vein #1, Extension off road)	Quartz brecciated with pink feldspar in mafic meta-volcanics.



(after Mackasey, 1975)

FIGURE 19

1) PROPERTY NAME: **Undersill Lake Occurrence (156)**

DATE(S) VISITED: May 30, 1984

2) ALTERNATE NAME(S): Murphy Claims

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1910: H. Murphy and P. J. McDevitt staked two groups of claims. These included TB1346 to TB1348 and TB1354 to TB1356 (A1.384 and A1.386). This group immediately adjoins the Leitch property to the north, which was first explored for iron at the turn of the century (1901 to 1912) and was one of the earliest sites for activity in the Beardmore-Geraldton camp.

1913: A lease was granted for claims TB1346 to TB1348 and TB1354 to TB1356.

1934: A second group of claims, consisting of TB17403 to TB17405, TB17406 to TB17407 and TB17721, was staked by G. Maki, L. Farrow and J. Farrow.

1936: The only recorded work from the past, covering the present day property, was done by H. G. Waring (1937) on what was known as the Murphy claims. This included claim TB1346 to TB1348 and TB1354 to TB1356. Work at this time consisted of drilling, blasting, trenching and sampling. Most of the work was done on claim TB1354 in Eva Township, since this area has the greatest outcrop exposure.

1944: A lease was granted for claims TB17403 to TB17407 and TB17721.

1962-1964: A two-claim group, TB104943 and TB104944, was staked by Fred Miron south of claims TB1740 TB17721. Insufficient work was done on these claims and both were cancelled in December of 1964.

1973: The lease on claims TB17403 to TB17407 and TB17721 was cancelled. There are no detailed records of any work that was done on this group of claims.

1979: The lease for claims TB1346 to TB1348 and TB1354 to TB1356 was cancelled and the ground came open.

CURRENT:

1982-1984: J. McMahon, M. Rentz and W. Cox staked a group of 22 claims, including the old Murphy showings, south of the Leitch property. The claim group consists of TB657256 to TB657268, TB657275, TB657276, TB673933 to TB673935, TB715730 to TB715737 and TB759240 to TB759244. Geological mapping, trenching sampling was conducted over a flagged grid (070° strike like at 2+75°N) located on claims TB715730 and TB673935 in May, 1984.

5) LOCATION AND ACCESS:

N.T.S. 52H9/NE
U.T.M. Zone 16 Northing 5496780
Easting 426150

GENERAL LOCATION:

The Undersill property is located 7.5 km west-northwest of the town of Beardmore, straddling the Summers-Eva Township line.

ACCESS:

Travel northwest on Highway #580, which leaves Highway #11 110.5 km north of Beardmore, for 7.5 km. Turn south for 0.5 km on a narrow gravel road just before the Leitch Mine turn-off. Proceed by foot southwest from this point for approximately 1 km to the occurrence.

REFERENCES:

Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Waring (1937)*.

MAP REFERENCES:

Map P.601, Eva Township (Mackasey, 1970b).
Map P.602, Summers Township (Mackasey, 1970c).
Map 2102, Tashota-Geraldton Geological Compilation Sheet (Pye et al., 1966).

6) GENERAL GEOLOGY AND STRUCTURE:

The Undersill Occurrence lies at the western end of the main production belt, in the Beardmore-Geraldton camp. Gold mineralization, such as that found at the nearby Leitch Mine, is associated with the east-trending, coarse metasedimentary unit which includes conglomerate, wacke, argillite and magnetite-hematite-chert (± jasper) ironstone. Gold mineralization occurs in shear zones, quartz veins and breccia zones hosted in clastic metasediments, felsic intrusions, gabbros, sulphides within oxide ironstone, and minor mafic metavolcanics.

Isoclinal folding and tight drag-folding in the Beardmore area (Leitch and Sand River Mines), specifically in the ironstone, appear to be necessary controls for ore structure development. Drag-folds and ore-bearing structures throughout the belt plunge westward at 25° to 40°. Faulting is indicated by Pye et al.(1966) and a prominent northeast-southwest break transects the area in the vicinity of the property.

7) MINERALOGY:

Waring (1937)* described the mineralogy of the Murphy claims, which lie to the west of the area presently being worked, as follows:

> "The country rock consists of greywacke which strikes N70°E and dips almost vertically to the north. The greywacke is greenish-grey in colour and has a clastic appearance. It has been sheared and altered to chlorite schist in many places.
>
> A few thin bands of slate occur interbedded with the greywacke.
>
> A band of iron formation occurs on the property and has been traced by trenching and dip needle survey. The band runs from the southwest corner of TB1354 through TB1355 and TB1347 to the northeast corner of TB1346. Where exposed in trenching the iron formation in places shows alternate bands of jasper and magnetite while in other places it shows bands of slate with magnetite.
>
> Quartz veins have been intruded into all the above formations. These veins pinch and swell laterally and vertically and vary in size from small stringers up to veins four feet wide. Many of the veins have a banded appearance due to chlorite forming in longitudinal cracks in the quartz.

There is a great deal of mineralization found on the property, consisting chiefly of pyrite and pyrrhotite. Chalcopyrite and its alteration products bornite and malachite are also found. The sulphide mineralization occurs chiefly in the wall rocks at the contact with the veins but the minerals are also found to a lesser extent in the quartz. Arsenopyrite is also found and two specimens of galena were found in the quartz."

Exploration work done in 1983-84 was concentrated along a quartz shear zone, striking 066° to 073°, on claims TB715730 and TB673935 (east of the Murphy showings). To date, a series of pits and trenches have been opened along a 070° grid line (BL2 + 75°N) from L13 + 00E to L15 + 00E.

The occurrence consists of sheared wacke up to 1 m wide (strike 073°) in close contact with banded oxide ironstone to the south. The shear zone contains en echelon quartz-carbonate veins, veinlets and lenses ranging from 5 to 30 cm wide with a maximum width of 1.5 m (vein exhibits pinch and swell feature). Small scale evidence for shearing is indicated by rounded, rotated quartz eyes within the wacke. Crack-seal textures with chlorite-sericite alteration predominate in the quartz vein material (alteration was also observed in sheared wall rock). Mineralization is primarily restricted to the wacke and consists of disseminated euhedral pyrite (1%), arsenopyrite (<1%), and possible tetrahedrite.

8) CHEMICAL ANALYSES:

Waring (1937) described assay results for numerous vein samples collected from the Murphy claims during work done on the property in the mid-1930's. This is given below.

"Claim TB1346 - Rock was found at the southwest corner of this claim and trenching was carried on there. The rest of the claim is covered with muskeg and heavy burden.

A 12-inch vein marked No. 13 on assay plan was opened up 30 feet and blasted. To the west of this 125 feet was found 4 one-inch stringers spread out over eight feet. The showing could not be traced further because of the heavy burden.

Claim TB1347 - This claim is covered with heavy overburden and not trenching was done on it.

Claim TB1348 - The northwest section of this claim was explored by trenching as was also a section along the north claim line. The rest of the claim is covered with heavy overburden.

Many quartz stringers were found but they failed to disclose any values.

Claim TB1354 - This claim has the greatest amount of re-exposed and has been thoroughly prospected. Much of the trenching on this claim was done in the Fall of 1936.

The best looking vein on this claim is at the southwest corner of the claim. This vein runs 4 feet wide for a distance of 25 feet and has been traced altogether for a distance of 250 feet. Assays showed no better than a trace.

Another good looking vein was found on the west claim line. This vein is 24 inches wide at the claim line but narrows down to a stringer and finally disappears. It was traced for 150 feet. Grab samples of this vein showed a trace.

The iron band has been uncovered by several trenches and although in many places quartz stringers occur in the iron band they fail to show gold values.

<u>Claim TB1355</u> - This claim has much heavy overburden at the west end and drops off into a swamp at the east end. However, trenches were put across the west end and across the centre of the claim and a good section of the claim was uncovered.

The only important showing on this claim was a 12-inch vein marked No. 18 on assay plan. This vein was drilled and blasted and a grab sample (No. 18) showed a value of 0.02 oz (70 cents @ $35.00/oz gold - 1936) per ton. A channel sample taken 5 feet west of this showed 0.06 oz ($2.10) per ton across 5 inches. The vein narrowed down at this place to a small stringer and no quartz was found in a trench 40 feet west of this point. Five feet to the east of No. 18 sample a surface channel sample showed 0.03 oz ($1.05) per ton across 10 inches. The rock dipped steeply here and a pit put down 40 feet east of this point went down 7 feet without reaching rock. A swamp lies just to the east of this so the vein could not be followed further.

<u>Claim TB1356</u> - The south part of this claim was explored by trenching. The north section is covered with heavy overburden.

The 18-inch vein marked No. 17 on the assay plan showed a value of 70 cents per ton.

A trench 180 feet to the west of this point did not show any quartz."

A total of 32 grab samples was collected for gold analysis (Geoscience Laboratories, Ontario Geological Survey, Toronto) during the 1984 field season. All samples were taken from the main shear zone (greywacke, quartz vein and banded iron formation) on claims TB715730 and TB673935 and only 3 returned greater than trace amounts (<0.01 oz/ton) of gold. These are listed and described below.

Sample No.	Oz/Ton Au	Description
84-MUL-1	0.01	Grey-white vitreous quartz with seams and fractures of highly sheared wacke. Contains 1% disseminated pyrite.
84-MUL-3	0.01	Sheared grey-white vitreous quartz and altered wacke and altered wacke sediments. Wacke contains 1% disseminated euhedral pyrite and minor (<1%) arsenopyrite.
84-MUL-20 (4BS-14R)	0.02	Sheared wacke wall rock and quartz vein material.

1) PROPERTY NAME: **Warren Occurrence (159)**

DATE(S) VISITED: August 20, 1981

2) ALTERNATE NAME(S): Princess Lona Property
Lord Levy
Count Smar Joint Venture

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

Pre-1939: Springer Exploration Company held the property covering the occurrence.

1939: T. J. Warren staked the occurrence and held a group of 8 claims (the showing was on claim TB27554). The claim was optioned to Sylvanite Gold Mines Limited which dug a number of trenches and mapped the property.

1946: The claim was transferred, 50% interest each, to S. Rosenblatt and H. H. Hatch.

1947: The claim was cancelled and restaked by G. Langford (TB36895).

1950: The claim was cancelled.

1968: F. Ledger held the occurrence. The old pits were opened up by backhoe by Ledger and resampled by OGS geologists.

1980: The property covering the occurrence was staked by Nolan Cox (TB533670).

1981: Power stripping was performed by Nolan Cox.

1982: Two diamond drill holes totalling 123.8 m (406 feet) were completed by W. McCrindle for Nolan Cox.

1983: The property was mapped by W. McCrindle for Nolan Cox.

CURRENT:

1984-1985: The claim was cancelled and restaked (TB759610) by George L. Mealey, who subsequently transferred all interest to Gerald Bruce. The claim was then transferred to Metalore Resources Limited, which conducted an airborne electromagnetic survey.

5) LOCATION AND ACCESS:
N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5507632
Easting 448893

GENERAL LOCATION:
The occurrence is located in central Walters Township, approximately 0.8 km south of Paint Lake.

ACCESS:
Travel northwest from Nezah (10.1 km west of Jellicoe) on secondary Highway #801 for 6.4 km, north by gravel road for 1.6 km and east on a bush road for 0.8 km.

REFERENCES:
Mackasey (1976).
McCrindle (1982)*.
McIlwaine et al. (1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Smith (1939)*.

MAP REFERENCES:
Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2356, Walters and Leduc Townships, (Mackasey, 1976).
Map P2517, Nezah Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:
Walters Township is underlain by east-trenching, isoclinally folded, and faulted mafic to felsic metavolcanics and metasediments. Mafic metavolcanics which host the occurrence include andesite and basalt, typically pillowed or amygdaloidal, and minor tuffs. Flow rocks are fine-grained, and dark green to greyish-green (McCrindle, 1982). Discontinuous chert, oxide iron formation and sulphide layers are interbedded with the metavolcanics.

According to McCrindle (1982):
"Tuff breccia horizons were evident in the drill core but not detected on the outcrop surface. Lapilli vary up to one inch and are elongated parallel to the shearing."

Minor amounts of intermediate to felsic metavolcanics are exposed on the property. McCrindle (1982)* also states:

"The metasediments are situated on the north end of the claim group along the south shoreline of Paint Lake. The metasediments are mainly polymictic conglomerates with minor amounts of sandstone. The conglomerate contains pebbles and boulders (to 12" diameter) of granitic and volcanic material along with argillite, quartz and jasper. Most clasts are elongated.

The major geological structures on the Princess Lona property are foliation in the meta-volcanics and metasediments which run north of east at approximately 70°. The dips tend to be vertical although occasionally dips steep to the north or south were measured. Tops determinations from pillows or graded bedding are not reliable due to the shearing or lack of exposure in the case of graded bedding.

The Paint Lake fault cuts across the north end of the claim group through the lake water. No evidence for the fault was seen in the outcrops of the map area, although drag-folding and wrinkling in the conglomerates were observed along Paint Lake."

7) <u>MINERALOGY</u>:

Gold mineralization is associated with a 1.2 m wide shear zone. The shear zone is within massive and pillowed mafic metavolcanics, strikes 040°-048° and dips 80° S to vertical. Foliation of volcanic rocks is 045°-058° on the property. Quartz-carbonate veins and cherty fragments are present in the zone. Veins are narrow and range up to 13 cm wide. Gold is associated with sulphide mineralization, including pyrite, chalcopyrite and arsenopyrite. Mafic metavolcanics are altered to chlorite-sericite schists with hematite staining.

According to McCrindle (1982)*:

"The shear zone is exposed for 650 feet by trenching. To the southwest the shear zone disappears under a swamp. To the northeast the lineament may be displaced southwards by faulting and continue to Paint Lake, a distance of 2,400 feet."

Grab samples assayed up to 0.97 oz/ton gold and 0.80 oz/ton silver. Chip samples, taken across 35.5 cm, assayed 0.01 oz/ton gold and 0.24 oz/ton silver (McIlwaine, 1982).

8) CHEMICAL ANALYSES:

1939 - Sylvanite Gold Mines Limited.

Sample No.	Au(Oz/T)	Sample Description (from Sylvanite G.M.L.)
D70326	0.04	quartz well mineralized
D70327	0.02	quartz well mineralized
D70328	0.02	quartz well mineralized
D70329	0.07	quartz well mineralized
D70796	0.04	chip sample (58.4 cm) quartz stringers and schist
D70797	0.03	chip sample (53.3 cm) 40% quartz
D70798	0.01	chip sample (38.1 cm) schist
D70799	0.11	chip sample (43.2 cm) quartz well mineralized
D70800	0.04	chip sample (50.8 cm) 40% quartz well mineralized

1981

Sample No.	Au(Oz/T)	Ag(Oz/T)	Sample Description
81-MDT-1	0.30	0.63	Fine to medium-grained quartz-carbonate containing disseminated py, cp (15%).
81-MDT-2	0.01	0.24	Chip sample (35.6 cm) quartz-carbonate metavolcanics.
81-MDT-3	0.97	0.37	Fine to medium-grained quartz vein containing minor carbonate and disseminated pyrite cubes (35% py).
81-MDT-4	0.04	<0.10	Same as 3+ minor asp.
81-MDT-5	0.30	0.38	Fine to medium-grained quartz vein, minor curb sheared metavolcanics + 15% asp, py.
81-MDT-6	0.03	0.80	Same as 5 but 10% asp, py (no host).
81-MDT-7	0.05	0.17	Same as 5 but not as sulphides.
81-MDT-8	<0.01	<0.10	Medium to coarse-grained quartz + carbonate in sheared metavolcanics.
81-MDT-9	<0.01	<0.10	Medium to coarse-grained silicified metavolcanics (5% py).
81-MDT-10	0.13	0.13	Fine to medium-grained, smokey quartz vein scattered asp & py (10-15%)

