A SUMMARY REPORT ON 1986 SURFACE EVALUATION OF THE REDAURUM PROJECT PROPERTIES, RED LAKE AREA, ONTARIO

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G.M. HOGG & ASSOCIATES LTD.,
28 THOMPSON AVENUE,
TORONTO, ONTARIO M8Z 3T3

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INTRODUCTION

This report on the 1986 exploration operations of Redaurum Red Lake Mines Ltd. (Redaurum) on properties held in the west Red lake area of northwestern Ontario has been prepared by G.M. Hogg, P.Eng. at the request of Mr. W.W. Cummins, president of that Company.

During 1986 exploration was carried out on four contiguous gold properties in this area, one wholly-owned by Redaurum, and three held pursuant to option agreements with Humlin Red lake Mines Ltd. and Redruth Gold Mines Ltd. The general location of these properties is shown in Figure 1.

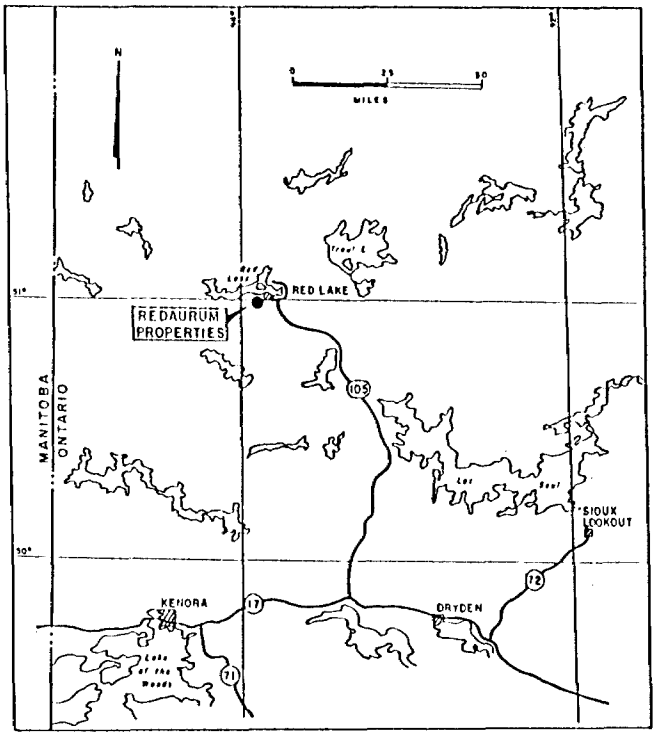
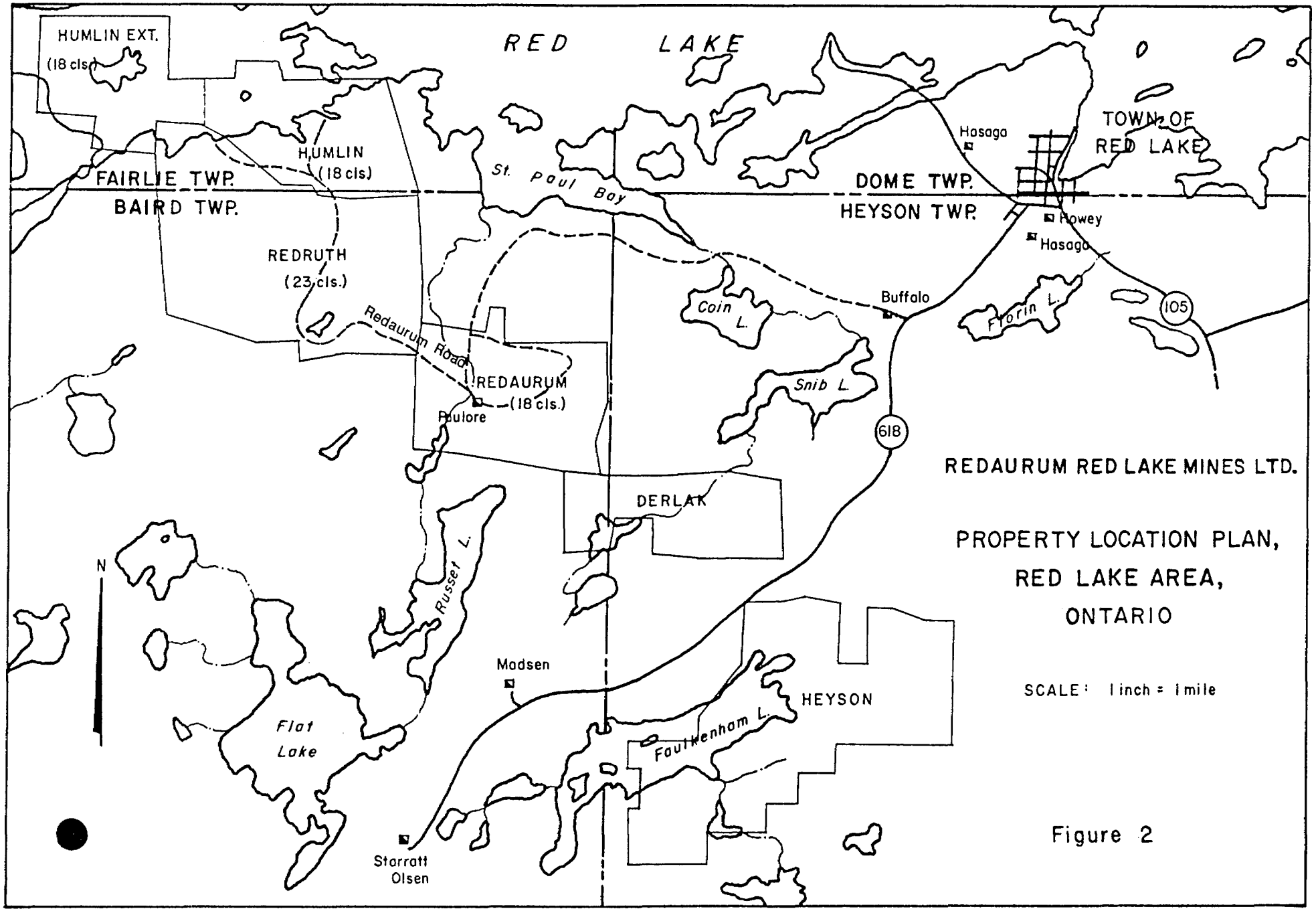


Figure 1. General Location Plan

A total of $ 635,777 was spent by Redaurum on this project during 1986. Of this total $ 578,870 was raised through later flow-through share funding,



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and was applied to access road construction and winter drilling. The balance, totalling $ 56,907, was supplied by Redaurum and used for preparatory work including geological mapping, geophysical surveying, line-cutting, trenching and sampling. This initial program, funded directly by Redaurum and consisting entirely of surface exploration work, is eligible for OMEP funding provided by the Ministry of Northern Development and Mines (OMEP Designation No. OM85-1-9-219). This report deals specifically with that part of the 1986 program.

PROPERTY LOCATION, ACCESS

The locations of the Redaurum, Redruth, Humlin and Humlin Extension properties are shown in Figure 2. They lie in the northern part of Baird Township and the southern part of Fairlie Township within the District of Kenora in northwestern Ontario, about five miles west of the Town of Red Lake.

The properties lie along the southern shore of Red Lake in the vicinity of St. Paul Bay. The Humlin Extension property and the northwestern part of the Humlin property are water-covered and, of course, are accessible only on the ice of Red lake during winter and spring months. Access to the other property areas is via the Redaurum tractor road extending west from the Buffalo Resources property as shown in Figure 2. This road was completed during 1985 and 1986 to afford access for drilling and trenching in the various prospect areas.

Red Lake is a mining center and supplies, labour and infrastructure suitable to a mining operation are easily available in the immediate area.

LAND TENURE, OWNERSHIP

The Redaurum property consists of 14 patented and 4 unpatented mining claims comprising approximately 857 acres. It is wholly owned by Redaurum Red Lake Mines Ltd.

The Reduth property consists of 23 patented mining claims totalling 1,435 acres, and the Humlin property of 17 patented and 1 unpatented mining claims comprising an area of 647 acres. These properties were optioned by Redaurum Red Lake Mines Ltd. in 1985 as part of the Redaurum west Red Lake project area.

Also in 1985 the Humlin Extension claims were staked. This property consists of 18 unpatented mining claims comprising an area of approximately 720 acres. As this claim group is contiguous with the Humlin property, and acquired to cover the westerly strike of the known Humlin gold zone (see Map No. 1, in pocket), it was considered as part of the Redaurum-Humlin option agreement.

The claims included in this project area are listed in Appendix I to this report.

GENERAL GEOLOGY

The geology of the west Red Lake area has been discussed in some detail in previous reports (see listing of some reference data, Appendix II), and will not be repeated herein. However, in reference to Map No. 1 (in pocket), the location of a highly auriferous depositional horizon is traced through the region, extending across the project properties.

This depositional locus is commonly marked by varying thicknesses of intermixed cherts, carbonate rocks, slatey to arenaceous beds, conglomeratic

units, and/ or tuff. Schistose ultramafic rocks, probably of volcanic origin, are also normally present as part of the sequence. Basaltic to andesitic flows and lesser pyroclastics occur stratigraphically above and below this persistent and variegated horizon.

Because this horizon is relatively incompetent shearing, faulting and folding are pervasive within it. Depending on intensity of deformation, and coincident thermal conditions, this may give rise to recrystallization and remobilization of some of the more susceptible constituents producing quartz-carbonate veining, sericitic zones, carbonate zones, etcetera.

Gold and minor sulphides consisting mainly of pyrite appear to be original and reasonably mobile constituents of this volcano/sedimentary formational system. This view at once accounts for the remarkable affinity of gold to this depositional locus, and the variety of modes of gold occurrence encountered along its sinuous trace.

In specific reference to the Redaurum, Redruth and Humlin properties the trace of this important horizon is magnetically and geologically defined essentially as indicated on Map No. 1 (in pocket). Within all three properties gold occurrences are known associated with axial-oriented veining developed at the contact between folded ultramafic rocks and volcano/sedimentary units, and as formationally contained zones within the volcano/sedimentary sequence.

1986 OPERATIONS

General:

During early 1986 linecutting and geophysical surveying (VLF-EM, magnetic) were completed on the ice over the Humlin Extension property. This work

was undertaken in an attempt to trace the ultrmafic-sediment contact westerly from the Humlin Zone, and to define drill targets along this locus.

During mid-1986 remapping and some sampling on the Redaurum 3 and 14A zones was undertaken by W.A. Barclay, and similar work was done on the Redruth 3, 4 and 8 Zones and the main Humlin Zone by P.A. Fernberg. These locations are shown on Map No. 1 (in pocket). Both of these geologists worked under contract to Redaurum Red Lake Mines Ltd., with the object of defining drill targets for future testing.

It will be noted that some additional trenching and drilling had been competed on the Redaurum property during 1985, as well as a small amount of drilling on the Humlin Zone. During 1986 the road was extended into the Redruth 4 and 8 Zone area, and additional trenching was completed in this vicinity. Data acquired from the 1985 program as well as the 1986 trenching on the Redruth property was utilized in conjunction with earlier data in the compilation studies performed by Messrs. Barclay and Fernberg.

