80-#916-#8647

PIE CLAIMS, B.C.

Omineca M.D.
GEOLOGY, DRILLING, ETC. 1980

57°28'N 125°00'W
NTS 94F/6E, 7W

G.D. Hodgson & J.F.H. Thompson
AUGUST 1980

Owner & Operator: Rio Tinto Canadian Exploration Ltd.

Work performed on	Record No.	Expiry date
Pie 1 - 9	1296-1304	25 Jul 82
Pie 10 - 11	1414-1415	15 Sep 82
Pie 12	1416	15 Sep 82
Pie 13 - 15	1955-1957	13 Aug 82
Pie 16	1958	13 Aug 81
Pie 17	1959	13 Aug 82
Pie 18	1960	13 Aug 82
Pie 19F - 22	2289-2300	9 Nov 82
Pie 25 - 26	2890-2891	2 Jul 83

SUMMARY

The Pie claims are underlain by a package of Paleozoic sediments being predominantly shales and siltstones. Structural features trend NW-SE and the rocks generally dip to the southwest. In 1980 a diamond drill programme tested an area of barite-galena float and associated high lead and zinc geochemistry. Detailed geological mapping on a scale of 1:10,000 was also undertaken, along with some stream silt-sampling, prospecting and hand-trenching.

Although extremely useful for local stratigraphic analysis within the Devonian shales, the drilling programme was unsuccessful in determining the origin of the mineralized float on the Pie claims. From drill core and surface mapping it was possible to sub-divide the Devonian shales which underlie the central and eastern parts of the property. Mapping also allowed a better understanding of the tectonics on the western side of the claim group, where Ordovician and Silurian rocks have been folded and thrust from the southwest.

It was concluded that correlations could be made between the Pie claims and the Cirque property (of Cyprus Anvil Mining Corporation and Hudson's Bay Oil and Gas) to the northwest. However, in detail, the Devonian package on the Pie does not appear to represent the "sedimentary-exhalative", sediment-deficient, anaerobic basin necessary for deposits of the Cirque type.

Silt sampling along creeks draining the western part of the property showed that the older units are not mineralized. Prospecting was not successful and the minor amount of hand-trenching in the vicinity of the mineralized float failed to penetrate the thick soliflucted overburden.

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1. INTRODUCTION

Devonian black shales in the northern Rockies of British Columbia host important deposits of lead, zinc and silver, e.g. the Cirque deposit. Riocanex staked the Pie claims in 1978 to cover barite-galena float and anomalous stream-silt geochemistry over part of these Devonian shales.

In 1979 additional claims (Pie 13-18) were added to the Pie group, on the west side, to cover Devonian shales that might lie at shallow depth beneath a southwest-dipping thrust fault.

The 1980 exploration programme included diamond drilling,detailed geological mapping at a scale of 1:10,000, geochemistry and prospecting.

2. LOCATION & ACCESS

The claims are situated in the western ranges of the northern Rocky Mountains between the Kwadacha River on the north and the Akie River on the south (Dwg. L-6650).

Latitude $57^{o}28'N$
Longitude $125^{o}00'W$
N.T.S. 94F/6E, 7W

The nearest major centre is the town of Mackenzie, B.C., about 250km to the southeast. On the Finlay River, 35km to the west, is the small Indian settlement of Fort Ware.

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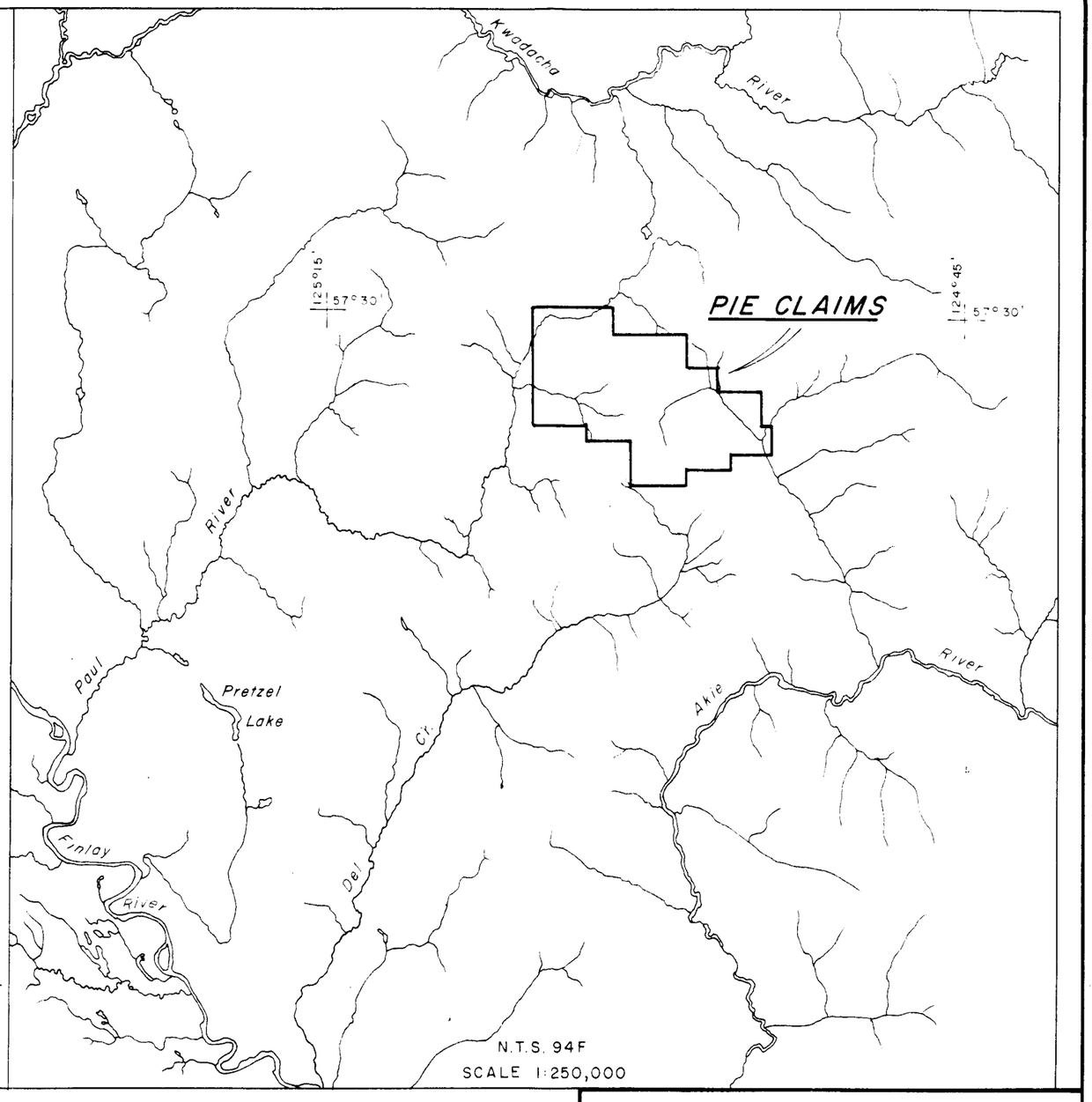

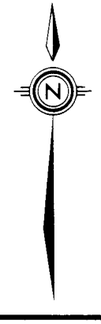

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8647
NO.

RIO TINTO CANADIAN EXPLORATION LTD.

PIE CLAIMS

LOCATION MAP

DATE	DRAWN BY	DWG.
AUG. 80	GH/dg	L 6650

After spring breakup, barges run from Mackenzie at the south end of Williston Lake to Ingenika and Deserters Canyon at the north end. Near the confluence of the Paul River with the Finlay River, Cyprus Anvil have built a gravel airstrip to facilitate development of the Cirque deposit.

Access to the Pie claims was by helicopter from the Riocanex base camp, which in 1980 was situated at Pretzel Lake, 25km southwest of the property. A helicopter is permanently based at Mackenzie.

3. TOPOGRAPHY & VEGETATION

The area is mountainous and elevations range from 1200m to over 2100m above sea level. Much of the area is above tree line and is covered by alpine meadows or scree where the slopes are steeper. Lower slopes and valley bottoms are covered with spruce and alder forest.

4. HISTORY & PREVIOUS WORK

In 1977 Cyprus Anvil and Hudson's Bay Oil and Gas discovered barite-pyrite-sphalerite-galena mineralization south of the Kwadacha River. This deposit, the Cirque, was drilled by them in 1978.

Riocanex staked the Wil, Pie, Dog and Yule claims in 1978 following a regional exploration programme. The 1979 Riocanex programme involved soil sampling on the Pie claims and regional geological reconnaissance.

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There has been geological mapping on a scale of 1:250,000 by the G.S.C. (Gabrielse, 1962, 1977; Taylor and Stott, 1973; and Taylor, 1979). MacIntyre (1980) has mapped the belt also on a scale of 1:250,000 for the B.C. Department of Energy, Mines and Petroleum Resources.

5. WORK PERFORMED IN 1980

The Riocanex 1980 exploration programme comprised:

(i) diamond drilling (1248.1m in 6 holes)
(ii) 1:10,000 geological mapping
(iii) silt sampling (17 samples)
(iv) prospecting
(v) hand-trenching
(vi) orientation geophysics (HLEM, VLF)
(vii) soil sampling (240 samples)

6. PERSONS EMPLOYED

Geological mapping was by J.F.H. Thompson, who, along with G.D. Hodgson, prospected the area. P. McCarthy led the silt sampling team of 4. C. J. Campbell managed the orientation geophysics. The programme was under the field supervision of G.D. Hodgson.

Northern Mountain Helicopters, Ltd., provided helicopter support and Canadian Mine Services were the drilling contractors.

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125° 00'
57° 30'

PIE 9
PIE 8
PIE 4
PIE 23
PIE 24
PIE 21
PIE 14
PIE 13
PIE 12
PIE 3
PIE 19 Fr.
PIE 1
PIE 2
PIE 11
PIE 7
PIE 15
PIE 16
PIE 17
PIE 10
PIE 20
PIE 6
PIE 5
PIE 18

CIRQUE

PIE 22

River

Paul

FLUKE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 8647

N.T. S. 94 F/6,7

SCALE 1:50,000

1000 500 0 1000 2000 3000 4000 Metres

RIO TINTO CANADIAN EXPLORATION LTD.

PIE CLAIMS

CLAIM MAP

DATE	DRAWN BY	DWG.
Oct. 80	GH/dg	C 6657

7. GEOLOGY

7.1 General Statement

Tectonic elements trend NW-SE and the different rock units are exposed as narrow linear belts. Barite-pyrite-sphalerite-galena mineralization occurs locally in Devonian shales.

7.2 Regional Stratigraphy

Little work has been done in the area and the reader is referred to G.S.C. Open Files 483 (Gabrielse, 1977) and 606 (Taylor, 1979) for more information on regional geology. D.G.MacIntyre of B.C. Ministry of Energy, Mines & Petroleum Resources is currently working in the area and is expected to soon release a compilation map. Several informal field names are introduced below.

Talcy-lime shales and shaly-banded limestones of the Cambro-Ordovician Kechika Group are the oldest rocks exposed in the area. Probably lying uncomformably on top of these are black calcareous shales of the Ordovician-Silurian Road River Group. Although the predominant Ordovician lithology is a black, carbonaceous, limy shale that commonly bears graptolites, a local facies variation of the Road River rocks is the Del Creek Formation, a hematitic siltstone with associated agglomerates. Above the shales is the Silurian Nep Formation, a distinctive grey micrite commonly associated with chert bands. An unconformity locally cuts the Nep Formation out of the succession and the overlying tan weathering, Silurian Muskwa siltstones are distinguished by the presence of intense bioturbation. Eastwards these silts are represented by a variable sand facies.

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Thickly bedded grey limestones lie above the Silurian on the Pie claims. The unit represents a reefal buildup on the edge of a middle Devonian shale basin. Elsewhere these limestones are reduced and are represented largely by debris flows and breccias. The Devonian and Mississippian Black Clastics comprise a lower silty shale unit, a middle unit of calcareous and siliceous shales, and an upper,coarser,black clastic unit. Barite-Pb-Zn-Ag mineralization is thought to occur between the lower and central units.

The youngest rocks in the unit are Permian silty shales. These are fault bounded and their relationship to older units is not known.

7.3 Property Geology

7.3.1 Stratigraphy

The Pie claims are underlain by shales, cherts, siltstones and limestones of Ordovician to Devonian age. Structure is important in the distribution of the stratigraphic units. A major anticline follows the eastern edge of the property, where competent Devonian limestone is exposed. Three thrust slices of older rocks underlie the western Pie claims, each slice containing an overturned anticlinal structure. The distribution and lithological characterisitics of the major units will be described individually. A 1:10,000 scale geological map is shown in Dwg. G-8781.

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The Kechika Group: Ordovician Kechika Group rocks are exposed in the cores of the anticlinal structures in the western and central thrust slices. Lithologically, the Kechika Group rocks consist of a calcareous talcy-shale containing silty, calcareous pods and lenses. The proportion of calcareous pods to host rocks varies from about 5% to 30%, though generally the Group is markedly uniform.

The Road River Group: The Road River sediments on the Pie claims have been divided into four units:

(iv)	Muskwa Siltstones	Silurian
(iii)	Nep Formation	Silurian
(ii)	Del Creek Formation	Ordovician
(i)	Road River Black Shale Facies.	Ordovician

An igneous sill intrudes units (i) and (ii). The Ordovician section of the Road River Group is restricted to the western and central thrust slices. Silurian Road River rocks crop out in the central and eastern thrust slices.

(i) The shale facies varies in colour from grey to black, but locally displays a light grey to silver weathering colour. This is a reflection of composition and also cleavage surface/bedding surface intersection angles. Compositionally, the facies varies from paper- or chip-shale to more massive siliceous shale and chert. Limestone beds, from 1 - 10m thick, occur towards the base of the shale unit. These limestones commonly contain sedimentary structures providing definitive way-up criteria. Ordovician graptolites are locally present throughout the shale sequence.