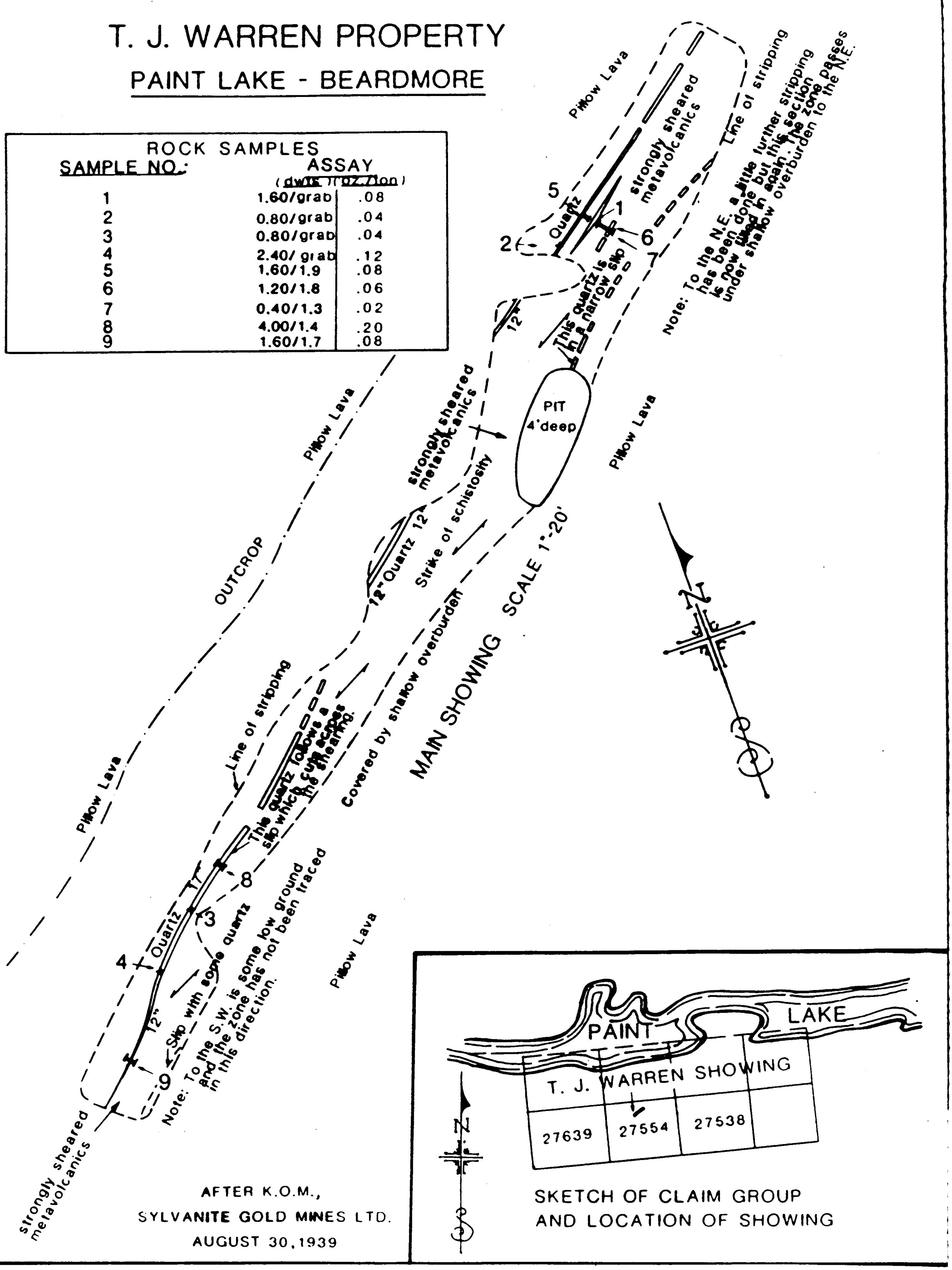
81-MDT-1 1.8% Cu 44 ppm Zn

T. J. WARREN PROPERTY

PAINT LAKE - BEARDMORE

ROCK SAMPLES

SAMPLE NO.:	ASSAY (dwts.)	(oz./ton)
1	1.60/grab	.08
2	0.80/grab	.04
3	0.80/grab	.04
4	2.40/ grab	.12
5	1.60/1.9	.08
6	1.20/1.8	.06
7	0.40/1.3	.02
8	4.00/1.4	.20
9	1.60/1.7	.08



SKETCH OF CLAIM GROUP AND LOCATION OF SHOWING

AFTER K.O.M.,
SYLVANITE GOLD MINES LTD.
AUGUST 30,1939

FIGURE 20

1) PROPERTY NAME: **Wascanna Prospect (160)**

DATE(S) VISITED: July 5, 1984

2) ALTERNATE NAME(S): Tash-Orn Prospect
Wells Claims

3) COMMODITY: MAIN: Au SECONDARY: Cu

4) DEVELOPMENT, HISTORY AND OWERNSHIP:
PAST:

1916: Robert Wells discovered a 152 cm (5 foot) wide vein containing considerable native gold on claim KK2892 (present TB604759). The claim was transferred to Tash-Orn Mines Limited.

1917: A two-compartment vertical shaft was sunk to a depth of 120 feet (36 m) on a quartz lens several feet wide, carrying visible gold. At the 92 foot level (27.6 m), drifts were run along numerous parallel veins to the north, as well as following the irregular strike of the lenses to the southeast.

The shaft was extended to a depth of 152 feet (45.6 m), and 400 feet (120 m) of lateral work was recorded on the 92 foot level (27.6 m).

1918-1935: Tash-Orn Mines Limited spent an estimated $140,000 on the property before funds ran out. The shaft was extended to a depth of 180 feet (54 m), and a total of 570 feet (171 m) of lateral work was reported at the 92 foot level (27.6 m). The mine closed and remained idle until 1936.

1936-1938: The Fort Rouille Mining Corporation secured the "Wells Claim" in 1936. Wascanna Mines Limited was incorporated and leased the property (14 claims). The shaft was pumped out and a mining plant was installed. The two-compartment vertical shaft was extended to 322 feet (98.1 m). Levels were established at 200 and 300 feet (60 and 90 m) and a total of 1,424 feet (433.1 m) of drifting and cross-cutting was completed.

A total of 615.4 m (2,019 feet) of diamond drilling was done from surface and 493.2 m (1,618 feet) from underground.

In 1936, an electrical survey was conducted over the property by Hans Lindberg Limited. Operations were suspended in October, 1937.

1942-1952: The property was leased by Wascanna Mines Limited for ten years, until the lease was cancelled.

1957: The Wascanna Mines Limited charter was cancelled.

1972: Mrs. M. Cashaback and J. R. Dean jointly owned a group of 13 unpatented claims, one of which covered former claim KK2892 (shaft claim). The claims were transferred to L. G. Phelan and R. F. Laird (Projex Limited) and subsequently cancelled. A magnetic survey was conducted over the claim group.

1973: J. M. Croteau staked the shaft area. Geological mapping and sampling was completed.

1975: Mr. Croteau died and his claims were cancelled.

1979: A. Lafontaine staked the shaft area.

1981: A. Lafontaine's claim was cancelled and the area was restaked by R. Syncox. The claim was then transferred to A. Rosenblatt.

1982: A. Rosenblatt lost a dispute over the claim and records state the claim officially belonged to A. Lafontaine.

1983: A. Lafontaine transferred 50% interest in the claim to J. Robertson. They hold claims TB604074 to TB604077. The Wascanna shaft is on claim TB604074. H. P. Brightman holds the six leased claims (KK2638, KK2668, KK2667, KK2639, KK2672, KK2694) that surround the shaft.

CURRENT:

Teck Corporation optioned the Wascanna Prospect in 1984, and formed the joint venture of Draw Resources-Retlaw Resources-Teck Exploration to work on the property. Two holes were drilled totalling 242.6 m (808 feet).

LOCATION AND ACCESS:

42L4/NE
U.T.M. Zone 16 Northing 5562600
Easting 453500

GENERAL LOCATION:

The property is located 1.6 km east and 0.8 km south of the former Tashota Station on the Canadian National Railway.

ACCESS:

The property is accessible by travelling 7.0 km (4.3 miles) east of Jellicoe on Highway 11 and north on Abitibi's Camp 40 Road to the former Camp 40 site. Continue north on the Auden Road to within approximately 6.0 km (3.7 miles) of Auden. At this point take the right fork in an east-northeasterly direction to Tashota. A winter drill road covers the final 12.5 km north to the Canadian National Railway tracks and Tashota. An abandoned ballast pit is located on the south of the tracks approximately 1.6 km east and 0.8 km south of Tashota. The Wascanna shaft is 300 m (984 feet) east of the pit.
An alternative route to the area involves branching off the Camp 40 Road on the Con Creek Road. One drives along a connecting Buchanan Bros. cutting road terminating north of Gzowski Creek, northwest of Metcalfe Lake.
A flagged and blazed trail leads to the Wascanna Prospect.

REFERENCES:

Amukun (1977).
Gledhill (1925).
Hopkins (1917).
Kindle (1931).
Moorhouse (1938).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 26a, Kowkash Gold Area (Hopkins, 1917).
Map 34g, Tashota-Onaman River Area (Gledhill, 1925).
Map 40f, Kowkash-Ogoki Area (Kindle, 1931).
Map 47H, South Onaman Lake Area (Moorhouse, 1938).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2354, Tashota Area (Amukun, 1977).

6) GENERAL GEOLOGY AND STRUCTURE:

Hopkins (1917) described the rocks on the property as "pillow lava schists", striking 030° with a vertical dip. Narrow altered quartz porphyry dikes intersect the metavolcanics.

In 1938, W. W. Moorhouse mapped the area and described iron formation as well as banded cherty silica as being present, hosted in mafic metavolcanics.

Amukun (1977) described the gold mineralization in the Tashota area as occurring predominantly in narrow quartz veins. These veins are found almost exclusively in the sheared, altered, mafic metavolcanics and derived schists.

Near the shaft, the metavolcanics have been folded into a series of tight drag-folds with the axial planes striking N20°W and dipping 70°-80°E. The quartz veins near the shaft also follow this pattern of folding.

7) MINERALOGY:

According to Hopkins (1917), the gold occurs in fractures filled with crushed quartz, calcite, talc and chlorite. The faults appear to bear a close relationship to mineralization, the greatest widths of quartz and the best gold values occurring near the faults. Both values and widths of the stringers decrease away from the faults (Moorhouse, 1938). There appear to be two general trends to the faulting, namely a north-northeast trend and a west-northwest trend (Amukun, 1977).

Mineralization in both the quartz and the associated host rock includes pyrite, chalcopyrite and gold. The gold occurs both in the native state and associated with the chalcopyrite. This intimate association of the gold with the copper sulphide initially caused recovery problems but these were quickly solved.

Hopkins (1917) sampled the mineralized schists adjoining the veins and noted primarily no gold values.

The vein on which the shaft is located consists of a 0.6 m to 1.5 m (2 foot to 5 foot) wide vein of vitreous to sugary quartz, sparsely mineralized by pyrite, chalcopyrite and pyrrhotite.

An electrical survey was carried out over the propert in 1936 by Hans Lunberg Limited. The survey outlined three anomalous zones:

1. A shear zone at the east edge of KK2668 and KK2672 which coincides with a few mineralized trenches.
2. A weakly mineralized, 45 m (150 foot) wide quartz porphyry dike which crosses the property.
3. A 20 foot (6 m) wide shear zone located some 300 feet (90 m) east of the shaft. This zone also coincides with mineralized trenches.

8) ECONOMIC FEATURES:

TONNAGE AND GRADE ESTIMATES:

It was reported that the average grade of the workings was 0.24 ounces gold per ton and a test shipment (1917) of 317.1 kg (700 lbs), from a depth of 9 to 10.5 m (30 to 35 feet), averaged 0.96 ounces gold per ton, (Hopkins, 1917).

In 1936, four samples were taken from the 92 foot (27.6 m) level and assayed. The results indicted 0.04 to 0.70 ounces gold per ton, (Moorhouse, 1938).

Amukun (1977), reports that during the deepening of the shaft in 1936-1937, a test shipment was made of 1,000 lbs of ore from the 92 foot level (30 m) and was reported to assay 1.12 ounces gold per ton.

9) CHEMICAL ANALYSES:

1984

Sample No.	Au(oz/T)	Sample Description
84-MWW-1	0.06	Dull to vitreous to sugary grey-white quartz vein-crack-seal texture-sheared metavolcanics-minor gossan-disseminated (fine) pyrite in fractures and in quartz-rare cpy <1%.
84-MWW-2	0.01	Similar to 84-MWW-1 white sugary to vitreous quartz and sheared volcanics (sericite alteration)-crack-seal <1% disseminated euhedral pyrite in fractures within volcanic rocks.
84-MWW-3	<0.01	Sheared and partially silicified meta-volcanics-quartz-carbonate veinlets (up to 1 cm)-stretched along shear direction-rare fine disseminated pyrite (<1%).
84-MWW-4	0.03	White vitreous to sugary quartz vein in contact with sheared mafic volcanic rocks -ankerite-crack-seal texture, fine (1 mm) disseminated subhedral to euhedral pyrite (1%) in fractures and metavolcanics-minor sericite alteration.
84-MWW-5	0.04	Same as 84-MWW-4 - 1-2% euhedral pyrite.
84-MWW-6	1.62	Same as 84-MWW-4 - 1% pyrite.
84-MWW-7	<0.01	Dull grey-white to waxy quartz vein with crack-seal texture in contact with sheared sericite-rich mafic metavolcanics-ankerite in fractures-no visible sulphides -crack-seal texture.

1) PROPERTY NAME: **Wenzoski Occurrence (162)** — DATE(S) VISITED: July 21, 1981

2) ALTERNATE NAME(S): D. Clark Occurrence
Nora Lake Occurrence
Bruce Option

3) COMMODITY: MAIN: Au — SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1963: The property covering the occurrence was staked by J. Wenzoski (TB107038).

1965: J. Wenzoski accumulated 100 days assessment credit for the claim.

1966-1967: Stripping and/or trenching was performed by J. Wenzoski.

1969: The claim was cancelled and restaked by Camille M. Trudeau (TB229326).

1970: The claim was cancelled.

1971: The property was staked by Ralph Halverson (TB302466).

1972: Ralph Halverson drilled 9 holes totalling 93.36 m (306 feet), before transferring the claim to Don Clark, who performed stripping and/or trenching and subsequently optioned the claim to Conwest Exploration Company Limited.

1973: Conwest Exploration Company Limited drilled 9 holes totalling 347.8 m (1,141 feet).

1974: Conwest dropped the option.

1975: Don Clark drilled six holes totalling 95.1 m (312 feet).

1976: Mechanical surface work was performed by Don Clark.

1979: A survey for lease was filed.

1980: Application was made for lease and subsequently approved.

1981: The claim was optioned to E. and B. Canady Limited.

1982-1983: Power stripping and bulk sampling was performed by E. and B. Canady Limited.

CURRENT:

The leased claim is presently held by D. Clark.

5) LOCATION AND ACCESS:

N.T.S. 42E12/NE
U.T.M. Zone 16 Northing 5503873
Easting 446694

GENERAL LOCATION:

The claim is located in southwestern Walters Township, approximately 370 m south of Nora Lake.

ACCESS:

The property is accessible by travelling the Trans-Canada Highway #11 west from Jellicoe for about 16 km and north on a bush road for 2 km.

REFERENCES:

Mackasey (1976).
McIlwaine et al. (1982).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map P1527, Ontario Mineral Potential-Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map 2356, Walters and Leduc Townships (Mackasey, 1976).
Map P2517, Nezah Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Walters Township is underlain by east-trending, isoclinally folded, and faulted mafic to felsic metavolcanics and metasediments. Mafic metavolcanics include andesite and basalt, typically pillowed or amygdaloidal, and minor tuffs. Flow rocks are fine-grained and dark green to greyish-green in colour. Discontinuous chert, oxide iron formation and sulphide iron formation layers are interbedded with the metavolcanics. Diabase dikes intrude all rock types.

Metamorphic grade is greenschist facies. Chlorite, sausserite and epidote alteration are present.

7) MINERALOGY:

Quartz ±carbonate veins are hosted in sheared mafic metavolcanics and are observable on or near an overgrown baseline in a series of trenches. Veins have various attitudes and appear to represent a stockwork system. Mackasey (1976) described a cribbed trench, now partially sloughed in:

"A 12-15 cm wide vein strikes N75°E and dips 80°S. Wallrocks are altered to sericite and carbonate. Veins are laminated (crack-seal texture) or brecciated. Quartz is typically medium to coarse-grained. Up to 15% combined arsenopyrite and pyrite, with minor chalcopyrite, occurs in the vein. Arsenopyrite, occurs as a "fine-grained", dark grey, sugary disseminations and as silver striated prismatic crystals up to 5 mm long."

The most westerly pits of claim TB302466 were sunk in quartz-feldspar porphyry hosting disseminated sulphides.

8) ECONOMIC FEATURES:

Diamond drilling in 1972 (D.D.H. 1) intersected spectacular visible gold, some coarse, in one quartz vein intersection of 2.0 m (6.5 feet) (D. Thorsteinson, prospector, Beardmore, Ontario, personal communication, 1981).

Arsenopyrite, pyrite and possible tetrahedrite were noted in the drilling.

Conwest intersected gold values up to 2.54 oz/ton over 0.21 m (0.7 feet) in their 1973 drill program (Hole No. 1063-73-2, Sample No. 1729).

9) CHEMICAL ANALYSES:

Mackasey (1976) reported the following:

"Vein chip sample over 12-15 cm assayed 0.05 oz/ton gold
Host chip sample over 30 cm assayed 0.10 oz/ton gold
Selected grab sample assayed 0.38 oz/ton gold"

1981

Sample No.	Au(Oz/T)	Ag(Oz/T)	Sample Description
81-MDC-1	0.01	<0.10	Coarse-grained quartz and carbonate.
81-MDC-2	<0.01	<0.10	Coarse-grained quartz and carbonate.
81-MDC-3	<0.01	<0.10	Quartz vein containing bands of mafic metavolcanics 10-15% asp and minor py.
81-MDC-4	0.01	<0.10	Sheared and altered (sericitized, chloritized, epidotized mafic metavolcanics with 5-10% py).
81-MDC-5	0.01	<0.10	Drill core of quartz-carbonate containing few narrow, thread-like seams of sericite and chlorite.
81-MDC-6	0.11	<0.10	Coarse-grained milky quartz containing large amount of mafic minerals along numerous irregular fractures.

81-MDC-7	0.01	<0.10	Coarse to very coarse-grained milky quartz containing abundant mafic minerals along numerous fractures.
81-MDC-8	<0.01	<0.10	Quartz-carbonate-parallel bands of sericite, epidote carbonate, some porphyry.
81-MDC-9	0.02	<0.10	Coarse-grained, highly and irregularly fractured milky quartz containing mafic minerals along some fractures.
81-MDC-10	0.03	<0.10	Medium to coarse-grained quartz with abundant carbonate with parallel, thread-like seams of mafic minerals along fractures.
81-MDC-11	<0.01	<0.10	Coarse-grained quartz vein with minor carbonate and 1 to 2% scattered sulphides, appears porphyritic on weathered surface.
81-MDC-12	0.13	<0.10	Coarse-grained quartz vein containing some carbonate throughout and mafic minerals (chlorite, epidote, etc.) along some of the quartz fractures. 10-15% sulphides in a seam and also scattered in the quartz and on the fracture surfaces in the form of small crystals (py, asp).