HUMLIN EXTENSION PROPERTY:

During March and April, 1986, a survey grid was laid out and picketed over the Humlin Extension property. This grid comprised a total of approximately 36 miles of base line and cross lines, the latter being north-south in orientation and at 200 foot spacing. Magnetic and VLF-EM surveying was then completed over this grid, and compiled as Maps 2, 3, 4 and 5 to this report (in pocket).

The contoured magnetic plan (Map No. 2) indicates the ultramafic unit exposed just to the north of the Humlin Zone to extend into the Humlin Extension property from the east, swing to the north in the vicinity of the large island, and to extend in folded configuration to the southeast

out of the property area. To the north a large linear zone of high magnetics crosses the northern part of the property, probably indicating the presence of a linear iron formation unit.

The magnetics in the central part of the property, in the vicinity of the large island, are erratic and likely indicate a zone of dislocation caused by southeasterly trending faulting. Immediately south of the island the rather prominent lensitic magnetic high is believed due to the presence of a zone of cherty iron formation. It should be noted also, of course, that water depth and lake bottom cover may have masked some of the magnetic detail which is apparent over the island and inshore areas.

The contoured VLF-EM data (Map No. 3) essentially mirrors the magnetic configuration described. In this case all stronger zones of conductivity are located on land or in near-land areas, suggesting that water depth and lake bottom sediment do exert a significant masking effect.

The geophysical survey data indicates that a number of drill targets exist within the Humlin Extension property. They are located in the vicinity of the island, and along the southern shore of Red lake.

REDAURUM PROPERTY:

The mapping and compilation work completed by W.A. Barclay in the No. 3 and No. 14A Zone areas of the Redaurum property are are shown on Maps No. 6 and No. 7 (in pocket). These zones lie in the north-central part of the property as shown on Location Map No. 1, with the No. 3 Zone lying about 500 feet southwest of the No. 14A Zone. W.A. Barclay's report on his 1986 study is included herein as Appendix III.

In this area cherty metasediments intercalated with mafic volcanics occur in contact with a folded ultramafic unit. This fold structure plunges to the southeast, and a number of southeasterly-trending shear systems have developed at the apex and along the limbs of this sizeable and complex structure. Quartz veining, gold and minor sulphide mineralization are sometimes present within these shear systems, tending to be of greater frequency in the vicinity of the ultramafic contact. The No. 14A Zone is located near the nose of the fold structure, and the No. 3 Zone along its southern limb. The Redaurum No. 2 Zone, also referred to in the Barclay report, occurs further to the west along this same fold limb.

To date vein systems in this location have been shown to be of good grade but of generally narrow width. It is quite possible, however, that southeasterly plunging veins of viable proportions, or stockworks of veining, are present in the area.

The Camp Zone, also referred to by W.A. Barclay, occurs approximately 1,000 feet west of the No. 2 Zone (see Map No. 1). This consists of irregular, mineralized quartz veining within a dense, gray dolomitic rock, and appears to be of a formational character.

Barclay recommends drilling on all of these zones, with emphasis in the No. 3 and No. 14A Zone areas. A total of 10,688 feet of drilling is proposed, mainly to test the continuity and depth extension of the better mineralized vein systems located in earlier work.

REDRUTH PROPERTY:

P.A. Fernberg mapped and sampled the area containing the Redruth No. 3, No. 4 and No. 8 Zones during 1986 (see Location Map No. 1, in pocket). The mapped and trenched area is shown in detail on Map No. 8 (in pocket), and

P.A. Fernberg's report is included herein as Appendix IV.

This prospect area is underlain by mafic volcanics containing some tuffaceous metasedimentary horizons and gabbroic dikes. Immediately to the west an ultramafic unit and a series of komatiitic flows occur. Gross formational strike in the area is south, but it appears that frequent minor folding along east-west axes is present. This has produced a locally crenulated formational trace within which zones of brecciation and easterly trending shearing are commonly developed.

Quartz and quartz-carbonate veining is often present within the larger shear systems, and may also be irregularly developed within brecciated areas. Gold and minor sulphide mineralization is sometimes present in the veined systems, giving rise to the Redruth No. 3, No. 4 and No. 8 Zones. Surface sampling and limited drilling on these zones have yielded good gold values over generally narrow widths.

During the 1986 program a new vein system termed the "New No. 3 Vein" was located. This vein is approximately a foot in width, and has been traced over a distance of about 300 feet in a north-south direction. This totally atypical vein system is interpreted as having developed in a conjugate shear structure, and although consistently of good grade appears too limited in size to be economically significant.

The Fernberg report recommends only limited test drilling (2,500 feet in total) in this area as a result of the 1986 mapping and trenching program.

HUMLIN PROPERTY:

The Humlin Zone is located along the south shore of Red lake (see Location Map No. 1, in pocket), and has been trenched and drilled in the past. In

1986 P.A. Fernberg remapped and sampled the prospect area, and the results of this study are shown in detail on Maps No. 9 and No. 10 (in pocket). The Fernberg report describing the prospect is included herein as Appendix IV.

The prospect area is underlain by a broad, easterly-striking zone of variegated metasediments and tuff. It is bounded on the south by mafic volcanics and on the north by ultramafic rocks. The metasediments dip steeply to the north, and are pervasively schistose and often crenulated. They include slatey units, carbonate rocks, chert and clastics as well as tuffaceous material.

Gold occurs within the more siliceous units of the metasedimentary melange with disseminations of arsenopyrite and pyrite, and in mineralized vein-like zones. In the view of the writer these concentrations are of sedimentary origin which have been only weakly to moderately recrystallized and remobilized by subsequent metamorphic events. In any case, it may be observed that gold content in the known mineralized zones is not of particularly high grade, but zonal extent is clearly substantial (see Map No. 10, in pocket).

The drilling program recommended in the Fernberg report totals 3,000 feet, and is designed to better test grade, zonal continuity and depth potential within the known deposit area. Unfortunately efforts to define possible zonal extensions to the east and west through prospecting and geophysical surveying have not been successful, so no provision for exploratory drilling to this purpose could be justified at this time.

EXPLORATION EXPENDITURES

As noted, exploration expenditures on the Redaurum project during 1986 totalled $ 635,777. However, drilling and road construction costs largely incurred in the fall and winter months was funded by flow-through share financing. The total cost of this phase of operations was $ 578,870.

Earlier exploration in the project area consisted of geological mapping, trenching, sampling and geophysical surveying as described in this summary report, and was financed out of Company funds. The cost of this phase of 1986 operations totalled $ 56,907, and may be listed as follows:

Geological Mapping.....	$ 18,582
Consulting, Compilation.....	5,467
Linecutting.....	12,000
Geophysical Surveying.....	3,227
Trenching.....	9,022
Sampling, Assaying.....	6,059
Field Cost, Supervision.....	2,550
Total Cost.....	$ 56,907

CONCLUSIONS

The initial phase of the 1986 exploration program on the Redaurum project in the western Red lake area involved linecutting and geophysical surveying on the Humlin Extension property during the spring months, and geological mapping, trenching and sampling on the Redaurum, Redruth and Humlin properties during the summer and early fall. This work was completed

at a cost of $ 56,907.

The program involved the detailed evaluation of parts of four properties included in the project area. It resulted in the definition of several targets within all of the property areas for subsequent drill testing.

Respectfully Submitted,

G.M. Hogg, P.Eng.

CERTIFICATE OF QUALIFICATION

I, Glen M. Hogg, of the City of Toronto, Ontario, do hereby certify that:

1. I am a Consulting Engineer, principal of the firm of G.M. Hogg & Associates Ltd., with an office located at 28 Thompson Avenue, Toronto, Ontario.

2. I am a member of the Association of Professional Engineers of Ontario, and a registered Consulting Engineer with that organization.

3. I am a graduate of Queen's University of Kingston, Ontario, having received the degree of Master of Science in Geological Sciences in 1952. I have since practised professionally in the fields of mineral exploration and development.

4. I am familiar with the properties of Redaurum Red lake Mines Ltd. in the west Red Lake area of Ontario, and have examined them in the past.

5. I hold no interest in the properties on which this report is written, nor do I expect to receive any.

Dated in Toronto, Ontario, this 19th day of February, 1988.

G.M. Hogg, P.Eng.

REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO

APPENDIX I

Listing of Mining Claims of Redaurum Red Lake Mines Limited held by Direct Ownership and Option Agreement

APPENDIX I

Listing of Claims

Property	Claim No.	Township	Type Ownership	Acreage	Reg. Owner
Redaurum	KRL 12249	Baird	Pat.	47.5	Redaurum R.L.
"	KRL 12250	"	"	36.7	"
"	KRL 12252	"	"	57.7	"
"	KRL 12253	"	"	59.6	"
"	KRL 12499	"	"	26.4	"
"	KRL 13063	Baird & Heyson	"	46.3	"
"	KRL 13064	Baird	"	54.0	"
"	KRL 13078	"	"	71.8	"
"	KRL 13079	"	"	49.3	"
"	KRL 13080	"	"	42.7	"
"	KRL 13081	"	"	52.1	"
"	KRL 13085	"	"	61.2	"
"	KRL 13086	"	"	43.3	"
"	KRL 13087	"	"	48.7	"
"	KRL 801276	"	Unpat.	40	"
"	KRL 801329	"	"	40	"
"	KRL 801359	"	"	40	"
"	KRL 821835	"	"	40	"
Redruth	KRL 18659	Baird	Pat.	107.5	Redruth G.M.
"	KRL 18660	"	"	48.3	"
"	KRL 18661	"	"	69.8	"
"	KRL 18481	"	"	49.1	"
"	KRL 18482	"	"	40.2	"
"	KRL 18483	"	"	58.5	"
"	KRL 18484	"	"	41.2	"
"	KRL 18485	"	"	42.4	"
"	KRL 18486	"	"	71.1	"
"	KRL 20064	Fairlie	Pat. & L.O.	90.2	"
"	KRL 20065	Baird & Fairlie	Pat.	44.9	"
"	KRL 20066	Baird	"	77.6	"
"	KRL 20402	"	"	52.1	"
"	KRL 20403	"	"	74.5	"
"	KRL 20404	"	"	64.9	"
"	KRL 20405	"	"	57.2	"
"	KRL 20406	"	"	81.0	"
"	KRL 20407	"	"	60.7	"
"	KRL 20408	"	"	88.7	"
"	KRL 20409	"	"	75.4	"
"	KRL 20631	"	"	68.2	"
"	KRL 20632	"	"	30.6	"
"	KRL 20633	"	"	41.2	"

Property	Claim No.	Township	Type Ownership	Acreage	Reg. Owner
Humlin	KRL 18411	Fairlie	Pat., L.O.	28.1	Humlin R.L.
"	KRL 18412	"	Pat.	42.3	"
"	KRL 18413	"	Pat., L.O.	23.4	"
"	KRL 18414	"	Pat.	19.3	"
"	KRL 18422		Pat.	48.5	"
"	KRL 18423	"	Pat.	65.5	"
"	KRL 18424	"	Pat.	65.8	"
"	KRL 18425	"	Pat.	54.3	"
"	KRL 18426	"	Pat., L.O.	21.8	"
"	KRL 18427	"	L.O.	14.8	"
"	KRL 18428	"	Pat., L.O.	11.8	"
"	KRL 18429	"	L.O.	7.2	"
"	KRL 18631	"	Pat., L.O.	54.5	"
"	KRL 18632	"	L.O.	38.8	"
"	KRL 18633	"	Pat., L.O.	30.7	"
"	KRL 18634	"	Pat., L.O.	44.1	"
"	KRL 19487	"	Pat.	36.4	"
"	KRL 509419	"	Unpat.	40	H.L. Banting
Humlin Ext.	KRL 788406	Fairlie	Unpat.	40	Redaurum R.L.*
"	KRL 788407	"	"	40	"
"	KRL 788408	"	"	40	"
"	KRL 788409	"	"	40	"
"	KRL 828264	"	"	40	"
"	KRL 828265	"	"	40	"
"	KRL 828266	"	"	40	"
"	KRL 828267	"	"	40	"
"	KRL 828268	"	"	40	"
"	KRL 828269	"	"	40	"
"	KRL 828270	"	"	40	"
"	KRL 828271	"	"	40	"
"	KRL 828272	"	"	40	"
"	KRL 828273	"	"	40	"
"	KRL 828274	"	"	40	"
"	KRL 828275	"	"	40	"
"	KRL 828276	"	"	40	"
"	KRL 828277	"	"	40	"

* Claims acquired later than, and are subject to the terms of the Humlin/Redaurum Agreement

APPENDIX II

Listing of Some References on the
Properties of Redaurum Red Lake Mines Ltd.