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(ii) The siltstone facies, or Del Creek Siltstone, is dominant in the central thrust slice but interdigitates with black shales towards the southeast. Similar rocks cap the ridge to the southwest of the property in the western thrust slice. Lithologically, the facies comprises a laminated, tan to orange weathering siltstone. Laminations may be hematitic and a general hematitic stain is locally present. Minor limestone and chert beds are interbedded with the siltstones. A group of distinctive orange weathering, limy breccias and conglomerates also occur within the siltstones. The clasts, variable in composition and size, are supported by a chloritic, calcareous matrix. A volcanic association is postulated for these agglomerates.

A major igneous sill, up to 50m thick, intrudes the shale facies. Compositionally, the sill consists of an altered medium grained ophitic gabbro, though the local appearance of up to 10% quartz indicates a more dioritic composition. The sill has well defined chilled margins and the adjacent country rock is altered up to 10m from the sill.

(iii) Nep Formation: The Road River shales pass conformably up into a unit of micritic limestone interbedded with chert. Siltstone containing shale pods and lenses may occur within this unit. Monograptids are found within the siltstones indicating a Silurian age.

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(iv) Muskwa Siltstones: Cropping out predominantly in the central and eastern thrust slices, these Silurian-age siltstones are characteristically resistant. They vary from uniform silty flagstones to highly bioturbated, tan weathering dolomitic siltstones containing numerous worm burrows and spiral feeding trails. The flagstones contain monograptids and rare cyrtograptids confirming a Silurian age. Calcareous concretions up to 1m across occur in beds, and hematite or pyrite nodules are locally abundant.

Devonian: Devonian shales outcrop beneath the eastern thrust slice northeast of the claims. From relationships seen elsewhere these shales locally lie directly on the Silurian siltstones, but on the Pie claims a middle Devonian reefal limestone overlies the Silurian rocks. Work in 1980 has enabled a 5 fold sub-division of the Devonian shales:

(v) Warneford facies
(iv) Gunsteel shales
(iii) "Active Zone"
(ii) Akie shales
(i) Kwadacha limestone

(i) Kwadacha Limestone: Middle Devonian limestone forms a major unit on the Pie claims, 350m thick. It overlies the Silurian siltstone and consists of a basal unit of reefal debris, a central unit of interbedded chert and limestone, and an upper unit of reefal limestone. Middle Devonian two-hole crinoids, corals and stromatoporoids are present in the reefal limestone.

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(ii) Akie shales: The Akie shales overlie the Devonian limestone. They consist of a pyritic, hematitic-stained shale, locally calcareous and silty.

(iii) "Active Zone": The Active Zone is recognized by the presence of barite-bearing shale and laminated pyritic shale. Barite mainly occurs in beds of 20%-50% blebs. A minor pyritic shale unit occurs above the barite-bearing shale. The Active Zone hosts the Ag-Pb-Zn mineralization on the Cirque property northwest of the Pie claims.

(iv) Gunsteel shales: The Gunsteel shales overlie the Active Zone. They consist of a laminated calcareous shale, a uniform grey shale or siliceous shale, porcellanite or chert.

(v) Warneford facies: On the Pie claims the Warneford consists of interbedded black hematitic shales, black quartzite and polymictic conglomerate. Generally the facies overlies the Gunsteel shales but interdigitates lower in the Gunsteel shale sequence. The thickness of the Warneford is very variable, although it is not clear whether this variation is tectonic in part.

7.3.2. Structure

The geology of the claim group has been divided into four structural slices defined by three, major, high-angle thrust faults. Tectonic units trend approximately northwest-southeast. Each thrust slice contains an anticline - usually over-turned because of drag folding associated with the thrusting (Dwg. G-6651).

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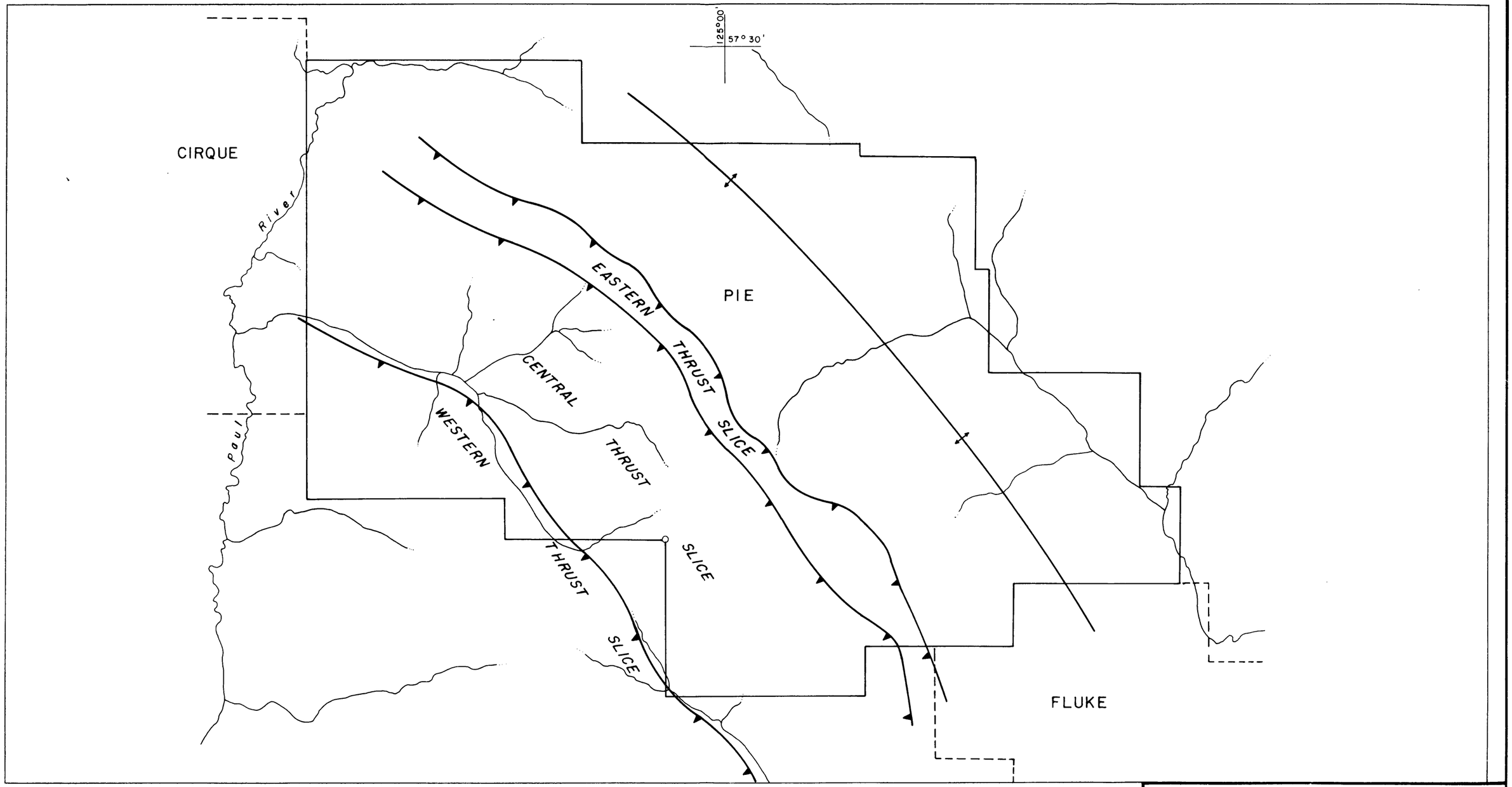

N.T.S. 94F/6,7

SCALE 1:50,000

1000 500 0 1000 2000 3000 4000 Metres

RIO TINTO CANADIAN EXPLORATION LTD.

PIE CLAIMS

STRUCTURAL DIVISIONS

DATE	DRAWN BY	DWG.
OCT. 80	G.D.H./s.g.	G-6651

On the eastern margins of the property, Devonian rocks have been folded into a major anticline cored by Devonian limestone. Thrust over this sequence, the eastern thrust slice contains Silurian siltstones folded into an overturned anticline. Rocks within the central thrust slice are essentially flat-lying with minor open anticlinal and synclinal fold structures. The north end of this tectonic unit contains an anticline overturned to the northeast. In the south the anticline becomes a more open structure with lower Ordovician rocks exposed in the core. The western thrust slice contains a continuous overturned anticline which plunges gently to the northwest. The plunge accounts for a gradual thinning of the Kechika Group and the eventual appearance of younger rocks in a northwesterly direction.

Two faults have been recognized in the central thrust slice where the well exposed igneous sill provides easy identification of relative fault motion. The more westerly fault is probably a high-angle reverse fault with a trend sub-parallel to the tectonic units.

On a mesoscopic scale minor folds are present, particularly in the Road River shales. These faults have a wavelength varying from 5cm to 10m. They are generally isoclinal to box-type folds. Fold axial surfaces and axial planar cleavage typically dip to the southwest. The resultant varying cleavage/bedding intersection angle controls many of the characteristics of the broken rock in scree.

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7.3.3 Mineralization

Mineralization in pre-Devonian rocks is restricted to trace amounts of malachite associated with the igneous sill in the Road River Group. This mineralization is of no apparent economic significance.

Mineralized float, spatially related to the contact between the middle Devonian Kwadacha reef limestone and the overlying Akie shales, comprises weathered chunks and subrounded pebbles of barite and galena with minor amounts of pyrite. Geochemical analyses in 1978 and 1979 returned negligible values in silver and zinc. The float is extremely weathered and it is difficult to come to any conclusions regarding the source of mineralization. Geophysics suggests that there is an underlying fault (See Chap 12). However galena and pyrite grains are rounded and could possibly be detrital, and the barite appears massive and is possibly bedded. No other such occurances are known.

8. DRILLING

8.1 Objectives.

Drilling in 1980 was designed to determine:

1. the source of mineralized float;
2. the origin of the 1979 soil anomally (Hodgson & Faulkner,1979);
3. the character and importance of the "Active Zone"

Location of the drill holes is given in Dwg. D-7566.

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8.2 Equipment:

A Longyear 38 drill and NQ equipment was used for the drilling. Drill moves were by medium-lift helicopter. 6 holes were drilled totalling 1248.1m.

8.3 Results.

The first three holes (80-1, 80-2, 80-3) were drilled to intersect both the Active Zone and the Devonian shale-limestone contact. The Active Zone was unmineralized and generally consisted of blebby barite, bedded barite occuring only in 80-2. Pyritic shale was found in all three holes overlying the limestone but no other sulphides were discovered. Assay results confirmed these observations. Minor amounts of brown sphalerite were intersected in 80-1, occuring in fractures and veins in both the shale and the limestone.

DDH 80-4 was set up above the mineralized float. Unmineralized, decomposed pyritic shale was intersected above the limestone. DDH 80-6 was collared northwest of 80-4 closer to the gossan and intersected similar decomposed shale.

DDH 80-5 was placed to intersect the down-dip and supposed basinward extension of the stratigraphy established in holes 80-1, 80-2 and 80-3. This hole was stopped when stratigraphic correlation was made with previous drilling. No other baritic horizons were located and the known barite horizon was again unmineralized.

Drill logs are attached (See Appendix I).

Core is stored at base camp Pietzl Lake, 25 km SW of drill site

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9. GEOCHEMISTRY

Silt samples were collected from creeks draining the western Pie claims at intervals of about 500m those creeks. Coarse detritus and organic material were avoided where possible. Samples were collected in kraft paper bags and sent to the Riocanex laboratory in North Vancouver for analysis for Cu, Pb and Zn.

The samples were prepared by drying and sieving to -80 mesh. 0.6 gm of each sample was placed in a test tube to which was added 2 ml concentrated nitric acid. The solution was heated in a hot water bath at 95°C for ½ hour and then allowed to cool. 1 ml concentrated hydrochloric acid was then added, and the solution heated in a hot water bath at 95°C for 1½ hours. After being cooled each sample solution was diluted with deionized water to a final volume of 12 ml. The sample solutions were then analyzed by atomic absorption.

Sample locations and results are shown in Dwg GC-7564. No anomalous values were returned with respect to any of the elements.

10. PROSPECTING

Prospecting on the property was unsuccessful in discovering further Pb or Zn mineralization. Cross-cutting barite veinlets were found in several out-crops of Devonian Akie shales.

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11. TRENCHING

Three trenches were dug by hand in 1979 in an unsuccessful attempt at finding the source of the mineralized float. A further unsuccessful effort was made in 1980 when the earlier trenches were enlarged and several other pits were dug.

12. GEOPHYSICS

Two reconnaissance MaxMin II horizontal loop EM traverses were run across the Pie claims over DDH 80-2, 80-4 and 80-6 (see Dwg. GP-8790). No significant anomalous behaviour was discerned by this effort.

A slightly more extensive orientation VLF survey was carried out and several trends became apparent (Dwg. GP-8790). In particular a strong conductor underlies the gully from which mineralized float has been recovered. Although the gully ends at about line 7200N, the VLF trend continues NW and swings northwards to pass immediately east of the gossan. Geophysical interpretation suggests a northeasterly dipping fault is responsible.

A second VLF trend, to the southwest, tends to run parallel to the first and appears to follow the shale-limestone contact.

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13. CONCLUSIONS

13.1 Diamond drilling on the central part of the Pie claims has adequately tested 1km of strike length of Devonian shales and found them to be unmineralized. The major units of the shale stratigraphy are considerably thicker than their equivalents on the Cirque prospect. Potential for mineralization may increase down-dip - in other words basinwards - or along strike, where rapid facies changes are known. 5km of shales, spatially associated with a soil anomally, remain untested on the Pie claims along strike to the southeast, and similarly-anomalous soil geochemistry continues along strike to the northwest.

13.2 It is unlikely that Devonian shales are present at a shallow depth beneath the thrust slices of older rocks on the west side of the property.