1) PROPERTY NAME: **West-Side Longlac Occurrence (165)**

DATE(S) VISITED: September 26, 1985

2) ALTERNATE NAME(S):

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1933: Claims TB11165 to TB11167 inclusive were staked by H. Cockburn on behalf of Mrs. A. Cockburn.

1934: Surface exploration was conducted and the claims were subsequently transferred to West-Side Longlac Gold Mines Limited. Further surface exploration was conducted.

1935: The claims were transferred to D. R. Michener of West-Side Longlac (Vice-president) and surface exploration continued.

1936: Trenching and diamond drilling were done by West-Side Longlac Gold Mines Limited.

1937: The claims were transferred to the company.

1938: The claims were surveyed.

1939: The claims were transferred back to D. R. Michener of West-Side Longlac.

1942: The claims were patented and the company was listed as inactive in the Canadian Mines Handbook (1942).

1949: The company was dissolved and the patents were later revoked.

1972: The property was restaked by F. W. Stranger (TB346882 to TB346884 inclusive).

1973: The claims were cancelled.

1982: The property was staked by J. C. Pacquette, who subsequently transferred the claims to the Quaternary Mining and Exploration Company Limited.

1983: The claims were transferred to Michael Malouf.

1984: A grid was cut, and magnetometer and electromagnetic surveys were conducted, as well as power stripping, all on a large block of claims covering the West-Side Longlac Occurrence.

CURRENT:

1985: The claims are held by Michael Malouf and are part of an 11 claim block. They are soon to be optioned to a newly incorporated public company called Ferau Resources Incorporated (Malouf, 1984)*. It should be noted that Archibald (1983)* lists these claims and a second block of 36 claims to the east as being held by Ferau Resources Incorporated in 1983. Michael Malouf is also associated with this company.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NE
U.T.M. Zone 16 Northing 5499900
Easting 522200

GENERAL LOCATION:

The claims are located in the northeast corner of Coltham Township, on the east side of West Side Bay.

ACCESS:

The property can be reached by travelling the Trans-Canada Highway #11, 9.5 km east from the turn-off to Geraldton (Highway #584), and southeast on Eldee Lake Road to Long Lake. From this point, the property is accessible by boat, approximately 6.5 km to the northeast on Long Lake. Alternatively, the occurrence is accessible by boat from Longlac.

REFERENCES:

Archibald (1983)*.
Fairbairn (1938).
Malouf (1984)*.
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 46B, Long Lake - Pagwachuan Lake Area (Fairbairn and MacDonald, 1937).
Map P241, Geraldton Sheet (Pye et al.,1964).
Map P1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).

6) GENERAL GEOLOGY AND STRUCTURE:

Refer to the Big Longlac Occurrence for the general geology of the area.

7) MINERALOGY:

Two shear zones have been noted; the first is in banded iron formation which is associated with a feldspar-quartz porphyry dyke, and the second is in hosting porphyry clasts immediately north of a coarse white feldspar porphyry (Fairbairn, 1938).

The shear zone to the north (in banded iron formation) strikes N75°E and contains quartz stringers and sheared lens-like veinlets which carry a considerable amount of pyrite. In the shear zone to the south, small stringers and lenses of quartz carry pyrite, arsenopyrite and galena. Calcite is present in this zone. No visible gold has been reported in either of the zones (Fairbairn, 1938).

8) ECONOMIC FEATURES:

The north shear zone has been traced for 243.8 m (800 feet) east from the shore of West Side Bay, the western 6.0 m (200 feet) of which has a maximum width of 6.1 m (20 feet). Results of the diamond drilling were reported as encouraging (Fairbairn, 1938).

The south zone has been traced for at least 76.2 m (250 feet) and its width varies from 0.3 m (1 foot) to 12.2 m (40 feet). Drilling results are reported as less encouraging than those obtained from the north zone (Fairbairn, 1938).

1) PROPERTY NAME: **Wilkinson Lake Prospect (166)**

DATE(S) VISITED: October 10, 1984
July 4, 1985

2) ALTERNATE NAME(S): New Metalore Occurrence
Douglas Property

3) COMMODITY: MAIN: Au SECONDARY: Ag

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1935: The property was staked by J. F. Pendton for C. E. Burton.

1937-1954: The claim covering the occurrence was transferred four times. Limited work was done on the property.

1955-1969: The claim covering the occurrence was staked nine times by various prospectors, and was subsequently allowed to lapse with no work performed in all but one case (unspecified work was credited to the property in 1964).

1972: Arthur J. Douglas staked the occurrence (claim TB335128).

1973: All interests were transferred to New Metalore Mining Company Limited. The contiguous claim to the east, owned by Mrs. D. Douglas, was also transferred New Metalore at this time.

1974: Power stripping and mechanical trenching, and geological and geophysical surveys (magnetometer, induced polarization) were conducted by New Metalore Mining Company Limited.

1975: Diamond drilling was performed by New Metalore Mining Company Limited (one hole).

1978: The company name was changed to Metalore Resources Limited.

Further power stripping, trenching and assaying were done, followed by a diamond drill program which consisted of twelve holes.

1980: All interests were transferred to Dome Exploration Limited. In the same year, Dome conducted an airborne magnetometer survey and a diamond drilling program which consisted of seven holes.

1981: A grid was cut, and magnetometer and electromagnetic surveys were conducted. An additional four holes were also drilled by Dome Exploration .

1982: All interests were transferred back to Metalore Resources Limited.

1983: The claim was cancelled.

CURRENT:

The occurrence was staked in 1984 and is currently held by Robert Lessard (claim TB802074).

5) LOCATION AND ACCESS:

N.T.S. 42E13/SE
U.T.M. Zone 16 Northing 5518148
Easting 454173

GENERAL LOCATION:

The claim is located in northeastern Elmhirst Township 17.6 km northwest of Jellicoe, on the northwest shore of Wilkinson Lake.

ACCESS:

The property can be reached by driving from the Nezah Station on the Trans-Canada Highway #11, (14.5 km) north on secondary Highway #801 to the Sturgeon River, and then northeasterly 16.1 km on the Domtar Road. The property is also accessible by small plane to Wilkinson Lake.

REFERENCES:

Chilian (1974)*.
Mackasey and Wallace (1978).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 1527, Ontario Mineral Potential - Longlac Sheet (Springer, 1978).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map 2373, Elmhirst and Rickaby Townships (Mackasey and Wallace, 1972).
Map P2514, Wilkinson Lake Area (Speed, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Mackasey and Wallace (1978):

"The map area is underlain by metavolcanics and igneous intrusive rocks of Precambrian age, but a large part is covered by Pleistocene sand and recent swamp deposits. The oldest rocks are Early Precambrian (Archean) metavolcanics ranging from mafic to felsic in composition. More than half the map area is underlain by intermediate to felsic metavolcanics. Most of these are pyroclastic rocks, such as tuff-breccia, crystal tuff and bedded tuff, but massive, amygdaloidal, flow-banded and spherulitic flows are also common. These felsic to intermediate rocks are in conformable contact with a mafic sequence of massive, amygdaloidal and pillow lavas and related breccia, which occurs in the southern and eastern parts of Rickaby Township. The metavolcanics are intruded by Early Precambrian sub-circular stocks of granodiorite, a sill-like body of gabbro, and numerous minor intrusions ranging from granitic to lamprophyric and pyroxenitic in composition. All of these rocks have been metamorphosed to the greenschist facies and are intruded by north-trending Late Precambrian Keweenawan diabase dikes which cut all of the older rocks."

According to Mackasey and Wallace (1978):

"Elmhirst Township lies within the Wabigoon Belt of the Superior Structural Province. The metavolcanics in the map area form the southern limb of a broad west-trending regional fold, and are locally only moderately deformed, with primary volcanic features well preserved. Faults do not form prominent topographic features, but several faults have been inferred at major lithologic contacts."

There is a lack of reliable younging directions in the central and northern parts of the township. Pillows in the mafic sequence in Rickaby Township top to the east, and flow top phenomena in intermediate metavolcanics in southern Elmhirst Township indicate stratigraphic tops to the south (Mackasey and Wallace, 1978). "The simplest interpretation based on the available evidence is that the volcanics within most of the map area (Elmhirst and Rickaby Townships) form an essentially homoclinal sequence dipping steeply to the south." (Mackasey and Wallace, 1978).

Further, Mackasey and Wallace (1978) state:

> "All of the metavolcanics are affected to some degree by a regional east-west foliation...interpreted to parallel the axis of the regional fold...
>
> ...Faults are rarely observed in outcrop, and are generally associated with narrow low-lying linear areas best seen on air photographs.
>
> ...East to northeast-trending shear zones and associated quartz vein systems are common within the metavolcanics. No large displacements are suspected along these zones."

The main vein on the Wilkinson Lake property strikes in a northwesterly direction and dips 78° south.

7) MINERALOGY:

According to Chilian (1974)*:

> "Exploration activity to date has been concentrated on a large quartz vein in a massive porphyritic rhyolite...
> The country rock has been intensely schisted for several feet or more on both sides of the vein. The schist is highly chloritic and fairly well mineralized with fine crystalline pyrite.
>
> ...There are at least two ages of quartz, which vary in appearance from white to blue and sugary to vitreous. On surface, the quartz is rusty in streaks from sulphide weathering.
>
> At the easterly part of the exposure, the vein is well mineralized for 2 to 3 feet from the footwall with galena, sphalerite, chalcopyrite, and pyrite, in that order of abundance."

In addition, bornite, pyrrhotite, ± molybdenite, silver and gold have been noted. Accessory minerals include chlorite, sericite, limonite, ± tourmaline.

8) ECONOMIC FEATURES:

The main vein is approximately 39.6 m (130 feet) long and up to 5.5 m (18 feet) wide. Assays taken from this vein, as well as others, yielded values from trace to 0.59 oz/ton gold and up to 2.40 oz/ton silver. These were chip and bulk samples (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

In 1973, New Metalore Mining Company recorded a chip sample assay of 0.126 oz/ton gold and 0.75 oz/ton silver over 5.0 m (16.5 feet) (Chilian, 1974)*.

According to Chilian (1974)*:

> "Chip samples taken from the hanging wall, in sugary blue quartz, sparsely mineralized with pyrite and minor chalcopyrite in fine massive veinlets, indicate a zone averaging approximately 0.33 ounces gold and 2.00 ounces silver per ton across four to five feet. Two selected grab samples of well mineralized quartz taken by the writer from the footwall and hanging wall assayed 9.85 ounces silver per ton and 0.59 ounces per ton gold respectively. Chip samples taken across the centre of the vein, in sugary white quartz, with minor reddish quartz (not oxidized), sparsely mineralized with sulphides, indicate a lower average of 0.05 ounces gold and 0.25 ounces silver per ton across several feet.
>
> The mineralized schist, comprising the walls on either side of the vein, also carries low values in gold (0.02 to 0.09 ounces per ton)."

In 1978, Metalore Resources recorded assay results obtained from drill core samples. There are a number of significant values, the most notable being 0.44 oz/ton gold over 4.3 m (14 feet), 0.42 oz/ton gold over 2.7 m (8.75 feet) and 0.97 oz/ton gold over 1.8 m (6 feet) in diamond drill holes 78-3, 78-5, and 78-10 respectively. Silver values varied up to 1.10 oz/ton (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

In 1980, Dome Exploration recorded assay results obtained from drill core samples from holes 145-7 to 145-10. The most significant value was 0.28 oz/ton gold over 0.91 m (3 feet) in hole 145-10 (Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay).

9) CHEMICAL ANALYSES:

Sample No.	(Selected Core Samples) Au(Oz/T)/Width	Sample Description
1978 - Metalore Resources		
78-3-3	0.92/1.53 m (5 ft.)	Mixture of schist and quartz in zone of quartz veining.
78-4-10	0.42/0.61 m (2 ft.)	Quartz in sericite-chlorite schist. Fairly coarse pyrite and threads of tourmaline?
78-5-1	0.44/1.37 m (4.5 ft.)	Quartz vein. Smokey, blue and flakey quartz. Sample contains abundant sericite. Clusters of visible gold are noted and were cut from the sample.
1981 - Dome Exploration		
145-10	0.28/0.91 m (3 ft.)	Quartz vein, white to dirty grey and fractured. <5% includi[illegible] fragments of schist, minor specks of pyrite chalcopyrite and galen[illegible] Chlorite fracture fillings.
1984		
84-MWC-1	1.06	Dull white crack-seal quartz vein, with patches and dissemin-ations. Subhedral to euhedral pyrite (7-10% Sericite alteration.
84-MWC-2	0.16	As 84-MWC-1 but higher sulphide content up to 20% fine to coarse disseminated to massiv subhedral pyrite in quartz.

84-MWC-3	0.01	Somewhat sheared and silicified mafic to intermediate meta-volcanics. Minor rust Rare disseminated pyrite.

1) PROPERTY NAME: **Windigo Pete Occurrence (168)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Wendigo Pete Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1940: James Hack held claims TB26546 and TB27167 to TB27172 in McComber Township covering the Windigo Pete Occurrence. The occurrence is situated on claim TB26546. Sylvanite Gold Mines evaluated the property.

1958-1962: Copper Prince Mines Limited completed a geological survey and trenching.

1970: Canadian Nickel Company Limited drilled two holes (one 0.8 km west and one 0.8 km southwest of the occurrence).

1983: Kerr-Addison Mines Limited held a large group of contiguous claims within Summers, McComber and Vincent Townships. The occurrence is situated on claim TB671745.

CURRENT:

1985: Claim TB671745 was cancelled. The ground is presently open.

5) LOCATION AND ACCESS:

42E12/SW
U.T.M. Zone 16 Northing 5493750
Easting 437150

GENERAL LOCATION:

The claim is located in southwestern McComber Township.

ACCESS:

The south portion of McComber Township is accessible by road from the Camproad Creek Road, a bush road that intersects Highway #11, 1.6 km south of Beardmore. Claim lines access the occurrence. An alternative is air transport.

REFERENCES:

Burke (1940)*.
Carter (1983).
Langford (1928).
Peach (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 37K, Beardmore-Nezah Gold Area (Langford, 1928).
Map 1934C, Namewaminikan (Sturgeon) River Area.
Map 2102M, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2853, Precambrian Geology of McComber Township (Carter, 1985).

6) GENERAL GEOLOGY AND STRUCTURE:

The Windigo Pete Occurrence is located in the Southern Metavolcanic Belt (see Ralph Lake Occurrences for geological structure). Burke (1940)* describes the geology of Windigo Pete Occurrence:

"The area is underlain by Keewatin greenstones and iron formation. In the western portion of the property some minor intrusions of Algoman feldspar porphyries have been noted. A still later period of igneous activity is represented by a high ridge of diabase lying just off the western border of the property. Striking north-south and dipping quite flatly to the west this is the same diabase intrusion which is encountered underground at the Northern Empire, Sand River and Leitch."

7) MINERALOGY:

Burke (1940)* describes the mineralogy:

"The main showing on the property occurs near the east boundary of TB26546. At this point stripping and rock trenching has developed a strong shear in greenstone containing irregular lenses of quartz. This zone strikes N80°E and has a pronounced dip of 80° to the north."

8) ECONOMIC FEATURES:

None.

9) CHEMICAL ANALYSES:

Channel samples by Sylvanite Gold Mines assayed up to 0.38 ounce per ton gold (Burke, 1940)*.

WINDIGO PETE OCCURRENCE
McCOMBER TOWNSHIP

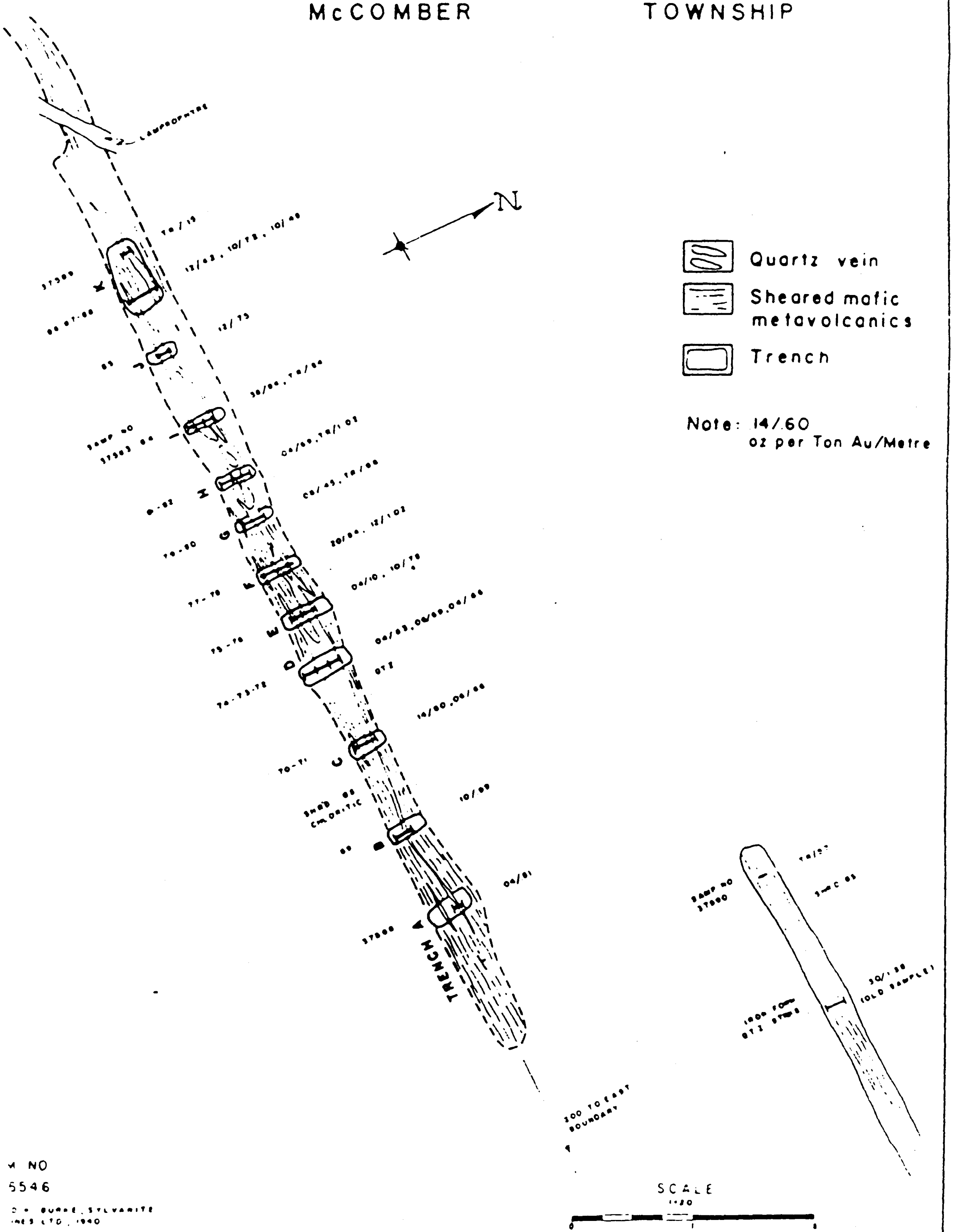


FIGURE 21

1) PROPERTY NAME: **Wodian-Holm Occurrence (220)** DATE(S) VISITED:

2) ALTERNATE NAME(S): Walterson Group Occurrence
Wodian Option

3) COMMODITY: MAIN: Cu SECONDARY: Au, Pb, Zn

4) DEVELOPMENT, HISTORY AND OWNERSHIP:
PAST:

1945: Claims TB31782 to TB31784 inclusive, TB31886 to TB31889 inclusive, TB31960 and TB31961 were staked by Arthur Brisboise.