APPENDIX II

Listing of Some References on Area

Horwood, H.C., 1940: Geology and Mineral Deposits of the Red Lake Area, O.D.M. Annual Report, Vol XLIX, Pt. II.

Graham, A.R., 1945: Summary Report of Diamond Drilling on the Howey Zone.

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Pryslak, A.P., 1983: The Humlin and Redruth Options, Fairlie and Baird Townships. Geology, Summary of Exploration, and Potential for Gold Deposits (Selco Inc.)

Services Exploration Enr., Jan. 1985: Redaurum Red Lake Mines Ltd., Geophysical Surveys, Baird Township Claim Group.

Baker, N.W., Feb. 1985: Report of Recent Exploratory Work for Redaurum Red Lake Gold Mines Ltd.

Hogg, G.M., Aug. 1955: A Report on the Gold Properties of Redaurum Red Lake Mines Ltd., Red Lake District, Ontario.

Hogg, G.M., April, 1986: Interim Report on the Exploration Operations of Redaurum Red Lake Mines Ltd. for the period August 1, 1985-December 31, 1985.

Aerodat Ltd., June 1985: Report on Combined Helicopter-Borne Magnetic Electromagnetic and VLF Survey, Red Lake, Ontario, for Redaurum Red Lake Mines Ltd.

O.D.M., 1964: Geology Map of the Eastern Part of Baird Township, Kenora District. S.A. Ferguson, Map 2072.

O.D.M., 1966: Geology Map of the Northern Part of Heyson Township, Ontario. S.A. Ferguson, Map 2125.

O.G.S., 1971: Geology Map of Fairlie Township, R.A. Riley, Map 2407.

O.G.S., 1978: Airborne Electromagnetic and Magnetic Survey, Red Lake Area. Preliminary Maps 1579, 1580.

APPENDIX III

Report on the Redaurum Property,
W.A. Barclay, September 9, 1986.

APPENDIX III

Proposed Drilling on the Redaurum Property

Baird Twp., Red Lake, Ontario

by

W.A. Barclay

for

REDAURUM RED LAKE MINES LIMITED

9 September 1986

Proposed Drilling on the Redaurum Property, Baird Twp., Red Lake, Ontario, for Redaurum Red Lake Mines Ltd.

Geological mapping and data compilation undertaken in 1986 indicate the presence of sufficient gold mineralization on the Redaurum property to warrant a substantial drill program in the near future.

A total of 10,688' of diamond drilling is herewith recommended, to be carried out in two phases of 6523' and, subsequently, 4165'. The following summarizes specific drill requirements on the four zones of interest: the 14A, No. 3, No 2, and Camp Zones. A detailed listing of individual drill hole locations and suggested orientations is on file at Redaurum's Red Lake office.

14A Zone

1st Phase	12 drill holes	3927'
2nd Phase	3 drill holes	760'
		4687'

Mineralization is hosted within at least three, closely spaced, parallel, 080°-090° striking shear structures containing quartz-tourmaline veins and stringers, and in at least one 020° striking transverse fracture. Several occurrences of visible gold, and two drill intersections of greater than 1.0 oz./ton, are recorded from past efforts.

Previous drilling has defined one of these shears at 100' drill spacing over a strike length of 300', with open strike potential. In the cross-fracture, a linear trend of continuous mineralization has been confirmed for a minimum of 70' with open potential along strike and down dip.

The proposed program of drilling on the 14A Zone is designed

to delineate these gold-bearing structural settings at closely spaced intervals (nominally 50') in order to confirm mineral continuity and expand lateral and depth potential. The system of shear zones is to be tested over a strike length of 650' to depths of about 300'. A further 100' of down plunge potential within the cross-fracture is recommended for testing at this stage, to be intersected in three piercings of the favourable setting at intervals of about 35'.

Within the areal limits of proposed drilling along the shear system, a maximum potential of 243,750 tons of material carrying .22 oz./ton gold over five foot widths is considered possible, assuming continuity of mineralization (Appendix). A further 26,250 tons at .20 oz./ton is possible as a maximum potential within the cross-fracture, over a strike length of 210'.

It is emphasized that, within such settings, continuity of higher grade concentrations are more likely to be found within discrete, elongate shoots of locally defined plunge. Lower grade material may envelope these lensoid bodies. Envisaging nine such shoots of seven foot diameter and 400' down plunge extent suggests a worst case scenario of 11,945 tons at .22 oz./ton as minimum potential (Appendix).

No. 3 Zone

1st Phase	13 drill holes	2596'
2nd Phase	4 drill holes	1238'
		3834'

The presence of significant gold mineralization is indicated along five interpreted horizons within the No. 3 Zone, three of which are to be tested in the proposed drilling. Several occurrences of visible gold and of greater than 1.0 oz./ton

material have been encountered in previous drilling and trenching. The horizons are thought to be spatially related to shear zones, locally known to host vein quartz. These transect stratigraphy - particularly lean iron formation - at orientations of 080°-110°.

Previous drilling and trenching during 1944-45 focussed on the iron formation as a probable gold host. This unit has proved to be poorly mineralized in general, except where intersected by such cross-structures as have been mapped and those which are inferred by the present interpretation.

The proposed drilling is designed to test the shear settings at 25' intervals within very restricted areal limits (200' strike length, 300' depth), with the exception of two deep drill holes noted below. In particular, it is recommended that anticipated steep (60°-65°) down plunge extensions of presently inferred shoots with substantial values be carefully delineated for a distance of 350'-400'. Thorough geometric definition of these targets should provide a solid basis upon which subsequent delineations may be undertaken with reasonable confidence, and very likely will carry immediate implications applicable to each of the four zones being considered presently. At this stage, in the writer's opinion, the wise choice is to opt here for a tightly constrained program.

A maximum potential of 102,500 tons of material carrying an average of .18 oz./ton gold is suggested within these limits, assuming continuity of mineralization within the shear zones (Appendix). This can be broken down into two components: 52,500 tons at .255 oz./ton (B and C horizons) and 50,000 tons of .11 oz./ton (A horizon). Mineralization within the shears is open along strike in both directions, and at depth.

One deep intersection of .15/5.0' (including .22/2.5') has

been encountered 550' below surface in 1944 DDH R-13. This tentatively represents a further 176,250 tons of potential gold-bearing material if continuity is assumed. This figure has not been incorporated into the present estimates. The intersection constitutes the sole testing of this zone at considerable depths, and requires further drill evaluation. Two drill holes have been appropriated for this purpose in the proposed program.

A worst-case scenario would encompass six shoots of concentrated mineralization within the limits of the proposed drilling. Minimum potential thus represented would approximate 7696 tons carrying .18 oz./ton values (Appendix).

Camp Zone

1st Phase	0 drill holes	0
2nd Phase	5 drill holes	1530'
		1530'

Proposed drilling of the Camp Zone is considered appropriate for the 2nd Phase since mineral targets, on present evidence, are less well-defined that at the 14A and No. 3 Zones. Quartz vein concentrations of greater than or equal to .10 oz./ton gold were encountered during the late stages of the 1945 drilling. These have not been tested adequately since then. One vein has been traced for a minimum strike length of 170' with values of .16/6.2', .31/2.6', .14/3.5', .12/5.0' and .11/2.8' in drill intersections. Two additional intersections occur along strike: 150' to the east (.45/1.0') and 210' to the west (.10/5.0'). Testing is required to determine if these latter values occur within the same quartz vein, and to confirm continuity within this setting. Five drill holes are proposed, to intersect this and two other veins within 150' of surface.

Assuming continuity of mineralization along these veins, a maximum potential of 70,500 tons of .17 oz./ton material is considered possible (Appendix). The local presence of higher grade shoots would improve the grade of this estimation. The veins are open along strike in both directions, and at depth.

On present evidence, a realistic estimate suggests a minimum potential of 24,750 tons at .13 oz./ton over a strike length of 330', and to a depth of 150' (Appendix).

No. 2 Zone

1st Phase	0 drill holes	0
2nd Phase	3 drill holes	637'
		637'

Three drill holes are proposed for the No. 2 Zone. Previous drilling up to 1944-45 yielded apparently inconsistent gold intersections, locally of greater than 1.0 oz./ton material. Those endeavours were directed along strike in a 15'-25' wide unit of iron formation.

As at the contiguous No. 3 Zone, however, present evidence suggests that mineralization may be localized within discrete shear planes, with quartz veining, which transect stratigraphy at an orientation of about 110°. Seven, closely spaced, sub-parallel shears are tentatively identified. The proposed drilling is designed solely to test these zones for continuity of significant mineralization over a strike length of up to 200'. More precise delineation awaits future consideration should the preliminary results here prove encouraging.

Maximum potential at this zone, assuming continuity, is estimated at about 137,500 tons of .18 oz./ton material to a depth of 300' (Appendix). As the mineralization within this setting is

presently the least well-defined of the four zones to be investigated, more realistic estimates are equivocal at this stage. A nominal figure of 10,000 tons @ .18 oz./ton is suggested as an estimate of minimum potential, with the above qualification.

Summary

The diamond drill program outlined above has been designed to delineate sufficient tonnages of auriferous material to justify subsequent extended delineation of these mineralized settings. It is further intended to elucidate the particular structural and stratigraphic controls which here configure discrete zones of higher grade gold concentrations. In the writer's opinion, an understanding of these is requisite to further investigations, and will contribute substantially to realistic appraisals of results forthcoming from the proposed, and future, drill programs. For these reasons, the proposed efforts are focussed within relatively known settings at closely spaced intervals.

A total of 10688' of drilling is recommended, to be carried out in two phases of 6523' and 4165' respectively. The recommended priority of drilling is as follows: 14A Zone, No. 3 Zone, Camp Zone, and No. 2 Zone.