13.3 Orientation geophysics shows that VLF traces follow geological trends.

13.4 Stream silt geochemistry suggests that Pb-Zn mineralization is absent in those rocks older than the Devonian.

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14. REFERENCES

Gabrielse, H., 1962; Kechika Map-area. Geol. Surv. Can. Map 42-1962

Gabrielse, H., 1977; Ware W½ and Toodoggone River Map-Area. Geol. Surv. Can. O.F. 483

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APPENDIX I

DRILL LOGS

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 6850 N 3000 E

HOLE NO : 80-1

AZIMUTH : 045°

PROPERTY : PIE

DIP : -60° LENGTH : 340.25 m ELEVATION : 1620 m approx Claim No.: PIE 3

STARTED : 27, May 1980 CORE SIZE : NQ DATE LOGGED : 23, June 1980 SECTION : 6850 N

COMPLETED : 3, June 1980 DIP TESTS : 93m:58°: 340.25m:51° LOGGED BY : J.H.F. Thompson

PURPOSE : CONTRACTOR: CANADIAN MINE SERVICES

M from	M to	DESCRIPTION	SAMPLE Nº	FOOTAGE from	FOOTAGE to	LENGTH
0	21.35	CASING				
		21.35 27.15 Broken black shale with rare quartz veins.				
27.15	71.95	Black shale with calcareous silt bands, commonly pyrite-bearing.				
		27.15 - 28.95 Uniform black shale.				
		28.95 - 29.25 Calcite veined calcareous band.				
		29.25 - 30.20 Three 24 cm wide calareous bands in black shale.				
		30.20 - 30.95 Black shale with two calcareous concretions.				
		30.95 - 37.20 Black shale containing a number of 1-2 cm wide pyrite-bearing silt bands cross-cut core axis of 75-80°, 33.55 m: two pyrite blebs approx. 1 cm across contain minor (5%) sphalerite.				
		37.20 - 37.50 Black shale containing calcareous nodules.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-1

PAGE Nº: 2

from (M)	to (M)	DESCRIPTION	SAMPLE Nº	from (M)	to (M)	LENGTH	oz/ton Ag	Pb %	Zn%
		37.50 - 44.20 Black shale containing several 1-2 cm wide pyrite-bearing,	D470	46.05	47.05	1m	0.03	0.01	4.70
			D471	47.05	48.05	1m	0.01	0.01	1.15
		silt-bands, pyrite commonly concentrated	D472	48.05	49.05	1m	0.02	0.01	0.09
		at base of silt band.							
		44.20 - 54.55 Silty shale containing							
		calcareous pyrite-bearing silt bands.							
		Brecciated and veined with quartz and							
		calcite. Several veins from 46.05-48.00 m							
		contain 10-20% coarse brown sphalerite.							
		54.55 - 55.20 Prominent coarse							
		calcarenite bed. Upper 15 cm show soft							
		sediment deformation. Coarse downwards							
		and cross-bedding indicates right way up.							
		55.20 - 58.25 Silty black shale							
		containing 1-2 cm wide pyrite-bands.							
		58.25 - 60.35 Siltstone with laminated							
		pyrite-bearing sandy bands.							
		60.35 - 71.35 Silty shale with 2-3 cm	D751	71.35	72.35	1m	0.01	<0.01	0.03
		wide calcareous pyrite-bearing silt bands,	D752	72.35	73.35	1m	0.01	<0.01	0.05
		pyrite concentrated at base. Graded	D753	73.35	74.35	1m	0.02	<0.01	0.02
		bedding and cross-bedding indicates right	D754	74.35	75.35	1m	0.03	<0.01	0.05
		way up. Pyrite blebs with minor barite	D755	75.35	76.35	1m	0.03	<0.01	0.05
		appear in bands every 0.1-1 m apart, 1-2	D756	76.35	77.35	1m	0.02	<0.01	0.01
		cm wide containing 10-20% blebs.	D757	77.35	78.35	1m	0.04	<0.01	0.02
		71.35 - 71.95 Coarse silty sand bed,	D758	78.35	79.35	1m	0.06	<0.01	0.05
		right way up; core angle approximately 80°	D759	79.35	80.35	1m	0.03	<0.01	0.08
			D760	80.35	81.35	1m	0.04	<0.01	0.01
71.95	133.55	Black shale - silty shale with calcareous	D761	81.35	82.35	1m	0.01	<0.01	0.02
		silt bands and blebby barite bands. Blebby							
		barite increases downwards.							
		71.95 - 107.00 Black shale containing							
		blebby barite bands 1-5 cm with minor							
		pyrite concentrated around bleb margin.							

M.L 269

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-1

PAGE Nº: 3

M from	M to	DESCRIPTION
		107.00 - 107.90 Calcareous siltstone band; cross-bedding indicates right way up.
		107.90 - 123.80 Homogeneous uniform siliceous black shale with rare bands of 5-10% barite blebs.

SAMPLE Nº	M from	M to	LENGTH	Ag oz/ton	Pb%	Zn%
D762	82.35	83.35	1m	0.04	< 0.01	0.05
D763	83.35	84.35	1m	0.03	< 0.01	0.05
D764	84.35	85.35	1m	0.01	< 0.01	0.04
D765	85.35	86.35	1m	0.02	< 0.01	0.05
D766	86.35	87.35	1m	< 0.01	< 0.01	0.02
D767	87.35	88.35	1m	< 0.01	< 0.01	0.02
D768	88.35	89.35	1m	< 0.01	< 0.01	0.07
D769	89.35	90.35	1m	0.01	< 0.01	0.06
D770	90.35	91.35	1m	< 0.01	< 0.01	0.15
D771	91.35	92.35	1m	0.01	< 0.01	0.04
D772	92.35	93.35	1m	< 0.01	< 0.01	0.04
D772	93.35	94.35	1m	0.01	< 0.01	0.04
D774	94.35	95.35	1m	0.01	< 0.01	0.07
D775	95.35	96.35	1m	0.01	< 0.01	0.03
D401	96.35	97.35	1m	0.01	< 0.01	0.07
D402	97.35	98.35	1m	< 0.01	< 0.01	0.03
D403	98.35	99.35	1m	0.02	< 0.01	0.04
D404	99.35	100.35	1m	0.01	< 0.01	0.08
D405	100.35	101.35	1m	< 0.01	< 0.01	0.02
D406	101.35	102.35	1m	< 0.01	< 0.01	0.01
D407	102.35	103.35	1m	0.03	< 0.01	0.02
D408	103.35	104.35	1m	0.01	< 0.01	0.03
D409	104.35	105.35	1m	0.02	< 0.01	0.04
D410	105.35	106.35	1m	0.01	< 0.01	0.07
D411	106.35	107.35	1m	< 0.01	< 0.01	0.01
D412	107.35	108.35	1m	0.01	< 0.01	0.14
D413	108.35	109.35	1m	0.01	< 0.01	0.05
D414	109.35	110.35	1m	< 0.01	< 0.01	0.07
D415	110.35	111.35	1m	< 0.01	< 0.01	0.09
D416	111.35	112.35	1m	0.02	< 0.01	0.07
D417	112.35	113.35	1m	0.01	< 0.01	0.05
D418	113.35	114.35	1m	< 0.01	< 0.01	0.05
D419	114.35	115.35	1m	0.02	< 0.01	0.08
D420	115.35	116.35	1m	0.02	< 0.01	0.04
D421	116.35	117.35	1m	0.01	< 0.01	0.07

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-1

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH	Ag oz/ton	Pb%	Zn%
			D422	117.35	118.35	1m	0.01	< 0.01	0.05
			D423	118.35	119.35	1m	0.02	< 0.01	0.02
			D424	119.35	120.35	1m	0.01	< 0.01	0.20
			D425	120.35	121.35	1m	< 0.01	< 0.01	0.09
			D427	121.35	122.35	1m	< 0.01	< 0.01	0.01
		123.80 - 125.30 Coarse calcarenite bed,	D428	122.35	123.35	1m	< 0.01	< 0.01	0.04
		right way up.	D429	123.35	124.35	1m	< 0.01	< 0.01	0.04
		125.30 - 133.55 Uniform homogeneous	D430	124.35	125.35	1m	< 0.01	< 0.01	0.01
		silty siliceous shale with bands of barite	D431	125.35	126.35	1m	< 0.01	< 0.01	0.02
		blebs every 5-25 cm, 5-20% barite blebs.	D432	126.35	127.35	1m	< 0.01	< 0.01	0.01
		Maximum barite present at 132.55-133.55.	D433	127.35	128.35	1m	0.01	< 0.01	0.03
			D434	128.35	129.35	1m	< 0.01	< 0.01	0.09
			D435	129.35	130.35	1m	0.01	< 0.01	0.05
			D436	130.35	131.35	1m	0.02	< 0.01	0.06
			D437	131.35	132.35	1m	0.04	< 0.01	0.07
			D438	132.35	133.35	1m	0.04	< 0.01	0.03
133.55	174.10	Three shale-siltstone-sandstone repetitions	D439	133.35	134.35	1m	0.03	< 0.01	0.16
		- all indicate right way up.	D440	134.35	135.35	1m	0.02	< 0.01	0.07
			D441	135.35	136.35	1m	0.01	< 0.01	0.07
		133.55 - 137.80 Unit 1: Black shale							
		becoming silty downwards.							
		137.80 - 138.10 Uniform siltstone.							
		138.10 - 139.00 Calcareous siltstone							
		becoming sandy by base.							
		139.00 - 139.65 Siltstone.							
		139.65 - 139.95 Coarse calcarenite.							
		139.95 - 142.40 Unit 2: Silty shale-							
		siltstone alternating with siltstone							
		containing pyrite at base of laminations.							
		142.40 - 143.90 Uniform black shale							
		containing silty nodules ('43.60m) with							
		inner pyrite-rich ring.							

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-1

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M from	M to	DESCRIPTION	SAMPLE Nº	FOOTAGE from	FOOTAGE to	LENGTH
		143.90 - 151.85 Progressively coarsening to arenite with localized calcarenite sections.				
		151.85 - 159.15 Unit 3: Uniform black shale.				
		159.15 - 162.20 Laminated siltstone with calcareous bands 0.5 - 1 cm wide.				
		162.20 - 171.95 Silt becoming coarser downwards to arenite, locally calcareous.				
		171.95 - 174.10 Silty shale coarsening downwards, partially calcareous.				
174.10	259.15	Shale to siltstone, locally calcareous.				
		174.10 - 187.20 Uniform black silty shale becoming slightly coarser towards the base.				
		187.20 - 187.80 Soft sediment deformed calarenite-calcareous siltstone band - right way up.				
		187.80 - 188.10 Veined black chert.				
		188.10 - 193.90 Silty shale with minor disseminated pyrite and calcareous nodules.				
		193.90 - 194.50 Fine grained calcareous nodule.				
		194.50 - 226.50 Uniform black silty shale with minor pyrite -212.35m: 2cm py-band - 30% py				
		226.50 - 226.80 Calcareous nodule.				
		226.80 - 254.55 Silty shale with calcareous nodules - (232,233.85;237.50m)- becomes coarser downwards to laminated calcareous silt.				
		254.55 - 259.15 Laminated calcareous siltstone to 257.9m calcarenite to 258.25m: Calcareous siltstone.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-1

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M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH	Ag oz/ton	Pb%	Zn%			
259.15	285.05	Laminated pyritic shale.	D442	259.30	260.30	1m	0.01	<0.01	0.4			
			D443	260.30	261.30	1m	0.03	0.01	0.4			
		259.15 - 267.10 Laminated black shales	D444	261.30	262.30	1m	0.04	0.01	0.41			
		with pyrite lamellae 0.5 - 2 cm wide	D445	262.30	263.30	1m	0.06	<0.01	0.24			
		containing 20-60% pyrite, partially	D446	263.30	264.30	1m	0.07	<0.01	0.01			
		associated with silty bands. Overall	D447	264.30	265.30	1m	0.07	<0.01	0.01			
		pyrite content 5-10%. Rare calcareous	D448	265.30	266.30	1m	0.04	<0.01	0.01			
		nodules/concretions. Trace sphalerite	D449	266.30	267.30	1m	<0.01	<0.01	0.06			
		associated with pyritic lens: 26.130 m.	D450	267.30	268.30	1m	0.01	<0.01	0.16			
		267.10 - 271.35 Silty pyrite-bearing	D451	268.30	269.30	1m	<0.01	<0.01	0.01			
		shale(approx. 5%) heavily brecciated and	D452	269.30	270.30	1m	<0.01	<0.01	0.01			
		quartz-carbonate veined.	D453	270.30	271.30	1m	<0.01	<0.01	0.01			
		271.35 - 278.35 Laminated silty shale	D454	271.30	272.30	1m	<0.01	<0.01	0.03			
		containing 5% pyrite throughout. Pyrite	D455	272.30	273.30	1m	<0.01	<0.01	0.06			
		rich bands at 275.90 and 278.05 m.	D456	273.30	274.30	1m	0.01	<0.01	0.03			
		278.35 - 278.95 Laminated calcarenite.	D457	274.30	275.30	1m	<0.01	<0.01	0.07			
		278.95 - 285.05 Highly brecciated and	D458	275.30	276.30	1m	<0.01	<0.01	0.04			
		quartz-calcite veined calcareous silty	D459	276.30	277.30	1m	<0.01	<0.01	0.04			
		shale.	D460	277.30	278.30	1m	<0.01	<0.01	0.03			
			D461	278.30	279.30	1m	<0.01	<0.01	0.04			
285.05	340.25	Limestone.	D462	279.30	280.30	1m		<0.01	0.02	D462 & D463 mixed.		
		Highly brecciated and veined at contact.	D463	280.30	281.30	1m	0.01	<0.01				
		Predominantly a limestone breccia,	D464	281.30	282.30	1m	0.01		0.11			
		consisting of angular micrite limestone	D465	282.30	283.30	1m	0.01	<0.01	0.11			
		and fossil fragments interbedded with	D466	283.30	284.30	1m	0.01	<0.01	0.10			
		micrite and calcareous silt beds.	D467	284.30	285.30	1m	0.03	<0.01	0.17			
		Partially brecciated and calcite veined	D468	285.30	286.30	1m	0.04	<0.01	0.18			
		throughout the veins locally containing										
		5-25% sphalerite - 291.90; 310.05 m.										
340.25		End of hole. Casing removed.										
			D469	309.75	310.75	1m	0.01	0.01	2.53			

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 7225 N; 3280 E — HOLE NO : 80-2

AZIMUTH : 045° — PROPERTY : PIE

DIP : -65° — LENGTH : 183.90 m — ELEVATION : 1780 m approx — Claim No.: PIE 1

STARTED : 9 June, 1980 — CORE SIZE : NQ — DATE LOGGED : 17 June, 1980 — SECTION : 7200 N

COMPLETED : 12 June, 1980 — DIP TESTS : 70 m: 62°, 140m 61° — LOGGED BY : J.F. H. Thompson

PURPOSE : — CONTRACTOR: Canadian Mine Services

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH	Ag oz/tn	Pb%	Zn%			
0	13.10	CASING										
13.10	30.50	Black shale containing calcareous silt bands blebby barite, bedded barite and limestone barite breccia.	D473	17.00	18.00	1m	<0.01	<0.01	0.08			
			D474	18.00	19.00	1m	<0.01	<0.01	0.03			
		13.10 - 15.85 Broken black silty shale containing minor calcareous silty laminae.	D475	19.00	20.00	1m	<0.01	<0.01	0.01			
			D501	20.00	21.00	1m	0.01	<0.01	0.02			
		15.85 - 20.15 Limestone-barite breccia - predominantly subangular clasts of micrite limestone in calcareous shale	D502	21.00	22.00	1m	<0.01	<0.01	0.03			
			D503	22.00	23.00	1m	0.02	<0.01	0.04			
			D504	23.00	24.00	1m	0.02	<0.01	0.04			
		matrix, with fine grained barite. Rare 2-10 cm wide shale bands.	D505	24.00	25.00	1m	0.04	<0.01	0.03			
		20.15 - 23.75 Finely laminated bedded barite 0.5 - 20 cm thick beds with similar size shale interbeds. Trace pyrite present throughout (1-2%). Fine concentrated sulphide laminae occurs at the base of barite beds - disseminated in shale - up to 10% pyrite.										
		23.75 - 30.50 Black shale with blebby barite every 10-50 cm, 3-10 cm wide containing septarian nodules: 23.15; 26.20m. Core angle approximately 80°.										