1946: Claims TB33066 to TB33070 inclusive were staked by C. G. Walterson. The sixteen claim group was optioned to D. M. Morin and C. A. Palangie. Surface exploration, including trenching, pitting, and sampling was done, mainly on claims TB31960 and TB31961, in Croll Township.

1946-1950: Surface work continued, and the option was presumably dropped.

1952: Claims TB31960 and TB31961 were cancelled and restaked by C. G. Walterson as TB44610 and TB44611.

1953: The fourteen claims of the original block were cancelled and surface work continued on the two claims held by C. G. Walterson.

1954: A total of 80 assessment days was credited to each of C. G. Walterson's claims.

1956-1957: The claims were cancelled and restaked as part of a seven claim block covering most of the original claims (TB81482 to TB81485 inclusive, TB87440 and TB87441 in Ashmore Township; TB87442 in Croll Township). John Wodian, who held the claims, performed surface work.

1958: Surface work was again performed by John Wodian.

1959: The claims were cancelled and four claims were restaked by Hilda Holm (TB95245, TB95246 and TB95248 in Ashmore Township; TB95247 in Croll Township).

1960: The claims in Ashmore Township were cancelled and restaked, along with one additional claim, by John Wodian (TB100193 and TB100194) and Hilda Holm (TB100195 and TB100196).

1962: Claims TB103702 and TB103703 (Ashmore Township) were staked by Hilda Holm. All of Holm's claims were transferred to John Wodian. Another two claims which were part of the original Walterson Group were staked by Hilda Holm in Ashmore Township (TB103335 and TB103336). In addition, claims TB103337 to TB103339, inclusive, were staked by John Wodian. A group of 20 claims was optioned to New Bidlamaque Gold Mines Limited, which explored a copper showing on claim TB100195. A grid was cut around the main showing and a magnetometer survey was conducted. Nine holes totalling 380.1 m (1,247 feet) were drilled. The option was later dropped due to discouraging results.

1963: Claims TB103335 and TB103336 and TB100193 to TB100196 inclusive were cancelled.

1964: Claim TB95247 in Croll Township was cancelled.

1965: Claims TB103337 to TB103339 were cancelled. The block was restaked in part by Hilda Holm (TB117817 to TB117819 and TB117821 in Ashmore Township; TB117820 in Croll Township). Manual and mechanical work was performed.

1966: John Wodian continued surface exploration on claims TB103702 and TB103703, which included trenching, stripping, blasting, sampling and diamond drilling. One hole totalling 40.8 m (134 feet) was drilled on claim TB103702.

1967: Manual and mechanical work was performed on the claims. Claims TB132424 to TB192426, inclusive, were staked by Hilda Holm (2 in Ashmore and TB132426 in Croll Township).

1968-1969: Manual and mechanical work was performed.

1970: Surface exploration continued. One hole totalling 48.8 m (160 feet) was drilled on claim TB132424. Claims TB204687 to TB204689, inclusive, were staked by John Wodian to the east of the original Walterson Group in Croll Township.

1971: The above claims were cancelled.

1972: One hole totalling 48.8 m (160 feet) was drilled on claim TB117821 and plans were made to conduct a spontaneous potential survey.

1973: Claims TB103702 and TB103703 were cancelled. Claims TB350205 to TB350207 inclusive were staked by John Wodian in Croll Township.

1974-1976: Manual and mechanical work was performed on John Wodian's claims.

1976: Claims TB117817 to TB117821 were cancelled and were restaked in part by Hilda Holm (TB445978 to TB445981 in Ashmore Township, and TB445982 in Croll Township). Surface exploration continued on the property.

1977: Mechanical and manual work was performed.

1978: Claims TB132424 to TB132426 were cancelled.

1979: Claims TB350207 to TB350209 inclusive and TB445982 were cancelled.

1980: Claims TB445978 to TB445981 inclusive were cancelled and restaked in part by Alexander Wilson. The claims were part of a 10 claim block (TB525561 to TB535564 inclusive in Ashmore Township).

1981: Claims TB631711 to TB631713 inclusive, TB631511 to TB631515 inclusive, and TB632050 were staked by Ozias Theriault. Some of the claims covered a portion of the original Walterson Group in Croll Township.

1982: Claims TB535561 to TB535564, inclusive, were cancelled and restaked by Hilda Holm (TB632234 to TB632237 inclusive).

1983: Claims TB631711 to TB631713, inclusive, were cancelled and restaked in part (TB759234 with three additional claims, TB759235 to TB759237 inclusive) by Ozias Theriault. Power stripping and diamond drilling were done by Ozias Theriault.

1984: Claims cancelled in 1983 were restaked by Ozias Theriault (TB815508, TB815509) and Alexander Wilson (TB813286 and TB813284). Manual work and diamond drilling were performed by Ozias Theriault.

CURRENT:

The majority of the claims comprising the original Walterson group are held by Ozias Theriault. The Wodian-Holm Occurrence presently comprises a 12 claim group consisting of TB631511 to TB631512, TB631514 to TB631515, TB759234 to TB759237, TB815508 to TB815509, TB813284 and TB813286.

5) LOCATION AND ACCESS:

N.T.S. 42E10/NW
U.T.M. Northing 5503800
Easting 512750

GENERAL LOCATION:

The claim group is located in southeastern Ashmore and southwestern Croll Township, south of Trans-Canada Highway #11.

ACCESS:

Follow Highway #11, 9.5 km (5.9 miles) east of the turn-off to Geraldton (Highway #584) to the Eldee Lake Road, which crosses the property immediately to the south.

REFERENCES:

Ennis (1946)*.
Gledhill (1962)*.
Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.

MAP REFERENCES:

Map 1951-2, Township of Ashmore (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al.,1966).
Map P2520, Geraldton Sheet (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

Horwood and Pye (1951) have described the general geology of the property as follows:

"The Walterson property is underlain by Keewatin lavas and occasional interflow bands of volcanic breccia of general east-northeast strike, by large sill-like masses of intrusive hornblende diorite, and by one narrow, north-south dike of Pre-Keweenawan quartz diabase. The lavas, although highly chloritized and carbonatized, are of intermediate or basic composition. A few are quite massive in character, particularly in the west section of the property, but most of them have been highly sheared and any original structures to a large extent obliterated.

Vestiges of amygdaloidal and pillow structures, although locally evident, do not afford any reliable means of determining tops and bottoms. Much of the diorite is fine-to-medium-grained, not unlike some of the flow rocks in appearance. Many outcrops, however, consist of coarse-grained diorite with large, well-developed crystals of hornblende."

According to Ennis (1946)*:
"The claims overlie a part of the north limb of a synclinal fold in a belt of Keewatin lavas which strike approximately S70°W through the north part of the Little Longlac area."

Two gold occurrences have been exposed in Croll Township. On claim TB31961, a shear zone strikes N70°E. It occurs within the lavas and parallels the contact between lavas and a narrow sill of diorite porphyry. On claim TB31960, some 243.8 m (800 feet) southeast of the shear on TB31961, a vein of white to blue quartz occurs in a shear within volcanic rocks. The vein strikes about N70°E (Ennis, 1946)*. Copper mineralization is associated with altered and bleached feldspar porphyry (Gledhill, 1962)*.

Also refer to the Mineral Lake Occurrences.

7) MINERALOGY:

Mineralization in the gold showings exposed in Croll Township consists of coarse massive chalcopyrite, fine cubic pyrite, galena, sphalerite, and gold. The only gangue mineral noted is quartz. Mineralization extends from the veins themselves into the lightly sheared wallrock, though only small amounts of chalcopyrite have been noted (Ennis, 1946)*.

Copper mineralization in Ashmore Township consists of replacement chalcopyrite and pyrrhotite in zones of altered bands of feldspar porphyry (Gledhill, 1962)*.

8) ECONOMIC FEATURES:

The shear zone on claim TB39161 varies from 0.3 to 1.83 m (1 to 6 feet) in width and has been traced for about 152.4 m (500 feet). Values range from 0.06 to 0.32 oz/ton gold over widths up to 1.22 m (4 feet) (Ennis, 1946)*.

The shear zone on claim TB31960 varies from 1.52 to 2.44 m (5 to 8 feet) in width where it is exposed. It has been exposed for about 76.2 m (250 feet) and traced by probing for another 91.4 m (300 feet). Values range from 0.06 to 0.44 oz/ton gold over widths of up to 0.66 m (2.17 feet) (Ennis, 1946)*.

Core samples from New Bidlamaque Gold Mines drilling in 1962 yielded values up to 1.78% copper (Gledhill, 1962)*.

9) CHEMICAL ANALYSES:

1946 - D. M. Morin and C. A. Palangio

Sample	Claim	Sample Width	$Au	Oz/T Au+	Sample Description
1	TB31961	1.22m(4.0 ft.)	5.60	0.16	Sheared lava and quartz with chalcopyrite.
2	TB31961	0.46m(1.5 ft.)	2.10	0.06	Sheared lava and quartz with chalcopyrite.
3	TB31961	Grab	11.20	0.32	Quartz with chalcopyrite.
4	TB31961	Grab	1.75	0.05	Quartz with chalcopyrite.
5	TB31961	0.61m(2.0 ft.)	7.00	0.20	Quartz and shear with chalcopyrite.
1	TB31960	0.66m(2.17ft.)	15.35	0.44	Glassy quartz with chalcopyrite.
2	TB31960	0.36m(1.17ft.)	7.00	0.20	Glassy quartz with chalcopyrite.
3	TB31960	0.20m(0.67ft.)	2.10	0.06	Glassy quartz with chalcopyrite.
4	TB31960	Grab	11.20	0.32	Glassy quartz with chalcopyrite.
5	TB31960	Grab	5.60	0.16	Glassy quartz with chalcopyrite.
6	TB31960	0.46m(1.5 ft.)	4.20	0.12	Glassy quartz with chalcopyrite.

1962 - New Bidlamaque Gold Mines Limited
Selected Core Samples

Hole No.	Sample No.	Core Length	%Cu	Sample Description
NBW-1	W-1	0.15m (0.5 ft.)	0.45	Quartz vein with pyrrhotite and chalcopyrite.
NBW-1	W-11	0.61m (2.0 ft.)	0.31	Quartz-carbonate vein with 1% pyrrhotite and chalcopyrite.
NBW-6	W-59	0.34m (1.1 ft.)	1.00	Feldspar porphyry with 10% sulphides (chalcopyrite and pyrrhotite).
NBW-6	W-60	0.18m (0.6 ft.)	0.23	Feldspar porphyry with minor sulphides (chalcopyrite and pyrrhotite).
NBW-7	W-74	0.15m (0.5 ft.)	0.87	Bleached feldspar porphyry containing 8% sulphides (chalcopyrite and pyrrhotite).
NBW-7	W-75	0.52m (1.7 ft.)	1.78	As above, 15% sulphides.
NBW-7	W-76	0.15m (0.5 ft.)	0.43	As above, 10% sulphides.
NBW-7	W-77	0.30m (1.0 ft.)	0.88	As above, 5% sulphides.
NBW-9	W-80	0.30m (1.0 ft.)	0.28	Quartz feldspar porphyry.

1) PROPERTY NAME: **Woods Mac Occurrence (170)** DATE(S) VISITED:

2) ALTERANTE NAME(S): Wods Mac Holdings Occurrence
Lac Development Occurrence

3) COMMODITY: MAIN: Au SECONDARY:

4) DEVELOPMENT, HISTORY AND OWNERSHIP:

PAST:

1931: Claims TB10159 to TB10161, inclusive, were staked by Oscar Savoil. Claims TB10163 to TB10165, inclusive, were staked by Peter Gagnon.

1932: Oscar Savoil's claims were cancelled and Peter Gagnon conducted surface exploration on his claims.

1933: Peter Gagnon restaked the former Savoil property (TB10971, TB11305 and TB11306) and continued with surface exploration.

1934: Lac Development Limited was incorporated by A. E. Tyson and G. W. Rayner. The six claim block was optioned from Peter Gagnon. Trenching and stripping were done. Three holes totalling 399.5 m (1,310 feet) were drilled by Lac Development Limited. Operations were suspended and the option was later dropped.

1936: The six claims were optioned to A. M. Gillespie. An agreement was reached whereby Woods Mac Holdings acquired ownership of the six claims.

1937: Claims TB10162 to TB10164 inclusive were patented by Woods Mac Holdings.

1939: Claim TB10171 was patented by Woods Mac Holdings.

1944-1949: Claims TB11305 and TB11306 were cancelled and restaked four times by various individuals and were eventually acquired by Hard Rock Gold Mines Limited.

CURRENT:

No further mention is made of Woods Mac Holdings in the literature. The four claims are currently shown on the claim map as being patented.

5) LOCATION AND ACCESS

N.T.S. 42E10/NW
U.T.M. Zone 16 Northing 5503750
Easting 510200

GENERAL LOCATION:

The property is located in Ashmore Township, immediately northwest of Eldee Lake.

ACCESS:

The property is easily accessible from Trans-Canada Highway #11, which crosses the northeastern portion of the claim block 6.2 km east of the turn-off to Geraldton (Highway #584).

REFERENCES:

Bruce (1935).
Horwood and Pye (1951).
Resident Geologist's Files, Ontario Ministry of Northern Development and Mines, Thunder Bay.
Thomson, (1935)*.

MAP REFERENCES:

Map 44D, Little Longlac Gold Area, Thunder Bay District, Ontario (Bruce, 1935).
Map 1515-2, Township of Ashmore (Horwood and Pye, 1951).
Map 2102, Tashota-Geraldton Compilation Sheet (Pye et al., 1966).
Map P2520, Geraldton Area (Love, 1982).

6) GENERAL GEOLOGY AND STRUCTURE:

According to Horwood and Pye (1951):

"Except for a few outcrops of greenstone in the north-east corner of claim T.B.10971, the Wods Mac group is underlain by Timiskaming-type conglomerates, which, to the south, grade into a thick series of greywackes and slates with a few narrow bands of iron formation. Intrusive into the sedimentary rocks are sill-like, lenticular masses of hornblende diorite and younger albite porphyry. The formations strike across the property in a general west-northwest direction and dip south at about 65 degrees. To the southeast they are offset about 1,200 feet to the south by a transverse fault which strikes N40°-50°E across the claim group."

7) MINERALOGY:

Horwood and Pye (1951) describe the mineralogy:

"Twenty feet north of the north boundary of claim T.B.10971, a lenticular quartz vein up to 18 inches wide has been opened up on the surface by trenching for a length of about 200 feet. This vein strikes N72°E across the greenstones north of the porphyry intrusives and dips 65°S. Associated with the quartz are a little pyrite, pyrrhotite, chalcopyrite, and coarse visible gold. The relations of these minerals to one another and to the quartz filling have been described by J. Ellis Thomson[2] as follows:

> 'The chief metallic minerals (in the polished section studied) are pyrrhotite and chalcopyrite, but it contains also considerable pyrite. These metallic minerals are associated with a quartz gangue. The chalcopyrite and the pyrrhotite occur as fillings of small veins cutting across the gangue material. Pyrite occurs as ragged remnants of crystals or aggregations of crystals scattered through the larger areas of pyrrhotite and chalcopyrite or as small crystals scattered sparsely through the gangue. The order of deposition appears to have been: (1) earlier pyrite, (2) quartz, (3) pyrrhotite and chalcopyrite, (4) later pyrite.'