Of these, the 14A Zone and the No. 3 Zone offer the best potential, on present data, for defining good tonnages of significant mineralization. In the event of early favourable results at either zone, the other of these two first priority targets should not be neglected during this exploration stage. Proposed drilling on the Camp Zone and the No. 2 Zone may be considered second priority, and has the less ambitious aim of

simply establishing continuity of mineralization within previously encountered, but only partially defined, host environments.

Assuming continuity of mineralization at each of the zones to be tested, a maximum potential of 580,500 tons of .20 oz./ton material is estimated for the area of proposed investigation. A conservative figure of 53,990 tons at .20 oz./ton is estimated as a minimum potential.

The geologic data available from compilation of past data and from recently completed mapping suggest that considerable potential exists for down-plunge extension of mineralized shoots. Fabric analysis at several of these zones indicate that plunges may be steep, and that such shoots may be stacked in an en echelon manner. If reasonably consistent intersections of substantial gold values are obtained during the proposed program, a subsequent third phase of extensive diamond drilling is anticipated to properly define the full extent of mineralization at depth. This might realistically require 10,000'-15,000' of additional drilling to prepare for feasability considerations.

9 September 1986

Respectfully submitted

W.A. Barclay

APPENDIX

Detailed Calculations

(assumes a tonnage factor of 12 cubic feet per ton; grades as stated are for a 5.0' width)

14A Zone

Maximum potential:

3 shear zones @ 650' strike length, 300' depth, 5' width

$\frac{3 \times 650 \times 300 \times 5}{12}$ = 243,750 tons

average grade in 10 drill intersections = .22 oz./ton

cross-fracture @ 210'strike length, 300' depth, 5' width

$\frac{210 \times 300 \times 5}{12}$ = 26,250 tons

average grade in 10 drill intersections = .20 oz./ton

total tonnage and average grade: 270,000 tons @ .22 oz./ton

Minimum potential:

9 shoots @ 400' down plunge length, 7' diameter

$\frac{9 \times 400 \times 3.5 \times 3.5 \times PI}{12}$ = 11,545 tons

No. 3 Zone

Maximum potential:

A horizon (comprised of two horizons A1 and A2), @ 200' strike length, 300' depth, 5' width

$\frac{2 \times 200 \times 300 \times 5}{12}$ = 50,000 tons

average grade in 5 drill intersections and trench samples = .11 oz./ton

B horizon @ 200' strike length, 300' depth, 5' width

$\frac{200 \times 300 \times 5}{12}$ = 25,000 tons

average grade in 5 drill intersections = .25 oz./ton

C horizon @ 220' strike length, 300' depth, 5' width

$\frac{220 \times 300 \times 5}{12}$ = 27,500 tons

average grade in 4 drill intersections and trench samples = .26 oz./ton

total tonnage and average grade: 102,500 tons @ .18 oz./ton

Minimum potential:

6 shoots @ 400' down plunge length, 7' diameter

$\frac{6 \times 400 \times 3.5 \times 3.5 \times PI}{12}$ = 7696 tons

Camp Zone

Maximum potential: (3 veins)

I) 620'strike length, 150' depth, 6' width

$\frac{620 \times 150 \times 6}{12}$ = 46,500 tons

average grade in 7 drill intersections = .13 oz./ton

II) 260' strike length, 150' depth, 6' width

$\frac{260 \times 150 \times 6}{12}$ = 19,500 tons

grade in 1 drill intersection = .25 oz./ton

III) 60' strike length, 150' depth, 6' width

$\frac{60 \times 150 \times 6}{12}$ = 4500 tons

grade in 1 drill intersection .22 oz./ton

total tonnage and average grade: 70,500 tons @ .17 oz./ton

Minimum potential: (main vein only)

330' strike length, 150' depth, 6' width

$\frac{330' \times 150 \times 6}{12}$ = 24,750 tons

average grade for main vein = .13 oz./ton

No. 2 Zone

Maximum potential:

4 tentatively identified horizons @ 200' strike length, 300' depth, 5' width

$\frac{4 \times 200 \times 300 \times 5}{12}$ = 100,000 tons

average grade in 10 drill intersections = .12 oz./ton

2 tentatively identified horizons @ 150' strike length, 300' depth, 5' width

$\frac{2 \times 150 \times 300 \times 5}{12}$ = 37,500 tons

average grade in 3 drill intersection = .33 oz./ton

total tonnage and average grade: 137,500 tons @ .18 oz./ton

Minimum potential:

The apparent inconsistency of presently defined mineralization renders any estimate of minimum potential in the No. 2 Zone extremely equivocal. A nominal figure of 10,000 tons @ .18 oz./ton is suggested, as qualified above.

Totals

Maximum potential: 580,500 tons @ .20 oz./ton

Minimum potential: 53,991 tons @ .20 oz./ton

APPENDIX IV

Report on the Humlin & Redruth Properties,
P.A. Fernberg, November, 1986.

APPENDIX IV

HUMLIN - RED RUTH PROJECT

- Summary of Work -
1986 Summer-Fall

Redaurum Red Lake Mines Ltd

November 1986

Peter A. Fernberg

TABLE OF CONTENTS

1.0 INTRODUCTION

A reconnaisance exploration program for gold has recently been completed by Redaurum Red Lake Mines Ltd on the contiguous Humlin and Red Ruth properties. This report describes the results of the program, the potential for additional gold mineralization along previously known gold showings, and recommendations for additional drilling. Also incorporated are some of the company's 1986 exploratory drilling. Detailed information is included on two areas with the most potential for additional economic gold mineralization.

Work during the summer and fall of 1986 consisted of prospecting and follow-up geological mapping at 1/200 scale. Inaddition, detailed mapping (1/20 and 1/50 scale) inconjuction with bulldozer stripping and trenching was undertaken on most of the old showings.

1.1 Location

The Humlin and Red Ruth properties adjoin each other and consist of 17 and 23 claims respectively, and adjoin the company's Redaurum property to the southeast.

The claims are situated along the Baird - Fairlie township line, approximately 6 miles west of the town of Red Lake. During the summer a bulldozed trail was extended northwest from the Redaurum property providing access, through the Humlin ground, to the shore of Red Lake.

Numerous gold showings occur on both properties and are illustrated in Figure 1. A majority of the company's work was on the Humlin - 'A' zone and the Red Ruth 3/4/8.

1.2 Previous Exploration

Numerous gold showings were located during 1940 - 1946, and were both trenched and diamond drilled. Property wide exploratory fence drilling was also undertaken. Average grade in the best showings ranged from 0.17 - 0.38 Au ounces per ton (opt) over widths of one to two feet. Continuity of gold mineralization along quartz veins was shown to occur with values ranging from 0.01 - 0.09 Au opt. Isolated multi-ounces were reported in a few locations.

The Humlin -'A' zone showing, geologically unique to the property, had uncut gold values averaging 0.18/18feet and 0.89/18 feet. During the early 1980's Selco Ltd undertook a 2-year property wide mapping program and a small amount of diamond drilling.

Redaurum Red Lake Mines Ltd conducted a small diamond drill program, in early 1986, to provide geological information along the Red Ruth No.1 and Humlin -'A' zones, plus exploratory drilling northwest of the Humlin property.

2.0 GENERAL GEOLOGY

2.1 Stratigraphy & Structure

A sequence of Archean metavolcanics underly the properties. Maps 1 and 2 illustrate the geology. The volcanics are predominately mafic pillowed flows and some massive flows, rarely interculated with narrow chert and clastic sediments. A series of gabbroic intrusives, ranging from massive fine-grained to a coarser porphyritic variety, are the second most dominent lithology.

Previous mapping shows that the metavolcanics are folded into a broad isoclinal antiform, whose fold axis trends east - southeast immediately south of Red Ruth Lake. Past drilling and mapping demonstrates that the strata dip 50° - 75° north and northeast. Contacts between the gabbros and volcanics are less certain. Previous drilling suggests a shallow southerly dip of some of the exposed gabbro, however it's nearly vertical at the Humlin -'A' zone.

Dominent foliation trends northwest and dips steeply to the southwest. Numerous shears (1-8 feet wide) are present and are commonly the sites of gold occurrences. In the southern half of the property WNW - ESE shears are predominent, two of which contain significant gold mineralization (Red Ruth No.s 4 and 8). In the northern half, mineralization is commonly localized along NW-SE shears inaddition to several WNW -ESE shears. Both shear systems dip steeply to the southwest. Shears containing auriferous quartz veining are up to 500 feet long, and may possibly be continous over 3500 feet.

Previous mapping has identified two sets of faults, trending northwest and northeast. Some disruption of lithological continuity has occured, however fault controls on gold localization are not currently evident.

2.2 Mineralization & Alteration

A compilation of previous and current assay results is provided in Maps 3 and 4 .

Excluding the Humlin - 'A' zone, all the known showings consist of quartz veins emplaced along the above described shear zones. Rarely did the showings contain multiple quartz veins. Brecciation of the wallrock and vein is common to the better mineralized showings. Veins are commonly a milky white to smokey grey

quartz with accessory tourmaline gangue (up to 10%). Associated mineralization is pyrite and chalcopyrite ± gold. The presence of chalcopyrite is generally a favourable sign for gold.

Quartz veining is syn-to post-deformation, resulting in veins exhibiting severe pinch and swell shapes ranging from a couple of inches to three feet wide .

Better widths and generally higher gold grades are associated with dilation features, especially prevalent on the NW-SE shears. However, this shear set contains quartz bodies of limited lateral extent, ranging from 60-100 feet. Nevertheless there is good potential for additional quartz lenses along the shear structure, especially where it may "kink", thus providing a dilatent opening. Narrow (one foot or less) zones of patchy silicification, quartz veinlets and associated acicular arsenopyrite are located on strike between the quartz lenses and are believed to be quartz fluid channelways. No gold mineralization has yet been detected in these narrow zones. Within the quartz lenses, gold values range from trace to 0.20 Au. opt, but generally between 0.05-0.20 Au O/t.

Better lateral continuity of quartz veining is contained along the WNW-ESE shears. On the RedRuth No. 1,4, and 8 showings the veins have been traced by trenching and drilling over lengths of 360 to 500 feet. Vein widths are variable swelling from less than one foot to two feet wide.

The Humlin-A Zone, described in further detail in the following section, is hosted within an intensely schistose and wide WNW-ESE shear.

A new discovery, the New No. 3 Q.V., located nearby the RedRuth No. 4 and 8 showings, is orientated almost north-south and lacks the schist "halo" common to the other showings. Assays from this auriferous quartz vein ranged from .04-1.56 opt.

Fe-Carbonate veining is prevalent just north and immediately north-east of RedRuth Lake. Multiple narrow (1 inch to 1 foot wide) veins make up a distinct 2-10 foot wide carbonate zone. Quartz is present in accessory amounts. Minor amounts of pyrite, pyrrhotite, chalcopyrite and arsenopyrite are also present. Currently, only negligible gold values have been located within these zones.

Sericitic alteration, accompanied by patchy silcification and carbonatization, is associated with carbonate and/or quartz veining at the RedRuth No.'s 4 and 11 showings. Intense sericitic alteration accompanied by quartz vein swarms are localized at the Red Ruth No. 3 and in other nearby outcrops.

3.0 RED RUTH 3/4/ 8 AREA

3.1 LOCATION

Situated on a large shallow rise just Northwest of Red Ruth Lake, the area consists of few old showings; the Red Ruth No. 3, No. 4, No. 8 and No. 11 in addition to numerous small test pits.