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-2

PAGE Nº: 2

M from	to	DESCRIPTION	SAMPLE Nº	FOOTAGE from	to	LENGTH
30.50	76.52	Three shale - siltstone-sandstone repetitions - all right way up.				
		30.50 - 32.60 Unit 1: Uniform black shale.				
		32.60 - 32.90 Fine grained calcareous silt-? concretion.				
		32.90 - 37.80 Black shale becoming more silty downwards. Partially calcareous, cross-bedded and pyrite-bearing.				
		37.80 - 40.85 Partially calcareous siltstone to sandstone.				
		40.85 - 54.10 Unit 2: Uniform black silty shale.				
		45.10 - 46.34 Weakly calcareous siltstone.				
		46.34 - 47.87 Silty shale coarsening downwards to siltstone - locally calcareous to calcarenite.				
		47.87 - 52.13 Siltstone coarsening downwards to sandstone.				
		52.13 - 60.67 Unit 3: Black shale to uniform black silty shale.				
		60.67 - 64.95 Siltstone with coarser locally calcareous laminae.				
		64.94 - -3.17 Progressively coarsening downwards-siltstone to sandstone locally calcareous. Calcite veins present at base. Rip-up clasts present at 72.26 m.				
		73.17 - 73.78 Black shale.				
		73.78 - 75.30 Laminated calcareous siltstone.				
		75.30 - 76.52 Calcareous siltstone to calcarenite at base.				
76.52	154.57	Shale to siltstone, locally calcareous.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-2

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M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH	Ag oz/ton	Pb%	Zn%			
		76.52 - 84.76 Uniform black shale with calcareous py-bearing laminae towards base.										
		84.76 - 85.37 Calcareous silty band with soft sediment deformation features.										
		85.37 - 86.59 Uniform black shale.										
		86.59 - 87.04 Soft sediment deformed calcareous siltstone band.										
		87.04 - 87.20 Uniform black shale.										
		87.20 - 87.50 Two calcareous siltstone bands.										
		87.50 - 105.18 Uniform black silty shale.										
		105.18 - 105.49 Calcareous concretion partially pyritic.										
		105.49 - 123.48 Silty shale containing three calcareous pyrite-bearing concretions.										
		123.48 - 124.39 Silty calcareous concretion.										
		124.39 - 147.26 Black silty shale containing three calcareous concretions 5-40 cm wide and low calcareous siltstone bands 10-60 cm wide.										
		147.26 - 151.52 Calcareous siltstone coarsening to calcarenite at base. Cross-bedded laminations indicate right way up.	D506	154.18	155.18	1m	0.01	0.03	0.04			
		151.52 - 154.57 Veined and brecciated calcareous siltstone.	D507	155.18	156.18	1m	0.01	0.08	0.09			
			D508	157.23	158.23	1m	0.01	0.06	0.04			
			D509	161.50	162.50	1m	0.01	0.21	0.04			
154.57	168.29	Laminated pyritic shale.										
		154.57 - 163.11 Black carbonaceous shale with pyritic-bearing silty laminae.										
		163.11 - 163.41 Calcareous siltstone band.										
		163.41 - 168.29 Fractured, brecciated and calcite veined pyrite-bearing black shale.										

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-2

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from M	to	DESCRIPTION	SAMPLE Nº	FOOTAGE from	FOOTAGE to	LENGTH
168.29	183.84	Limestone. Highly brecciated and calcite veined at contact. Limestone consists of fragmental fossil material inter-bedded with partially brecciated micrite.				
183.84		183.84 End of hole. Casing removed.				

R.A.M.L. 269

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 7800 N 3220 E

HOLE NO : 80-3

AZIMUTH : 043°

PROPERTY : PIE

DIP : -62°

LENGTH : 296.65 m

ELEVATION : 1700 m approx.

Claim No.: PIE 1

STARTED : 14 June, 1980

CORE SIZE : NQ

DATE LOGGED : 23 June, 1980

SECTION : 7800 N

COMPLETED : 20 June, 1980

DIP TESTS : 91 m 58°; 183 m 46°; 296.65 m 61°

LOGGED BY : J.F.H. THOMPSON

PURPOSE :

CONTRACTOR: CANADIAN MINE SERVICES

Metreage from	Metreage to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH	Ag ppm	Pb ppm	Zn ppm			
0	7.30	CASING										
7.30	36.59	Black shale with calcareous silty bands.										
		7.30 - 19.51 Black shale containing silty										
		bands, 2-10 cm wide, locally calcareous. Up										
		to 5% pyrite concentrated in bands.										
		19.51 - 24.85 Similar shale with silty bands.										
		Rare blebs of pyrite with minor barite										
		cross-laminated siltstone with soft sediment										
		deformation - right way up.										
		24.85 -28.96 Black shale with siltstone bands.										
		28.96 - 29.05 Septarian nodule.							-			
		29.05 - 36.59 Black shale containing cross-										
		laminated calcareous siltstone bands- right										
		way up. Bands of pyrite (±barite) blebs										
		every 1-2 m 5% blebs in bands.										
36.59	114.63	Black shale with barite blebs.										
		36.59 - 51.83 Black shale with laminated										
		and cross-bedded silty bands - right way up										
		- bands occur every 0.5 - 1 cm, 1-15 cm wide.	D 510	36.59	37.59	1m	0.3	<100	800			
		Bands of up to 10% blebby barite with minor	D 511	37.59	38.59	1m	0.4	1	310			
			D 512	38.59	39.59	1m	1.0	1	620			
			D 513	39.59	40.59	1m	1.0	1	620			

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-3

PAGE Nº: 2

Metreage from	Metreage to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH	Ag ppm	Pb ppm	Zn ppm
		associated pyrite on perimeter of blebs .	D 515	40.59	41.59	1m	0.8	1	126
		Bands occur every 0.1 - 0.5 m, 1-3 cm wide.	D 516	41.59	42.59	1m	1.2	1	148
		51.83 - 52.13 Calcareous concretion	D 517	51.83	52.83	1m	0.8	1	310
		52.13 - 64.63 Black shale with silt bands	D 518	58.84	59.84	1m	0.6	1	186
		and barite blebs as before.	D 519	59.84	60.84	1m	1.0	1	240
		64.63 -64.70 Cross-laminated silty bands	D 520	69.30	70.30	1m	0.8	1	270
		with 20-40% disseminated pyrite concentrated on	D 521	70.30	71.30	1m	1.0	1	275
		laminae.	D 522	71.30	72.30	1m	0.4	1	230
		64.70 - 89.0 Black shale with silt bands and	D 524	80.40	81.40	1m	0.2	1	360
		barite blebs as before.	D 525	81.40	82.40	1m	0.2	1	225
		89.0 - 101.22 Uniform black silty shale	D 476	82.40	83.40	1m	0.2	1	865
		with rare pyritic concretions, 1 cm across 10cm	D 477	83.40	84.40	1m	0.1	1	500
		silty calcareous band.	D 523	89.0	90.0	1m	0.6	1	260
		101.22- 103.66 Black shale with blebby							
		barite bands 1-3 cm wide, every 20 - 50 cm							
		approximately 20% barite blebs							
		103.66- 103.76 Septarian nodule.							
		103.76- 110.37 Black shale with blebby							
		barite.							
		110.37- 110.45 Septarian nodule.							
		110.45- 114.63 Black shale with increasing							
		amounts of blebby barite, - every 10-20 cm.							
114.63	151.83	Three shale-siltstone-sandstone repetitions							
		all right way up.							
		114.63- 117.07 Unit 1: Uniform black							
		silty shale.							
		117.07- 117.37 Calcareous siltstone.							
		117.37- 120.73 Uniform black shale.							
		120.73- 121.03 Calcareous silty band -							
		cross-laminated at base - right way up.							
		121.03 -122.26 Black silty shale.							

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-3

PAGE Nº: 3

Metreage from	Metreage to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH
		122.26 - 123.78 Sitstone, calcareous in part.				
		123.78 - 125.91 Unit 2: Uniform black shale.				
		125.91 - 126.0 Silty band				
		126.0 - 132.01 Black shale - lightly brecciated and quartz-carbonate veined. Becoming more silty downwards.				
		132.01 - 134.76 Coarse siltstone becoming sandy with calcareous sections. Cross-laminated to right way up.				
		134.76 - 140.85 Unit 3: Uniform black shale becoming silty downwards, 136.90 m - 3 cm calcareous concretion.				
		140.85 - 145.12 Parallel laminated silty shale to siltstone becoming coarser downwards.				
		145.12 - 150.91 Sandstone locally calcareous. Brecciated and quartz-carbonate veined in part.				
		150.91 - 151.28 Coarse sandstone containing shale rip-up clasts.				
		151.28 - 151.83 Coarse sandstone.				
51.83	245.12	Shale to siltstone, locally calcareous.				
		151.83 - 157.62 Uniform black shale.				
		157.62 - 157.70 Calcareous concretion.				
		157.70 - 183.54 Uniform black shale to silty shale 165.24-minor quartz-calcite veining with 10% associated pyrite.				
		183.54 - 183.87 Calcareous concretion.				
		183.87 - 185.06 Uniform black shale.				
		135.06 - 185.39 Calcareous concretion.				
		185.39 - 186.00 Uniform black shale.				
		186.00 - 186.33 Calcareous concretion.				
		186.33 - 186.60 Black shale.				
		186.60 - 186.95 Calcareous concretion.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-3

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Metreage from	Metreage to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH	Ag ppm	Pb ppm	Zn ppm
		186.95 - 196.65 V. uniform black shale.							
		196.65 - 214.63 Black shale with minor calcareous silty bands becoming generally coarser downwards.							
		214.63 - 214.98 Calcareous concretion.							
		214.98 - 219.20 Uniform black silty shale.							
		219.20 - 219.55 Calcareous concretion.							
		219.55 - 226.83 Silty shale with parallel laminated and cross-laminated siltstone bands - right way up. Silt bands contain trace pyrite.							
		226.83 - 227.80 Laminated siltstone.							
		227.80 - 231.71 Coarse sandstone - partially calcareous.							
		231.71 - 239.00 Cross-laminated and soft-sediment deformed silt band with pyrite concentrated on silty bands.							
		239.00 - 244.82 Uniform black silty shale with rare pyritic bearing silty bands (approximately 1 cm wide.)	D 478	252.74	253.74	1m	1.4	1	590
			D 479	258.54	259.54	1m	0.8	1	465
			D 480	259.56	260.54	1m	0.6	1	1300
		244.82 - 245.12 Laminated siltstone.	D 481	264.0	265.0	1m	0.1	1	1250
245.12	281.10	Laminated pyritic shale.	D 482	265.0	266.0	1m	1.0	1	1950
			D 483	266.0	267.0	1m	0.4	1	650
		245.12- 249.39 Black shale with pyrite-bearing laminae approximately 10% pyrite.	D 484	271.34	272.34	1m	0.1	1	445
			D 485	272.34	273.34	1m	0.1	1	70
		249.39 -249.50 Chert nodule.							
		249.50- 258.23 Black shale with pyrite laminae up to 2 cm wide typically 0.1 cm, containing approximately 10% pyrite. Partially brecciated and quartz-carbonate veined.							
		258.23 - 258.55 Limestone breccia.							
		258.55 - 261.89 Black shale with pyrite as before and rare small (< 3cm across) calcareous nodules.							

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-3

PAGE Nº: 5

Metreage from	Metreage to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH
		261.89 - 262.22 Limestone fragments in shale matrix.				
		262.22 - 270.73 Black shale with pyrite laminae and rare chert and calcareous nodules.				
		270.73 - 271.50 Shale with calcareous bands, 1-2 cm wide, consisting of limestone debris.				
		271.50 - 272.50 Black shale with pyritic laminae.				
		272.50 - 272.97 Limestone debris in shale and micrite matrix				
		272.97 - 274.39 Black shale with pyritic laminae.				
		274.39 - 281.10 Black shale with pyritic laminae as before (up to 5% disseminated pyrite). Brecciated and quartz-carbonate veined.				
281.10	296.64	Limestone. Limestone highly brecciated and calcite veined at contact. Fossil and limestone fragments in micrite matrix.				
296.64		296.64 End of Hole. Casing removed.				

HAML 269

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 7200 N 3740 E

HOLE NO : 80-4

AZIMUTH : -

PROPERTY : PIE

DIP : -90 °

LENGTH : 56.71

ELEVATION : 1920 m approx.