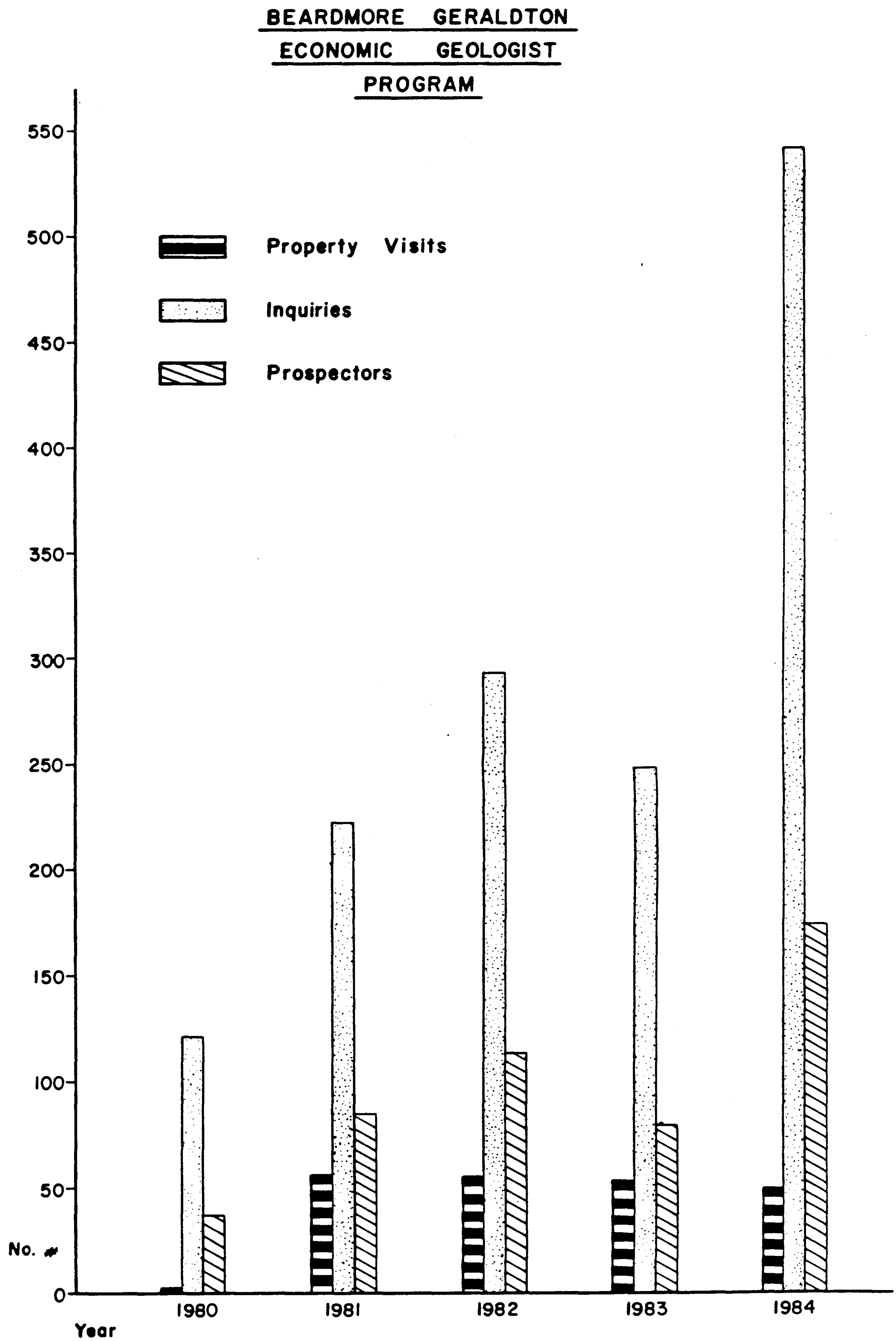
Ninety feet to the south of the north vein there is a parallel structure, up to 6 inches in width, which strikes obliquely across the northern greenstone-porphyry contact and dips to the south at 70 to 75 degrees. This vein is similar to the one described.

...The occurrence of gold in the two structures induced Lac Development to test the veins by diamond drilling, and during the summer of 1934 three holes, having a total footage of 1,310 feet, were bored. The values encountered in the cores proved to be low, and, consequent upon failure to find economic mineralization elsewhere on the property, operations were suspended."

8) <u>CHEMICAL ANALYSES</u>:

None.

Appendix B



NOTE: The Program Start Up date was April 1981

Figure 1

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TABLE 1

Mining claim options made related to activities of the Beardmore-Geraldton Economic Geologist Program

Property	Owner	Optioner
Con Creek	N.Cox- D.Thorsteinson	Cane Consolidated-Americ Mines
Roche Longlac	S.Wilson- F.Draper	Great Western Petroleum Corp.
Maki		Pan-Continental Mining (Can.) Ltd.
Maki	N.&M. Maki-	Eldor Resources
Maki	B. Cousineau	Quinterra Resources Inc. (Highland-Crow Resources)
Pichette	G.&L. Pichette	Canamax
Pichette	G.&L. Pichette	Quinterra Resources Inc. (Highland-Crow Resources)
Maki(W.Block & Key Claim)	N.&M. Maki	Stroud Resources
Watson Lake	A.Hopkins	Bema Industries
Maloney Sturgeon	G.Harder	Manwa Explor. Serv. Ltd.
Latimer(Legault Twp.)	G.Harder	Manwa Explor. Serv. Ltd.
Irwin-Walters Twp.	(staked claims)	Exxeter Minerals
Croll L. Area	(staked claims)	Metallgesellschaft Can. Ltd.
J.J. Green	M.Reiter	Atlantic Mining Corp.
J.Ternowesky-P.Skalesky (Twin Falls)	J.Ternowesky- P. Skalesky	Atlantic Mining Corp.
Crooked Green Creek Mine	B.Cowan (Northern Concentrators)	Great Western Petroleum Corp.- Anglo Canadian Mining Corp.
Hillsborough	Hillsborough	Great Western Petroleum Corp.- Anglo Canadian Mining Corp.
Wascanna Prospect	A.Lafontaine- S.Robertson	Teck Explorations
Maki-McComber Occurrence	N.&M. Maki	Stroud Resources
Ralph Lake Occurrences	P.Skalesky- J.Ternowesky- A.Baarts	Aggen Inc.

(all gold properties with exception of Con Creek)

TABLE 2

NEW COMPANIES BROUGHT INTO BEARDMORE-GERALDTON AREA FOR MINERAL EXPLORATION OR WHO HAVE/HAD GREATLY EXPANDED THEIR EXPLORATION PROGRAMS, AS A RESULT OF THE BEARDMORE-GERALDTON ECONOMIC GEOLOGIST PROGRAM

ABERFORD RESOURCES LTD.
300-5th Avenue S.W.
Bag 2533, Station "M"
Calgary, Alberta
T2P 2M7

AGGEN INC.
P.O. Box 2116
Peterborough, Ontario
K9L 7Y4

AMERIC MINES LTD.
3301, 1055 Dorchester Blvd. W.
Montreal, Quebec
H3B 3T1

ANGLO CANADIAN MINING CORP.
713-744 W. Hastings Street
Vancouver, British Columbia
V6C 1A5

ASAMERA INC.
2100, 144-4th Avenue S.W.
Calgary, Alberta
T2P 3N4

BRIDGEWEST DEVELOPMENT CORP.
1500 Stock Exchange Tower
Vancouver, British Columbia

CANE RESOURCES LTD.
908, 111 Richmond St. W.
Toronto, Ontario
M5H 2G4

CHRISTIANSON AND SONS
R.R. #14
Dog Lake Road
Thunder Bay, Ontario
P7B 5E5

ELDOR RESOURCES LTD.
Ste. 400, 255 Albert St.
Ottawa, Ontario
K1P 6A9

EXXETER RESOURCES CORP.
410, 100 Adelaide St. W.
Toronto, Ontario
M5H 1S3

GML MINERALS CONSULTING LTD.
13115 Lake Crimson Drive S.E.
Calgary, Alberta
T2J 3K3

GREAT WESTERN PETROLEUM CORP.
718-744 W. Hastings Street
Vancouver, British Columbia
V6C 1A5

MANWA EXPLORATION SERVICES LTD.
P.O. Box 4
370-625 Howe Street
Vancouver, British Columbia
V6C 2T6

METALLGESELLSCHAFT CANADA LTD.
3100, 3 Bloor Street East
Toronto, Ontario
M4W 1A8

METALORE RESOURCES LTD.
Simcoe, Ontario
N3Y 4L5

NORANDA EXPLORATION CO. LTD.
P.O. Box 2656
960 Alloy Drive
Thunder Bay, Ontario
P7B 5G2

PODANY MINING
Suite 445
3433 Broadway St. N.E.
Minneapolis, Minnesota
55413

PANCONTINENTAL MINING (CAN.) LTD.
Ste. 600, 365 Bay Street
Toronto, Ontario
M5H 2V1

QUINTERRA RESOURCES INC.
321 Algonquin Avenue
P.O. Box 447
North Bay, Ontario

STROUD RESOURCES LTD.
74 Victoria Street
Toronto, Ontario
M5C 2A5

TABLE 3

1980

Resident Geologist

Month	Property Visits	Inquiries	Prospectors Dealt With
January	0	11	2
February	0	12	3
March	0	11	2
April	0	12	2
May	1	13	4
June	1	13	4
July	1	5	3
August	0	4	2
September	0	8	2
October	0	8	2
November	0	12	6
December	0	12	5
	3	121	37

1981

Resident Geologist

Month	Property Visits	Inquiries	Prospectors Dealt With
January	0	6	2
February	1	5	1
March	0	5	1
	1	16	4

1981

(Start of Beardmore-Geraldton Economic Geologist Program)

Beardmore-Geraldton Economic Geologists

Month	Property Visits	Inquiries	Prospectors Dealt With	Cumulative Total Companies Conducting Exploration Since Program Started
April	2	5	3	
May	5	8	5	
June	13	18	8	
July	8	29	9	
August	8	23	11	
September	9	25	10	
October	4	37	14	
November	6	42	13	
December	1	19	8	
	55	206	81	

1982

Month	Property Visits	Inquiries	Prospectors Dealt With	Cumulative Total Companies Conducting Exploration Since Program Started
January	0	27	12	
February	2	29	10	
March	0	35	9	
April	1	10	4	
May	2	11	4	
June	13	26	20	
July	12	24	9	
August	8	28	11	
September	9	33	15	43
October	6	30	10	
November	1	23	5	
December	1	17	8	
	55	293	113	

1983

Month	Property Visits	Inquiries	Prospectors Dealt With	Cumulative Total Companies Conducting Exploration Since Program Started
January	0	13	5	
February	1	26	7	
March	1	22	10	
April	1	18	6	
May	2	26	12	
June	9	24	5	
July	8	26	6	82
August	8	18	5	
September	13	30	8	
October	9	26	10	
November	0	12	4	
December	1	7	1	
	53	248	79	

1984

Month	Property Visits	Inquiries	Prospectors Dealt With	Cumulative Total Companies Conducting Exploration Since Program Started
January	0	19	8	
February	1	12	7	
March	0	19	5	
April	0	31	5	
May	10	125	38	
June	12	88	27	
July	9	72	29	
August	8	41	17	
September	3	37	8	
October	4	49	13	
November	1	28	10	
December	1	21	7	107
	49	542	174	

657

TABLE 4

COMPANIES INVOLVED IN EXPLORATION
BEARDMORE-GERALDTON AREA
1981-1985

ABERFORD RESOURCES LTD.
300-5th Avenue S.W.
Bag 2533, Station "M"
Calgary, Alberta
T2P 2M7

AGGEN INC.
P.O. Box 2116
Peterborough, Ontario
K9J 7Y4

ALCARE RESOURCES INC.
12, 1577 W. Broadway
Vancouver, British Columbia

AMERIC MINES LTD.
3301, 1055 Dorchester Blvd. W.
Montreal, Quebec
H3B 3T1

ANGLO CANADIAN MINING CORP.
713-744 W. Hastings Street
Vancouver, British Columbia
V6C 1A5

ANYOX METALS LTD.
1404, 7 King Street E.
Toronto, Ontario
M5C 1A2

ASAMERA INC.
1404, 7 King Street E.
Toronto, Ontario
M5C 1A2

ASARCO EXPLORATION CO. OF CANADA LTD.
12th Floor, 350 Bay Street
Toronto, Ontario
M5J 2S6

ASIA OIL AND MINERALS LTD.
6 Cross Street
Double Bay
N.S.W., Australia

ATLANTIC MINING CORP.
Suite 200, 1751 W. County Rd. B.
Roseville, Minnesota
55113

AUGMITTO EXPLORATIONS LTD.
500, 67 Richmond St. W.
Toronto, Ontario
M5H 1Z5

BP/SELCO
1173 Roland Street
Thunder Bay, Ontario
P7B 2M5

BEMA INDUSTRIES LTD.
Ste. 203, 19945-56th Ave.
Langley, British Columbia
V3A 3Y2

BEN NELSON LTD.
Jellicoe, Ontario
POT 1VO

BRIDGEWEST DEVELOPMENT CORP.
1500 Stock Exchange Tower
Vancouver, British Columbia

BRUNEAU MINING CORP.
1100, 181 University Avenue
Toronto, Ontario
M5H 3M7

CACHE D'OR RESOURCES INC.
795 Third Avenue
P.O. Box 62
Val d'Or, Quebec
J9P 4N9

CALLISTRO MINERALS INC.
c/o P.O. Box 4225
Station "E"
Ottawa, Ontario
K1S 5B2

CANADIAN GOLD RESOURCES INC.
34, 1565 Britannia Rd. E.
Mississauga, Ontario
L4W 2M4

CANADIAN NICKEL CO.
Hwy. #17 West
Copper Cliff, Ontario
POM 1NO

CANADIAN REYNOLDS METALS CO. LTD.
1100 Sherbrooke St. W.
Montreal, Quebec
H3A 1G7

CANADIAN UNITED MINERALS INC.
Suite 602, 675 West Hastings St.
Vancouver, British Columbia
V6B 1N2

CANAMAX RESOURCES INC.
1100-181 University Ave.
Toronto, Ontario
M5H 3M7

CANE RESOURCES LTD.
908, 111 Richmond St. W.
Toronto, Ontario
M5H 2G4

CARLING GOLD RESOURCES INC.
80 Richmond St. W.
Ste. 1501
Toronto, Ontario
M5H 2A4

CHRISTIANSON AND SONS
R.R. #14
Dog Lake Road
Thunder Bay, Ontario
P7B 5E5

COASTORO RESOURCES LTD.
1275, 555 Burrand St.
Vancouver, British Columbia
V7X 1J8

COMINCO
Ste. 1700-120 Adelaide St. W.
Toronto, Ontario
M5H 1T1

CONSCOT RESOURCES LTD.
1201-121 Richmond St. W.
Toronto, Ontario
M5H 2K7
(former Cotton Valley
Resources Inc.)

CONSOLIDATED LOUANNA GOLD
MINES LTD.
402, 27 Queen St. E.
Toronto, Ontario
M5C 2M6

CORPORATION FALCONBRIDGE COPPER
2606 Victoria Ave. E.
Thunder Bay, Ontario
P7C 1E7

CRASKIE MINES LTD.
P.O. Box 28
Toronto-Dominion Centre
Toronto, Ontario
M5K 1B8

CUMBERLAND RESOURCES
c/o Bill McCrindle
77 Winnipeg Ave.
Thunder Bay, Ontario
P7P 3P9

CUMO RESOURCES
1106, 700 W. Pender St.
Vancouver, British Columbia
V6C 1G8

L. J. CUNNINGHAM AND
ASSOCIATES LTD.
1 McPhee Avenue
Kirkland Lake, Ontario
P2N 1M1

D.D.H. GEOMANAGEMENT
1275, 555 Burrand St.
Vancouver, British Columbia
V7X 1J6

DEJOUR MINES LTD.
2302, 401 Bay St.
Toronto, Ontario
M5H 2Y4

DOME EXPLORATION (CAN.) LTD.
P.O. Box 270
1 First Canadian Place
Toronto, Ontario
M5X 1H1

ELDOR RESOURCES LTD.
Ste. 400, 255 Albert St.
Ottawa, Ontario
K1P 6A9

EXXETER RESOURCES CORP.
410, 100 Adelaide St. W.
Toronto, Ontario
M5H 1S3

ESSO MINERALS CANADA
P.O. Box 4029, Terminal "A"
120 Adelaide St. W.
Toronto, Ontario
M5W 1K3

EXCHANGE MINING
35 Allenbrooke
Dollard des Ormeau, Quebec
H9A 3S7

FALCONBRIDGE NICKEL MINES LTD.
100-3074 Portage Ave.
Winnipeg, Manitoba
R3K OY2

FIELD RESOURCES
c/o Middleton Explor. Serv.
Box 1637
Timmins, Ontario
P4N 7N2

FORESTER RES. INC.
Ste. 11 & 12
1585B Britannia Rd. E.
Mississauga, Ontario
L4W 2M4

GML MINERALS CONSULTING LTD.
13115 Lake Crimson Dr. S.E.
Calgary, Alberta
T2J 3K3

GETTY MINES LTD.
1200, 150 York St.
Toronto, Ontario
M5H 3S5

GOLDEN TIGER MINING EXPLOR.
CO. INC.
Ste. 701-276 Rue St. Jacques
Dollard-Des-Ormeaux, Quebec
H2Y 1N3

GOLDFIELDS MINING CORPORATION
Ste. 335, 230 Lakeshore Rd. E.
Mississauga, Ontario
L5G 1G8

GRAHAM MINING LTD.
18 Beaver Drive
Manitouwadge, Ontario
POT 2CO

GREAT WESTERN PETROLEUM CORP.
718-744 W. Hastings St.
Vancouver, British Columbia
V6C 1A5

W. G. HAINSWORTH & ASSOCIATES
LTD.
Ste. 905-837 W. Hastings St.
Vancouver, British Columbia
V6C 1B6

D. G. HARDER GEOSERVICES LTD.
51 Hillcrest Ave.
P.O. Box 1360
Deep River, Ontario
KOJ 1PO

HARTE RESOURCES LTD.
402, 27 Queen St. E.
Toronto, Ontario
M5C 2M6

HILL, GOETTLER & DELAPORTE
LTD.
9-80 Richmond St. W.
Toronto, Ontario
M5H 2C7

HILLSBOROUGH EXPLOR. LTD.
1001, 11 Adelaide St. W.
Toronto, Ontario
M5H 1L9

HOLLINGER ARGUS LTD.
P.O. Box 320
Timmins, Ontario
P4N 7E2

HOLMER GOLD MINES
500, 67 Richmond St. W.
Toronto, Ontario
M5H 1Z5

HOLMWOOD RESOURCES LTD.
P.O. Box 154
Geraldton, Ontario
POT 1MO

HOMESTAKE MINERAL DEV. CO.
Ste. 201, 856 Homer St.
Vancouver, British Columbia
V6B 2W5