A bulldozer trail, starting at Buffalo Minesite south of Red Lake Townsite provides access.

3.2 SUMMARY OF EXPLORATION

3.2.1 Previous Work

A) Red Ruth Gold Mines Limited- Extensive trenching was carried out on the Red Ruth No.s 4 and 8 showings in addition to X-Ray diamond drilling. Red Ruth No. 3 and No. 11 were tested with several shallow trenches. Cross-property exploratory fence drilling tested the Red Ruth No. 3, 4 and 8 areas. No known drilling was carried out on the Red Ruth No. 11.

Work done in 1946 is summarized below :

(1) Red Ruth No. 3 :

Two trenches were completed. One was said (conversation with Mr. Alex Watt) to contain good gold values associated with arsenopyrite mineralization. Two drill holes intersected the zone at a depth of 240 feet. (See map 5). Values of 0.02/1.0' and 0.06/1.5' opt Au were reported and were associated with a silicified and sericitic alteration zone.

(2) Red Ruth No. 4 :

Average grades from 12 trenches averaged 0.17 opt over a width of three feet. Five drill holes, completed in 1946, intersected the No. 4 vein at vertical depths ranging from 25 to 220 feet. Gold values ranged from one hole containing no values to0.24/1.0'width . Samples from drill holes averaged 0.06 opt Au. Strike continually delineated by drilling is 300 ft. long and 192 ft. vertically deep.

(3) Red Ruth No. 8 :

Twelve trenches and 5 drill holes tested the occurrence over a length of 390 ft. Compilation by Selco Limited reports that old sampling results show economic values only over a strike length of 30 ft., averaging 0.37 opt /1.2 ft.

(4) Red Ruth No. 11 :

No information is available.

B) Selco Limited- One diamond drill hole each was collared on the Red Ruth No. 4 and 8. At Red Ruth No. 4 the vein interseccion assayed 0.24/1.5'. Several fine specks of gold were visible. On vein No. 8 the intersected vein did not assay.

3.2.2 Current Work

The area was extensively sampled (over 100 samples) in conjuction with mapping at 1-50' scale. Maps 5 and 6 illustrate the geology and sample locations. Stripping and trenching was done by bulldozer.

A new quartz vein, the New No. 3 Quartz Vein, was uncovered during construction of the access trail and was subsequently stripped and sampled. Assays returned values of trace to 1.56 opt over widths of 7"-3'. The vein itself is usually 8-12" wide, and was traced over a length of 260 feet.

3.3 LOCAL GEOLOGY

A) Meta Volcanics:-

The area is predominantly underlain by pillowed metavolcanic flows, commonly exhibiting moderately flattened pillows. Except for the main portion of the Red Ruth No. 4 all the showings are hosted by the volcanic flows. In the western half of the area the pillows exhibit variolites (sphericules up to 1/8" diameter) ranging from several % to about 75% which coalsce around the pillow selvage.

Minor occurrences of pyroclastics are present. A hyaloclastite forms a readily identifiable marker unit. This unit was possibly referred to, by Selco, as a chlorite schist. White weathered pitted shards (up to 1/8" size) are contained in a dark green aphanetic-chloritic matrix.

B) Gabbro :-

Gabbroic dykes/sills are common. The gabbro is variably textured, usually non-magnetic, ranging from fine-grained to coarser sizes (up to 3mm hornblende crystals). Areas mapped as gabbro may possibly be in part coarse grained massive mafic volcanic flows. Previous 1946 drilling suggests that the gabbroic sill hosting the Red Ruth No. 4 occurrence has an apparent attitude of 070/16° SE.

C) Ultramafic :-

Along the western end of Red Ruth No. 4 , trenching exposed rock interpreted as ultramafic (high colour index, medium grained, non-magnetic, hornblende and actinolite $\pm$ minor muscovite). It is serpentious in areas and talcose in part, especially where highly schistose. A 20-ft. wide "talc-schist" zone is believed to be the western most expression of the Red Ruth No. 4 vein structure. Within the "talc-schist" is a 5' wide zone of convoluted, stockwork-like carbonate veinlets with accessory quartz and albite (?). Two samples returned assays of trace and 0.02 o/t.

Areas mapped may in part be fine-grained gabbro due to a transitional nature from medium-grained ultramafic to a very fine grained actinolite-bearing mafic rock as the old No. 4 trenches are approached.

A large body of komatiitic flows, identified by previous mapping, occur immediately west of the ultramafic exposure.

D) Alteration Dominent Rocks :-

The largest exposure of altered rocks occurs just east and northeast of Red Ruth No. 4, and to the north at the Red Ruth No. 3 Zone. Dominent alterations are sericitic and carbonatization. Both commonly host quartz-carbonate and quartz veining, and are confined to the metavolcanics.

Sericitic

A soft, waxy luster, yellow-green rock which can contain up to 2% disseminated pyrite and accessory chlcopyrite. Patchy silicification is prevalent in the vicinity of quartz and/or carbonate infilled fractures. These fractures/veins (1/16"-2") form a "diamond" pattern of 075-090° and 120-135°, the latter being dominant, with a steep easterly dip. Minor sulphide mineralization is associated with the veining, and can contain spotty low-grade gold mineralization (0.01-0.05 o/t)

Should the density of quartz-infilled fractures increase along with a corresponding increase of silicification, there is the potential for economic gold grades and widths on the basis of experience with the rest of the camp.

A large degree of sericitic alteration with accompanying silicification of pillowed metavolcanics occurs at the Red Ruth No. 3 zone in rock previously mapped as quartz-feldspar porphyry. Swarms of narrow quartz veins are common, but assayed trace to 0.03 opt Au. Previous drilling results assayed 0.06 opt Au/ 1.5 feet.

Carbonatization

A progressive replacement of host rock by a convoluted mass of carbonate (ankerite) veinlets has resulted in appearance of a brecciated like rock. This is accompanied by an intense amount of red-brown biotitic alteration of the host rock. Where silicification of its larger xenoliths of country rock is common gold assays can range from trace to 0.06 opt. Up to 2% accessory sulphides accompanies this alteration. Patchy fuchsite can also be present.

E) Veining:-

Quartz veining hosts all currently known gold mineralization in the 3/4/B area. A narrow shear envelope of highly schistose country rock accompanies most veins. Vein widths vary from 2-22", commonly 7-12". Veins follow the attitude of the shears, however, a pinch and swell geometry of the vein itself is suspected due to post-gold mineralization structural movement along the shear. Boudins of quartz, plunging to the west are observed in the No. 4 Vein.

The best gold grades are obtained where the vein is comprised of white to slightly grey "cherty" quartz accompanied by "ribbons" of chlorite/biotite infilling fractures parallel to vein strike (possibly tensional openings). Gold occurs as very fine disseminations along these fracture planes. Occasional coarser gold is associated with small pyrite (less than 1mm) aggregates. Associated mineralization is pyrite, pyrrhotite, chalcopyrite and tenatite (?) Tourmaline is a common gangue association.

Different from the older showings, the New No. 3 Q.V. lacks a definite shear envelope and trends almost due North-South. It is possible that the vein deviated from a WNE-ESE shear structure and forced its way into a northernly tending joint fracture.

Zones of (ankerite) carbonate veining are common. These commonly trend 080° and consist of bands (1"-6" wide) over a width of 2-10 ft. Commonly a minor amount of sericitic alteration is associated plus minor amount (1%) Py. and accessory chalcopyrite. There is a possibility that in some instances the carbonate may be a primary sedimentry lithology. A small occurrence of lapilli tuff was observed to be associated with carbonate banding.

3.4 Proposed Drilling

A total of 2500 feet is proposed. Table I summerizes the holes.

The majority of the drilling is to test the westward and eastward continuation of gold mineralization of the Red Ruth No. 4. Especially important is the detection of mineralization where the vein structure crosses a talcose ultramafic body to the west. Holes 1 to 3 will test for continuity of the quartz vein and assist in establishing its dip and strike. In addition hole 3 tests a carbonatized and silicified zone adjacent to the vein. Holes 4,5,6, test the "talc-schist" zone. Note that hole 6 will provide needed geological information in an area of no outcrop. Holes are designed to intersect the vein 100 feet below surface.

An additional 750 feet is designed to test the large alteration and quartz carbonate veining package just east of Red Ruth No. 4 to depths of 100' and 200'

At the New No. 3 Q.V. two short holes will test for vein and mineral continuity to a depth of 50 feet below surface.

TABLE I

PROPOSED DRILLING - RED RUTH 3/4/8 AREA

WEST END , RED RUTH NO.4 VEIN

NO.	AZ.	DIP	LENGTH
1	035	-45°	185'
2	338	-45°	215'
3	036	-45°	200'
4	357	-45°	215'
5	042	-45°	215'
6	347	-45°	215'
7	042	-60°	350
			1595 '

EAST END , RED RUTH NO.4 VEIN

NO.	AZ.	DIP	LENGTH
8	333	-45°	215'
9	333	-60°	350'
10	333	-45°	185°
			750 '

NEW NO. 3 Q.V.

NO.	AZ.	DIP	LENGTH
11	032	-60°	75'
12	130	-60°	75'
			150'
		TOTAL	' 2,500 '

4.0 HUMLIN-A ZONE

4.1 Location

The Humlin-A Zone is located at the northern end of the Humlin property, along a small bay on Red Lake. It consists of 9 large rock trenches, over a distance of 600 feet, along a hill slope.

4.2 Summary of Exploration

4.2.1 Previous Work

A) Howey Gold Mines Limited:-

In 1941 nine rock trenches were excavated and channel sampled over most of their length. Assays ranged from trace to 0.75 opt Au., usually over 2 feet intervals. One sample assayed 6.5 opt. Surface work delineated a 100-120' wide schist zone within which two trenches, 50 ft. apart, which contained similar zones of gold mineralization at 0.15 opt and 0.89 (uncut) opt over 18' widths.

The presence of deep chip samples, a conversation with the sampler (Mr. Alex Watt of McKenzie Island) and current work suggest a reasonable degree of confidence in the validity of the 1941 sampling program.

In 1945 the entire schist zone was extensively drilled, a total of 38 DDH, testing a strike length of 1250' on 50' centres. All holes except one, were drilled to the northeast. Only the area beneath the surface exposed mineralized zone was by two sets of fan drilling 100' apart.

Results of the program are incomplete but no assays similar to trench values were present, ranging from 0.01-0.10 opt. However the higher values did correspond to areas of favourable alteration and aasociated mineralization. Poor recovery may have been a factor since 2 opt Au assay was located in the sludges of hole L-14. Corresponding core assayed 0.01 and 0.10 Au opt.

During 1946 additional property wide drilling was done to the Nw and SE of the Humlin-A zone, plus one long hole beneath the trenches. Only low-grade gold values (less than 0.06 opt) were intersected.

B) Government Surveys :-

As part of the township mapping program by the Ontario Geological Survey, the Humlin-A zone has been twice mapped at 1:1000 scale. Compilation by the O.G.S. repoorts that the surface mineralized zone extends over a length of 150' had a width of 13.6' and averages 0.13 opt Au.