Claim No.: Pie 1

STARTED : 22 June, 1980

CORE SIZE : NQ

DATE LOGGED : 24 June, 1980

SECTION : 7200 N

COMPLETED : 23 June, 1980

DIP TESTS : 56.71 m 89°

LOGGED BY : J.F.H. Thompson

PURPOSE :

CONTRACTOR: CANADIAN MINE SERVICES

M from	M to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH	Ag ppm	Pb ppm	Zn ppm			
0	14.63	CASING										
14.63	39.94	Broken Shale.										
		Broken and fractured core-limonitic iron stain on fractures. Fragments of silty shale and siltstone included. Core essentially mud in part.										
39.94	45.88	Pyritic Shale										
		Shale predominately decomposed to mud with rare siliceous fragments and sections. Up to 10% disseminated pyrite present in less altered sections. Limontic iron stain present in broken and decomposed core.	D 486	38.72	39.72	1m	0.4	2	720			
			D 487	39.72	40.72	1m	0.4	1	505			
			D 488	40.72	41.72	1m	0.4	1	110			
			D 489	41.72	42.72	1m	0.6	14	200			
			D 490	42.72	43.72	1m	0.2	2	105			
			D 491	43.72	44.72	1m	0.4	1	630			
			D 492	44.72	45.72	1m	0.8	1	300			
45.88	56.71	Limestone	D 493	45.72	46.72	1m	1.4	6	65			
		Limestone consisting of fossil fragments and micrite fragments in micritic matrix. Limontic stain on fractures.										
56.71		End of Hole. Casing removed.										

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 8000 N 2840 E

HOLE NO : 80-5

AZIMUTH : 045°

PROPERTY : PIE

DIP : -80°

LENGTH : 321.04

ELEVATION : 1700m approx.

Claim No.: PIE 3

STARTED : 25 June, 1980

CORE SIZE : NQ

DATE LOGGED : 6 July, 1980

SECTION : 8000 N

COMPLETED : 3 July, 1980

DIP TESTS : 76m 78°; 152m 67°; 229m 70°; 321m 76°

LOGGED BY : J.F.H. Thompson

PURPOSE :

CONTRACTOR: CANADIAN MINES SERVICES

M from	M to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH
0	9.15	CASING				
9.15	47.90	Siliceous shale with laminated calcareous silty shale.				
		9.15 - 17.99 Black moderately siliceous shale with calcareous silty laminae.				
		17.99 - 18.60 Laminated shale and calcareous silt, laminae displaced parallel to cleavage.				
		18.60 - 23.48 Moderately siliceous shale with calcareous laminae as before.				
		23.48 - 24.10 Laminated calcareous siltstone.				
		24.10 - 26.22 Uniform black shale.				
		26.22 - 31.40 Continuous band of silty shale to calcareous siltstone. Soft sediment deformed and cross-laminated - right way up.				
		31.40 - 46.04 Uniform moderately siliceous black shale with silty laminae containing trace pyrite.				
		46.04 - 46.37 Laminated calcareous silty band - cross-laminated - right way up. Laminae displaced parallel to cleavage.				
		46.37 - 47.90 Black shale with calcareous silty laminae.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-5

PAGE Nº: 2

M from	M to	DESCRIPTION	SAMPLE Nº	Metreage from	Metreage to	LENGTH
47.90	69.51	Black graphitic shale				
		Very uniform graphitic black shale. Weakly calcareous in part and contains trace pyrite.				
69.51	109.29	Pyritic and graphitic black shale.				
		69.51 - 97.56 Black shale with graphite concentrated on cleavage plains and fractures. Up to 30% fine disseminated pyrite occurs in wavy bands. Weakly calcareous becoming less calcareous downwards.				
		97.56 - 97.95 Calcareous concretion.				
		97.95 - 109.29 Uniform graphitic black shale with trace pyrite.				
109.29	121.95	Shale with pyrite blebs.				
		109.95 - 114.02 Uniform black shale with up to 15% pyrite blebs concentrated in bands approximately 5 cm thick with rare blebs throughout. Blebs consist of pyrite core 0.5 - 1cm across. Blebs may also have a baritic rim approximately 0.1 cm wide.				
		114.02 - 121.95 Black shale with calcareous silt bands 0.5 - 5 cm wide every 10-50 cm. Silt bands commonly contain pyrite concentrated on cross-bedded laminae - right way up.				
121.95	171.95	Black shale with calcareous silty bands.				
		171.95 - 139.02 Black shale with calcareous silty bands 1-5 cm wide - cross-laminated (right way up.) and parallel-laminated.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-5

PAGE Nº: 3

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH
		139.02 - 139.35 Calcareous siltstone band with pyritic laminae				
		139.35 - 155.79 Black shale with calcareous siltstone bands 1-10 cm wide: right way up.				
		155.79 - 156.55 Laminated calcareous siltstone -soft sediment deformation and cross-laminated - right way up.				
		156.55 - 159.45 Black shale with minor laminated silty bands 156.70 - 0.5 cm band of pyrite with barite blebs.				
		159.45 - 160.10 Laminated calcareous siltstone band.				
		160.10 - 171.95 Black shale with calcareous siltstone bands - cross-laminated, right way up. Bands of blebs consisting of a core of pyrite with barite concentrated on the rim, 5% blebs in bands 1-3 cm wide occuring every 25-75 cm.				
171.95	248.17	Black shale with barite blebs.				
		171.95 - 210.06 Uniform moderately siliceous black shale with calcareous siltstone bands 1-15 cm wide every 0.2 - 0.5 m. Rare bands of blebby barite (0.5 cm blebs), 10% blebs. Minor pyrite concentrated on rims of blebs. Silty bands contain trace pyrite.				
		210.06 - 210.36 Calcareous laminated siltstone.				
		210.36 - 212.50 Black shale with calcareous silty bands.				
		212.50 - 212.83 Laminated calcareous siltstone.				
		212.83 - 225.30 Black shale with rare calcareous siltstone bands and minor blebby barite (2%)				
		225.30 - 235.37 Uniform black shale.				

RAML 269

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-5

PAGE Nº: 4

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH
		235.37 - 235.98 Cross-laminated calcarenite band - right way up.				
		235.98 - 248.17 Black shale with increasing bands of blebby barite - up to 10 cm wide - 30-40% barite blebs withing bands. Calcareous silt bands also present.				
248.17	298.17	Three shale-siltstone-sandstone repetitions -all right way up.				
		248.17 -252.74 Unit 1: Uniform black shale.				
		252.74- 253.38 Calcareous siltstone.				
		253.38- 256.40 Silty shale becoming laminated siltstone at base.				
		256.40 - 256.75 Coarse calcareous siltstone.				
		256.75 - 267.07 Unit 2: Uniform black shale becoming silty downwards.				
		267.07 _ 269.82 Sandstone locally cross-laminated - right way up.				
		269.82 -286.28 Unit 3: Uniform black shale becoming siltier downwards.				
		286.28 _289.63 Laminated siltstone-locally calcareous				
		289.63 _298.48 Progressively coarsening sandstone 297.56 Rip up clasts within sandstone				
		298.48 -298.65 Calcareous siltstone.				
298.65	321.04	Shale to siltstone, locally calcareous.				
		298.65 -301.52 Laminated silty shale.				
		301.52 -312.20 Uniform black silty shale.				
		321.20 _312.30 Calcareous concretion.				
		312.30 _312.95 Uniform black shale.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

HOLE Nº: 80-5

PAGE Nº: 5

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH
		312.95 - 313.10 Calcareous concretion.				
		313.10 - 315.55 Uniform black shale.				
		315.55 - 316.19 Parallel and cross-laminated calcareous siltstone band - right way up.				
		316.19 - 317.38 Uniform black shale.				
		317.38 - 317.55 Coarse calcarenite with shale clasts.				
		317.55 - 321.04 Black shale becoming siltier downwards. Partially brecciated and quartz-carbonate veined.				
321.04		End of Hole. Casing removed.				

RIO TINTO CANADIAN EXPLORATION LIMITED

DIAMOND DRILL RECORD

LOCATION : 7400 N 3640 E

HOLE NO : 80-6

AZIMUTH : -

PROPERTY : PIE

DIP : -90°

LENGTH : 50.91

ELEVATION : 1910 m approx.

Claim No. : Pie 1

STARTED : 5 July, 1980

CORE SIZE : NQ

DATE LOGGED : 10 July, 1980

SECTION : 7400 N

COMPLETED : 6 July, 1980

DIP TESTS : 50.91 m 88°

LOGGED BY : J.F.H.Thompson

PURPOSE :

CONTRACTOR: CANADIAN MINE SERVICES

M from	M to	DESCRIPTION	SAMPLE Nº	M from	M to	LENGTH
0	17.37	CASING				
17.37	31.71	Broken shale rubble with minor amounts of silty shale fragments.				
31.71	38.72	Broken black carbonaceous decomposed shale - ? sulphide-bearing.				
38.72	50.91	Limestone.				
		Rubbly limestone consisting of fossil fragments (predominantly crinoidal) and micrite fragments.				
50.91		End of hole.				

APPENDIX II

GEOCHEMICAL RESULTS

AND

ASSAY CERTIFICATES

RIO TINTO CANADIAN EXPLORATION LIMITED

LABORATORY REPORT

PARTS PER MILLION

LAB Nº.	SAMPLE Nº. (NMBR)		Ag	Fe	Mn	V				COMMENTS
1	7900501		0.6	30000	280	20				
2	502		0.6	28500	260	25				
3	503		0.4	32500	230	16				
4	504		0.7	31000	220	20				
5	505		0.2	30500	1240	16				
6	506		0.4	27500	330	18				
7	507		0.3	28000	290	20				
8	7900513		0.3	26000	160	80				
9	514		0.4	27500	160	100				
10	515		0.4	29000	140	66				
1	516		0.4	21500	100	60				
~~2~~	~~STD+~~		~~0.1~~	~~14000~~	~~300~~	~~24~~				
3	517		0.3	20500	40	46				
4	518		0.5	19000	30	50				
5	519		0.4	17500	30	50				
6	520		1.9	42500	390	82				
7	521		0.4	23000	370	88				
8	522		0.4	30500	70	140				
9	523		0.3	33500	170	86				
20	524		0.2	37000	220	54				
1	525		0.7	46000	120	66				
~~2~~	~~BLANK~~		ND	ND	ND	ND				
3	526		1.3	50000	80	116				
4	527		0.8	38500	40	98				
5	528		0.2	56000	830	28				
6	529		0.1	37500	410	48				
7	530		0.5	72000	190	38				
8	531		0.1	36000	200	36				
9	532		0.5	24000	270	32				
30	533		0.5	15000	40	40				
1	534		0.8	37500	170	50				
2	535		0.1	15000	80	30				
3	536		0.3	22000	3800	36				
4	537		ND	14000	120	34				
5	538		0.2	13500	120	16				
6	539		ND	9800	80	30				
7	540		0.1	14500	230	50				
8	541		0.1	15500	60	42				
9	542		0.1	9000	20	30				
40	543		0.2	18500	100	32				

RIO TINTO CANADIAN EXPLORATION LIMITED

LABORATORY REPORT

PARTS PER MILLION

LAB Nº.	SAMPLE Nº. (NMBR)		Ag	Fe	Mn	V				COMMENTS
41	7900544		0.1	19000	160	22				
2	546		0.3	22000	140	32				
3	7900640		0.6	26500	30	46				
4	41		1.1	43000	100	74				
5	42		0.5	31000	80	76				
6	43		0.1	17000	60	76				
7	44		0.4	39000	60	94				
8	45		0.5	24000	80	86				
9	46		0.9	45000	90	58				
50	47		1.4	48000	20	96				
1	48		0.6	30000	70	40				
2	49		0.1	30500	20	38				
~~3~~	~~STD-2~~		~~0.8~~	~~25000~~	~~450~~	~~28~~				
4	50		0.5	28000	30	80				
5	51		0.3	11500	20	70				
6	52		0.1	35000	150	98				
7	53		0.8	42500	660	84				
8	54		ND	14500	50	64				
9	55		0.4	8600	30	40				
60	56		0.3	18000	70	35				
1	57		0.1	4600	20	30				
2	58		0.1	3800	10	22				
~~3~~	~~BLANK~~		~~ND~~	~~ND~~	~~ND~~	~~ND~~				
4	59		0.1	3200	10	18				
5	60		0.4	25000	370	42				
6	61		0.2	12500	30	86				
7	62		0.2	16500	50	96				
8	63		0.1	14000	50	65				
9	64		0.3	8000	120	56				
70	65		0.2	9000	30	64				
1	66		0.2	9600	20	62				
2	67		0.3	30000	80	50				
3	68		0.2	13500	30	52				
4	69		0.2	19500	60	62				
5	70		0.6	20000	60	80				
6	71		1.6	65000	180	60				
7	72		2.1	20000	50	88				
8	73		0.1	36500	220	78				
9	74		0.5	[illegible]	90	92		FE =	47000	
80	7900675		0.7	37000	340	30				

REPORT Nº. 80-5

RIO TINTO CANADIAN EXPLORATION LIMITED

LABORATORY REPORT

PARTS PER MILLION

LAB Nº.	SAMPLE Nº. (NMBR)		Ag	Fe	Mn	V				COMMENTS
81	7900677		0.5	28000	70	80				
2	678		0.3	12500	30	90				
3	679		1.3	38000	40	108				
4	680		2.7	58000	30	112				
5	681		0.6	14500	10	56				
6	682		0.9	41000	230	62				
7	685		0.9	18000	40	80				
8	687		0.5	49000	340	82				
9	688		0.9	47000	260	70				
90	689		0.4	30500	150	108				
1	690		0.2	21500	150	60				
2	691		0.9	44000	210	94				
3	692		0.9	44000	40	86				
~~4~~	~~STD 3~~		~~ND~~	~~30500~~	~~480~~	~~56~~				
5	694		0.5	31000	120	52				
6	695		0.7	36500	560	56				
7	696		0.6	33000	140	152				
8	697		0.4	25500	400	22				
9	698		0.2	26000	370	20				
100	701		0.3	29000	380	10				
1	702		0.3	26500	1000	10				
2	703		0.7	25000	400	14				
3	705		0.2	23500	330	20				
~~4~~	~~BLANK~~		~~ND~~	~~ND~~	~~ND~~	~~ND~~				
5	706		0.4	24000	490	16				
6	707		0.3	24000	290	18				
7	7902678		0.2	10500	70	28				
8	679		0.6	43000	360	72				
9	680		0.1	14500	90	16				
110	681		0.3	14500	60	22				
1	682		0.4	12000	50	30				
2	683		0.4	19000	90	36				
3	684		1.2	17500	20	36				
4	685		0.4	24000	150	36				
5	686		0.6	18500	80	36				
6	687		0.4	34000	490	80				
7	688		0.3	19000	170	30				
8	689		0.1	12500	220	46				
9	690		0.2	20000	400	38				
120	691		0.8	39500	770	46				