HUDSON BAY EXPLOR. &
DEVELOPMENT CO. LTD.
P.O. Box 28
Toronto-Dominion Centre
Toronto, Ontario
M5K 1B8

D. G. INNES & ASSOCIATES
LTD.
R.R. #1 Wasi Road
Callander, Ontario
POH 1HO

JONPOL EXPLOR. LTD.
111 Richmond St. W.
Ste. 908
Toronto, Ontario
M5H 2G4

KEEZIC RESOURCES LTD.
501, 25 Adelaide St. W.
Toronto, Ontario
M5H 1N7

KENBAY ENTERPRISES LTD.
92 Penfold St.
Thunder Bay, Ontario
P7A 3K2

KENGATE RESOURCES INC.
11 Adelaide St. W.
Ste. 705
Toronto, Ontario
M5H 1L9

KENNCO EXPLOR. (CANADA) LTD.
Suite 1710, National Bank
Building
150 York St.
Toronto, Ontario
M5H 3S5

KERR-ADDISON MINES LTD.
P.O. Box 91, Commerce
Court W.
Toronto, Ontario
M5L 1C7

KEY LAKE EXPLOR. LTD.
2319, 401 Bay St.
Toronto, Ontario
M5H 2Y4

KIDD CREEK MINES LTD.
P.O. Box 175
Ste. 5000, Commerce
Court W.
Toronto, Ontario
M5L 1E7

LAC MINERALS LTD.
Suite 485, 146 Front St. W.
Toronto, Ontario
M5J 2L7

LACANA MINING CORP.
P.O. Box 354
Toronto-Dominion Centre
Toronto, Ontario
M5K 1K7

LINCOLN RESOURCES INC.
1440, 625 Howe St.
Vancouver, British Columbia
V6C 2T6

LYNX-CANADA EXPLOR. LTD.
Ste. 1513-25 Adelaide St. E.
Toronto, Ontario
M5C 1Y2

MPH CONSULTING LTD.
120 Adelaide St. W.
Ste. 2406
Toronto, Ontario
M5H 1T1

MANWA EXPLOR. SERV. LTD.
P.O. Box 4
370-625 Howe St.
Vancouver, British Columbia
V6C 2T6

MEALEY EXPLORATIONS
R.R. #1
Murillo, Ontario
POT 2GO

METALLGESELLSCHAFT CAN. LTD.
3100, 2 Bloor St. E.
Toronto, Ontario
M5W 1A8

METALORE RESOURCES LTD.
SIMCOE, Ontairo
N3Y 4L5

MINING CORP. OF CAN. LTD.
P.O. Box 2007
South Porcupine, Ontario
PON 1HO

MISSTASSINI DEVELOPMENT INC.
Baie Du Poste
Misstassini, Quebec
GOW 1CO

MONOPROS LIMITED
P.O. Box 6
Thunder Bay, Ontario
P7C 4V5

MUSCOCHO EXPLOR. LTD.
Suite 601 - 25 Adelaide St. E.
Toronto, Ontario
M5C 1Y2

N.W.T. COPPER MINES LTD.
427, 12 Richmond St. E.
Toronto, Ontario
M5C 1N1

H. E. NEAL & ASSOCIATES
606-55 Queen St. E.
Toronto, Ontario
M5C 1R6

NEW ARCADIA EXPLOR. LTD.
1300, 1090 W. Georgia St.
Vancouver, British Columbia
V6E 3X9

NEW JERSEY ZINC
(Not in Canada)

NEWMONT EXPLOR. OF CAN. LTD.
29 Beaver Crescent
North Bay, Ontario
P1A 3N1

NORANDA EXPLOR. CO. LTD.
P.O. Box 2656
960 Alloy Drive
Thunder Bay, Ontario
P7B 5G2

NORBEAU MINES INC.
23 Edenbridge Drive
Islington, Ontario
M9A 3E8

NORMINE RESOURCES LTD.
Ste. 38-566 Cardero St.
Vancouver, British Columbia
V6G 2W6

NORONTEX EXPLOR. LTD.
R.R. #1, Site 11
Box 7
Dryden, Ontario
P8N 2Y4

PODANY MINING
Minneapolis, Minnesota

NORTHERN CONCENTRATORS LTD.
186 Shipyard Road
Thunder Bay, Ontario

NORTHWEST GEOPHYSICS LTD.
Box 3263
Thunder Bay, Ontario
P7B 5G7

OREQUEST CONSULTANTS LTD.
404-595 Howe St.
Vancouver, British Columbia
V6C 2T5

PANCONTINENTAL MINING (CAN.) LTD.
Ste. 600, 365 Bay St.
Toronto, Ontario
M5H 2V1

PHANTOM EXPLORATION
R.R. #14
Alice Ave.
Thunder Bay, Ontario
P7B 5E5

PHOENIX GEOPHYSICS
200 Yorkland Blvd.
Willowdale, Ontario
M2J 1R5

PHOENIX GOLD MINES LTD.
166 Pearl St.
Toronto, Ontario
M5H 1L3

PRICEMORE RESOURCES INC.
4800, 1 First Canadian Place
Toronto, Ontario
M5X 1A9

PUDIFIN & CO.
Sullivan Road
Val d'Or, Quebec

THE QUATERNARY MINING & CO. LTD.
P.O. Box 730
Geraldton, Ontario
POT 1MO

QUINTERRA RESOURCES INC.
321 Algonquin Ave.
P.O. Box 447
North Bay, Ontario
P1B 8J1

RIO ALGOM EXPLOR. INC.
120 Adelaide St. W.
Toronto, Ontario
M5H 1W5

ROXMARK MINES
S. E. Malouf Consulting
Geol. Ltd.
23 Edenbridge Drive
Islington, Ontario
M9A 3E8

SANDEX MINING ENTERPRISES
P.O. Box 89
Beardmore, Ontario
POT 1GO

SHERRITT GORDON MINES LTD.
Lynn Lake, Manitoba
ROB OWO

SHIELD GEOPHYSICS LTD.
P.O. Box 630
Timmins, Ontario
P4N 7G2

STROUD RESOURCES LTD.
74 Victoria St.
Toronto, Ontario
M5C 2A5

SYNGOLD LTD.
553, Site 6, Comp. 20
Penetang, Ontario
LOK 1PO

T.C.L. EXPLORATIONS LTD.

TANTALUM MINING CORP. OF
CAN. LTD.
P.O. Box 28
Toronto-Dominion Centre
Toronto, Ontario
M5K 1B8

TASHOTA-NIPIGON MINES LTD.
520, 25 Adelaide St. E.
Toronto, Ontario
M5C 1Y2

TECK CORPORATION
Ste. 7000, 1 First Canadian Place
Toronto, Ontario
M5X 1G9

TENACITY MINES
132 Robinson Drive
Thunder Bay, Ontario
P7A 6G5

THORCO GOLD FINDERS INC.
601, 10 King St. E.
Toronto, Ontario
M5C 1C3

THYSSEN MINING CONSTRUCTION OF
CAN. LTD.
P.O. Box 1997
2409 Albert St. N.
Regina, Saskatchewan
S4P 3E1

JAMES E. TILSLEY & ASSOCIATES
5 Steeplechase Ave.
Aurora, Ontario
L4G 3G8

TOMBILL MINES
P.O. Box 28
Toronto-Dominion Centre
Toronto, Ontario
M5K 1B8

TRANSWAY EXPLORATIONS
45 Richmond St. W.
Toronto, Ontario
M5H 1Z2

TROOP EXPLORATION
Ste. 1855
P.O. Box 1611
Commerce Court W.
Toronto, Ontario
M5L 1E7

TURNER ENERGY & RESOURCES LTD.
Ste. 300-800 W. Pender St.
Vancouver, British Columbia
V6C 2V8

UTAH MINES LTD.
1238 Riverside Drive
Timmins, Ontario
P4R 1A4

VILLENEUVE RESOURCES
General Delivery
Longlac, Ontario
POT 2A1

WASABI RESOURCES LTD.
916, 111 Richmond St. W.
Toronto, Ontario
M5H 2G4

TABLE 5 PROSPECTORS, ENGINEERS AND GEOLOGISTS
BEARDMORE-GERALDTON AREA

ALANKO, Arthur
R.R. #1
Dorion, Ontario
POT 1KO

ALBERT, Onesime
P.O. Box 158
Longlac, Ontario
POT 2AO

ATKINSON, Brian
c/o Mr. G. Atkinson
P.O. Box 2395
Manitouwadge, Ontario
POT 2CO

BEAUDRY, Henry
(Thyssen Mining Constr. of
Can. Ltd.)
P.O. Box 1997
2409 Albert St. W.
Regina, Saskatchewan
S4P 3E1

BETCHERMAN, Phil
112 College St.
Thunder Bay, Ontario

BLANCHETTE, E. A.
159 Machar Ave.
Thunder Bay, Ontario
P7B 2Y7

BOYLE, Hugh
Thyssen Mining Co. Ltd.
779 River St.
Thunder Bay, Ontario
P7A 3S7

BRINKLOW, L.
7 Wenonah
Manitouwadge, Ontario
POT 2CO

BROWN, Phillip
R.R. #1
Corbeil, Ontario
POH 1KO

BRUCE, Gerry
General Delivery
Jellicoe, Ontario
POT 1VO

BRUGGER, Paul
P.O. Box 238
Beardmore, Ontario
POT 1GO

CANADY, Ed
General Delivery
Jellicoe, Ontario
POT 1VO

CHILIAN, George
Metalore Resources
P.O. Box 195
Beardmore, Ontario
POT 1GO

CIESZYNSKI, Henry
Apt. #201
1 Royal Orchard Blvd.
Thornhill, Ontario
L3T 3C1

CLARK, Don
P.O. Box 2417
Thunder Bay, Ontario
P7B 5E9

CLEMMER, Stan
4514 Inverness St.
Vancouver, British Columbia
V5V 4X4

COUSINEAU, Bob
606 First St. W.
Fort Frances, Ontario
P9A 2Y7

COUTURE, Claudette (Mrs.)
201 S. Court St.
Apt. #503
Thunder Bay, Ontario
P7B 2X9

COX, Nolan
General Delivery
Beardmore, Ontario
POT 1GO

CULHANE, Pat
15 Municipal Trailer Park
Geraldton, Ontario
POT 1MO

DOUCET, Bob
Northern Concentrators Ltd.
185 Shipyard Road
Thunder Bay, Ontario

DUCHENE, E.
319 Clarke Ave. E.
Geraldton, Ontario
POT 1MO

DUNBAR, Dick
RMD Industries
P.O. Box
Minnesota
55119

ERDIC, Aldo
628 S. Selkirk St.
Thunder Bay, Ontario

EVANS, George
P.O. Box 1091
Geraldton, Ontario
POT 1MO

FAIRSERVICE, Bob
P.O. Box 644
Dryden, Ontario
P8N 2Z3

FERGUSON, Jon
General Delivery
Terrace Bay, Ontario
POT 2WO

FOURNIER, Elwood
P.O. Box 400
Hornepayne, Ontario
POM 1ZO

GAGNON, Frank
Aroland, P.O. Box 69
VIA Nakina, Ontario
POT 1TO

GOODMAN, Glen
General Delivery
Beardmore, Ontario
POT 1GO

HALVERSON, Ralph
R.R. #1
Dorion, Ontario
POT 1KO

HARDY, James
P.O. Box 513
Nipigon, Ontario
POT 2JO

HIBBART, Nick
P.O.Box 2563
Thunder Bay, Ontario
P7B 5G3

HOGG, C. A. L.
209 - 4037-42 St. NW
Calgary, Alberta
T3A 2N9

HOLM, Hilda (Mrs.)
Apt. 214, 4th Ave. S.E.
P.O. Box 154
Geraldton, Ontario
POT 1MO

HOPKINS, Alberta
810 Duplex Ave.
Toronto, Ontario
M4R 1W7

HOUGHTON, Frank
General Delivery
Beardmore, Ontario
POT 1GO

JACKSON, Paul
General Delivery
Geraldton, Ontario
POT 1MO

JACOBSON, Albert
223 S. Hill St.
Thunder Bay, Ontario
P7B 3V4

JANKE, Emil
R.R. #1
Walkerton, Ontario
NOG 2VO

JARVI, Unto
Mining Corp. of Can. Ltd.
P.O. Box 2007
South Porcupine, Ontario
PON 1HO

JEWETT, George
39 Old Mill Road
Toronto, Ontario
M8X 1G6

JOHANSEN, Thor
135 Queen St. E.
Geraldton, Ontario
POT 1MO

JOHNSON, Ed
301 Simpson St.
Apt. #5
Thunder Bay, Ontario
P7C 3H8

JOSEPHSON, Archie
R.R. #12
1460 Dawson Road
Thunder Bay, Ontario
P7B 5E3

KNOTT, Doug
P.O. Box 848
Geraldton, Ontario
POT 1MO

KONDRAT, John
433 Markland St.
Thunder Bay, Ontario
P7B 2J4

KOSKI, John
General Delivery
Beardmore, Ontario
POT 1GO

LAFONTAINE, Amede
P.O. Box 36
Beardmore, Ontario
POT 1GO

LASSILA, Pentti
68 Albery Crescent
Ajax, Ontario
L1S 2Y3

LEARY, George M.
13155 L. Crimson Dr. S.E.
Calgary, Alberta
T2J 3K3

LUCUIK, George
30 Carlbert St.
Sault Ste. Marie, Ontario
PGA 5S5

MACKAY, Russ
415 York St.
Thunder Bay, Ontario
P7A 7S1

MAKI, Neil
R.R. #14
Thunder Bay, Ontario
P7B 5E5

MALOUF, Mike
S. E. Malouf Consulting
Geologist Ltd.
Ste. 100, 55 Yonge St.
Toronto, Ontario
M5E 1J4

McGUIRE, Mike
General Delivery
MacDiarmid, Ontario
POT 2BO

McMAHON, Jim
55 Pearl St.
Beardmore, Ontario
POT 1GO

McPARLAND, Terry
112 Galena St.
Schreiber, Ontario
POT 2SO

MEALEY, Larry
R.R. #1, Mining Road
Murillo, Ontario
POT 2GO

MEHAFFEY, Bob
General Delivery
Geraldton, Ontario
POT 1MO

MICHON, Bob
P.O. Box 754
Manitouwadge, Ontario
POT 2CO

MIKULIC, Jerry
Apt. #216, 3rd. Ave. S.E.
Geraldton, Ontario
POT 1MO

MIRON, Bill
Apt. 223, 935 Hudson Ave.
Thunder Bay, Ontario
P7A 6J7

MITTO, A.
Kengate Resources
P.O. Box 62
Val d'Or, Quebec

NELSON, Ben
General Delivery
Jellicoe, Ontario
POT 1VO

NELSON, Jeff
Apt. #305
335 Adelaide St.
Thunder Bay, Ontario
P7A 7T3

NIVENS, Paul
P.O. Box 3
Manitouwadge, Ontario
POT 2CO

NORTH, Erika (Mrs.)
R.R. #16, Hazelwood Dr.
Thunder Bay, Ontario
P7B 6B3

NUTTALL, James
General Delivery
Hurkett, Ontario
POT 1K6

OLSEN, Karl I.
Prospektering A/S
Boks 83
1321 Stabekk
Norway

OSTER, Joe A.
General Delivery
Geraldton, Ontario
POT 1MO

OTTO, H.
P.O. Box 700
Southampton, Ontario
NOH 2LO

PATERSON, Richard
P.O. Box 539
Nipigon, Ontario
POT 2JO

PETERSON, W.
350 Bay St.
Thunder Bay, Ontario
P7B 1S3

PETRUNKA, Dave
208 Huron Crescent
Thunder Bay, Ontario
P7A 3K4

PICHETTE, Gordon
P.O. Box 971
Nipigon, Ontario
POT 2JO

PICHETTE, Lloyd
349 Lark St.
Thunder Bay, Ontario
P7B 1P4

POTINTEAU, William
28 Park Road
Nipigon, Ontario
POT 2JO

RAISON, Art
50 Walkover St., Pat. #21
Thunder Bay, Ontario
P7B 1L2

REITER, Max
8501-238th Ave.
Stacey, Minnesota
U.S.A. 555079

RENTZ, E.
Beardmore, Ontario
POT 1GO

ROBERT, Rick
General Delivery
Beardmore, Ontario
POT 1GO

ROSENBLATT, Arthur
81-11, 63rd Dr.
Apt. #202
Rego Park, New York
U.S.A. 11374

RUTHERFORD, Eric
P.O. Box 239
17 McKenzie St.
Municipal Office
Beardmore, Ontario
POT 1GO