C) Selco Limited :-

During 1981-1983 the company washed clean three trenches (No.'s 3, 3A & 4) and re-sampled. Assay results returned values of .02-.11 opt /5 ft. An orientation geochemical program (soil and humus, Au and Ag) was found to be non-conclusive. No drilling is reported in the immediate vicinity of the trenches.

4.2.2 Current Work

During March 1986 two diamond drill holes (BQ Core) were collared. One hole (DDH-86-R1) was designed to test for gold mineralization beneath trench No. 8. The second hole was collared further to the east to provide geological information in an area of essentially no outcrop. Hole 86R1 was successful in delinating two zones of gold mineralization ; 0.08 opt 7.2 and 0.09 opt 26.8 ft. Gold assays ranged up to 0.27 opt/ 1 foot. Hole 86R5 encountered essentially the same lithology as the first but did not intersect any auriferous zones.

Those trenches which were accessible were mapped during the 1986 summer at a 1:20 scale. Grab samples were taken and returned values ranging from trace to 0.12 opt. Detailed geology and a compilation of past drilling are presented on Map 7 .

4.3. Local Geology

4.3.1 Lithology

A metasedimentary package would appear to be restricted to the intensely schistose and broad Humlin-A zone shear structure. Problems are encountered in defining the original lithology due to the intense degree of schistosity. Rocks interpreted as mudstones are adjacent to the shoreline and readily distinguished by their "slatey" appearance. These rocks are fine-grained to aphanetic, black to dark grey and non-carbonatized. Further south along the trenches the rocks become more massive in appearance, yet fine to occassionally coarser volcanoclatite can be observed along with distinct interbands of lapilli-tuff, "slates" and narrow (several inches) black chert bands. A distinctive fuchsite-bearing porphyoblastic rock, tentatively mapped as a crystal/lapilli tuff, serves as a marker unit.

Mapping in 1946 referred to the metasediments as Agglomerate and Tuff, and having a width of more than 300'. Current mapping does not confirm this width. However, a minor amount of volcanoclastic sediments and chert do occur to the northeast of the bay, possibly due to folding.

Definate metavolcanic lithologies occur south of the trenches along the ridge. Pillows are extremely flattened and moderately carbonatized. A gabbroic dyke or sill occurs in between the meta-sediments and metavolcanic flow.

At depth the gabbroic unit is talcose to serpentinized, and variably sheared. The presence of two "talc-schist" areas in DDH 86R1 suggest the possibilty of folding, ie: "roll" structures which in Red Lake camp are usually favourable for the location of gold mineralization.

4.3.2. Structure

The Humlin-A zone is expressed as a highly schistose zone 100-120' wide, trending in a NW-SE direction. Geophysics has traced the shear a considerable distance to the east and off the property. Bedding attitudes are difficult to discern due to the strong overprinting fabric. Current drilling adds support to the suggestion from 1946 that the lithology dips steeply to the north. Also bedding north and south of Humlin-A dip in a similar manner. Overall the lithology appears to strike about 115° but begins to swing to the north at the last trench, possibly due to folding. Small-scale folding was not observed in the trenches except for one minor quartz veinlet plunging 55° at 295'.

A strongly penetrative schistosity varies from 108-126°, paralleling the lithology over most of the occurrence and usually dips steeply to the south (76-88°). Associated with the foliation is a conjugate set of diamond-patterned shear fractures with average attitudes of 280/82 and 135/78. The former is strongly dominent.

There is a suggestion that left-hand movement occurs along the shear zone as noted by the subtle deflection of schistosity as the trenches are approached and by sygmoidal features.

Quartz boudins are present, especially within the "slates". These boudins are in a sub-vertical orientation and stacked, possibly due to earlier extension in a vertical sense. Latter flattening related to the formation of the Humlin-A zone shear has flattened these boudins such that they plunge about 30° in a WNW direction. This flattening event could also be related to the noticeable linear fabric present in the rocks caused by a crenulation of earlier cleavage planes.

The lineation plunges at a shallow angle (20°) towards the west. It is postulated thatif mineralization was introduced into the rocks "pre" or "syn" the crenulating event, then mineralization may be "drawn-out" or deposited as sheets parallel to the lineation.

4.3.3 Mineralization and Alteration

Two types of gold associations are present :-

1) Diffuse bodies of silicification accompanied by acicular arsenopyrite and a variable amount of minor pyrite.

Each body, as exposed on surface, can be 3-10' wide, and marked by bleaching due to intense carbonatization and patchy silicification adjacent to sheeted quartz ± carbonate veinlets parallel to schistosity. Acicular arsenopyrite (5-10%) commonly halos the veinlets and is common (1-3%) throughout the body. In addition, there are minor quartz veinlets, trending 140°/46°, haloed by arsenopyrite.

Although arsenopyrite is ubiguitous through most of DDH 86R1 as it crosses the shear, gold values greater that 0.10 opt are restricted to areas of silicification. Gold mineralization is lacking in the "slates" and the fuchsite-bearing crystal/lapilli tuff. Higher gold assays are associated with diffuse blue-grey quartz veins paralleling schistosity. The greater the density of these veins, the greater amount of gold content. Areas of intense silicification appear to have been brecciated and cemented by a stockwork of quartz and carbonate, with corresponding gold mineralization. Host rocks are the non-discript volcanoclastics topographically above the "slates".

2) Vein-like zones of intense silicification with a variable degree of carbonate.

These were logged as quartz-carbonate veins in the 1946 drilling. Each "vein" is less than 1' wide, may contain up to 10% coarse-grained pyrite and variable amounts of arsenopyrite. Commonly they are surrounded by intensely schistose rock. Gold values are generally less than 0.05 opt/Au but one grab sample assayed 0.21 opt These structures appear parallel schistosity and dip steeply (approx. 80°) to the south.

4.4.0 Interpretation

4.4.1 Style-A

The emplacement of auriferous fluids was along the dominent zone of weakness ie: the schistosity planes at 102-126°. Supporting this interpretation is the presence of NW trending auriferous quartz-carbonate veins and the strong appearance of a NW linearity of silicified zones from one trench to the next. Syn or post deformation accompanying the mineralization episode may have formed "sheets". Although lithology parallels the mineralized zones, it does not appear at this time, to be a major controlling factor.

4.4.2 Style-B

Although a hypothesis, this interpretation should be considered because of the presence of conjugate fracture sets within shear zones. There is the possibilty that the silicified zones are related to a 080°-090° trending diffuse set of fractures conjugate to the dominent WNW-ESE shear. Should the Humlin-A zone shear be left stepping, the experience in the Red Lake camp is such that the mineralized zones would be left-stepping.

Additional knowledge of the geometry of the auriferous silicified zones would be required to prove out either interpretation.

4.5 Proposed Drilling

The proposed program is designed to meet the objectives. Foremost, is to delineate a lateral and vertical continuity of the two auriferous zones intersected in DDH 86R1, especially to the east towards the surface exposed mineralized body.

Three holes, each 400-450' long are to be collared on the ice so as to bracket DDH 86R1. Each hole will be continued until the talc-schist is encountered to as to test for any "roll-like" structures.

An additional three holes, each 300' long will also be collared on the ice. These will test approximately 100' vertically beneath the trenches.

A second objective is to establish the geometry of the auriferous silicified zones, especially to determine whether style-B of zones are present. Four short holes, each less than 150', are proposed to be collared upon the hillside immediately above trenches 3A and 4. One hole will test for additional silicified zones to the south.

Drilling southwards and collaring on the ice serves two purposes. Easier access is available since it will be difficult to establish drill stations along most of the hillside. In view of the success of 86R1, it also provides a means to test the northern end of the trenches to a relatively shallow depth.

The total program is approximately 3000 ft. Table II summarizes the proposed holes. Note, approximately 300 ft. will be used to test the best mineralized area to at least a 200 ft. vertical depth.

TABLE II

Proposed Drilling

D.D.H.	AZIMUTH	DIP	LENGTH	(Hillside
1	353	-60°	150'	Set-up)
2	060	-60°	150'	"
3	025	-60°	110'	"
4	210	-70°	120'	"
5	210	-45°	450'	(Ice Set-up)
6	210	-45°	400'	"
7	210	-45°	400'	"
8	210	-45°	300'	"
9	210	-45°	300'	"
10	210	-50°	300'	"
			2680'	
Additional 320 feet for deep drilling (follow-up hole)			320'	
			3000'	

5.0 Conclusions & Recommendations

The Red Ruth 3/4/8 Area has a high degree of potential for locating gold mineralization with substantial tonnage. In addition to the three auriferous quartz veins (No.s 3,4,8) there are a series of NE-SW trending alteration zones (sericite and silicification), including the Red Ruth No. 11, containing sheeted carbonate veins and some quartz veining.

The implication is that a large amount of fliud has moved through the area. Secondary silicification especially within sheeted carbonate veining, commonly contains significant gold mineralization in the Red Lake Camp. Only two previous holes have tested the large alteration zone at the eastern end of Red Ruth No. 4. Additional drilling would be necessary to adequately test for the presence of higher grades of gold mineralization.

At the western end of Red Ruth No. 4, the shear structure crosses into a talcose ultramafic. A good potential exists for the development of a structural trap in this area. It is noteworthy that gold mineralization is empirically associated with "nose-like" structures in ultramafics in the region. Just to the North there is another nose-like structure of ultramafic accompanied by intense brecciation, silicification, carbonatization and sericitization. Although several holes drilled by Selco did not indicate gold mineralization, the area was recommended as a prime target for additional drilling. Because of the presence of the Red Ruth No. 4 quartz vein, the ultramafic Western end of the Red Ruth No. 4 structure should be tested for the continuity of the vein.

Moderate to high grade gold values were collected a long a length of 260' along the narrow New No. 3 Q.V. showing. No information is available as to depth continuity. Shallow drill holes would be warranted.

On the basis of known knowledge the potential of the Humlin-A zone is limited to its extension at depth. The presence of a large (90'long X 10' wide) and the sucess of Redaurum DDH 86R1 warrants additional drilling.

The numerous auriferous quartz veins hosted in shear zones have a disturbing lack of continuity of economic gold values. In addition they are too widely spaced for economical mining. Post mineralization shearing has also disrupted continuity of the veins. At this time these auriferous veins, except for the Red Ruth No. 1 with a small drill indicated tonnage, are not viaible for additional exploration.

A drilling program of 5,500 feet is recommended with the following allocations:-

1) Red Ruth 3/4/8 Area : 2500 feet

2) Humlin-A Zone : 3000 feet

Details are contained in the proposed drilling sections of the report.

Signed:- P.A. Fernberg

Peter A. Fernberg

ON 85-219

63.4866

REDAURUM RED LAKE MINES LTD.

PROSPECT LOCATION PLAN, WEST RED LAKE AREA

Scale: 1 inch = 1/2 mile

MAP NO. 1

REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO

N

HUMLIN EXTENSION

RED LAKE

Humlin Zone

Redruth 1 Zone

HUMLIN

ST. PAUL BAY

FAIRLIE TWP.

BAIRD TWP.

DOME TWP.

HEYSON TWP.

TOWN OF RED LAKE

Coin Creek (Bridge)

Hasaga

Redaurum Road (1985)

Redruth 3 Zones

Redruth 4, 6 Zones

Parvus Zones

Florin Lake

Coin Lake

Buffalo

Redruth Lake

REDRUTH

SE

Camp Zone

REDAURUM

Redaurum 3, 14, 2, C Zones

Snib Lake

Paulore Zone

DERLAK

618

Killoran L.