REPORT Nº. 80-5

RIO TINTO CANADIAN EXPLORATION LIMITED

LABORATORY REPORT

PARTS PER MILLION

LAB Nº.	SAMPLE Nº. (NMBR)		Ag	Fe	Mn	V				COMMENTS
121	7902692		ND	33500	790	58				
2	693		ND	39000	400	86				
3	694		0.4	19500	60	135				
4	695		0.5	40000	610	112				
~~5~~	~~STD A~~		~~1.2~~	~~30000~~	~~560~~	~~320~~				
6	696		0.3	26000	130	96				
7	697		0.1	18500	1950	36				
~~8~~	~~7900507~~		~~0.3~~	~~27500~~	~~290~~	~~18~~				
9	522		0.5	29500	70	140				
130	534		0.8	36000	170	50				
1	640		0.4	20000	40	52				
2	653		0.8	40000	670	82				
3	663		0.1	13500	50	68				
4	672		1.9	19500	50	92				
5	BLANK		ND	ND	ND	1				
6	685		1.0	17500	40	76				
7	7902679		0.8	43000	350	72				
8	696		0.3	26000	130	88				
9										
140										
1										
2										
3										
4										
5										
6										
7										
8										
9										
150										
1										
2										
3										
4										
5										
6										
7										
8										
9										
160										

REPORT Nº. 80-5

RIO TINTO CANADIAN EXPLORATION LIMITED

LABORATORY REPORT

PARTS PER MILLION

LAB Nº.	SAMPLE Nº. (NMBR)	Cu	Cu/	Pb	Zn					COMMENTS
1	8000001	50	4%	16	383					
2	02	41	39	15	364					
3	03	49	49	13	364					
4	04	41	21%	14	390					
5	05	47	1232	14	520					
6	06	29		16	191					
7	07	31		17	201					
8	08	26		16	161					
9	09	25		17	148					
10	10	56		18	450					
1	11	49		10	43					
~~2~~	~~STD 1~~	~~17~~		~~29~~	~~960~~					
3	12	38		13	147					
4	13	31		15	215					
5	14	29		14	207					
6	15	30		15	210					
7	16	29		15	209					
8	8000017	30		15	209					
9	8002004	8		5	41					
20	05	7		4	30					
1	06	11		5	49					
~~2~~	~~BLANK~~	~~ND~~		~~ND~~	~~ND~~					
3	07	18		6	41					
4	08	302		ND	740					
5	09	202		ND	410					
6	10	80		ND	121					
7	11	10		6	35					
8	12	17		12	75					
9	13	25		9	66					
30	14	32		14	76					
1	15	17		6	55					
2	16	20		10	40					
3	17	8		9	18					
4	18	91		26	156					
5	19	11		8	53					
6	20	31		16	88					
7	21	29		15	87					
8	8002022	41		11	83					
9	8005004	6		4	19					
40	8005005	20		19	89					

REPORT Nº. 80-24

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. SP A524
INVOICE NO. 34868
RECEIVED Feb. 14/80
ANALYSED Feb. 19/80

TO: Rio Tinto Canadian Exploration Ltd.
520 - 800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN: G. D. Hodgson

SAMPLE NO. :	Lower Concentration Limit (PPM)	302384	302385
Antimony	50	bcl	bcl
Arsenic	50	bcl	bcl
Barium	5	20	700
Beryllium	5	15	bcl
Bismuth	5	bcl	bcl
Boron	20	bcl	30
Cadmium	20	bcl	200
Calcium	0.05%	7%	0.05%
Chromium	10	150	10
Cobalt	10	100	bcl
Copper	1	700	70
Gallium	5	15	bcl
Germanium	20	bcl	bcl
Indium	50	bcl	bcl
Iron	0.05%	> 20%	0.5%
Lead	5	> 5000	>> 5000
Magnesium	0.02%	1%	0.07%
Manganese	5	5000	20
Molybdenum	10	< 100	< 100
Nickel	5	15	bcl
Niobium	50	bcl	bcl
Silver	1	bcl	1
Strontium	2	100	50
Tellurium	200	bcl	bcl
Thorium	200	bcl	bcl
Tin	10	10	bcl
Titanium	5	500	70
Vanadium	20	150	50
Zinc	50	300	1500
Zirconium	20	70	bcl

SEMI QUANTITATIVE SPECTROGRAPHIC ANALYSES

>5000 ppm = > 5000 ppm	50 ppm = 25–100 ppm
5000 ppm = 2500–10000 ppm	20 ppm = 10–50 ppm
2000 ppm = 1000–4000 ppm	10 ppm = 5–20 ppm
1000 ppm = 500–2000 ppm	5 ppm = 2–10 ppm
500 ppm = 250–1000 ppm	2 ppm = 1–4 ppm
200 ppm = 100–400 ppm	1 ppm = 0.5–2 ppm
100 ppm = 50–200 ppm	bcl = below concentration limit

Ranges for Iron, Calcium & Magnesium are reported in %

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: [signature]

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 67518

INVOICE NO. 34931

RECEIVED Feb. 14/80

ANALYSED Feb. 26/80

TO: Rio Tinto Canadian Exploration Ltd.
520 - 800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN: G. D. Hodgson

SAMPLE NO. :	% Pb
302384	1.92
302385	60.1

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B. E. Swaile

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TELEX: 04-352597

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 52140

INVOICE NO. 34935

RECEIVED Feb. 20/80

ANALYSED Feb. 27/80

TO: Rio Tinto Canadian Exploration Ltd.
520 - 800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN: G. D. Hodgson

SAMPLE NO. :	PPM Cd	From Spec. A524, Also on #67518.
302385	65	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hans Bidlo

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CERTIFICATE OF ASSAY

CERTIFICATE NO. 68876

INVOICE NO. 37037

RECEIVED July 6/80

ANALYSED July 18/80

TO: Rio Tinto
520-800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN:

c.c. G.D. Hodgson, c/o Riocanex

SAMPLE NO. :	% Pb	% Zn	oz/ton Ag
D-401	<0.01	0.07	0.01
402	<0.01	0.03	<0.01
403	<0.01	0.04	0.02
404	<0.01	0.08	0.01
405	<0.01	0.02	<0.01
406	<0.01	0.01	<0.01
407	<0.01	0.02	0.03
408	<0.01	0.03	0.01
409	<0.01	0.04	0.02
410	<0.01	0.07	0.01
411	<0.01	0.01	<0.01
412	<0.01	0.14	0.01
413	<0.01	0.05	0.01
414	<0.01	0.07	<0.01
415	<0.01	0.09	<0.01
416	<0.01	0.07	0.02
417	<0.01	0.05	0.01
418	<0.01	0.05	<0.01
419	<0.01	0.08	0.02
420	<0.01	0.04	0.02
421	<0.01	0.07	0.01
422	<0.01	0.05	0.01
423	<0.01	0.02	0.02
424	<0.01	0.20	0.01
425	<0.01	0.09	<0.01
426	<0.01	<0.01	<0.01
751	<0.01	0.03	<0.01
752	<0.01	0.05	<0.01
753	<0.01	0.02	0.02
754	<0.01	0.05	0.03
755	<0.01	0.05	0.03
756	<0.01	0.01	0.02
757	<0.01	0.02	0.04
758	<0.01	0.05	0.06
759	<0.01	0.08	0.03
760	<0.01	0.01	0.04
761	<0.01	0.02	0.01
762	<0.01	0.05	0.04
763	<0.01	0.05	0.03
D-764	<0.01	0.04	0.01

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TELEX. 043-52597

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CERTIFICATE OF ASSAY

CERTIFICATE NO. 68877

INVOICE NO. 37037

RECEIVED July 6/80

ANALYSED July 18/80

TO: Rio Tinto
520-800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN:

c.c. G.D. Hodgson c/o Riocanex

SAMPLE NO. :	% Pb	% Zn	oz/ton Ag
D-765	<0.01	0.05	0.02
766	<0.01	0.02	<0.01
767	<0.01	0.02	<0.01
768	<0.01	0.07	<0.01
769	<0.01	0.06	0.01
770	<0.01	0.15	<0.01
771	<0.01	0.04	0.01
772	<0.01	0.04	<0.01
773	<0.01	0.04	0.01
774	<0.01	0.07	<0.01
D-775	<0.01	0.03	0.01

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NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 69289

INVOICE NO. 37590

RECEIVED July 24, 1980

ANALYSED August 6, 1980

TO: Riocanex Ltd.,
Ste. 520 - 800 W. Pender St.,
Vancouver, B.C.
V6C 2V6

c.c.- G. D. Hodgson
Mackenzie, B.C.

ATTN: S. Edwards Project Pie Acct. No. 8654 G. Hodgson

SAMPLE NO. :	% Pb	% Zn	oz/ton Ag
D-427	<0.01	0.01	<0.01
428	<0.01	0.04	<0.01
429	<0.01	0.04	<0.01
430	<0.01	0.01	<0.01
431	<0.01	0.02	<0.01
432	<0.01	0.01	<0.01
433	<0.01	0.03	0.01
434	<0.01	0.09	<0.01
435	<0.01	0.05	0.01
436	<0.01	0.06	0.02
437	<0.01	0.07	0.04
438	<0.01	0.03	0.04
439	<0.01	0.16	0.03
440	<0.01	0.07	0.02
441	<0.01	0.07	0.01
442	<0.01	0.40	0.01
443	0.01	0.40	0.03
444	0.01	0.41	0.04
445	<0.01	0.24	0.06
446	<0.01	<0.01	0.07
447	<0.01	0.01	0.07
448	<0.01	0.01	0.04
449	<0.01	0.06	<0.01
450	<0.01	0.16	0.01
451	<0.01	0.01	<0.01
452	<0.01	0.01	<0.01
453	<0.01	<0.01	<0.01
454	<0.01	0.03	<0.01
455	<0.01	0.06	<0.01
456	<0.01	0.03	0.01
457	<0.01	0.07	<0.01
458	<0.01	0.04	<0.01
459	<0.01	0.04	<0.01
460	<0.01	0.03	<0.01
461	<0.01	0.04	<0.01
462 + 463 (mixed)	<0.01	0.02	<0.01
464	<0.01	0.11	0.01
465	<0.01	0.11	0.01
)-466	<0.01	0.10	0.01

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

CHEMEX LABS LTD.

12 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 69290

INVOICE NO. 37590

RECEIVED July 24, 1980

ANALYSED August 6, 1980

TO: Riocanex Ltd.,
Ste. 520 - 800 W. Pender St., c.c.- G. D. Hodgson
Vancouver, B.C. Mackenzie, B.C.
V6C 2V6

ATTN: S. Edwards Project Pie Acct. No. 8654

SAMPLE NO. :	% Pb	% Zn	oz/ton Ag
D-467	<0.01	0.17	0.03
468	<0.01	0.08	0.04
469	<0.01	2.53	<0.01
470	<0.01	4.70	0.03
471	<0.01	1.15	0.01
472	<0.01	0.09	0.02
473	<0.01	0.08	<0.01
474	<0.01	0.03	<0.01
475	<0.01	0.01	<0.01
501	<0.01	0.02	0.01
502	<0.01	0.03	<0.01
503	<0.01	0.09	0.02
504	<0.01	0.04	0.02
505 + 506 (mixed)	<0.01	0.03	0.04
507	<0.01	0.08	0.09
508	<0.01	0.06	0.04
509	<0.01	0.21	0.04
D-510	<0.01	0.08	0.01

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH

CHEMEX LABS LTD.

..12 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55494

INVOICE NO. 38074

RECEIVED Aug. 11/80

ANALYSED Aug. 21/80

TO: Rio Tinto
Ste. 520 - 800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN: S. Edwards

Project Pie, Account No. 8654
CC: G.D. Hodgson ROCKS

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
D 512	1	620	1.0
513	1	600	1.0
515	1	126	0.8
516	1	148	1.2
517	1	310	0.8
518	1	186	0.6
519	1	240	1.0
520	1	270	0.8
521	1	275	1.0
522	1	230	0.4
523	1	260	0.6
511	1	310	0.4
524	1	360	0.2
525	1	225	0.2
476	1	865	0.2
477	1	500	0.1
478	1	590	1.4
479	1	465	0.8
480	1	1300	0.6
481	1	1250	0.1
482	1	1950	1.0
483	1	650	0.4
484	1	445	0.1
485	1	70	0.1
486	2	720	0.4
487	1	505	0.4
488	1	110	0.4
489	14	200	0.6
490	2	105	0.2
491	1	630	0.4
492	1	300	0.8
D 493	6	65	1.4

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

CHEMEX LABS LTD.