SALMINEN, Leo
P.O. Box 92
Geraldton, Ontario
POT 1MO

SANDE, Norm
808 W. Mary St.
Thunder Bay, Ontario
P7E 4L8

SCHOOR, M.
General Delivery
Upsala, Ontario
POT 2YO

SEMPLE, G.
General Delivery
Kasabonika, Ontario
POV 1YO

SHIELDS, Jay
P.O. Box 1275
Geraldton, Ontario
POT 1MO

SHIELDS, Scott
P.O. Box 661
Geraldton, Ontario
POT 1MO

SIMONEAU, Jean
2240 Quesnel
Montreal, Quebec
H3J 1G2

SKALESKY, Paul
1715 Rankin St.
Thunder Bay, Ontario
P7E 5Z4

STANKEY, George
92 Penfold St.
Thunder Bay, Ontario
P7A 3K2

STARR, Gene
116 Simpson St.
Thunder Bay, Ontario
P7C 3H1

STOCCO, Joe
c/o Woodlands Inn
Longlac, Ontario
POT 2AO

SUGANAQUEB, Solomon
General Delivery
Webequie, Ontario
POT 3AO

SWEREDA, Mel
General Delivery
Jellicoe, Ontario
POT 1VO

TERNOWESKY, John
132 Robinson Dr.
Thunder Bay, Ontario
P7A 6G5

THERIAULT, Ozias
P.O. Box 905
Geraldton, Ontario
POT 1MO

THORSTEINSON, David
P.O. Box 223
Beardmore, Ontario
POT 1GO

THORSTEINSON, Edward
111 Eight Street
Nipigon, Ontario
POT 2JO

TRIMBLE, Al
55 Banning St.
Thunder Bay, Ontario
P7B 3H8

TURBIDE, Rod
General Delivery
Beardmore, Ontario
POT 1GO

TURCOTTE, Ben
R.R. #5
Thunder Bay, Ontario
P7C 5M9

TURCOTTE, Carl
9365-101 St. A Ave.
Edmonton, Alberta

VANDERPLOEG, George
111 Keystone Court
Thunder Bay, Ontario
P7C 2E6

WALLSTER, Dale
981 W. 17th Ave.
Vancouver, B.C.
V5Z 1V5

WILKINSON, Len Mrs.
2247 Donald St. E.
Thunder Bay, Ontario
P7E 5X2

WILSON, Sandy
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TABLE 6

Producing mines in the Beardmore-Geraldton Area (1981-84

Mine	Year	Production	Grade	Reference
Pan-Empire Joint Venture (Northern Empire Mine)	1982	40,516 tonnes	0.067 oz/T Au	R. Nice, Manager, Pan-Continental Mining (Canada) Limited, Toronto, personal communication, 1983
Crooked Green Creek Mine	1981	350 tons (No. 1 Zone)	0.25 oz/T Au	N. Carter and L. Eccles, project geologist, Anglo-Canadian Mining Corporation, Vancouver, personal communication, 1984
	1982	365 tons (No. 1 Zone)	0.19 oz/T Au	
	1983	400 tons (No. 2 Zone)		
	1984	540 tons (No. 2 Zone)		
Greenoaks Mine	1982	1,059 tons	0.182 oz/T Au 0.13 oz/T Ag 0.254% Cu	R. Nice, Manager, Pan-Continental Mining (Canada) Limited, Toronto, personal communication, 1983
Brenbar Mine	1983	800-850 tons	?	H. Boyle, Manager, Thyssen, Mining Company, Thunder Bay, personal communication, 1984
Consolidated Louanna Gold Mine	1982	6,534 tons (Graham Mining Ltd.)		T. Graham, Manager, Graham Mining Company Limited, Toronto, personal communication, 1982
	1983-1984	70,000 tons (approx.) (Mining Corp. Ltd.)	0.22 oz/T Au	G. MacDonald, Manager, Mining Company Limited, Toronto, personal communication, 1982
Teck Corporation (Leitch Division)	1984	24,000 tons (up to Sept./84)	0.21 oz/T Au	R. Dunning, project manager, Teck Corporation, Beardmore, personal communication, 1984

TABLE 7.

Diamond Drill Programs Conducted in the Beardmore-Geraldton Area - 1984

No.	Company	Location	Month Drill Program Initiated (1984)
1.	Lynx-Canada Explor. Ltd.	Tashota-Nipigon Mine	January
2.	Stroud Res.	McComber Twp. (Key Claim) Vincent Twp.	January
3.	Getty Mines Ltd.	Exploration Banque-Or Occ. (Klotz L. Area)	January
4.	Harte Res.	Walters Twp.	February
5.	Bridgewest Dev. Corp.	Roche Longlac Gold Prospect	February
6.	Canamax Res. Inc.	Milestone Occ. (Klotz L. Area)	February
7.	Metalore Res.	Brookbank Prospect (Irwin Twp.)	February, July
8.	Dome Explor. (Can.) Ltd.	Jellicoe Mines (Lindsley Twp.)	February
9.	Eldor Res.	Maki Main Block Occ. (Vincent Twp.)	February
10.	Craskie Mines (Tombill Mines Ltd.)	Craskie Prospect (Vincent Twp.)	March
11.	T. Johansen	Dam Occ. (Houck Twp.)	March
12.	Lacana Mining	O'Sullivan L. Area (including Consol. Louanna GML)	April
13.	T.J.N. Explor.	Tashota-Goldfields Prospect (Onaman L. Area)	May
14.	Getty Mines Ltd.	Exploration Banque-Or Occ. (Klotz L. Area)	May
15.	Roxmark Mines-Sherritt-Gordon Mines	Magnet Mine (Errington Twp.)	May
16.	Felmont Oil & Gas	Miminiska L. (Fort Hope Area)	May

17.	M. Swereda	Ashmore Twp.	June
18.	M. Swereda	Ashmore Twp.	June
19.	Carling Gold Res. Inc.	Carling Copper Occ. (Elmhirst Twp.)	July
20.	Dome Explor. (Can.) Ltd.	Lindsley Twp.	July
21.	Thorco Goldfinders Inc.	Summers Twp.	July
22.	Villeneuve Res. Ltd.	Klotz L. Area	July
23.	Theriault-Culhane-Swereda	Theriault-Culhane & Mineral L. Occ. (Croll Twp.)	July
24.	Holmwood Res. Ltd.	Walterson Group (Ashmore Twp.)	August
25.	T. Johansen	Ashmore Twp.	September
26.	Field Res.	Bankfield Mine (Errington Twp.)	October
27.	Phoenix Gold Mines	Quebec-Sturgeon R. Gold Mine (Irwin Twp.)	October
28.	New Ambrose Res.	Walterson Group (Ashmore-Croll Twp.)	October
29.	Teck Explor.-Retlaw Res. -Draw Res. Corp.	Wascanna Gold Mine Area (Tashota Area)	November
30.	Quinterra Mines Inc. (Highland-Crow Res.)	Pichette Occ. (Vincent Twp.)	December
31.	Golden Tiger Mining Explor. Co. Inc.	East Adel L. Area	
32.	Golden Tiger Mining Explor. Co. Inc.	S. Castlebar L. Area	December

TABLE 8

SUMMARY OF CLAIMS RECORDED AND ASSESSMENT WORK CREDIT
THUNDER BAY MINING DIVISION

Year	Claims Recorded	Claims Cancelled	Claims Active	Diamond Drilling (Man Days)	Geophysical Surveys (Man Days)	Geological Surveys (Man Days)	Total Man Days
1974	3,305	3,391	5,837	37,130.5	26,061	4,300	80,559.2
1975	3,436	2,869	6,404	38,652	53,020	4,700	105,338
1976	2,364	3,552	6,079	52,551.6	29,504	4,600	101,025.8
1977	1,964	2,966	5,077	24,879	25,601	4,870	68,727
1978	3,517	1,982	6,612	20,182	20,589	6,206	51,299
1979	3,099	2,139	7,554	11,528	69,612	14,727	101,799
1980	5,527	1,836	11,245	53,418	57,483	5,372	127,288
1981	6,768	4,162	13,851	55,256	172,366	13,863	256,686
1982	10,266	4,613	19,349	133,035	114,805	24,437	292,273
1983	15,835	1,537	33,547	113,554.3	439,992.8	64,789.1	664,891.3
1984 (to end of Nov.)	7,978	7,139	34,560*	137,996.8	541,887.4	85,446.6	896,302.2

*11,081 active claims in Beardmore-Geraldton area alone (March 1, 1985)

TABLE 9

PRODUCTION FIGURES: GERALDTON GOLD CAMP
(Main Producers)

Bankfield

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1937	11,136	1,236	26,437	0.421
1938	18,393	2,019	47,500	0.387
1939	16,313	1,869	45,566	0.358
1940	11,125	1,292	42,699	0.261
1941	6,186	691	39,175	0.158
1942	2,838	334	27,632	0.103
1944	160	22	-)	
1945	19	-	-)	Mill Clean-up
1946	222	127	-)	
1947	24	-	-)	
TOTAL	66,416	7,590	229,009	

Hardrock

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1938	18,378	2,316	76,074	0.242
1939	21,975	317	107,086	0.205
1940	31,108	52	119,255	0.261
1941	30,504	264	135,337	0.225
1942	32,174	300	134,122	0.240
1943	24,064	173	97,373	0.247
1944	21,776	330	91,047	0.239
1945	1,338	107	6,337	0.211
1946	19,582	293	102,766	0.191
1947	19,280	420	98,818	0.195
1948	10,658	735	82,036	0.130
1949	15,314	1,588	128,974	0.119
1950	13,426	1,298	167,152	0.080
1951	9,504	816	111,998	0.085
TOTAL	269,081	9,009	1,458,375	

Jellicoe Gold Mine

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1939	1,188	145	3,015	0.394
1940	3,914	370	10,116	0.387
1941	518	-	1,591	0.326
TOTAL	5,620	515	14,722	

Little Longlac

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1934	2,457	198	5,485	0.448
1935	31,454	2,710	62,073	0.507
1936	42,825	3,361	85,555	0.501
1937	46,783	3,960	104,931	0.446
1938	43,849	3,487	97,320	0.451
1939	46,560	3,727	106,775	0.436
1940	45,724	3,840	113,065	0.404
1941	42,427	3,669	118,332	0.359
1942	39,384	3,241	115,790	0.340
1943	26,180	2,372	88,890	0.295
1944	22,782	2,043	67,538	0.339
1945	21,153	1,976	72,117	0.293
1946	19,702	1,665	67,850	0.290
1947	21,263	1,840	78,216	0.272
1948	25,368	2,324	95,830	0.265
1949	24,764	2,344	102,570	0.241
1950	27,889	2,612	115,797	0.241
1951	26,889	2,668	101,731	0.264
1952	23,526	2,487	99,607	0.236
1953	23,037	2,194	83,044	0.277
1954	1,361	20	-)	
1956	72	12	-)	Mill Clean-up
TOTAL	605,449	52,750	1,782,516	

MacLeod-Cockshutt

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1938	25,518	1,602	126,291	0.202
1939	45,170	2,382	208,095	0.217
1940	54,771	1,616	238,780	0.229
1941	60,362	1,085	237,076	0.255
1942	68,017	965	233,036	0.292
1943	54,632	765	181,761	0.301
1944	39,900	598	124,964	0.319
1945	9,551	158	30,000	0.318
1946	32,870	723	158,434	0.207
1947	43,327	868	207,260	0.209
1948	40,318	637	176,221	0.229
1949	43,134	644	180,793	0.239
1950	55,006	1,266	261,103	0.211
1951	69,939	4,353	366,547	0.191
1952	65,049	6,171	411,777	0.158
1953	57,618	6,279	453,732	0.127
1954	61,397	6,624	553,400	0.111
1955	67,467	6,846	600,810	0.112
1956	65,614	6,598	614,848	0.107
1957	66,459	6,810	626,432	0.106
1958	65,553	6,946	658,400	0.100
1959	66,616	6,383	693,322	0.096
1960	68,462	6,574	689,598	0.099
1961	72,005	6,939	696,064	0.103
1962	21,560	2,108	236,719	0.091
1963	13,773	1,399	117,535	0.117
1964	9,297	1,043	91,626	0.101
1965	13,473	1,470	119,963	0.112
1966	9,546	1,012	108,558	0.088
SUB-TOTAL	1,366,404	90,864	9,403,145	

MacLeod-Mosher

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1967	57,034	5,455	469,442	0.121
1968*	52,040	5,025	464,642	0.112
1969	44,294	4,378	494,852	0.090
1970	27,208	2,463	229,477	0.119
SUB-TOTAL	180,576	17,321	1,656,413	

*MacLeod-Mosher taken over by Lake Shore Mines Limited, who completed a three year salvage operation.

Magnet Consolidated

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1938	1,752	217	2,946	0.595
1939	12,277	1,129	17,493	0.702
1940	28,671	3,516	41,485	0.691
1941	25,345	2,814	45,609	0.556
1942	22,448	2,311	50,613	0.444
1943	14,878	1,603	43,060	0.346
1946	9,448	985	26,018	0.363
1947	8,654	996	22,224	0.389
1948	8,173	918	21,140	0.387
1949	6,742	764	22,262	0.303
1950	8,764	1,002	44,771	0.196
1951	4,855	615	22,291	0.218
1952	82	9	-	Mill Clean-up
TOTAL	152,089	16,879	359,912	

Mosher Longlac (New Mosher Longlac, 1950; Consolidated Mosher, 1954)

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1962	63,206	6,179	462,841	0.137
1963	79,704	8,155	563,064	0.142
1964	75,856	8,406	605,351	0.125
1965	59,059	6,326	544,393	0.108
1966	52,217	5,520	535,008	0.098
SUB-TOTAL	330,042	34,586	2,710,657	

Talmora-Longlac (Elmos Mine)

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1942	1,017	36	3,947	0.258
1947-48	398	30	5,623	0.071
TOTAL	1,415	66	9,570	

*Tombill operated the Elmos Mine in 1942.

Tombill

Year	Oz Au	Oz Ag	Tons Milled	Oz/Ton Au
1938	11,001	1,344	26,486	0.415
1939	16,503	2,026	38,704	0.426
1940	16,756	2,086	45,228	0.370
1941	13,315	1,701	46,956	0.284
1942	11,141	1,437	33,248	0.335
1955	23	1	-	Clean-up
TOTAL	68,739	8,595	190,624	

TABLE 10. GEOCHEMISTRY OF GOLD PROPERTIES, BEARDMORE-GERALDTON AREA (Geoscience Laboratories, Ontario Geological Survey, Toronto)

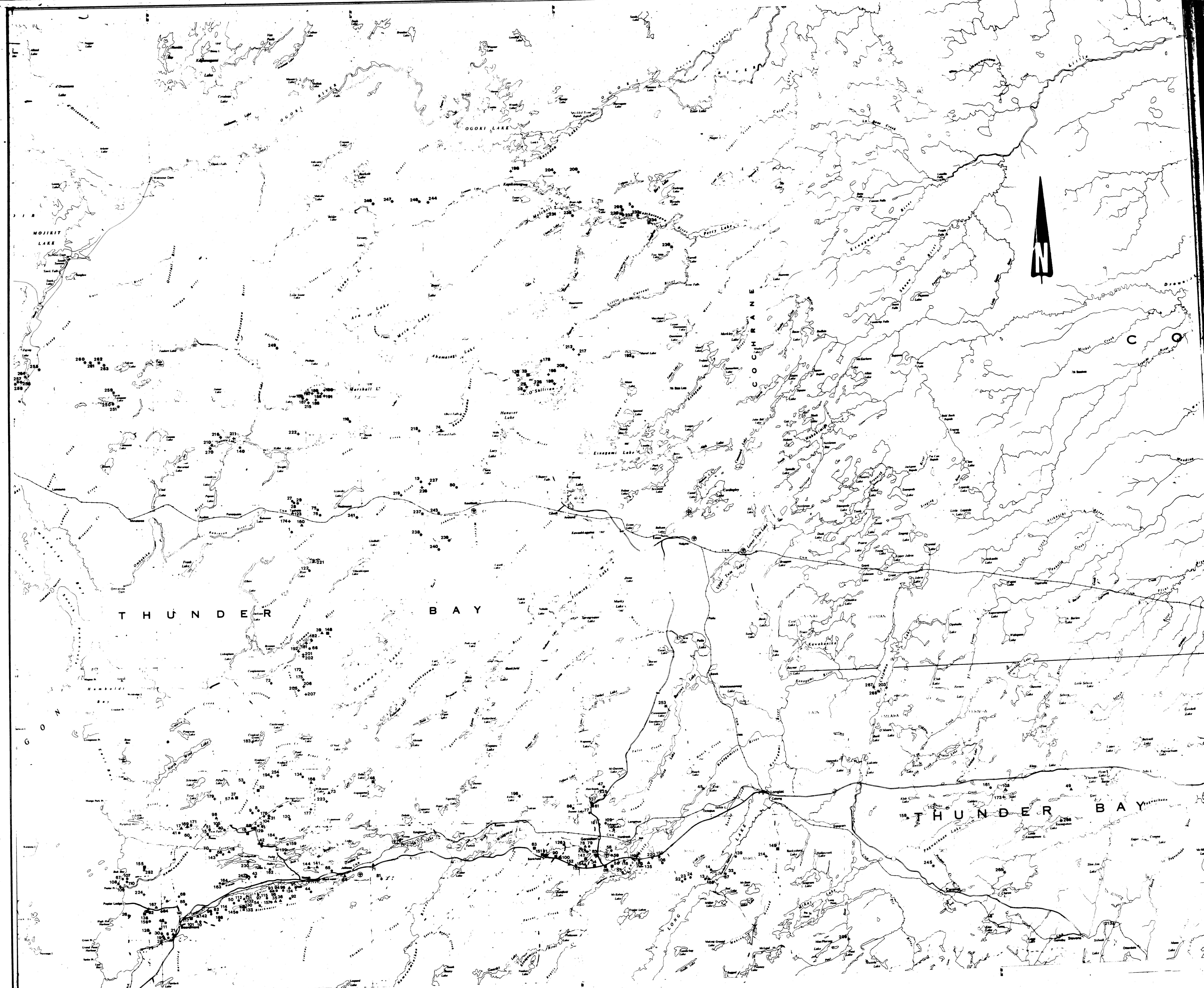
Craskie Prospect

Sample No. (Grab)	As (ppm)	Sb (ppm)	Au (ppb)	Sample Description (Grab
84-MWC-1	2250	1.0	10.0 ppm	Banded chert-magnetite ironstone containing <1% euhedral arsenopyrite
84-MWC-2	1100	1.5	455	Banded chert ironstone with crosscutting vitreous quartz veins. Sample contains rare magnetites and disseminated sulphides (arsenopyrite and pyrite at <1%)
84-MWC-3	9500	2.4	16.7 ppm	Clear grey to white, highly fractured quartz, in contact with a sheared mafic metavolcanic rock. The metavolcanic rock exhibits prominent biotite alteration and contains 5 to 7% disseminated sulphides (pyrite, chalcopyrite, arsenopyrite)
84-MWC-4	9700	2.6	9190	The sample consists of banded chert ironstone with rare magnetite bands, sheared mafic metavolcanic rocks, and quartz veining. Mineralization consists of 3% disseminated euhedral arsenopyrite.
84-MWC-5	82	0.1	21	Highly sheared, grey-green mafic metavolcanic wall rock containing no visible sulphides
84-MWC-6	1200	2.4	6670	Grey-white vitreous quartz vein in contact with sheared, altered metavolcanic rocks. The sample contains no visible sulphides
84-MWC-7	370	0.7	1730	Banded chert ironstone