Aiken Russet Zones

Russet Lake

Madsen Schist Zone

Madsen North Zone

Madsen

HEYSON

LEGEND

- Gold Prospect
- Gold Occurrence
- Shaft Location, Gold Zone
- Road, Construction by Redaurum, 1985/86.
- Approximate Trace of Depositional Locus

G.M. HOGG & ASSOCIATES LTD.

RED LAKE

20N

10N

BASE LINE

10S

20S

30S

L 44W L 42W L 40W L 38W L 36W L 34W L 32W L 30W L 28W L 26W L 24W L 22W L 20W L 18W L 16W L 14W L 12W L 10W L 8W L 6W L 4W L 2W L 0 L 2E L 4E L 6E L 8E L 10E L 12E L 14E L 16E L 18E L 20E L 22E L 24E L 26E L 28E L 30E L 32E L 34E L 36E L 38E

KRL 828 275

KRL 828 276

KRL 828 277

KRL 828 272

KRL 828 273

KRL 828 269

KRL 828 270

KRL 828 271

KRL 828 267

KRL 828 268

KRL 828 266

KRL 828 265

KRL 828 264

KRL 788 408

KRL 788 407

KRL 788 406

KRL 788 409

R E D L A K E

R-E-D LAKE

N

LEGEND

Instrument..... EDA OMNI 4

Base station location..... ▲

Reading base level.....59,000gammas

Contour interval.....100 gammas

2500 gamma contour.....

500 gamma contour.....

100 gamma contour.....

Depression .....

REDAURUM RED LAKE MINES LIMITED

HUMLIN WEST EXTENSION

Fairlie Twp., Red Lake, Ontario

Magnetometer Survey

TOTAL FIELD CONTOURS

MAP NO. 2

0 500' 1000 FEET

SCALE 1" = 200 Feet

May 1986

G. M. HOGG

REGISTERED PROFESSIONAL ENGINEER

PROVINCE OF ONTARIO

210

0M85-219

63-4866

RED LAKE

RED LAKE

ISLAND

RED LAKE

KRL 828 274
KRL 828 275
KRL 828 276
KRL 828 273
KRL 828 269
KRL 828 268
KRL 828 267
KRL 828 266
KRL 828 277
KRL 828 272
KRL 828 270
KRL 828 271
KRL 828 265
KRL 828 264
KRL 788 407
KRL 788 408
KRL 788 406
KRL 788 405

Is.

20N
10N
BASE LINE
10S
20S
30S
L 44W
L 42W
L 40W
L 38W
L 36W
L 34W
L 32W
L 30W
L 28W
L 26W
L 24W
L 22W
L 20W
L 18W
L 16W
L 14W
L 12W
L 10W
L 8W
L 6W
L 4W
L 2W
L 0
L 2E
L 4E
L 6E
L 8E
L 10E
L 12E
L 14E
L 16E
L 18E
L 20E
L 22E
L 24E
L 26E
L 28E
L 30E
L 32E
L 34E
L 36E

LEGEND

Instrument.....Geonics EM-16
Transmitter..NAA,Cutler,Maine,24.0kHz
Contours of Fraser filtered VLF-EM Inphase data
+50% contour.....
+10% contour.....

REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO

REDAURUM RED LAKE MINES LIMITED
HUMLIN WEST EXTENSION
Fairlie Twp., Red Lake, Ontario

MAP NO. 3

VLF EM Survey
FILTERED INPHASE CONTOURS

0 500' 1000 FEET
SCALE 1" = 200 Feet
May 1986

220

OM 85-219

63-4866

230

OM85-219

63.4866


REDAURUM RED LAKE MINES LIMITED
HUMLIN WEST EXTENSION
Fairlie Twp., Red Lake, Ontario
VLF-EM
Profiles
MAP NO. 5
G. M. HOGG
LEGEND
RED LAKE
ISLAND
BASE LINE
20N
10N
10S
20S
KRL 828 267
KRL 828 268
KRL 828 274
KRL 828 275
KRL 828 266
KRL 828 273
KRL 828 269
KRL 828 276
KRL 828 277
KRL 828 272
KRL 828 270
KRL 828 265
KRL 828 271
KRL 828 264
KRL 788 407
KRL 788 408
KRL 788 406
KRL 788 409
OM 85-219
63-4866
240

L 7+00 W

L 6+00 W

L 5+00 W

L 4+00 W

BASELINE (0+49')

TRAIL

87R16

85R13

85R14

85R15

87R15

R-44

R-22

R-23

R-47

R-21

R-46

R-5

R-32

R-33

R-7

R-41-42-43

R-8

R-9

R-45

R-10

R-11

R-30

R-29

R-13

R-12

X-11

X-10

SPRUCE

MUSKEG

NORTH

INTRUSIVE ROCKS

[c] quartz-q feldspar syenite

[5] granodiorite

[4] a diorite

PREVIOUS DRILLING

RAJAH RED LAKE GOLD MINES (1937)

DDH-3

REDAURUM RED LAKE GOLD MINES (1944, 1945)

1944 R-25

1945 X-7

REDAURUM RED LAKE MINES (1984, 1985, 1987)

1984 RRL-7

1985 85R17

1987 87-16

DRILL INTERSECTIONS (ASSAYS and GEOLOGY)
PROJECTED VERTICALLY TO SURFACE

SYMBOLS

- discrete shear planes
- bedding, or unit contact attitudes
- foliation
- lineation (trend and plunge)
- jointing, or fracture
- outcrop
- contact (known, approximate, assumed)
- fault and/or shear zone (known, inferred)
- minor fold, with plunge and trend of fold axis
- trench
- zone of intense shearing
- brecciated
- siliceous alteration
- carbonatization
- fuschite
- q.v. quartz vein
- q.t.v. quartz tourmaline vein
- Q.C.V. quartz carbonate vein