2 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55495
INVOICE NO. 38075
RECEIVED Aug. 11/80
ANALYSED Aug. 21/80

TO: Rio Tinto
Ste. 520 - 800 W. Pender St.
Vancouver, B.C.
V6C 2V6

ATTN: Project Sikanni CC: Mackenzie, B.C. ROCKS

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Ag
8001066	1	20	0.1
8001067	1	14	0.1
8001068	1	16	0.1
8001069	1	10	0.1
8001070	1	28	0.1
8001071	1	300	0.1
8001072	1	16	0.1

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Stan Sidler

APPENDIX III

COST STATEMENT

Costs Statement

B.C. PIE CLAIMS

Geochemistry, Geology, Drilling, Prospecting & Staking

18th April - Through 1 August, 1980

General Costs

Food and Accommodation		
15 Men; 19 Apr - 1 Aug, 316 Man Days @ $18.51		$ 5,850
Supplies		16,799
Fuel (Camp, Helicopter)		10,530
Rental Equipment		
Sunrise Rentals, 4000W Pincor Gen, 17 May-1 Aug, @ $265/Month	$ 512	
Traeger, 6 Hand Portable radios, 23 Days @ $18	410	
MacKenzie Building Materials, Water Pump, 28 May - 27 June	156	1,078
Fixed Wing		
Universal Travel, 7 Rtns, 1 Oneway, Van-Pg @ $148	$ 1,191	
Northern Thunderbird, 6 Apr-1 Aug, Cessna, Bee chcraft, Otter, 8501 mi @ 1.90 mi	16,152	17,343
Helicopter		
Northern Mt. 206B, 18 Apr- 1 Aug, 141 Hrs @ $305	42,982	
Maple Leaf, GNMJ, 6-14 Jun, 7 Hrs @ $850/Hr	5,986	48,968
Tent Repair Supplies (Deakin Equipment)		449
Report Preparation		2,821
TOTAL GENERAL COSTS		$103,838

DRILLING COSTS

Salary & Wages		
15 Men, 18 Apr- 1 Aug, 153 Man Days @ $50		$ 7,650
Benefits @ 20%		1,530
Riocanex Equipment 153 Man Days @ $3		459
Fixed Wing		
Norcrown (La Sarre Air), Caribou, 2120 mi @ $4/mi		8,477
Helicopter		
Frontier, 205, 25-26 May, 17.3 Hrs.	$ 14,399	
Shirley, C-GSHB, 21 Jun-11 Jul, 25.2 Hrs	16,410	30,809
Diamond Drilling		
CM Driling, 20 May-11 Jul, 1248.12 m @ $91,32		113,981
Core Assays		
Chemex Lab, 141 For Pb, Zn, Ag @ $17		2,397
General Costs		
$103,838 X 153/316		50,276
TOTAL DIAMOND DRILLING		$215,579

GEOCHEMISTRY COSTS

Salary & Wages		
15 Men, 31 Man Days @ $50		$ 1,550
Benefits @ 20%		310
Riocanex Equipment 31 Man Days @ $3		93
Riocanex Lab Analysis		
120 Soils for Cu, Fe, Mn, Zn, Bn, F @ $5.20	$ 624	
120 Soils for As, Fe, Mn, V @ $3.45	414	
17 Silts for Cu, Pb, Zn @ $3.35	57	1,095
General Costs		
$103,838 X 31/316		10,187
TOTAL GEOCHEMISTRY		13,235

GEOLOGY COSTS

Salary & Wages	
15 Men, 75 Man Days @ $50	$ 3,750
Benefits @ 20%	750
Riocanex Equipment 75 Man Days @ $3	225
General Costs	
$103,838 X 75/316	24,370
TOTAL GEOLOGY COSTS	$ 29,370

TRENCHING COSTS

Salaries & Wages	
15 Men, 40 Man Days @ $50	2,000
Benefits @ 20%	400
Riocanex Equipment 40 Man Days @ $3	120
General Costs	
$103,838 X 40/316	13,144
TOTAL TRENCHING COSTS	$15,664

STAKING COSTS

Salaries & Wages	
15 Men, 17 Man Days @ $50	$ 850
Benefits @ 20%	170
Riocanex Equipment 17 Man Days @ $3	51
General Costs	5,586
TOTAL STAKING COSTS	$ 6,657

COSTS APPORTIONED
TO CLAIMS

CLAIM	UNITS	GEOCHEM	GEOLOGY	TRENCHING	DRILLING	STAKING	TOTAL
Pie 1	18	$ -	$ 2,122	$ 15,664	$134,695	$ -	$152,481
Pie 2	18	-	2,122	-	-	-	2,122
Pie 3	6	-	708	-	80,884	-	81,592
Pie 4	8	-	944	-	-	-	944
Pie 5	20	-	2,359	-	-	-	2,359
Pie 6	12	-	1,415	-	-	-	1,415
Pie 7	12	-	1,415	-	-	-	1,415
Pie 8	8	-	944	-	-	-	944
Pie 9	15	-	1,769	-	-	-	1,769
Pie 10	6	-	708	-	-	-	708
Pie 11	6	1,017	708	-	-	-	1,725
Pie 12	6	1,018	708	-	-	-	1,726
Pie 13	6	1,018	708	-	-	-	1,726
Pie 14	20	3,394	2,359	-	-	-	5,753
Pie 15	20	3,394	2,359	-	-	-	5,753
Pie 16	20	3,394	2,359	-	-	-	5,753
Pie 17	4	-	472	-	-	-	472
Pie 18	20	-	2,359	-	-	-	2,359
Pie 19 Fr	1	-	118	-	-	-	118
Pie 20	3	-	355	-	-	-	355
Pie 21	3	-	355	-	-	-	355
Pie 22	5	-	590	-	-	-	590
Pie 25	6	-	708	-	-	3,328	4,036
Pie 26	6	-	708	-	-	3,329	4,037
	249	$13,235	$ 29,372	$15,664	$215,579	$6,657	$280,507

COSTS STATEMENT
B.C. PIE CLAIMS
GEOLOGY AND GEOPHYSICS
2 AUGUST - 30 SEPTEMBER 1980

GENERAL COSTS

Food & Accomodation 7 Men, 48 Man Days @ $28		$ 1,344
Riocanex Equipment 48 Man Days @ $3		144
Supplies		1,622
Fuel		37
Rental Equipment		
Sunrise Rentals, 4000W Pincor Gen., 15 Days @ $8.83	$132	
Traeger, 6 Hand Portable Radios, 15 Days @ $18	270	402
Fixed Wing		
Northern Thunderbird Air, Cessna, 8 Aug 270 mi @ $1.30	351.00	
Universal Travel, 28 Aug, 7 PG-Van @ $87	612.00	963
Helicopter		
Northern Mountain, 206B, 4-25 Aug, 10.2 hrs @ $305		3,111
TOTAL GENERAL COSTS		$7,623

GEOLOGY COSTS

Salaries & Wages	
4 Men, 25 Man Days @ $50	$1,250
Benefits @ 20%	250

...../2

Report Preparation		600
General Costs		
25/48 X $7,623		3,970
TOTAL GEOLOGY COSTS		$6,070

GEOPHYSICS COSTS

Salaries & Wages		
3 Men, 23 Man Days @ $50		$1,150
Benefits @ 20%		230
Rental Equipment		
Riocanex MaxMin II, 4 Days @ $12	$ 48	
Geonics VLF EM-16, 6 Days @ $3.30	20	
Dare Contractors Motorolla Walkie-Talkies 4 Days @	12	80
Report Preparation		720
General Costs		
23/48 X $7,623		3,653
TOTAL GEOPHYSIC COSTS		$5,833

...../3

COSTS APPORTIONED

TO CLAIMS

CLAIM	UNITS	GEOLOGY	GEOPHYSICS	TOTAL
PIE 1	18	$ 439	$ 4,375	$4,814
PIE 2	18	439	-	439
PIE 3	6	146	1,458	1,604
PIE 4	8	195	-	195
PIE 5	20	488	-	488
PIE 6	12	293	-	293
PIE 7	12	293	-	293
PIE 8	8	195	-	195
PIE 9	15	366	-	366
PIE 10	6	146	-	146
PIE 11	6	146	-	146
PIE 12	6	146	-	146
PIE 13	6	146	-	146
PIE 14	20	488	-	488
PIE 15	20	488	-	488
PIE 16	20	488	-	488
PIE 17	4	98	-	98
PIE 18	20	488	-	488
PIE 19 FR	1	24	-	24
PIE 20	3	72	-	72
PIE 21	3	72	-	72
PIE 22	5	122	-	122
PIE 25	6	146	-	146
PIE 26	6	146	-	146
	249	$6,070	$ 5,833	$11,903

APPENDIX 1V

CERTIFICATE

CERTIFICATE

I, Geoffrey David Hodgson, with business address in Vancouver, British Columbia, and residential address in North Vancouver, British Columbia, do hereby declare

1. I am a geologist employed by Rio Tinto Canadian Exploration Limited.

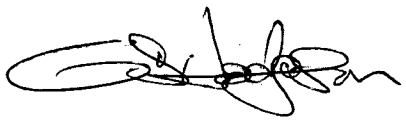
2. I graduated from Exeter University, U.K., in 1972 with a BSc (Hons.) degree in geology.

3. I graduated from the University of Alberta in 1976 with an MSc degree in geology.

4. I am a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

5. From 1970 to 1980 I have been employed on both a temporary and full-time basis by the Geological Survey of Greenland, Research Council of Alberta, University of Alberta, Cominco Ltd., and Riocanex Ltd.

Respectfully submitted,



G.D. Hodgson

CERTIFICATE

I, John Francis Hugh Thompson, with business address in Toronto, Ontario and residential address in Toronto, Ontario, do hereby declare,

1. I am a geologist temporarily employed by Rio Tinto Canadian Exploration Limited.

2. I graduated from Oxford University, U.K., in 1976 with a B.A. (Hons) degree in geology.

3. I graduated from the University of Toronto in 1978 with an M.Sc. degree.

4. I am currently working on a PhD degree at the University of Toronto.

5. From 1976 to 1980 I have been employed on a temporary basis by A/S Sulfidmalm , Norway, University of Toronto, Campbell Red Lake Mines Ltd., and Riocanex Ltd.

Respectfully submitted,

J. F. H. Thompson

- L E G E N D -

DEVONIAN
- 3w Wrangell sandstones and conglomerates
- 3g Gunsteel siliceous shales and chert
- 3z Active Zone pyritic shales
- 3a Axis hematitic, silty shales
- 3k Kwadacha Limestone with abundant fossil fragments

BESA RIVER GROUP

SILURIAN
- 2m Muskwa dolomitic siltstones
- 2n Nep Limestones and chert

ORDOVICIAN
- 2r Road River graptolitic shales
- 2d Del Creek siltstones with hematite laminae

ROAD RIVER GROUP

ORDOVICIAN — Ik Kechika talcy shales with limestone pods

ORDOVICIAN
- B Dolerite Sill
- A Agglomerate

Strike direction and dip magnitude
Cleavage strike and dip magnitude
Strike direction and dip magnitude of overturned beds
Thrust fault
Fault - downthrown side indicated
Anticlinal axis, overturned anticlinal axis
Synclinal axis

200 100 0 200 400 600 800 Metres

SCALE 1:10,000

N.T.S. 94F/ NE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

RIO TINTO CANADIAN EXPLORATION LTD.

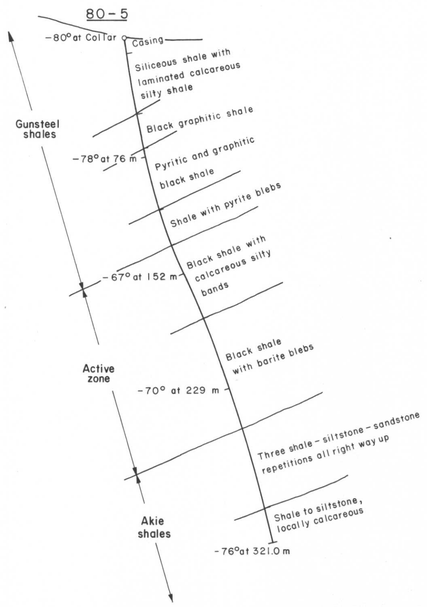
PIE CLAIMS

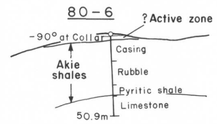
GEOLOGY

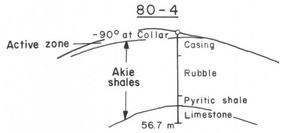
DATE: AUG. 80 | DRAWN BY: J.T. / dg | DWG: G 8781

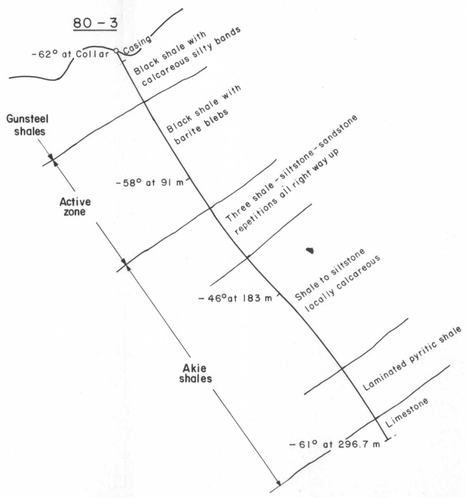
– DRILL HOLE LOCATIONS –
SCALE 1:10,000

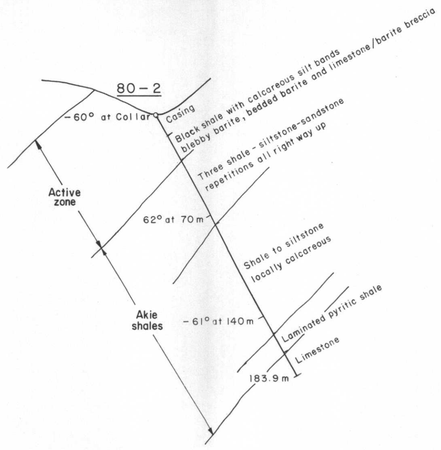
NOTE See DWG. G-8781 for legend

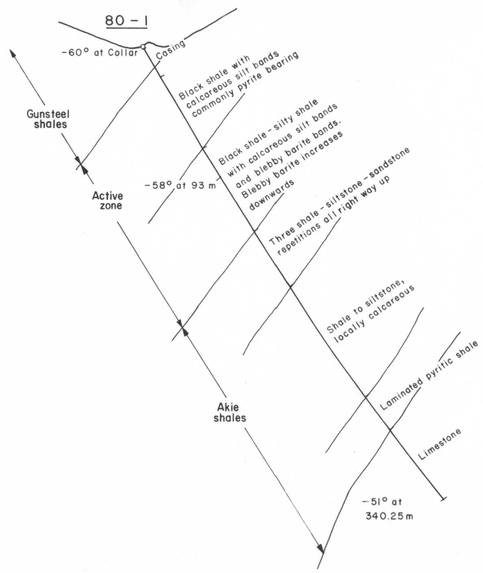












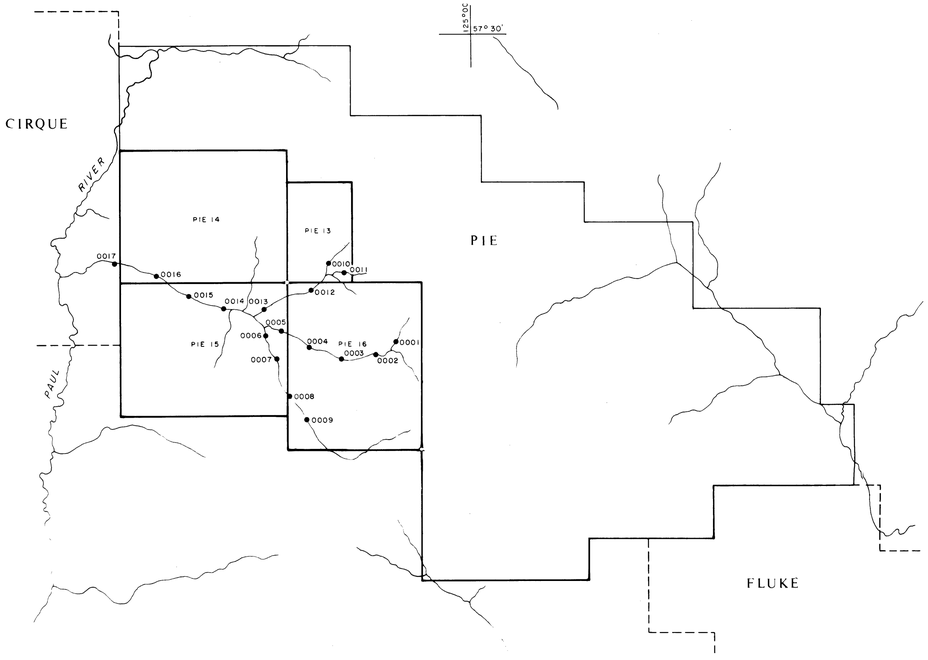
NTS 94F 6,7
SCALE 1:2000
50 0 50 100 150 Metres

RIO TINTO CANADIAN EXPLORATION LTD.