Delbridge Occurrence

Sample No. (Grab)	As (ppm)	Sb (ppm)	Au (ppb)	Sample Description (Grab)
84-MDB-1	71	0.5	285	Banded, sugary, chert ironstone with cross-cutting veinlets of pyrite and pyrrhotite. The sample also contains later quartz-carbonate veining. The overall sulphide content is
84-MDB-2	6.0%	2.8	4100	Chert-banded ironstone with crosscutting vitreous quart: veins. The chert contains : fine disseminated pyrite anc coarse euhedral arsenopyrit€
84-MDB-3	260	1.8	24	Sugary, chert ironstone and vitreous quartz vein. The sample contains 1 to 3% coa1 euhedral arsenopyrite
84-MDB-4	48	0.7	45	Highly sheared andesitic volcanic host rock with carbonate veins. The sampl€ contains no visible sulphid€
84-MDB-5	16.3%	17.0	35.1 ppm	Banded-chert ironstone and vitreous quartz. The sampl€ contains 15 to 20% patches and disseminations of coars€ euhedral arsenopyrite and fine pyrite
84-MDB-6	1800	1.3	230	Banded, dark grey massive chert. The sample contains no visible sulphides
84-MDB-7	50	0.9	65	Bleach-white banded sugary chert ironstone with no visible sulphides
84-MDB-8	64	1.3	45	Highly iron-stained, banded chert-magnetite ironstone containing 1% disseminated pyrite. From the sample location 84-MDB-7
84-MDB-9	28	0.6	30	Banded chert ironstone with no visible sulphides

84-MDB-10	4.5%	2.4	2000	Banded chert-magnetite ironstone and minor sheared andesitic volcanic rocks. The ironstone contains 10 to 15% coarse euhedral arsenopyrite and fine disseminated pyrite. From the same location as 84-MDB-
84-MDB-11	290	0.5	170	Banded-chert ironstone with fine bands and crosscutting fractures of magnetite. The sample contains rare (<1%) disseminated sulphides
84-MDB-12	134	0.8	75	Banded-chert ironstone with minor fine magnetite bands. The sample contains no visib sulphides
84-MDB-13	86	0.8	220	Banded-chert-magnetite ironstone with 5% disseminat euhedral arsenopyrite



MINERAL OCCURRENCES, PROSPECTS AND MINES OF THE BEARDMORE GERALDTON AREA

Scale 1:253,440 or 1 inch to 4 Miles

LEGEND

- ● Gold Occurrence
- ▲ Gold Prospect (Prod.< 100 oz.;or > 30m Undergrd Lat. Devel.;or > 600m. dd)
- ■ Gold Mine (Prod.> 100 oz.)
- ✚ Silver, Base Metals
- ● Others

GOLD

1	Adair Occurrence	Au
2	Agaura Expl. Occurrence	Au, Zn, Ag, Pb, Cu
3	Agaura Expl. Occurrence	Au, Zn, Ag, Pb, Cu
4	Airways Occurrence	Au
5	Aldor Exploration Occurrence	Au
6	Anglo-Beardmore Occurrence	Au
7	Ardmore Occurrence	Au
8	Augmitto Expl. Occurrence	Au, Cu, Ag
9	Augmitto Expl. Occurrence	Au, Cu, Ag
10	Banner Occurrence	Au
11	Bankfield Mine	Au
12	Beirut Mining Co. Occurrence	Au, Fe
13	Big Long Lac Occurrence	Au
14	Birch Bay Occurrence	Au
15	Bonawitha Occurrence	Au
16	Brenbar Mine	Au
17	Brennan-Kenty Prospect	Au
18	Brookbank Prospect	Au
19	Buffalo-Beardmore Prospect	Au
20	Buffalo-Beardmore Prospect	Au
21	Buffalo-Beardmore Prospect	Au
22	Burroughs Syndicate Occurrence	Au
23	Burroughs Syndicate Occurrence	Au
24	Burroughs Syndicate Occurrence	Au
25	Camdeck Occurrence	Au
26	Camel Resources Occurrence	Au
27	Cameron-Picotte Occurrence	Au, Ag
28	Cameron-Picotte Occurrence	Au, Ag
29	Cameron-Picotte Occurrence	Au, Ag
30	Canadian Beardmore Occurrence	Au
31	Carling (Kengate) Prospect	Au, Ag, Zn, Cu
32	Coniagas Occurrence	Au
33	Consolidated Louanna Gold Mine	Au
34	Consolidated Mosher Mine	Au, Ag
35	Craskie Prospect	Au
36	Craskie Prospect	Au
37	Crooked Green Creek Mine	Au, Cu, Ag
38	Cryderman Occurrence	Au
39	Currie Prospect	Au, Ag
40	Cyril Knight (Irwin Twp.) Occurrence	Au
41	Cyril Knight (Sandra Twp.) Occurrence	Au
42	Dajaty (Paint Lake) Occurrence	Au
43	Dajaty (Watson Lake) Occurrence	Au
44	Dalton Occurrence	Au
45	Dam Occurrence	Au
46	Dikdik Mine	Au, Ag
47	Dubrex Occurrence	Au
48	Empire Contact (Gold Fields) Occurrence	Au
49	Exploration Banque-or Prospect	Au
50	Fox (Ralph Lake) Occurrence	Au
51	J.J. Green (Reiter) Occurrence	Au
52	Greenoaks Mine	Au, Cu, Ag
53	Greenspar Occurrence	Au, Cu, Ag
54	Gwyn Beardmore Occurrence	Au
55	Hardrock Extension Occurrence (Ashmore GML)	Au
56	Hard Rock Mine	Au, Ag
57	Hillsborough-Crooked Green #2 Mine	Au, Cu, Ag
58	Hol-Lac Occurrence	Au
59	Hol-Lac Occurrence	Au
60	Holm Prospect	Au
61	Hutchison Lake Gold Mine	Au, Ag
62	Jarvela Occurrence	Au
63	Jellicoe Mine	Au, Ag
64	Jorsco Prospect	Au, Ag, Cu
65	Johansen Occurrence	Au
66	Johnson Occurrence	Au
67	Tom Johnson (Dorothea) Occurrence	Au
68	K.L. Expl. (Cherborough-Knox) Occurrence	Au
69	K.L. Expl. (Jones & Sijpkens) Occurrence	Au
70	Karl Springer Occurrence	Au
71	Kenogamisis Prospect	Au
72	Kenty Gold-Molybdenum Occurrence	Au, Mo
73	Kenty Prospect	Au, Ag, Cu, Zn, Pb
74	King-Dodds Occurrence	Au
75	Kipper-Tashota Occurrence	Au, W
76	Kipper-Tashota Occurrence	Au, W
77	Lac-Teck Occurrence	Au
78	Lafayette Long Lac Prospect	Au
79	Lafayette Long Lac Occurrence	Au
80	Lambroff Occurrence	Au, Ag
81	Lattimer Occurrence	Au
82	Leitch Gold Mine	Au, Ag, W
83	Little Long Lac Mine	Au, Ag, W
84	Long Lac Superior Occurrence	Au
85	Long Lac Superior Occurrence	Au
86	Loudon, Daoust, McBurnie Occurrence	Au
87	MacFarlane Long Lac Occurrence	Au
88	Macjoe Sturgeon Occurrences	Au
89	MacLeod-Cockshutt Mine	Au, Ag
90	Magnet Consolidated Mine	Au, Ag
91	Maki East Occurrence	Au
92	Maki Key Claim Occurrence	Au
93	Maki Main Block Occurrences	Au
94	Maki Main (Hilo) Occurrence	Au
95	Maki Main (Sogemines) Occurrence	Au
96	Maki Main (Sogemines) Occurrence	Au
97	Maki West Occurrence	Au
98	Maloney Sturgeon Prospect	Au
99	McKenzie Occurrence	Au
100	McLellan Prospect	Au, Ag
101	McWilliams-Beardmore Prospect	Au
102	Mikulic Occurrence	Au
103	Milestone Prospect	Au
104	Milestone Prospect	Au, Ag, Zn
105	Milroy-Taylor Occurrence	Au
106	Mineral Lake Occurrences	Au
107	Tom Montgomery Occurrence	Au
108	Montmorr Occurrence	Au
109	Montmorr Occurrence	Au
110	Montmorr Occurrence	Au
111	Morgan (Gold Fields) Occurrence	Au
112	Morrison (Maple Creek Rouyn) Occurrence	Au
113	Morrow (Shell) Occurrence	Au
114	Neelin-Braggan Occurrence	Au
115	B. Nelson Occurrence	Au
116	New Goldvue Mines Occurrence	Au
117	Northern Empire Mine	Au, Ag
118	Oklend Occurrence	Au
119	Oklend Occurrence	Au
120	Oliver Severn Occurrence	Au
121	Oster Errington Occurrence	Au
122	Pardners Occurrence	Au
123	Paulpic Prospect	Au
124	Pichette G. Prospect	Au
125	Pichette J. Prospect	Au, Ag, Zn
126	Portage Long Lac Occurrence	Au
127	Potter Occurrence	Au
128	Princess (Gold Fields) Occurrence	Au
129	Quebec Sturgeon River Gold Mine	Au, Ag
130	Ralph Lake (Blacksmith) Occurrence	Au
131	Ralph Lake (Delbridge) Occurrence	Au
132	Ralph Lake (Delbridge) Occurrence	Au
133	Ralph Lake (Dominion) Occurrence	Au
134	Rickaby Occurrence	Au
135	Roche Long Lac Prospect	
136	Sand River Gold Mine	Au, Ag
137	Shields Occurrence (Hutchison Lake)	Au
138	Shields-Evans-Jackson Placer Occurrence	Au
139	Smith-Elliott Occurrence	Au
140	Sogemines Development Occurrence	Au
141	Solomon's Pillars Prospect	Au
142	Spooner Prospect	Au
143	Springer Sturgeon Occurrence	Au
144	Strathcona Mines Occurrence	Au
145	Sutherland Occurrence	Au
146	Swereda Occurrence	Au
147	Talmora Long Lac Mine	Au
148	Tashota-Nipigon Mine	Au, Cu, Ag
149	Theresa Gold Mine	Au, Ag
150	Theriault-Culhane Occurrence	Au
151	Tombill Mine	Au, Ag
152	Tombill Prospect	Au
153	Tombill Prospect	Au
154	Tombill Prospect	Au
155	Tyson (Amorada) Mine	Au, Ag
156	Undersill Lake Occurrence	Au
157	Vega Occurrence	Au
158	Ward-Morrow (Bellex) Occurrence	Au
159	Warren Occurrence	Au, Ag
160	Wascanna Prospect	Au
161	Weirmeir Occurrence	Au
162	Wenzoski Occurrence	Au
163	Westfield Minerals Occurrence	Au
164	Westfield Minerals Occurrence	Au
165	West-Side Long Lac Occurrence	Au
166	Wilkinson Lake Prospect	Au
167	Wilport Prospect	Au
168	Windigo Pete Occurrence	Au
169	Witwer Prospects	Au, Cu, Ag
170	Woods Mac Occurrence	Au
171	Zmudzinski Occurrence	Au, Cu, Ag

BASE METALS

172	Abitibi Price Cu-Zn-Ag Occurrence	Cu, Zn, Ag
173	Adel Lake Occurrence	Cu
174	Cam Ross Syndicate Occurrence	Zn, Ag
175	Cane Occurrences	Pb, Ag, Zn, Cu, Au
176	Carling Prospect	Cu
177	Cerro Occurrences	Cu, Ag, Au
178	Chimo Gold Mines Occurrence	Cu, Au, Zn, Pb
179	Coleman-Gray Occurrence	Cu, Au, Ni
180	Copper Jim Mines Occurrence	Cu, Ag, Au
181	Coulee-Onaman Deposit	Zn, Pb, Ag, Au
182	Coulee-Onaman Deposit	Zn, Pb, Ag, Zu
183	Crooked Green Lake Occurrence	Cu
184	Dajaty-McCall Occurrence	Cu, Au
185	Giant Gripp Deposit	Cu, Zn, Ag, Au
186	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
187	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
188	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
189	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
190	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
191	Giant Gripp Occurrence	Cu, Zn, Ag, Pb
192	Headway-Onaman Deposit	Pb, Zn, Ag, Au
193	Holland Chellew Occurrence	Ag, Pb, Cu, Zn, Au
194	Jacobus Prospect	Cu, Ni
195	Jonsmith Mines Occurrence	Cu, Ag, Au
196	Kapikotongwa Venture Occurrence	Cu
197	Kendron Copper Mines Occurrence	Cu
198	Kirby Lake Zinc Occurrence	Zn
199	Ledger Occurrence	Ni
200	Lun-Kerr Occurrence	Zn, Ag, Pb
201	Lynx-Canada-Dejour-Canadain Reynolds Deposit	Cu, Ag, Au
202	Lynx-Canada-Dejour-Canadian Reynolds Deposit	Cu, Ag, Au
203	Mining Corporation of Canada Occurrence	Cu
204	Nakina Mines Occurrence	Zn, Ag, Pb
205	New Bidlamaque Occurrence	Zn, Ag, Pb, Cu, Au
206	New Bidlamaque Occurrence	Zn, Ag, Pb, Cu, Au
207	New Bidlamaque Occurrence	Zn, Ag, Pb, Cu, Au
208	Newman Group Occurrence	Cu, Ag, Au
209	Oncsimo, A. Occurrence	Cu
210	Panther International Mining West	Ni
211	Panther International Mining East	Ni
212	Peterson Occurrence	Cu
213	Seaway Copper Mines Ltd. Occurrences	Cu
214	Sopko Occurrence	Zn, Au
215	Teck-Hughes	Cu
216	N.A. Timmins Exploration	Cu, Zn, Pb
217	Tombill (Warren) Occurrence	Ni, Cu
218	Tontine Copper Occurrence	Cu
219	Tontine Zinc Occurrence	Zn
220	Wodian-Holm Occurrence	Cu

SILVER

221	Amukun Silver Occurrence	Ag
222	Delmico Mines Occurrence	Ag
223	Dickson Occurrence	Ag
224	Gustafson (Meridian) Occurrence	Au
225	Hurd-Demetrieff Occurrence	Ag, Au
226	Tontine Silver Occurrence	Ag
227	Tontine Silver Occurrence	Ag

IRON

228	Aldor Exploration Occurrence	Fe
229	Algoma Iron Deposit	Fe
230	Algoma (Still Lake) Steel Occurrence	Fe
231	Anaconda Iron Occurrence	Fe
232	Anaconda Iron Occurrence	Fe
233	Anaconda Iron Occurrence	Fe
234	Anaconda Iron Occurrence	Fe
235	Anaconda (Dofasco) Iron Deposit	Fe
236	Anaconda (2 Mile) Iron Deposit	Fe
237	Bralorne Resources Iron Occurrence (North Onaman)	Fe
238	Bralorne Resources Iron Occurrence (Central Onaman)	Fe
239	Bralorne Resources Iron Occurrence (Central Onaman)	Fe
240	Bralorne Resources Iron Occurrence (South Onaman)	Fe
241	Candela Iron Occurrence	Fe
242	Central Manitoba Mines Iron Occurrence	Fe
243	Flaherty Iron Occurrence	Fe
244	Panther International Iron Occurrence	Fe
245	Peterson Iron Occurrence	Fe
246	Stewart Lake Iron Mines Occurrence	Fe
247	Stewart Lake Iron Mines Occurrence	Fe
248	Stewart Lake Iron Mines Occurrence	Fe
249	Stewart Lake (Phillips Lake) Iron Occurrence	Fe
250	Zmudzinski-Despard Occurrence	Fe
251	Zmudzinski-Despard Occurrence	Fe

MOLYBDENUM

252	Amorada (Molybdenum) Occurrence	Mo
253	Burrows Lake Prospect	Mo
254	Chemalloy Occurrence	Mo, Au

LITHIUM

255	Dempster East Occurrence	Li
256	Dempster L 28 Occurrence	Li, Ta, Cs
257	Dempster L 40 Occurrence	Li, Ta, Cs
258	Dempster L 61 Occurrence	Li, Ta, Cs
259	Dempster North Lamaune Lake Occurrence	Li
260	Falcon Lake Far West Occurrence	Li
261	Falcon Lake West Occurrence	Li
262	Falcon Lake Occurrence	Li
263	Falcon Lake East Occurrence	Li
264	Zig Zag Lake Occurrence	Li, Ta, Cs

URANIUM

265	Garvais Occurrence	U
266	Wells Occurrence	U

NIOBIUM

267	Loponen Occurrence	Nb
268	Pitton Occurrence	Nb

BERYLLIUM

269	Aldor Exploration Occurrence	Be

ASBESTOS

270	Panther (McAdam) International Occurrence	asb