SCALE
0ft 20 40ft

REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO

AM85-219 63.4866

REDAURUM RED LAKE MINES LTD

REDAURUM PROJECT

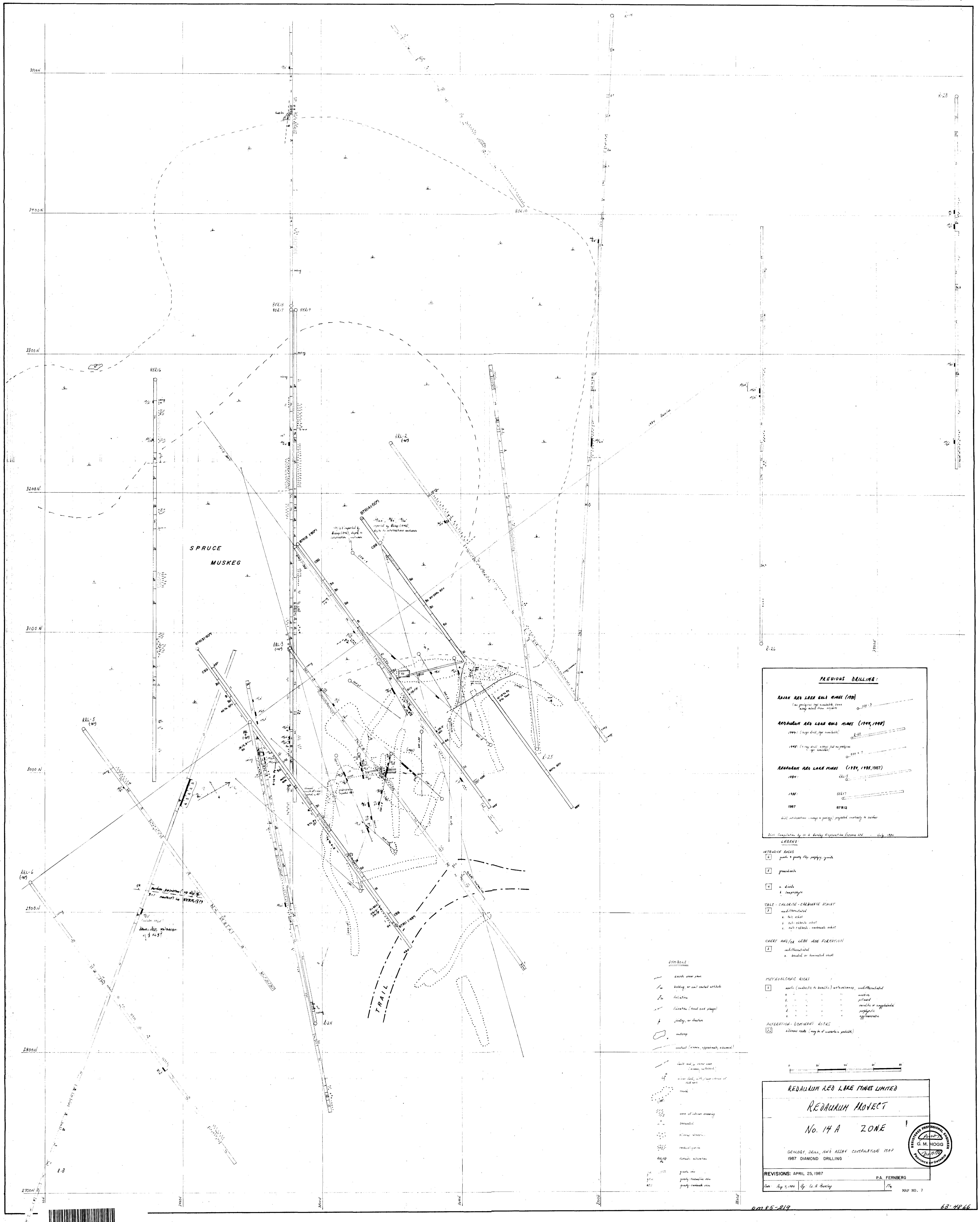
No.3 Zone

GEOLOGY, DRILL and ASSAY COMPILATION MAP
(BY: W.A. BARCLAY EXPLORATION SERVICES)
JULY-AUGUST 86

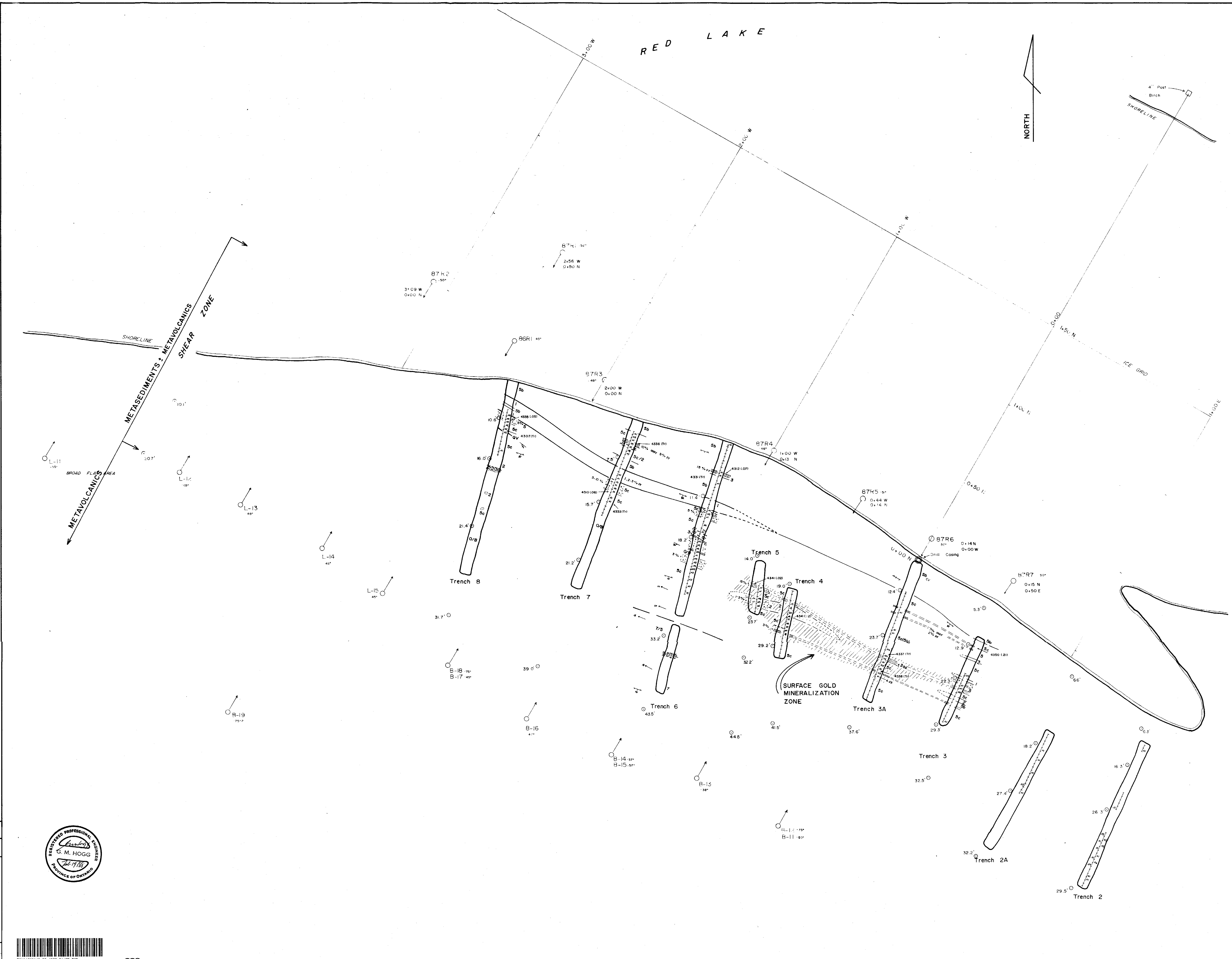
1987 DIAMOND DRILLING MAP NO. 6

REVISION:

COPIED: APRIL 25/87 BY: P.A. FERNBERG MAP No: RRL 87-006


3500N
3400N
3300N
3200N
3100N
3000N
2900N
2800N
2700N
3400E
3500E
3600E
3700E
3800E
3900E
SPRUCE
MUSKEG
TRAIL
85R16
85R18
85R17
85R19
85R10
K-14
K-28
K-26
K-25
K-24
K-13
RRL-2 (-45°)
RRL-3 (-45°)
RRL-4 (-45°)
RRL-5 (-45°)
RRL-6 (-45°)
87R11 (-48°)
87R12 (-60°)
87R13 (-60°)
87R14 (-50°)
1984 Baseline
CSG
40% QCV
80% QCV
10-15% Py 3% Tour.
5-10% Py
mafic dyke
tour. epid.
468'
386'
494'
PREVIOUS DRILLING:
RAJAH RED LAKE GOLD MINES (1937)
(no geological logs available, some assay values from reports)
DDH-3
REDAURUM RED LAKE GOLD MINES (1944, 1948)
1944: (large drill, logs available)
K-25
1948: (x-ray drill assays but no geological logs available)
DDH #7
REDAURUM RED LAKE MINES (1984, 1985, 1987)
1984:
RRL-5
1985:
85R17
1987
87R12
drill intersections (assays + geology) projected vertically to surface
Drill Compilation by W. A. Barclay Exploration Services Ltd - July 1986
LEGEND
INTRUSIVE ROCKS
6 quartz + quartz-fldp. porphyry, syenite
5 granodiorite
4 a. diorite
b. lamprophyre
TALC-CHLORITE-CARBONATE SCHIST
3 undifferentiated
a. talc schist
b. talc-chlorite schist
c. talc ± chlorite-carbonate schist
CHERT AND/OR LEAN IRON FORMATION
2 undifferentiated
a. banded or laminated chert
METAVOLCANIC ROCKS
1 mafic (andesitic to basaltic) metavolcanics, undifferentiated
a massive
b. pillowed
c. variolitic or amygdaloidal
d. porphyritic
e. agglomeratic
ALTERATION-DOMINANT ROCKS
siliceous rocks (may be of uncertain protolith)
SYMBOLS
discrete shear plane
bedding, or unit contact attitude
foliation
lineation (trend and plunge)
jointing, or fracture
outcrop
contact (known, approximate, assumed)
fault and/or shear zone (known, inferred)
minor fold, with plunge + trend of fold axis
trench
zone of intense shearing
brecciated
siliceous alteration
carbonatization
fuchsite alteration
quartz vein
quartz-tourmaline vein
quartz-carbonate vein
0 20' 40' 60' 80'
REDAURUM RED LAKE MINES LIMITED
REDAURUM PROJECT
No. 14 A ZONE
GEOLOGY, DRILL, AND ASSAY COMPILATION MAP
1987 DIAMOND DRILLING
REVISIONS: APRIL 25, 1987
P.A. FERNBERG
Date: Aug. 7, 1986
By: W. A. Barclay
MAP NO. 7
REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO
om 85-219
63.4866
52N04SW0140 63.4866 BAIRD TWP
260


GEOLOGY
1 MAFIC METAVOLCANICS
a) massive
b) pillowed
c) pyroclastics, chlorite schist
hy = hyaloclastic
e) flow breccia
7 MAFIC INTRUSIVE
a) gabbo, massive
ax = coarse grained
b) actinolitic
9 ULTRAMAFIC
Note: Field name
ALTERATION DOMINANT ROCK
Siliceous
Sericite
Carbonatized, ± biotitic alteration
VEINING
QV Quartz vein
CV Carbonate dominant
Convoluted carbonate veinlets
Sheeted carbonate veinlets
QV location, compiled
SYMBOLS
Bedding, unit contact attitude
Vein attitude
Joint
Pillow top direction
Long axis of pillows
Contact; known, assumed, inferred
Foliation
Cleavage; close spaced fracturing
Lineation (trend and plunge)
Shear
© Geology and outcrop compiled from Selco 1983
1940's Trenches
Muck pile
1986 Bulldozer stripping
Outcrop
Bulldozer trail
Diamond drilling
DDH - 24 Red Ruth Gold Mines, 1945/46 (locations approx.)
RR - 6A Selco, 1982
FC Fuchsite
SRP Serpentine
O/B Overburden
O/C Outcrop
? Questionable
Vlts Veinlets
Bld Boulders
mx Multiple
min Minor
amy Amygdaloidal
var Variolitic
Note: Base map constructed by compass, chaining and pace method
1987 DIAMOND DRILLING
87R8
OM 85-219
63.4866
REDAURUM RED LAKE MINES
HUMLIN-RED RUTH PROJECT
RED RUTH 3/4/8
SHOWINGS
REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO
0 50 100 150 200
FEET
DRAWN BY: P.A. FERNBERG
DATE: OCT, 1986
REVISION:
MAP NO. 8
34
270
NORTH
L50E
L52E
L54E
L56E
L58E
L60E
TIELINE
A
A'
RED RUTH No. 3 ZONE
RED RUTH No. 8
RED RUTH No. 4
RED RUTH No. 11
NEW No. 3 QV
Alder Bog
Valley
DDH-21
DDH-22
DDH-23
DDH-24
DDH-25
DDH-26
DDH-27
DDH-28
DDH-29
RR-6A
RR-7
87R8
87R9
87R10
Note: 1946 drill log observation of coarse/medium grained andesite interpreted as gabbro.



GEOLOGICAL KEY

see map SUB-SURFACE GEOLOGY
HUMLIN - A

SCALE
0ft 20 40ft

AM 85-219 63-4866

REDAURUM RED LAKE MINES LTD

HUMLIN - RED RUTH PROJECT

HUMLIN - A ZONE

SURFACE GEOLOGY

DATE:	BY:	REVISIONS	
MARCH/87	P.A. FERNBERG		MAP NO. 9

GEOLOGICAL KEY

METASEDIMENTS

1. Fuchsite Felsic Unit
2. Pebble Wacke Unit
3. Chert
4. Siltstone
5. Chlorite-Schist Unit
   a) Undifferentiated (may be in part metavolcanic)
   b) black-grey "slates"
   c) volcanoclastic
6. Biotite Wacke

METAVOLCANICS

7. Mafic Volcanic Unit

INTRUSIVE

8. Talc Schist
   a) altered gabbro
9. Felsic Dyke

ALTERATION/MINERALIZATION

- silicified
- siliceous bands ± quartz-carbonate
- arsenopyrite
- A — mineralization zone

SYMBOLS

O/B	overburden
bx	Breccia
Q.C.V.	Quartz-carbonate veining
C.V.	Carbonate veining
Py.	Pyrite
Aspy.	Arsenopyrite
	Geological contact (known, assumed, inferred)
	Schistosity
	Lineation (crenulation)
	Vein attitude
O32'	Elevation above ice level
	Quartz-carbonate veining (1946 drill intersection)

DIAMOND DRILLING

Howey Gold Mines Limited (1945)
(partial geological & assay data available)
B-16, L-15

Redaurum Red Lake Mines Limited (1986 & 1987)
86R1, 87R7

* Drill intersections (geological & assay) projected vertically to surface.

SCALE
0ft 20 40ft

om85-219 63.4866

REDAURUM RED LAKE MINES LTD

HUMLIN-RED RUTH PROJECT

HUMLIN-A ZONE

SUB-SURFACE GEOLOGY

COMPOSITE PLAN 0-280'

DATE BY

MAP NO. 10

REGISTERED PROFESSIONAL ENGINEER
G. M. HOGG
PROVINCE OF ONTARIO

RED LAKE

NORTH

METASEDIMENTS ± METAVOLCANICS

METAVOLCANICS

87R1, 87R2, 86R1, 87R3, 87R4, 87R5, 87R6, 87R7

L 11, L 12, L 15, B 13, B-12, B 11

A, B, C

Trench 8, Trench 7, Trench 6, Trench 5, Trench 4, Trench 3A, Trench 3, Trench 2A, Trench 2

ASSAY

1941 Channel sampling
Blank (Tr.)
.10 (oz Au/ton)

1986 Chip Samples (Grab)
eg: 4350 (.21) oz Au/ton

D.D. Core
Assay/interval.

NOTES

1) Trench base map from Howey Gold Mines, 1945.

2) 1941 trench sampling copied from Howey Gold Mines, 1945

3) 1945 D.D.H. collar location ± 25' accuracy.
Dip calculated from 1946 1-500' scale plans.
Azimuth from 1946 1-500' scale plans.

4) Trenches tied to drilling on assumption that 1941 grid was used as a base for the 1946 program.