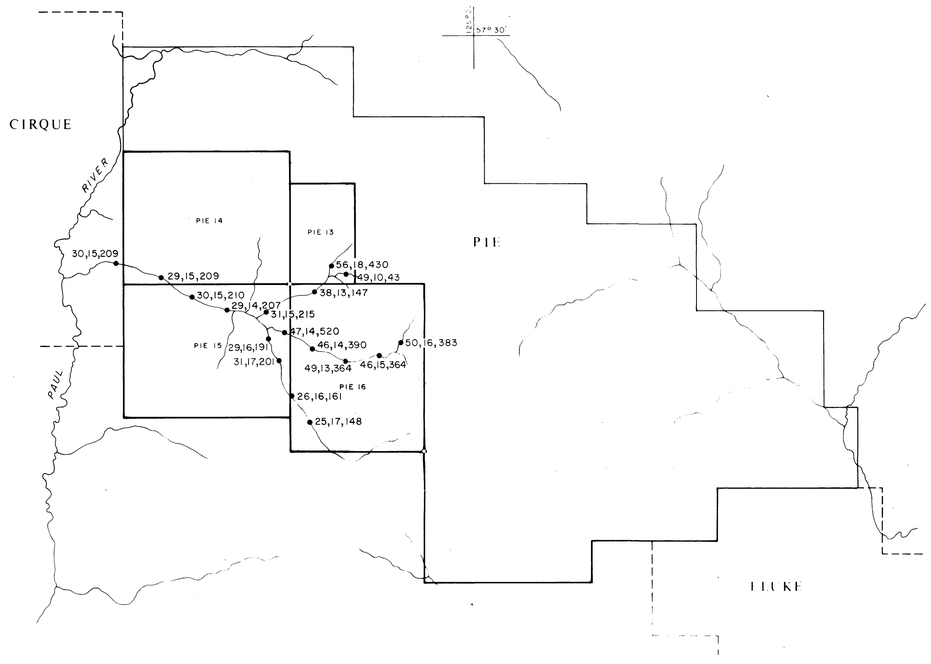
PIE CLAIMS

DRILL HOLE LOCATIONS & PROFILES

DATE	DRAWN BY	DWG.
OCT. 80	GH/dg	D 7566



SILT SAMPLE LOCATIONS



Cu, Pb, Zn ppm

LEGEND

25 , 17 , 148
Cu , Pb , Zn ppm

N.T.S. 94F 6,7

SCALE 1:50,000

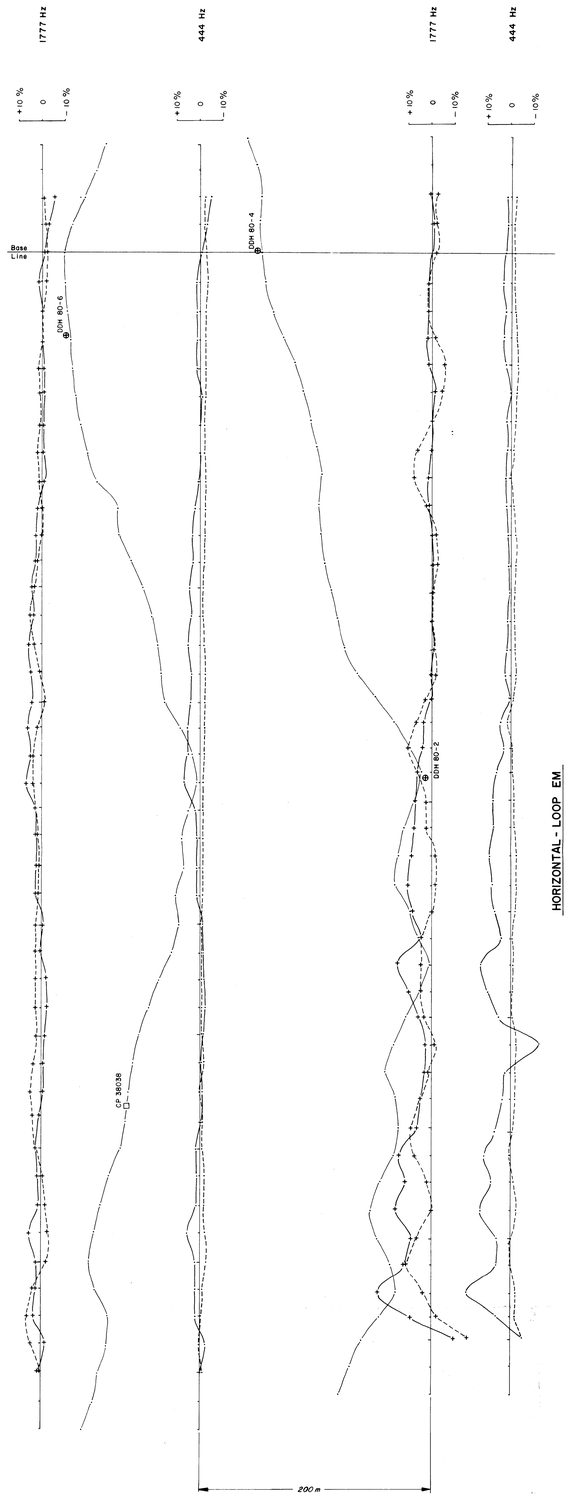
1000 500 0 1000 2000 3000 4000 Metres

RIO TINTO CANADIAN EXPLORATION LTD.

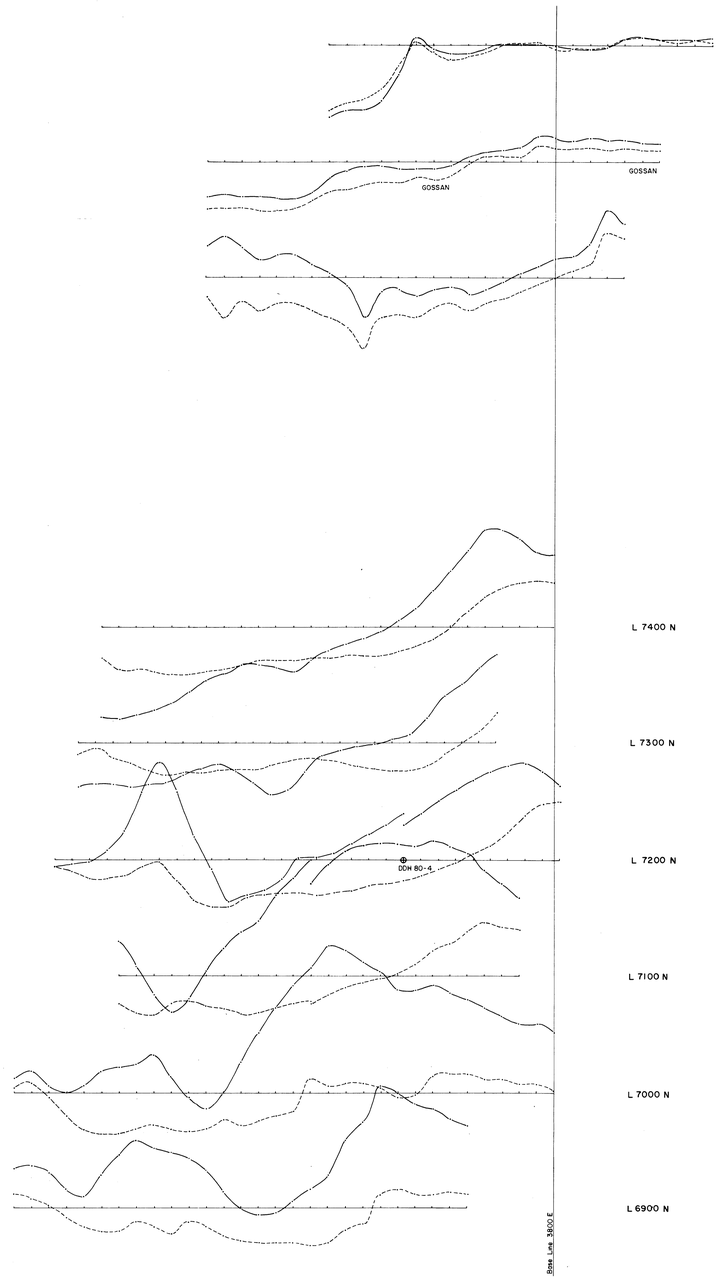
PIE CLAIMS

SILT SAMPLE LOCATIONS
Cu, Pb, Zn ppm

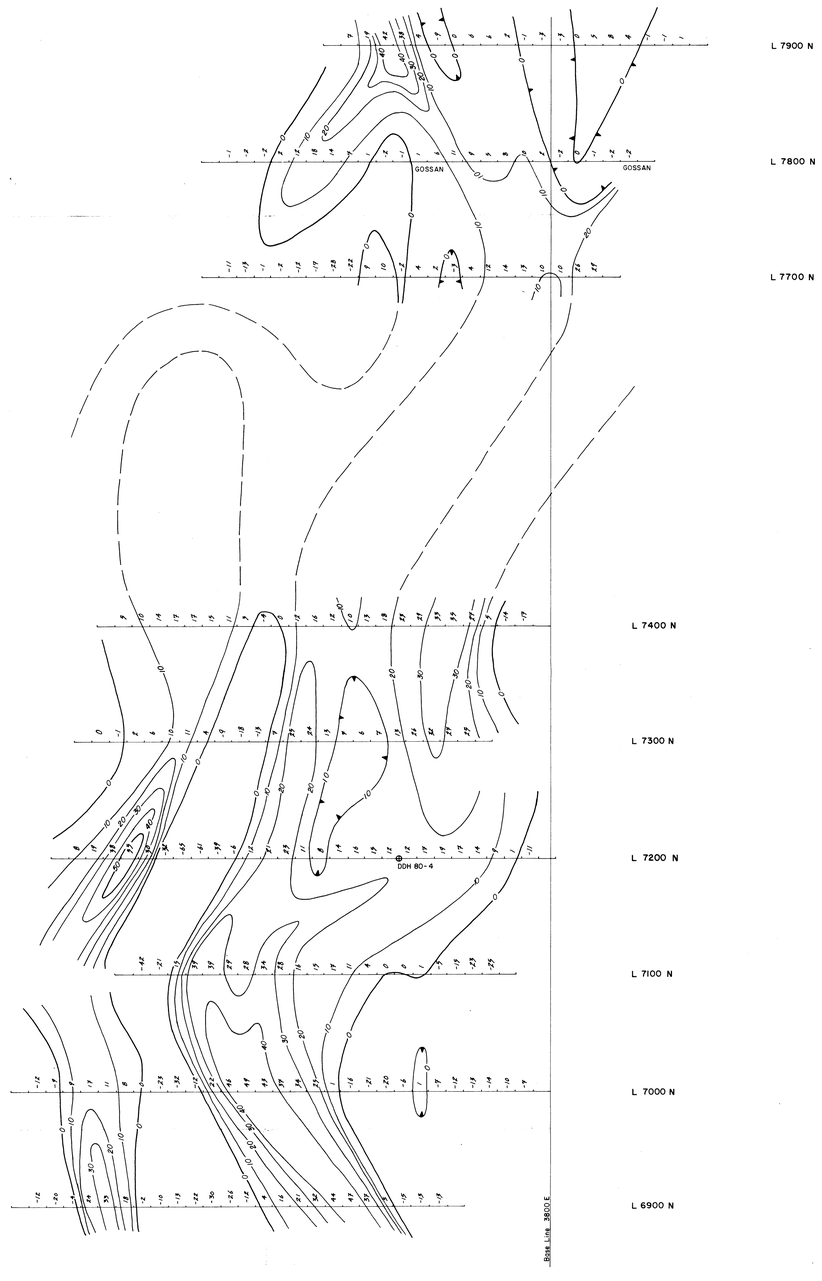
DATE	DRAWN BY	DWG.
AUG. 80	G.H./dag	GC 7564



HORIZONTAL - LOOP EM



VLF - EM
PROFILES



VLF - EM
FRASER FILTER DATA

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 8647

LEGEND

HLEM Survey : MaxMin II
Coil Separation... 100 metres
Vertical Scale 1cm : 10 %
444 Hz : ------ In - Phase ; ——— · Quadrature
1777 Hz : +----+ In - Phase ; +——+ Quadrature

LEGEND

VLF - EM Survey Conducted Via Transmission from Seattle NLK, 18.6 kHz
Positive Angles (%) Denote West Dip
Negative Angles (%) Denote East Dip
Data Filtered Using Standard Fraser Filter: $F_{2,3} = (\theta_3 + \theta_4) - (\theta_1 + \theta_2)$
Vertical Scale 1cm = 10%
Contour Interval 10%

NLK
187° @ 18°
1024 KM

N.T.S. 94F/6,7

SCALE 1:2000
5 0 50 100 150 Metres

RIO TINTO CANADIAN EXPLORATION LTD.

PIE CLAIMS

GEOPHYSICS

DATE	DRAWN BY	DWG.
OCT. 1980	CJC / s.g	GP-8790